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## Building an Understanding of How to Integrate Interactive Technology into Science Learning through Small-group Lesson Study

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Prospective physics teachers must have pedagogical skill to carry out learning. authentic microteaching can improve their pedagogy abilities. authentic microteaching in my study is called Teaching Practice Learning (PPL) on real situation (i.e. Teaching in school for 3 months). However, few studies stated prospective teachers yet be able to solve real problem (i.e Teacher cannot make their pupils did active learning in their lesson). Lesson Study activities have common been done to solve learning problem collaboratively. Thus, PPL based on Lesson Study is expected able to improve pedagogical skills. This research was aimed to know effectiveness of PPL based on Lesson Study to pedagogical skills.

Synthesizing learning design instruments were used to identify lesson plan who was made by student. Analysing every activity of lesson study phase who is carried out by student, were used to measure teaching skills of student which implement their lesson plan. Final exam of student who took PPL's course were used to measure mastering of pedagogical skills.

Finding of data analysis were described that PPL activities could improve pedagogical skill. Moreover, PPL based on Lesson Study could develop student ability in teaching and learning, such as design of lesson plan, learning process, and assessment of learning outcome.

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## The Relationship Between How Teachers' Directions are Uttered and What They Aim to Achieve: Discourse Analysis in a First-grade Classroom

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### Research question

A 'teacher's directions' help students move from one activity to another, thereby structuring a lesson. The issue of how a teacher gives instructions is treated as common knowledge and, as a consequence, is rarely studied. However, this issue is far from simple as teachers must improvise when giving directions while reacting to a diverse class.

I defined a teacher's directions as utterances that provoke a change in student behavior. In ordinary classes, this refers to remarks concerning the next activity in which the students are to engage and to the marker-words that accompany these remarks.

In this study, two aspects of classroom discourse were examined: the purpose of the teacher's directions and how the expressions or words used in the directions are viewed. The purpose of this study, therefore, was to clarify the relationship between the teacher's role in moving the lesson forward and the words used to make this happen. I argue that the words used to give directions are often woven into the particular situation.

### Objective and Procedure

The study focused on classroom discourse in one classroom with 34 first-graders taught by a female teacher. The teacher had 25 years of experience in elementary school education. The teacher herself, the students' parents, and the school principal agreed to participate in this study, which was based on four Japanese lessons (the students' mother tongue) that occurred in January.

In analyzing classroom discourse, I was able to confirm that the teacher's directions were used to achieve three different results: 1) to bring an activity to a close, 2) to initiate the next activity, and 3) to provide instructions in preparation for the next activity. The teacher's directions were analyzed in terms of style (how polite the direction was) and in terms of the interjections (exclamations) used, such as 'Wow!' or 'well...'

### Results and Discussion

The analysis showed that three types of directions were used to achieve different results.

First, directions that aimed to bring the previous activity to a close were often introduced by an interjection: 'DEWA' ('then', 'JAH' ('then' in a more forthright manner), 'SAH' ('here' or 'now', and 'HAI' ('yes' were the most common interjections. Of the 26 directions given to bring an activity to a close, 16 began with one of these interjections (61.5%).

Second, directions that aimed at initiating a new activity tended to use marker-words in closing. The most common interjections were 'DOUZO' ('please' in an insistent manner) and 'ONEGAI SHIMASU' (a more formal 'please' . Only 9 of the 28 directions intended to initiate a new activity included these

interjections (32.1%); however, 69.2% of the directions that used these interjections were designed to initiate a new activity.

Third, directions aimed at preparing the next activity or providing instructions for that activity were uttered in a particular style. The style used was generally the present tense, a conclusive form, with no subject (I-conclusive style, I named). In English, this style of utterance is called the imperative form, but in Japanese it is not. The omitted subject appeared to refer to the 'students' in this particular situation, although it is usually supposed to refer to 'I' in Japanese daily conversation.

In total, 13 of the 22 directions of this type (59%) and of the 24 directions intended to prepare the next activity or give instructions (54%) used the I-conclusive style.

In conclusion, the teacher achieved her purpose of encouraging her students to engage in the various activities through her use of certain expressions when giving directions.

## Primary Mathematics Teacher's Problems in the Process of Pedagogical Reasoning

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The fact that teachers are the most important educational environment surrounding students is beyond dispute. Considering a classroom situation, a teacher's role is not to provide knowledge on a written curriculum like a conveyor, but to transform the intended curriculum into a practical one, and make it enact in order to increase students' understanding. This study focuses on a process of pedagogical reasoning based on the Shulman's model (Shulman, 1987). The purposes of this study are to identify teacher's problems in that process, and to explore how to support teachers' activities in the process of transformation and assessment.

One mathematics teacher teaching grade six was observed in Metro Manila in the Philippines. The surveys were conducted twice; (1) the questionnaires and interviews conducted before and after the observation of the lesson, and (2) an intervention of designing the consecutive lessons teaching solid figures.

In the first survey, in order to focus on teacher's activities, we divided the implemented curriculum into four parts which are teacher-intended curriculum such as lesson plans, enacted the curriculum such as actual lessons, tested curriculum given by the teacher at the end of the lesson, and teacher recognized-attained curriculum. The results compared with the objectives, learning contents, and way of teaching in each part, it is showed that some gaps existed among the teacher-intended curriculum and the enacted curriculum, teacher expected curriculum and the attained curriculum. For example, in the process of evaluation, it was described as a misalignment with what the teacher intended to teach, what the students learned from the teacher recognized, and what the students had actually learned.

In the second survey, the researcher plays a role of a mentor. The teacher's problems identified in the first survey were a lack of deep understanding of the objectives in teachers' guide from the viewpoint of the learning sequence, and a lack of grasping students' understanding. In order to solve these problems, the teacher was required to brake the objectives down and design the lessons of teaching solid figures, and work with the researcher on making teaching materials. We described her pedagogical reasoning process using the questionnaires and interviews. The analysis of those data was shown that one of the effective supports is doing the same activities as students' activities if the teachers do not have enough specialize content knowledge (Ball et. al., 2008).

### Reference

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