

Cooperative Research As a Strategy for University Teacher Training. A Case Study of Lesson and Learning Study

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Abstract

This paper presents the possibilities offered by Lesson and Learning Studies for training and for improving and generating knowledge by reconstructing the practical knowledge of teachers. Firstly, we provide a summary of the concept of practical knowledge and the tradition of teachers researching their own practice. This is followed by some principles of Lesson and Learning Studies, with examples of their possibilities for university teacher training taken from a case study of our own practice during a university master's degree.

2. Competencies or practical thinking of teachers

Here we refer to competencies¹, basic professional qualities, or the practical thinking of teachers in order to overcome the limited framework of the concept of explicit, declarative knowledge which has impregnated professional conception right through to today. In other words, when talking about competencies we include "practical knowledge"² –knowledge in action by Schön–, largely unconscious, made up of beliefs, skills, attitudes, emotions and values.

The reconstruction of practical knowledge requires teachers to review and question the same images, ideas and practices they use in their day-to-day professional activity in the light of more relevant educational experiences and of the results of more consistent educational research. In consequence, privileged strategies in teacher training must get learners involved in disciplined, informed reflections on their own practice, in other words action research programmes and processes in professional and cooperative contexts (Elliott, 1993, 2004; Stenhouse, 1975).

3. Research by teachers into their own practice: Lesson Studies and Learning Studies

3. 1. Lesson Study (LS)

It could be said that LS involves fundamental research processes which, through the cooperative work of a reduced group of teachers, aim to resolve teaching problems and facilitate learning. Connecting the daily practice of teachers to long-term goals, constructing strong collaborative networks and promoting more in-depth disciplinary and pedagogical knowledge are the strengths of the LS movement.

3. 2. Learning Study

Learning Studies aim to focus teacher research on students' learning, using the variation theory of Ference Marton (Marton & Pang, 2006; Kullberg, 2010; Mun Ling & Marton, 2012; Runesson & Gustafsson, 2010).

Perhaps the most important contribution of Marton's variation theory to Lesson Studies is provide a technical framework which helps to better understand the conditions in which relevant learning should come about, i.e., the type of learning which leads to a qualitative change in the way in which each learner deals with the learning situations and objects, increasing the possibility of discerning multiple aspects which simultaneously influence the way an object, phenomenon or real learning situation behaves.

We believe this cognitive approach is fundamental in the development of new professional competencies of teachers, since it requires a shift away from teaching as transmission towards teaching as experimentation, an experience which is systematically supported and tutored.

4. Rethinking our practice: from Lesson Study to Learning Study in a University Master's Degree

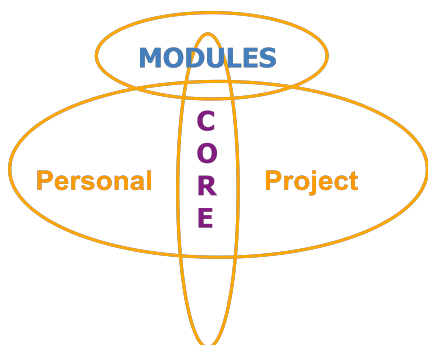
In this section we present the developed LLS process in line with the different stages, structured in two fundamental cycles, the first in the context of the online edition of a university master's degree (Serván, Soto, Murillo, Sola and Pérez, 2009; Pérez, Soto and Serván, 2010), and the second in the on-campus edition of the same master's degree.

4.1. First cycle stages

The first stage was to define the problem which orientated the lesson. Our main goal was to bring about the reconstruction of the practical knowledge of students with regards to educational innovation.

In the second stage, the teaching team cooperatively designed a curricular structure, which can be considered the sphere in which the lesson takes place, based on three essential elements:

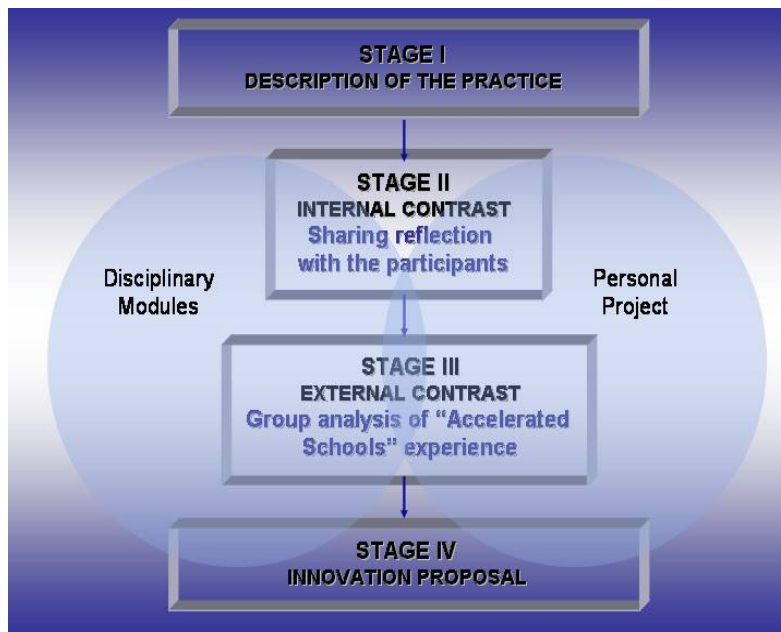
The *disciplinary modules* which contain the basic content of each of the knowledge areas.



The *interdisciplinary core* is an online curricular space where the basic, formal components present in all educational innovation processes which require a multidisciplinary approach and cooperative treatment are worked on. This is conceived as a didactic area for the exchange of ideas, experiences, concerns, alternatives and examples.

The *personal work project* for the area of interest chosen by each student, which forms the central core of both theory and practice throughout the master's degree.

LLS focused on the design, development and analysis of interdisciplinary core which was finally presented in four stages:



In the *first stage* the students, working teachers, reflected on their teaching practice by way of a *written account* in which *they described their practice*.

In the *second stage*, *internal contrast*, students exchanged accounts and descriptions.

The third stage, *external contrast*, analysed an integrated, systematic educational innovation model which involved a network of schools: the Accelerated Schools movement developed in the United States (Levin, 1987; Soto, 2006).

The aim of the *fourth stage* was for students to make an *individual innovation proposal* on their own practice using the elements analysed in the previous stages.

We also agreed on the kind of evidence we would collect during the lesson. Apart from observing the experimental lesson in the Online Campus, we collected the opinions of students in a forum for evaluation, along with their answers to a questionnaire and several interviews. Moreover, all the students' productions were checked (interventions in forums, description of practice and innovation proposal, communications with teachers, etc).

Once the design was complete and the materials and resources prepared, we began **to teach and observe the lesson (third stage)** for which, as we said, we chose the interdisciplinary core.

In the **fourth stage of the LS, we discussed the evidence collected** and reached several conclusions.

Firstly, we had evidence that some students were capable of questioning their beliefs on teaching and of identifying and reviewing key aspects of their practical knowledge.

Secondly, we realised that, as is common in the academic university context, students often focused on theory without connecting it to their practice, and had problems identifying the critical elements of the educational innovations.

Finally, in a curricular structure based on individual work, the interdisciplinary core was the only online cooperative exchange area which clearly showed the key function of contrast in the reconstruction of the practical knowledge of students.

4.2. Second Cycle Stages

In the following academic year (2008-2009), the master's degree was carried out on-campus, with the **fifth stage, checking and reformulating the lesson**, being carried out in this context. Some of the change proposals were as follows.

In the Interdisciplinary Core, we felt it necessary to expand the educational innovation experiences³ which fed the external contrast process. We realised, following the Learning Study philosophy, that analysing a single experience was not enough to abstract the basic critical elements of the innovation process. The contrast of experiences would help them to understand and differentiate the critical and common dimensions of any process from the most accidental, singular attributes of each experience. Our Lesson Study process incorporated Learning Study principles.

Secondly, fully aware that the mere theoretical intervention between the content of the disciplinary modules, the read and commented external experiences and the individual accounts was not enough to explain and help reconstruct practical knowledge, at least that of the students who were not working teachers, we proposed including a internship as part of the master's degree. This internship would take place at the start of the academic year, meaning the real experiences involved in them could be analysed and reflected upon in the courses. Students would dedicate two whole weeks to the observation, development and analysis of educational practice, either their own, in the case of working teachers, or other people's, for those who had just finished their studies.

Thirdly we proposed using an educational social network to stimulate participation and collaboration amongst our students.



