

Novel aspects of Lesson Study in Chile

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Abstract

Lesson Study movement in Chile has definite features that are different from similar movements in other countries. We review some of these features and put them in perspective. We add some aspects of the contribution of our alma mater to the movement.

Education in Chile

Chile is a quite long and narrow country. There are over 60 universities in the nation, roughly 40% of them are (called) traditional. Funding to the educational system at large has more than tripled in the last 12 years, but results are still to be seen.

Most of the Pedagogy programs belong to traditional universities, and are freely administered by them. There are as many Programs in Mathematics Pedagogy in Faculties of Sciences as in Faculties of Education; emphasis in Mathematics and in Educational subjects varies accordingly. A dozen of the traditional universities administer in-service programs for teachers of Mathematics (*Postítulos*, i.e., Diplomas) according to specific agreements with the Ministry of Education (MINEDUC).

Lesson Study in Chile

Jugyo Kenkyu started in Chile because of a specific agreement between the Ministers of Education of Japan (MEXT) and of Chile: the 'Project of improvement of the teaching of Mathematics with technical support from Japan'.

The Project has developed with collaboration of JICA, and it is administered by the Center for Research on International Cooperation in Educational Development, CRICED, of The University of Tsukuba, and the *Centro de Perfeccionamiento, Experimentación e Investigaciones Pedagógicas* (Center for Pedagogical Improvement, Experimentation and Research, CPEIP).

The Purpose of the Project is: "To influence in a significant way in the processes that Chilean universities develop in Mathematics teachers training": directly in continuous training, and in an indirect way in the pedagogies

Training in Japan

On February-March of each one of the years 2006, 2007 & 2008, 2 professionals from the MINEDUC and 10 university instructors belonging to universities that collaborate in *Postítulos* stayed for about 40 days in Tsukuba and Tokyo, for observing the Japanese educational system and for receiving specific training from Japanese experts in different

areas. Lesson Study and Japanese problem solving classes were the main aspects of the training.

Expected results of the Project are: that participants understand the pedagogical methods used in Mathematics teaching and learning in Japan; the improvement both in continuous training proposals and their implementation by participant universities; and also improvement in terms of reference of the corresponding agreements with MINEDUC.

The participant universities and the number of instructors of each one of them are, from North to South: U. (Universidad) de Antofagasta (2); U. de La Serena (2); Pontificia U. Católica de Valparaíso (4); U. de Santiago de Chile (4); U. de Chile (2); U. Metropolitana de Ciencias de la Educación (3); U. Católica del Maule (3); U. del Bío-Bío (2); U. de Concepción (3); U. Católica de Temuco (3); U. de La Frontera (2).

Back in Chile

Already returned to Chile, the trainees have committed to collaborate and to spread their knowledge among colleagues; and to incorporate in their teaching activities ways of working in the same vein of what was observed in Japan: experimenting in teachers' ways of working developing experiences to boost ways of working alike to Lesson Study.

At each university, there have been lectures and discussions, with academic staff and students in Departments of Mathematics, Education and others.

A couple of times a year, there have been gatherings of the university participants in the Project, Ministry of Education's representatives (including participants in the Project), JICA representatives in Chile, and, sometimes (by video-conference), University of Tsukuba and JICA members in Japan

Around the country, trainees have participated in demonstration classes: either taught by Japanese experts (large gatherings at most universities involved in the Project), or given by Chilean teachers (at the universities involved, or at schools).

Lesson Study and the Open approach have been introduced in the *Postítulos* both in the regular courses and in graduation seminars. Gradually, Lesson Study and the Open approach are also being introduced in the pedagogy of Mathematics Curricula of the universities involved in the Project: in the regular courses, in the guided teaching practice, and in the Final Dissertation or Final Seminar.

There are other specific programs in which some of the trainees work in collaboration with MINEDUC, and the Lesson Study methodology has been introduced in them. One of these is LEM program (Reading, Writing and Mathematics), a far-reaching all-over-the-country program in which several universities involved in the project participate.

Trainees have also started a number of research projects, either funded by each university or by the Government; presentations at congresses (at the Society for Mathematics Education, SOCHIEM and at ICME11, e.g.); some papers in national reviews or international Proceedings.

The *Primeras Jornadas Nacionales de Estudio de Clases* (First National Lesson Study congress) were held in Talca on July, 2007. Next *Jornadas* will be on September 8th, 9th, and 10th.

Activities at the PUCV

At the Pontifical Catholic University of Valparaiso, PUCV, we have also add, among other things, *Talleres Comunes para profesores líderes*, a hands-on training workshops for leading teachers from counties from all around the country, and following up sessions at the counties to support those leading teachers in introducing methodologies with their peers.

The *Talleres* started this year, and we have observed that (most) leader teachers feel more confident both in collaborating with one other and in working with their respective peers at their counties; they start to consider an open class as a natural thing.

Trainees coming from the PUCV have also worked with Dr. Masami Isoda in the publication of books in Spanish both on Lesson Study and on Problem Solving:

- Masami Isoda, Abraham Arcavi & Arturo Mena, 2007, *El Estudio de Clases Japonés en Matemáticas*, (Lesson study in Mathematics). (Second Edition, 2008);
- Masami Isoda & Raimundo Olfos, *Los enfoques de enseñanza del Estudio de Clases y de Resolución de Problemas*, (Lesson Study and Problem Solving teaching approaches), in preparation;
- Masami Isoda & Raimundo Olfos, *Los enfoques de enseñanza del Estudio de Clases y de Resolución de Problemas. El Caso de la Multiplicación*, (Lesson Study and Problem Solving approaches. The case of multiplication), in preparation

Main challenges

The main challenges that the Lesson Study movement in Chile has to undertake are the following:

On the one hand, to open up the classroom door to other teachers (and other interested parties). The MINEDUC has started some time ago a program of assessment of teacher's proficiency all over the country, and, since this was new, there has been some resistance to it. Teachers tend to feel that opening up classes to inspection may harm them as professionals.

On the other hand, teachers that start being involved in Lesson Study have to work in out-of-service hours. Labor hours are usually long for them, and a couple of extra hours have to be taken from family time. We hope to be able to convince the government of providing some paid hours for Lesson Study projects.

There are also a couple of circumstances that will help in the movement: Assessment is being introduced as a must in several areas of Chilean culture, including the educational sector. Moreover, there is a growing conscience of the necessity of collaboration of all sectors for improving the quality of education in the country, but it is difficult to find a common ground for initiatives; a collaborative way of working of teachers, in which they examine both the Mathematics and the teaching is something that offers such a common ground in this area, and one that transcend the different approaches that sectors of Chilean society support.