

The case study of Rika class reflections by video analyses through fieldwork activities

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Abstract

In Kawane Elementary School (Kawane-cho Shimada city Shizuoka prefecture), it has been done to assess fieldwork activities in Seikatu-ka and Rika classes by video analyses for three years. From the practice of these assessments, teachers have been able to consider class managements such as class design, scenarios and timing of valuable questions, and contents of students' work sheet to approach the goal that they set. This study was practical one concerned with the fieldwork activities in Rika class learned by 6th grade students. Teachers could recognize the teaching problems coming out in the process of a Unite on Rika class, because they had two points of view on class analysis. So they could deal with various situations of class practice quickly, and the class design was reorganized effectively.

Keywords: class reflection, reorganized class design, fieldwork, 6th grade Rika

I PREVIOUS RESEARCHES AND ISSUES

In fieldwork activities of Seikatu-ka and Rika classes, it has been regarded that class assessments were apt to be unclear because students acted enthusiastically and widely in the natural environment as before. The teachers of Kawane elementary School adopted class reflections with video analyses. They aimed to make clear what students experienced and learned in the field. Besides, it was further studied through comparing their students' performance and the goals of the fieldwork activities what they set (Sakata, Takagaki and Mori, 2006). Teachers discussed deeply from the results of these class reflections and they also aimed to the improvement of their quality and skills in class managements. Two ways of analyses were used in this study, the one way was students' transactive discussion in the class (Berkowitz & Simmons, 2002, Takagaki, 2005), and the other way was categorizing and considering students' performances such as actions and words using science process skills (Sakata

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and Takagaki, 2005, 2006, 2008). It was tried to assess concerned with students' achievements and teachers' behaviors in two aspects of analyses. In this approach, it was able to check the students' learning progress with teachers' scenario, so the plan of next class could modify very quickly and adapt it for students' learning condition.

II METHOD

Unit ; Living things and Nourishment ① Leaves of Plants and Sunshine

Goals ; To recognize that Various plants make nourishment to survive and grow thick in different environments through finding plants and plankton which carry on photosynthesis at the natural pond in school garden and investigating them.

Subject ; Twenty-five 6th grade students (6-1 classroom member) in Kawane elementary school in Shizuoka prefecture.

Procedure ; (1) Four of video recording equipments were used and much visual and audio data was gathered in one hour fieldwork activity. In addition, written data about what occurred in the activity (Date; 23, May, 2006), were recorded by three observers. Then all data were categorized and analyzed on discussion of observers and teachers including four video recorders.

(2) As some points should improve were come to light from the results of this discussion, class plan and scenarios were reconstructed by teachers to practice once more.

(3) The second class of fieldwork activity was put into practiced (Date; 1, June, 2006). Besides, class reflection was done again through the same processes (Procedure (1)).

III RESULTS AND CONSIDERATIONS

i First class

- (1) The results and considerations from T.D. transactive discussion analysis
 - Many Justification of representational transaction came out because students were absorbed to find living things including plants. There was a few Operational transaction which students turned attention to the habitat of the plants, environmental situation around it, and whether the plant carried on photosynthesis.
 - At the end of the class, Operational transaction such as Extension, Elaboration and Integration were noticed to appear when students discussed why the plants needed thorns.
- (2) The results and considerations from analysis with category of science process skills
 - There were many students' performances grouped into the category of comparing. Students were going to find living things in water and something compared with the photos on the textbook.
 - The performances were grouped into the category of inferring (why it happened) and predicting (what I expect to observe in the future) were not many.

ii Frameworks of reconstructing the next class

- In the Next class, finding microbe in the water was canceled, because students were absorbed to find living things in the water including plants and plankton. In the first class, students' attentions were not apt to the goals that teachers set; To recognize that Various plants make nourishment to survive and grow thick in different environments through finding plants and plankton which carry on photosynthesis.
- The next class would practice at the fine day as not restricted students inquiries.
- The discussion why the plants needed thorns at the end of last class was presented at the first of the next class, so teacher approached students to remember that thorns protected their leaves. Moreover teacher would promote students' inquiry into plants' efficient mechanisms and systems of photosynthesis. Then, teachers would have students to notice that it was very important for plants to make nourishment by carrying on photosynthesis.
- Some students found the difference in leaf color such as deep green and light green and variously of leaf shape in the same tree in the first class, so teacher would stimulate to think their reason.

