

Research Report

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Title of Research

Current Situations and Functions of Lesson Study Discussion in Zambia
: A Case of Secondary Schools in Solwezi District

English Summary (1 page)

The purpose of this study is to investigate the Lesson Study implementation in Republic of Zambia. Herein, focusing on a case of secondary schools, a lesson study discussion was analysed to know the features and find a way to improve it. The lesson study in Zambia was conducted by following a guideline proposed by Ministry of Education, therefore, the ways of implementation do not differ much depending on schools, unlike that of Japan.

This study revealed that an evaluation sheet which was used in the discussion had great influence on it and it worked in both positive and negative directions. The evaluation sheet provided an opportunity of speaking their ideas for all participants in the discussion, and provided thorough viewpoints for evaluating a lesson to all participants, which are viewpoints of teacher/teaching, learners, and contents/materials. However, it also led shallow discussions. Meanwhile, it was revealed that the evaluation sheet was not only the factor to decide depth in discussions. In order to aim at quality discussions, it is important to adopt it flexibly but not to be tied up by it. On the other hand, it was observed that a teacher described a particular learner concretely during discussion. This would become a turning point to develop teacher's ability of reflecting based on "understanding of learners" and would connect to quality discussion hereafter.

Japanese Summary (1 page)

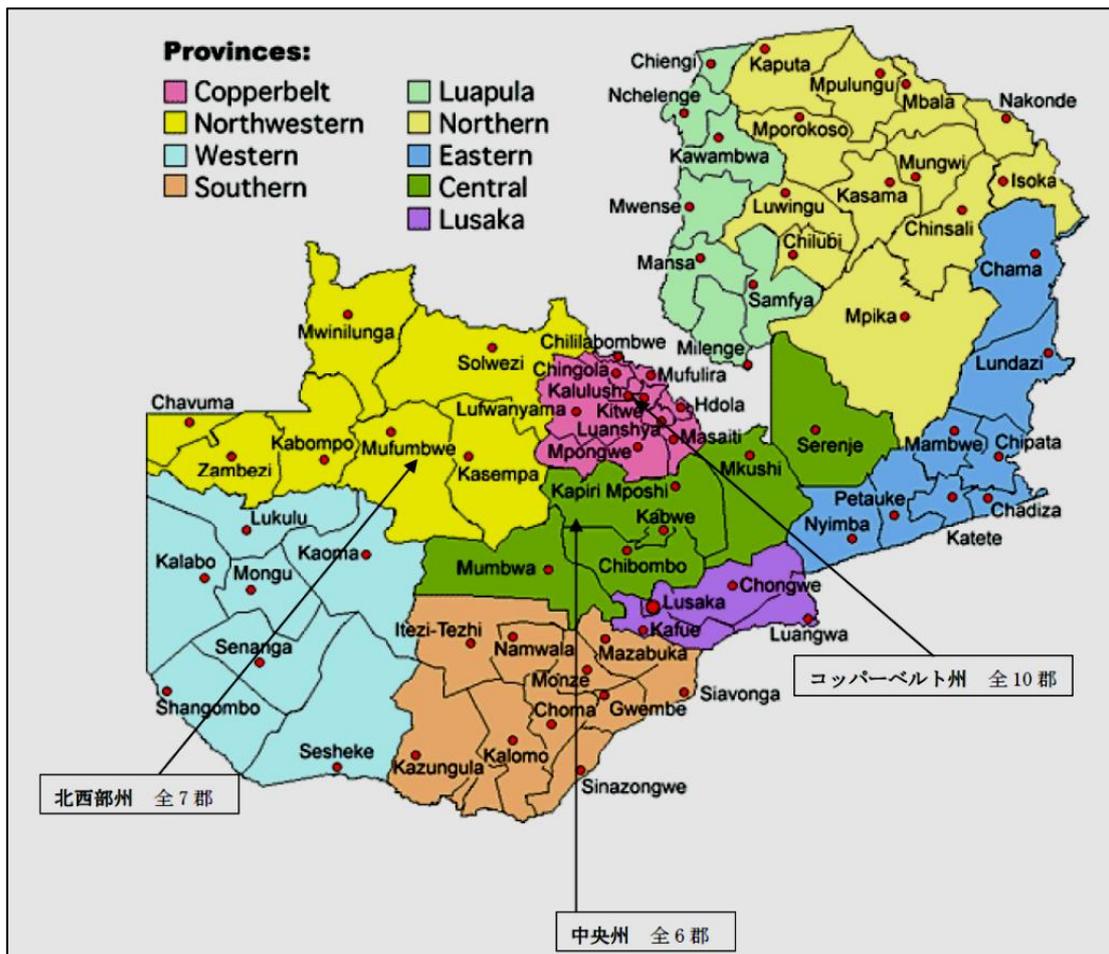
本研究はザンビア共和国における授業研究の実態を明らかにするものである。ここでは特に研究授業後の協議会に着目し、特定の事例を用いてその実態を分析した。ザンビアの授業研究は日本のそれと異なり、国家政策として導入されたため、その方法がガイドラインとして設定され普及された。ゆえに各校では型に従って実施しており、学校間での違いが日本ほど大きくない。