Fourthly, the research processes and instruments were systematised. The strategies to collect information were redesigned, including the drafting of a collaborative diary and weekly meetings, both before and after the session⁴, in order to assess the research process and reflect on it, and to discuss any possible changes to the subsequent sessions in line with the information collected and recorded in the diary. Communications by email and via social networks were also collected and analysed.

Once the lesson had been reviewed and reformulated, we began the **sixth stage. This involved developing it and re-observing and analysing it in another class the following academic year.** Finally, in the **seventh stage we discussed and evaluated the new evidence**, reaching conclusions on the development of the module experienced in line with the proposals introduced and the research process followed.

In the *first description stage of one's own practice*, now on-campus, we were struck by the ease with which they had taken on board the personal, descriptive and specific character of their daily practice; they had truly focused on their theories-in-use, trying to relate them to their explicit theories, indicating the contradictions they found, along with any doubts and uncertainties.

We each read and made suggestions with regards to the accounts, which we later pooled and discussed before sending them to the students. Feedback has been one of the challenges in the practice which has most improved in each of the stages.

5. Conclusions

We can state that the development of LLS has helped bring about at least several significant changes, in both students and teachers, in the following aspects:

5.1. Need to reverse the theory-practice sequence and increase the weight of experience

Pupils have shown greater specificity when analysing and describing their personal experiences, striving to describe their theoretical framework. This was particularly true following the introduction of the internship, emphasising the importance of inverting the traditional theory-practice binomial, which allowed us to create a space for reflection on this experience in particular and on actual educational innovation processes.

Moreover, comprehensive monitoring by the teachers with successive feedback and ongoing contrast of the experiences developed during this period allowed students not only to get a sense of the practice and of the personal account, but also led to them questioning their pedagogical assumptions.

5.2. The role of teachers, the importance of tutoring

In short, this research project allowed us to open ourselves up as teachers and find, in each and every one of our actions, this map of images, information, experiences, etc, which make up our practical knowledge and, above all, to have the opportunity to reconstruct any incoherencies and absences we find in our theories and practice in a reflexive, reasoned manner.

Finally, we are in the process of building the teacher's role as a tutor.

With regards to the dual role of teachers and researchers, collaborating with the same level of responsibility in teaching activity facilitates cooperation, understanding and reconstruction of the theories-in-use. The equality which brings us together is quite different from that which comes about with regards to action research between the teacher/researcher and the external observer/facilitator, and we believe learning processes are therefore promoted and encouraged.

5.3. Cooperation and contrast as learning strategies

With regards to contrast as a learning strategy, Learning Study offered the teachers involved the opportunity to become fully aware of the need to generate experience and experimentation contexts which include different perspectives and processes. These contexts stimulate research, discussion and analysis of specific cases in order to construct and reconstruct meanings and competencies, not only to understand these experiences but also to discern their critical characteristics and to understand that theory is a professional tool which helps us to understand and design singular, context-based personal action proposals.

This same contrast process has generated and evinced the importance of cooperative work in generating change processes. We require autonomy and responsibility to grow, although these can be enriched with other perspectives which shared work can generate and extend. Cooperative work, as in LLS, can be a powerful tool if we are able to use individual qualities to generate more creative, reflective contexts. In our opinion, this

cooperative learning initiative is key to transforming the somewhat dry context of current university teaching, which promotes the reconstruction of inertia and practices rooted in the most ancient academic tradition. If this has been the case for specialist teachers in the educational field, imagine the wealth and the need to start these processes in other disciplinary areas.

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¹ The works of Pérez Gómez (2007, 2009, 2010 and 2012) can be consulted in this regard.

² Practical knowledge comprises a repertoire of images, maps and artefacts which bring with them information, logical associations and emotive connotations (Pérez Gómez. 2010). In other words, it is of holistic, emergent, rational, unconscious, emotional and intuitive character, although we are seldom aware of it and of what we put into action in every situation. The comprehensive dossier on the concept of

practical knowledge, published by *Infancia y Aprendizaje* (Clara & Mauri, 2010) can be consulted in this regard.

³ Experiences such as Problem-Based Learning, Learning Communities, Lesson and Learning Studies and a seminar of alternative education experiences given by the visiting teacher José Contreras were introduced. Later on it was the students themselves who, in pairs, researched different educational innovation experiences.

⁴The course was carried out in weekly two-hour sessions over five months.