iii Second class

- (1) The results and considerations from T.D. analysis
 - Much more Operational transaction appeared in the students' discussion than the first class because they tried to clear the reason why the growth of leaf upper the tree was not the same as it lower and why the width was different leaf in the sun from it in the shadow (Table 1).
- (2) The results and considerations from analysis with category of science process skills

Table 1 Operational transaction in children's words (Second class)

Child 1	The Leaf upper the tree is bigger than lower one. [Justification]
Teacher	The growth of leaves isn't the same between upper leaf and lower one. [Juxtaposition]
Child 2	<i>Lower leaf doesn't get much sunshine</i> , so..... [Elaboration]
Child 1	<i>The hardness of leaf isn't the same</i> , either.
Teacher	You're grate.
Child 1	Leaves....., <i>the growth of leaves depends on getting sunshine</i> . [Integration]
:	
Child 3	This leaf is wider, because it wants to get more sunshine. [Justification]
Teacher	It becomes to be wider for getting more sunshine. [Juxtaposition]
Child 3	<i>Slender leaf in the shadow doesn't get much sunshine. If the leaf was wide, it would get more sunshine. This leaf can get enough sunshine even it is slender, because it is in the sun</i> . [Elaboration]
Child 4	<i>Leaves of Japanese maple in the sun are also different from in the shadow</i> . [Extension]
Child 5	They are little different:..... [Juxtaposition]
Child 4	<i>They differ in size</i> . [Extension]
Child 3	<i>The leaf in the sun is big and its' color is light. But leaf in the shadow is slender and its' color is deep</i> . [Integration]
Child 5	The stem in the sun is red, and it in the shadow is green. [Extension]
* Description in <i>Italic characters</i> show Operational transaction	

Table 2 Frequency of Category: Classifying, Inferring and Predicting

First class			Second class		
Process skills	Lower Category	Frequency	Process skills	Lower Category	Frequency
Classifying	Comparing	37	Classifying	Comparing	33
	Relating	0		Relating	19
Inferring		19	Inferring		26
Predicting		5	Predicting		6

- In the category of classifying, many performances grouped into not only comparing but also relating were appeared (Table 2). This result and its content showed that students thought and talked about plants' efficient mechanisms and systems of photosynthesis.
- The performances grouped into the category of inferring and predicting were increased, so it was recognized the goals of class got real in the second class.

VI CONCLUSION

After two ways of analyses, concerning with students' transactive discussion and categorizing and considering students' performances, it was clear that there were five outcomes and two problems in this class and class assessment.

i Outcomes

Five outcomes were as follows:

- ① It was able to assess cognitive progress of children in quantity and scientific thinking through the T.D. analysis.
- ② It was known that the way enhanced children's scientific viewing and thinking through analysis using science process skills. For example, it was made sure that teacher could adopt essential viewpoints of observation in students' worksheets.
- ③ It was an effective way of analyses that the analysis using science process skills and T.D. analysis were used the same time, and besides they functioned each property. Only using the analysis of science process skills, the process of students' performance appearing was difficult to be understood, neither the progresses of students' cognitions wouldn't be assessed.
- ④ The Class plan concerned with achievement of science process skills and children's intelligent development could be designed, because teachers had two ways of analyses.
- ⑤ Teachers were conscious of achievement of science process skills and children's intelligent development, they could support and facilitate students on the fieldwork activity.

ii Problems

Two problems were as follows:

- ① It took long time for putting in words all visual and audio data and categorizing them, so it was not able to use this way of analysis every day practices.
- ② A fully worked-out way would need in a measure of the analysis using science process skills and T.D. analysis.

Lastly, it will be necessary to study developing more easier but effective way of analysis for daily class assessments basing on the outcomes and problems of this study.

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