本研究において明らかになったことは、協議会で使用される評価シートの影響が大きいこと、またその影響はポジティブにもネガティブにも作用していることである。評価シートは、協議会参加者全員に発言の機会が与えられ、観察者全員に教師／教授に関すること、生徒に関すること、教材に関することなど、授業を見る具体的な視点を万遍なく与えるが、同時に個々の議論は深まりにくい。しかしながら、評価シートのみが議論の深度を決定付けるものではないことも明らかになった。議論の質を高めるためには評価シートに縛られず、教師がそれを臨機応変に利用する姿勢が大切である。一方で、協議会中、特定の生徒について具体的に語る場面が観察され、これは教師による学習者の理解に寄り添った省察の力量を伸ばす契機になると考える。ここに今後の協議会の質向上の鍵があると示唆された。

1. Introduction

In Zambia, Strengthening Mathematics, Science and Technology Education (SMASTE) School-Based Continuing Professional Development Project (hereinafter referred to SMASTE project) launched in 2005 as international educational cooperation by Japan. This project aimed at improving science and mathematics education, mainly through lesson study (JICA, 2010). It started in Central province of Zambia as a pilot and targeted Grades 8-12 science teachers as phase I. Owing to successful result of the project, SMASTE project phase II took over it in 2008 and expanded the target to be all grades and subject in Central province and add two more provinces, namely Copperbelt and Northwestern. When it ended in 2011, Strengthening Teachers' Performance and Skills (STEPS) through School-based Continuing Professional Development Project succeeded it to expand to all provinces and now it is going on. It was reported that more than 70% of target schools had been implementing lesson study (JICA, 2010). Meanwhile, it pointed out weaknesses in lesson study discussion. The discussion goes shallow and tends to see the lesson positively unlike recognizing weakness. It has been 4 years since it was reported, so this study tries to find out current situations of lesson study implementation, especially focusing on lesson study discussion.

Figure 1: Map of Zambia



Source: JICA (2010)

2. Study area and target

This study targeted North-western province where the lesson study was introduced in 2008 for science teachers in secondary school level. In this study, the capital of the province, namely Solwezi district, was selected and 7 lesson studies in science for grade 8 to 12 were observed in a period between 27th January and 28th February, 2014. In order to analyse deeply, herein, I'd like to focus on one case of lesson study discussion, which was a secondary school chemistry lesson for grade 12. The group of discussion was formed by 5 teachers and the letter A to E represents them in this paper.

