

Reflection on My Student Teaching

July 3, 2007

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1. Overview of the Student Teaching

(1) Student teaching period:

June 5, 2006 (Monday) to June 23, 2006 (Friday)

(2) Name of the school and participating grade level:

University of Yamanashi, Department of Education and Humanities,
Attached Junior High School
Grade 7, Class number 1, 2, and 3

(3) Instructional content and number of periods taught

< Content taught >

Chapter 1: Positive and negative numbers

Part 3: Multiplication and division

(4) Using positive and negative numbers

Chapter 2: Expressions and letter symbols

Part 1: Expression and use of letter symbols

(1) Use of letter symbols

(2) How to write expressions using letter symbols

Part 2: Calculations of expressions with letter symbols

(1) Calculations of linear expressions

< Total number of periods assigned to teach >

19 periods (1 period is 45 minutes)

(4) About the Research Lesson

My research lesson was the 2nd lesson from “Calculations of linear expressions” in Part 2 of Chapter 2. One of the goals of my research lesson during my student teaching was to help the students to understand that various quantitative relationships can be represented generally using expressions with letter symbols. Many different solution ideas can be represented with different expressions with letter symbols.

By manipulating mathematics expressions algebraically we can represent a variety of thinking approaches using the same mathematical expression.

We want students to experience this merit of algebraic manipulation.

In order to achieve this goal, I chose an activity in which students build squares systematically using matchsticks. First I presented a diagram for building 3 squares to the students. Then, I provided a problem to the students: “If we build 5 squares following the sequence for building the

squares, how many matchsticks will we need to use?” When the students solved the problem on their own, I asked them to solve it in multiple ways. Then I asked 5 students to present different ideas to solve this problem and represent their ideas using expressions. Next, I asked the whole class to think about how each of these solutions approached finding the total number of matchsticks and engaged them in a comparison and discussion of the presented ideas. To do this, I asked them to focus on the number 5 that represented the number of squares and then manipulate the expressions using (or focusing on) the 5. I also asked them to interpret the expressions. Then, I asked the students to think about the total number of matchsticks needed to build 20 squares and to think about the solution by using all 5 different ideas presented in the case of 5 squares. By comparing the expressions from the cases of 5 and 20 squares, I asked the students to think about what part of the expressions changed and what part of the expressions remained the same. Lastly, I asked the students to think about expressions for the case of x number of squares for each of the 5 different solutions. This is as far as I went in my research lesson during my student teaching.

In the next lesson, the students formally manipulated the 5 different expressions that came up during the research lesson by using x and confirmed that all the expressions can be generalized into the same expression.

2. Looking back my student teaching experiences

First of all, the most difficult and troubling part of my student teaching was instruction on the “*neriage*” part of the lessons.¹ I tried to teach 4 lessons that incorporated a problem-solving instructional approach that follows the format of posing a problem, students solving the problem on their own, and *neriage*. I thought that *neriage* part of the lesson is very difficult to conduct, however, because good *neriage* requires teacher skills such as being able to quickly determine what solution ideas students are using, being able to categorize and organize solutions, and carrying out the lesson using them. During my student teaching, I was assigned to teach three 7th grade classes, so I taught the exact same three lessons each day. Although I had 3 chances to teach the same lesson, I still wasn’t able to do well in the *neriage* part of the lesson. I made mistakes by misinterpreting students’ ideas because I wanted the lesson to move forward and flow smoothly. Also I wasn’t able to bring out students ideas and voices enough during the *neriage* process. Through these experiences, however, I realized how important *neriage* processes are for the problem-solving instructional approach.

Secondly, during the period of student teaching, I had several opportunities to observe lessons taught by my instructional advisor.² My instructional advisor

¹ “*Neriage*” --- The literal translation of the word is something like “kneading and bringing up.” It means to polish or work out different ideas presented by students by contrasting and discussing them and thus helping to bring up their level of understanding.

² Instructional advisors at the attached university school are classroom teachers. An instructional advisor is usually asked to have several student teachers all at once.

often talked about stories related to content during lessons. Through these observations, I learned that instead of teaching the lesson at an even pace, by varying the pace of the lesson and sharing stories related to the content and students' everyday lives, students' are able to concentrate on learning for a longer time. In order to do this well, I think I need to think about stories that relate to the content when I engage in *kyozaikenkyu* (instructional material investigation). In addition, I also think that I need to be more conscientious about relating lessons to students' everyday lives. I think that this has become a major point of instructional improvement for me since my student teaching experience.

Lastly, I realized how difficult it is to ask students good "*hatsumon*"³ (questions) pose tasks or problems. Differences in *hatumon* sometimes create differences in the course of the lesson. Moreover, if the teacher overextends his/her explanations or over-provides diagrams or such helps, there is a possibility that student thinking will be diminished or limited. I believe that I may not easily acquire these skills until I gain a lot of classroom teaching experience. I realize that I need to be more conscientious about how teachers ask questions and provide tasks or problems to students.

Three weeks of student teaching was short but I realized how difficult it is to plan a mathematics lesson and teach it in a classroom. At the same time, the experience helped me to clarify points for improving my instruction in the classroom.

³ "*Hatumon*" – Questions or actions that provoke students deep thinking.