

## **Microteaching Lesson Study: The Effect of Simulation on Prospective Science Teachers' Skill Improvement in The Implementation of Inquiry-Based Teaching (IBT)**

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The important of inquiry has theoretically understood by teachers. While, the biggest difficulties was on its implementing in the classroom. Therefore, skills of science teaching -based inquiry should be prepared for prospective science teachers through microteaching lesson study. The purpose of the study was to investigate the effect of simulation on prospective science teachers' skills improvement in the implementation of inquiry-based teaching (IBT). This study is descriptive research design involved 10 prospective science teachers of Biology Education Department at a state university in Surakarta who joined microteaching course. The data were qualitatively and descriptively in search of ways that could describe in the observed changes in prospective science teachers' on lesson plan and performance. The prospective science teachers' skills illustrated how their skills to implementing steps for inquiry-based teaching in the classroom by using microteaching lesson study (including: plan, do, reflex). Data collected by interview, observation, and analyze methods. The prospective science teachers' skills constructed through simulation that given by lecture as their mentors. The results showed that simulation gave gradual positive effect to prospective science teachers' skills in the implementation of inquiry-based teaching. Based on the results, it can be concluded that simulation recommended as effective way to construct prospective science teachers' skills in the implementation of inquiry-based teaching.

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## Lesson Study as an Innovative Way of Narrowing the Gap Between Pre-service Education and Research

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In Japan, lesson study is apparently the most common form of professional development. As such, it is widely used as a form of in-service training in Japan and, more recently, elsewhere (Lewis, 2000; Murata & Takahashi, 2002; Takahashi & Yoshida, 2004). In our presentation, we will show that it can also be an excellent way of renewing pre-service education in Europe. Indeed, according to us, LS represents an innovative way of narrowing the gap between theory and practice in pre-service education in Europe. Many European student-teachers have the feeling of there being too weak a connection between the two sides of their training: the part devoted, at the university, to academic contents including the results of education research and the part, in school, devoted to professional preparation. Following several authors (Runesson, 2015, Martin & Clerc, 2015), we think the cyclic structure, which characterizes LS, is prone to improving the link between theory and practice and to make student-teachers aware of the benefits of articulating the different components of their training. As Cornu states it (2015, p. 294), ‘theory obtains a meaning when confronted by concrete real situations; theory helps preparing and managing specific situations. And concrete situations help with understanding and applying theoretical knowledge, and give input for further theoretical learning’

This is in that context that we decided to get involved into a collaborative research project initiated by our institutions, the High Pedagogical School (HEP) of the Vaud Canton in Lausanne (Switzerland) and the High School of Education (ESPE) in Rennes, (France). For this project named PEERS (Student and Researcher Social Networks Projects), the LS team was composed of four student teachers and two trainers/researchers from each institution. This PEERS project represents an innovative use of LS as the three research lessons were implemented in different cultural, learning and training contexts (two in France and one in Switzerland).

The LS conducted by the team focuses on English as a Second Language (ESL) and, more particularly, on a feedback activity implemented after a pairwork activity. The aim of this feedback activity is to develop students’ metacognitive and metalinguistic abilities as, in the Second Language Acquisition literature (Lam & Wong, 2000; Naughton, 2006; Pintrich, 2002), metacognitive strategies have been reported to play an important role on the success of second language learning. Yet, according to our observations (Gruson, 2006), very little time is devoted to such activities in primary and at the beginning of secondary education. Finally, the originality of this project also lies in the fact the LS was conducted on English as a Second Language (ESL) when, according to Kamaru (2015), it’s a subject matter with limited publication in the LS literature.

In our presentation, we will briefly describe the evolution of the feedback activities implemented during of three research lessons, which demonstrates how the student-teachers improved their teaching practices. More particularly, thanks to the analysis of the working sessions ‘ which were all video recorded - conducted to prepare and analyze the lessons, we will show how the student-teachers collaboratively built

specific didactic knowledge and enhanced their reflexive and cooperative abilities. Nowadays, the competences teachers have to master are numerous and complex. This calls for more collaborative work as ‘in collaborative learning communities (Wenger, 2002), professionals discuss, construct and share ideas, generate and enact new strategies for their work environment and, above all, share insights about what they have learned. Such collaborative enquiry may result in a dynamic co-construction of knowledge (Tillema & van der Westhuizen, 2006).’ (Romeu & al., 2015, p. 2). LS offers an interesting opportunity to develop collaborative enquiry.

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## Scaffolding Student Teachers Learning Processes in Lesson Study through Recorded Summaries

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Student teachers have difficulty recognising what to focus on during teaching practice and therefore need support and supervision; so that they can develop the skill of professional noticing (Amador and Weiland 2015). This presentation will discuss the challenges of scaffolding student teachers' development of this skill when they take part in Lesson study (LS) in English as a foreign language (EFL) and Physical education (PE).

Student teachers have been using LS for a number of years at our university whilst out in practice with mixed results. Although the LSs have been relatively successful, students seem to have problems analysing the data on the research pupils they have observed and interviewed, often discussing from a whole class perspective, even though they have no evidence for these statements. As teacher educators, we were interested in discovering whether we could better scaffold students to focus even more deeply on the evidence of pupil learning in their research lessons and interviews. During the last two semesters, in addition to learning tools such as handbooks which offered planning-, observation- and discussion rubrics, the students have therefore been asked to use Dictaphones to record key elements of their planning and reflection conversations.

Whereas the students gave generally positive feedback on using LS in their teaching practice, results from the initial pilot study, using the Dictaphones, was generally unsuccessful. The students had recorded too much, making it overly time consuming for them to analyse the most important features of their discussions.

Inspired by the work by Amador and Weiland (2015) on professional noticing, the researchers have adapted the critical questions and lesson observation form presented in the article, to make them suitable for students teachers in EFL and PE school practice. In this second round, student teachers have been given much clearer guidelines, asking them only to record five-minute summaries of their discussions about the pupil observations and interviews before and after each research lesson. The students will also write short reflection notes about the effect that this has had on their ability to 'notice' pupil learning in the classroom.

This presentation will discuss this new approach, the results and the implications of this research from this second round.

### References

Amador, J & Weiland, I (2015). What Preservice Teachers and Knowledgeable others Professionally Notice During Lesson Study. *The Teacher educator*, 50:2 109-126.