Teacher A: Facilitator of the discussion and science teacher

Teacher B: Demo-teacher and science teacher

Teacher C: Mathematics and Geography teacher

Teacher D: Deputy Head teacher

Teacher E: Science teacher

3. Methods and materials

Every time I observed lesson study practices, I recorded by a video camera, a voice recorder and taking field-notes. Supplementary information was collected by interviewing teachers and officers, and referring to the related documents. From the video recorder and the voice recorder transcript was manually made and used as a raw data for analysing hereinafter.

The lesson study discussion was analysed multidimensional ways. Firstly it was analysed about frequency of speakers in the discussion. Next, it was analysed about what they were talking about and its viewpoint. Finally it was analysed from the two dimensional view points, which one is about types of dialogue and another one is about level of discussion. Clusters of utterance according to the focus of the topic were categorized into two main groups that are “non-discussion” and “discussion”. Again, the non-discussion was divided into three types: “No opinion”, “only opinion”, and “opinion with reason”. The discussion was divided into four types: “Not relating”, “Easy agreeing”, “keep insisting”, and “exchanging opinions”. These four categories were adapted from Kiryu (2009). Table1 explains about each category and shows the examples.

In terms of level of discussion, it was analysed how much the discussion go forward. As beginning, the any first utterance is regarded as level 1. An utterance which was categorised at level 2 is the one followed by the first utterance and responding to add information which makes the topic deepen. If it doesn't deepen the topic, it is still counted as the same level. For example, if the facilitator asks a question, one may answer “yes” and another one may also say “yes”. These are regarded as the same level. If the first one adds the reason to support his/her idea, it is counted as level 2. The table 2 shows the example of analysis process.

Table 1: Types of dialogue and examples

Category	Interpretation	Example
Non-discussion type		
No opinion	No one arise any opinion	Facilitator: Was there a question for enhancing higher order thinking skills of pupils? →Silence (Moved onto the next question)
Only opinion	They give opinion only but not mention the reason.	Facilitator: Were the lesson objectives clearly stated in the lesson plan? All: Yes (Moved onto the next question)
Opinion with reason	They make opinion and mention its reasons, but not preceding the discussion.	Facilitator: Were learning materials adequate to support learning by pupils? Some teachers: No Teacher C: Because there are just little. It was not enough materials (Moved onto the next question)
Discussion type		
Not relating	They don't show interest in other's opinion and just speaking their own ideas	Facilitator: Was there a time for evaluating the lesson to confirm whether the students had learnt? Teacher D: I put undecided. Teacher C: I put as well. Time management was not there. We left there. If it had there, we even could see it and evaluate them. So evaluation part was not there. Until we go and mark the books. Teacher D: Teacher attempted to check what the learners were doing. He became conscious of time. So he was wrestling between ability of keep time and on the other hand, also to check the work that pupils were doing. At the end what he did was fraction that what he did. That's why I put it undecided. * Teacher C and D spoke their idea but not answering to the previous speaker.
Keep insisting	They just insist their ideas or reject other's ideas	Teacher D: Teacher should call the name. that motivate them. Demo-teacher: I don't teacher them.
Easy agreeing	To avoid confliction, they just agree easily regardless its opinion	None
Exchanging opinions	They explain their opinion and interact each other	Facilitator: Did the teacher give pupils enough time to find answers after asking question? Teacher E: Yes Teacher C: I put no It was quick. When pupils were not writing correct answer, it was quick that teacher correct answer. Demo-teacher: I though those were just presenting what they found in the group. So I think that (the question) are asking when they are discussing. Teacher C: Oh, alright. * They are responses to the previous speaking.

Source: Author

Table 2: Analysis process of discussion in levels

Speaker	Utterance	Level
Facilitator	Did the teacher attempt to confirm a particular concept or values in the process of teaching?	Proposing a topic
Teacher C	No	Level 1
Teacher E	There, I didn't put anything.	Level 1
Teacher C	When pupils answered question, though pupils made a mistake but teacher didn't corrected it but just proceeded.	Level 2 :Adding the reason to the previous utterance
Facilitator	In fact, that point... they are saying wrong answer, you are not saying anything, next.. Who else? He didn't confirm the answer.	Level 2 :Rephrasing the previous utterance

Demo-teacher	I thought by giving correct answer then telling that whatever answer you were writing was wrong. Whatever they are writing, I explain the right one.	Level 3 :Explaining his intention towards the previous utterance
Teacher D	There is a level of motivation. You as a facilitator, I know you were thinking that.. If I say "No", they feel very discouraged and might not want to try again. But it also has a danger. In a process, some they may took it ... if teacher say anything, it could be right and they take note that maybe this is answer. So use facilitator's language of saying "while it is wrong answer, we choose a better way so that the one who was given response was not discouraged. But message should be clear to the other learners that it's not correct.	Level 4 :Sharing teaching method responding to the previous utterance
Facilitator	Next time what we should do is... when pupils present their answers, allow them to correct the answers not teacher correct them. Actually that correct answers were supposed to come from pupils.	Level 4 :Summarising what D said

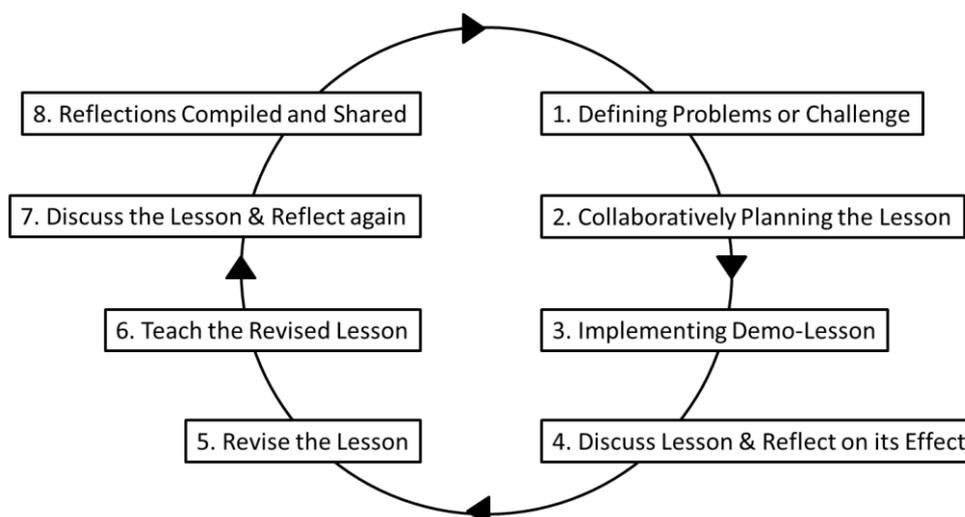
Source: Author

4. Results

Overall View of Lesson Study Implementation

Before showing the result, it is essential to understand the basic information of lesson study in Zambia. The lesson study approach was modified in order to contextualise it to suit the Zambian school context. Lesson study follows eight steps as shown in Figure 2 below (Ministry of Education, 2010). Comparing to the lesson study in Japan, although it has got variety of styles depending on schools in Japan (Akita, 2006), two differences would be featured. At first, a group of teachers plans a lesson collaboratively (cf. step 2). This is actually because there had not been such habit of making lesson plan before lesson in Zambia, so it was intended that, by collaboratively planning, the teachers could teach and learn how to make a lesson plan among themselves (JICA, 2010). At second, there are two demo-lessons conducted in a cycle (cf. Step 3 & 6). This makes the teachers be able to clearly see the points that were improved from the first demo-lesson at the second one (JICA, 2010).

Figure 2: Lesson Study Cycle



Source: Ministry of Education (2010)

Analysis on Lesson Study Discussion

Focusing on a case of lesson study discussion, two aspects were analysed. In order to know how much each member participated in the discussion, frequency of speakers were counted and the result is shown in Figure 3. And in order to know focal point of the discussion, each utterance was categorized into the topic of teacher & teaching, learners, contents & materials, and others. The result is shown in Figure 4.

Figure 3: Rate of members' speaking

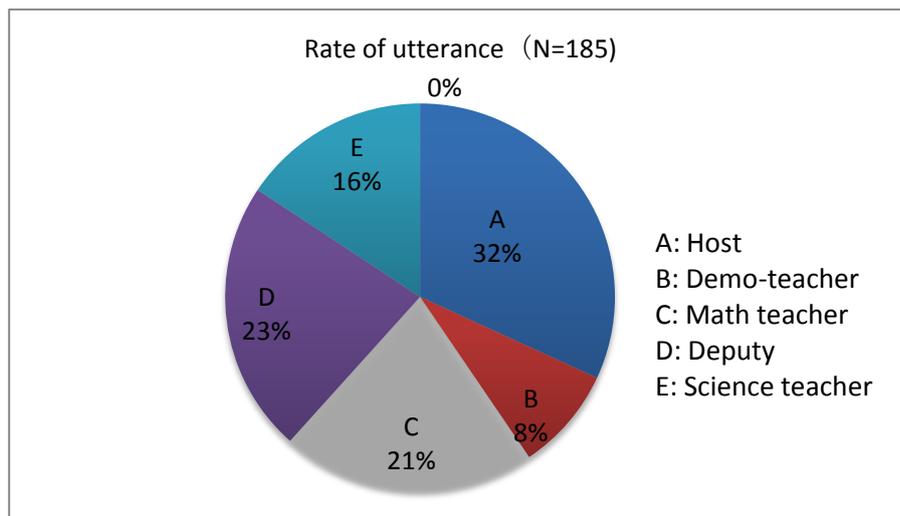


Figure 4: Rate of topic

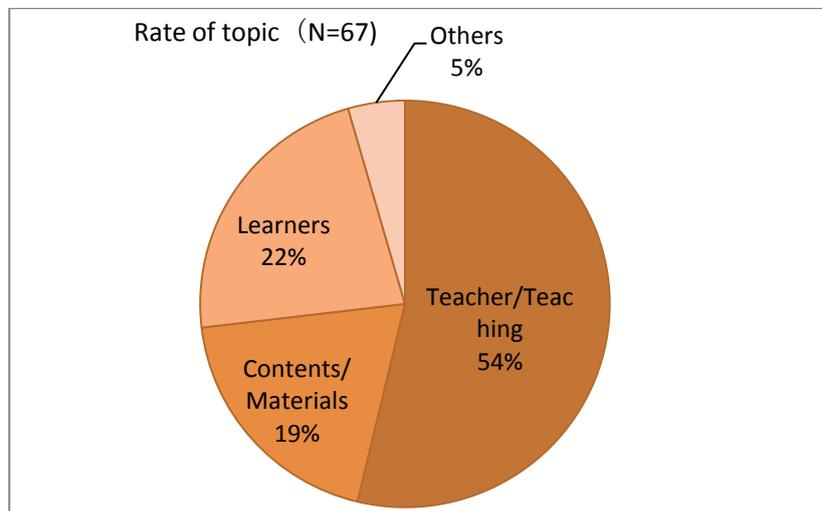
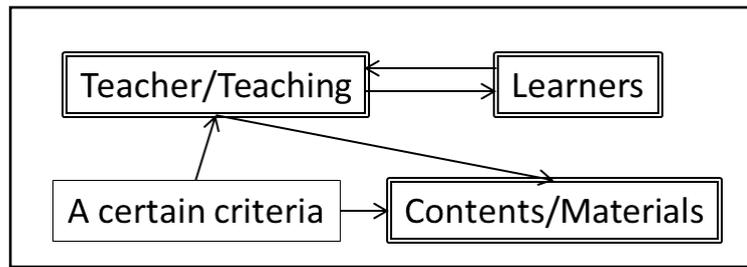


Figure 5 summarized the contents of discussion and its viewpoints. The base of arrow means its viewpoints and the pointing of arrow means the topic discussed. Doublet means that arrow from it to itself. So discussions about teacher/teaching were done based on teaching itself, on learners, or on a certain criteria, while contents/materials were discussed based on teaching, on materials themselves or on a certain criteria. Meanwhile, discussion about learners were done based on learners itself or on teaching.

Figure 5: Relationship between topic and viewpoints

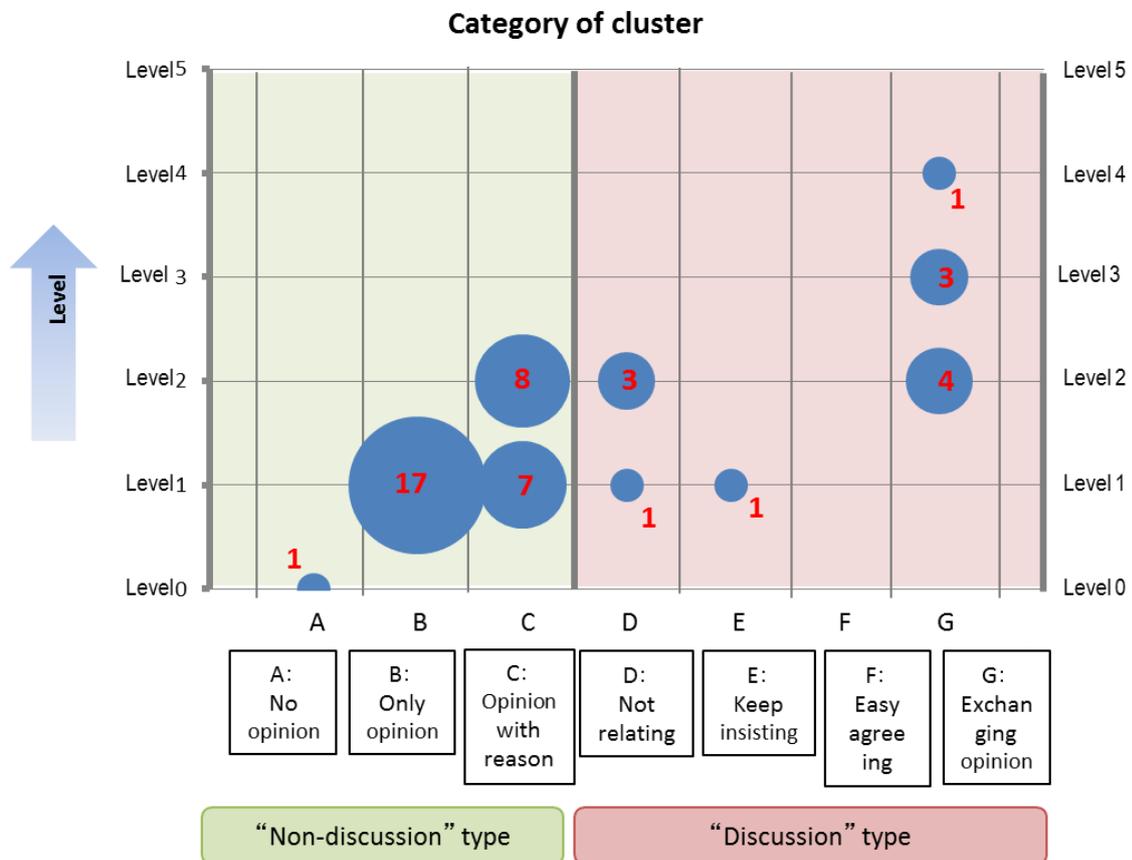


(Bottom of arrow is viewpoint and Point of arrow is topic. Doublet means arrow come from its own to its own)

Other remarkable features are as follows:

- Many opinions released without its reasons
- Bloom’s taxonomy was used when they talked about question sentences
- Proposal for improvement was usually a change from “not there” to “there”
- Discussion didn’t deal with contents or concepts
- Concrete description was spoken several times
- Discussion mixed with jokes sometimes

Figure 6 : Result in types of dialogue and its levels



Source: Author

Next, the figure 6 represents the result of two dimensional analyses. The horizontal axis represents types of dialogue while the vertical axis represents levels of the discussion. There were total of 46 clusters and 13 of them were classified into “discussion” type and 33 were in “Non-discussion” type. In terms of the level, there were 26 clusters at the level 1, 15 clusters at level 2, 3 clusters at level 3 and 1 cluster at level 4. There was no cluster proceeded beyond level 5.

Be noticed that the items on the horizontal axis doesn't have any order while the vertical axis has got order and it goes up as it moves up. The size of the bubble shows the frequency of cluster and the number is indicated in or next to the bubble.

5. Discussion

Firstly, from the result of the speaker's frequency, you find that the facilitator occupies the most and the demo-teacher speaks the least times. In fact, there was a tacit rule that a demo-teacher shouldn't speak during the discussion. According to their understanding, there are three reasons why the demo-teacher should keep quiet during the discussion: 1. they cannot criticize themselves; 2. whatever the demo-teacher speaks must be always excuses; 3. observers cannot speak their opinion honestly if the demo-teacher speaks.

Followed by the facilitator, deputy head speaks much. He was not really evaluating the lesson but sharing teaching skills and knowledge generally. And also he used to be an English teacher and didn't have much contents knowledge of science. However, he humbly asked the science teachers about the contents knowledge and it seemed that they had relationship of mutual trust.

Another notice is that everyone made their opinion during the discussion and the difference of rate among the teachers is not really big, so that environment of the discussion allowed all participants to speak their opinion, namely it was an ideal condition of discussion. One of the reasons was on use of evaluation sheet. Discussion went forward as they make agreement on each question item, so that at least everyone were given chance to speak something in each time.

When teacher from different department participated in the discussion like teacher C in this case, it would be difficult to give out his/her opinion because of less confidence in their contents' knowledge. From this aspect, evaluation sheet and the system of using it worked effectively to share all teachers' ideas even though they are in different department.

On the other hand, considering to the fact of limiting demo-teachers speaking, they must be recognized the discussion as a learning opportunity for the demo-teacher, that is, the demo-teacher was supposed be input by the others, but not outputting for them. In contradict, the facilitator shared at the beginning of the discussion that “we should criticize the lesson but not the teacher”. This phrase has a potential idea of improving together with both demo-teacher and the observers. Thus, the environment

allowed everyone to participate in the discussion while the demo-teacher was intentionally restricted the speaking.

Moving onto the next analysis, the reason why they focused more on teacher/teaching during the discussion should fall on use of the evaluation sheet. Discussion started from the question items on the evaluation sheet so that the number of questions falling on each topic strongly affects the percentage of each topic in the discussion.

Next, we shall look at the contents of discussion more detail. According to the figure 5, all the topics were discussed based on “teacher/teaching”, namely it is called teacher-centred viewpoint. Some discussion used learners in their viewpoint but it was few. Another notice was “a certain criteria”. Most teachers have some ideas of “good lesson” in their mind and they tended to speak their opinion based on it. However they believe it to be a criterion but they didn’t really have reason behind. It was more like to be said “framework-centred”. Therefore, the discussion went based on the idea of teacher-centred and framework-centred.

Why did they usually skip mentioning reasons? This might be because they strongly followed the evaluation sheet which was given by Ministry of Education and regarded it as criteria of being good lessons. Baba and Nakai (2009) pointed that teachers are expected to search a picture of ideal lessons through the lesson study. However, in fact, they are not really searching the ideal lesson through discussion because they believed in the evaluation sheet as the criteria of good lesson or what they have to follow. Because of this, tendency of changing “not there” to “there” might be born. This is the same as whether yes or no on the question items in the evaluation sheet. Therefore, they regarded being there as the most important and doesn’t need to know why it is needed to be there. Thus, the evaluation sheet had a great influence to the discussion, which shared a common picture of ideal lessons among teachers while hiding what is really essential in it.

Kitada (2011) revealed two functions of conversation about a particular student when reflecting the lesson. At first, talking about a particular child meant reflecting based on “understanding learners” as Shulman said, and it enhances ability of reflection as learner-centred viewpoint. Secondly, speaking of a particular child lead the teacher to think up ideas concerning about pedagogical contents knowledge.

In this study, a few discussions dealt with a particular child. Hence, utilise them to encourage teachers to discuss in such viewpoint might be so important to have learner-centred views and bring about pedagogical content knowledge.

Lastly, I’d like to point at speaking of joking. It actually played very important functions that produce good atmosphere to discuss freely as giving critiques. As I said several times, a demo-teacher seemed to be the one who was criticised in the discussion in most time. Then s/he may get annoyed of that sometimes, but inserting jokes made refreshing the atmosphere and cheering everyone to continue discussion.

Let's look at the figure 6. Three points were revealed from the graph:

(1)-At first, the bubbles are located more on the left down side on the graph.

This means that most speaks were just expressing their ideas only and didn't proceed to exchange their ideas. Using the evaluation sheet, they speak yes or no in most time, but the discussion goes on. Thus, using evaluation sheet made the graph to show big bubbles on the left down side.

(2)-There are level 1 and 2 existing in the "discussion" type.

This says that discussion doesn't always have high level which is equivalent to deepen in one topic. This gives us important suggestion that abolishing the evaluation sheet doesn't solve the problem of low quality in discussion.

(3)-There is only one case in "Keep insisting" and there are none in "easy agreeing".

This tells us that they listened to the others' opinion and they conveyed their opinion as well. This is a kind of important basic component for discussion.

6. Conclusion and Suggestions

By analysing the discussion, you could realise that the evaluation sheet gave a great impact on the discussion in positive and negative ways. It provided equal opportunity for all participants to speak out their ideas while teachers themselves recognise that a demo-teacher should keep quiet. Topics which were discussed relied on contents of the evaluation sheet. This provided equal viewpoints to all teachers while this might hide what teachers really want to focus on. Due to use of the evaluation sheet, the level of discussion didn't go deep. However, low level of discussion was not just caused by the evaluation sheet only because the discussion type also had low levels. By summarising these, wise use of the evaluation sheet is essential to improve the quality of discussion. Meanwhile, teachers' recognition also affects discussion and function of the lesson study. Lastly this study found the key to develop quality of discussion at the point where a teacher described a particular child's action. It would be a breakthrough to have learner-centred viewpoint.

7. Reflection on the Global Leadership Training Programme in Africa (What you learned through this programme)

It was a really precious opportunity for me because I could stayed in one town for long period funded by the programme and was able to make good relationship with people there. It really helped me researching and collecting data. Moreover, it was good that this programme connected me to a professor in the University of Zambia. I had several chances to meet the professor and get comments. It helped me putting data in order during my stay there because setting the date to meet him was the same as setting deadlines so that it pushed me work so hard. I appreciate this programme to offer this kind of provisions.

Acknowledgement

I'd like to show my gratitude to teachers and officers who cooperated with the research in Zambia. I also appreciated JICA experts in Zambia that they were always supporting and assisting me to conduct a research. Mr. Haambokoma, who supervised me during my staying there, communicated with me frequently and gave me comments on the research and Professor Ikeda, who is a supervisor here in Japan, encouraged me to apply this programme and always supported me. Thank them so much. At last, great appreciations should go to this programme and the people who organised it. I could not conduct this research without their support.

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