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LESSON STUDY AS A WAY OF RECONSTRUCTING PRACTICAL KNOWLEDGE FOR IMPROVED TEACHING PRACTICE. SEVEN CASE STUDIES.

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ABSTRACT

With the aim of helping to enrich teacher training processes, using an approach based on Practical Knowledge and Practical Thinking (Schön's knowledge-in-action), the present paper strives to explore and understand the relationships between espoused theories and theories-in-use (action theories by Argyris) of a group of seven pre-school teachers involved in a process of in-service training based on Lesson Study, a powerful methodological tool to identify, contrast and review such theories both autonomously and cooperatively. The conclusion reached is that this training strategy is a rich proposal for the questioning of teaching theory and practice, and, in consequence, for the reconstruction of more unconscious Practical Knowledge, albeit with some circumstantial and personal nuances.

Keywords: *Practical knowledge, Lesson Study, Theories of action, Reflective practice, In-service training.*

INTRODUCTION

The purpose of this paper is to present the initial findings of the research carried out by HUM-311 group of Malaga University, coordinated by Angel I. Pérez Gómez, and funded by the Spanish Ministry of Science and Innovation, as part of the national R&D&I scheme, titled: *The Practical Knowledge of Pre-School Teachers and Its Implications for Initial and In-service Teacher Training: Cooperative Action-Research (Lesson Study)*, the main purpose of which was to, as far as possible, understand and examine the possible reconstruction of the Knowledge and Practical Thinking of a group of teachers: a dimension located between theoretical and practical training through the incorporation of a training methodology based on reflection and cooperative action-research: Lesson Study (hereinafter LS). To this end, seven individual case studies of seven pre-school teachers have been carried out, based on the study of their theory and practice with regards to content and teaching methodologies over two school years, one before and one after their participation in this educational experience.

The process has involved identifying and analysing how LS has supported teachers in the reconstruction of certain more or less conscious components of *knowledge-in-action*, the reasons which may have influenced these reconstructions, the dimensions which have been reconstructed, the differences between what each teacher says and does, and the relevance of their involvement in this action-research platform. Having reached the conclusion that Lesson Study is a proposal for initial and in-service teacher training which, through collaborative work, promotes the exchange of perceptions and experiences which enrich teaching activity, whilst at the same time ensuring they

become increasingly aware of the levels of congruence of their own teaching practice with regards to current pedagogical foundations.

THEORETICAL FRAMEWORK

The basis of this study is the theoretical paper presented at ATEE 2014 by Pérez Soto, Serván and Peña, titled "Lesson Study and the Development of Teaching Competences: from Practical Knowledge to Practical Thinking", which aims to show the relationship between the processes generated by the LS and the development of Practical Thinking in initial and in-service teacher training, from which we extract the following contributions.

Practical Knowledge and Practical Thinking

Given the polysemic use and frequent confusion between the terms Practical Knowledge and Practical Thinking, it was necessary to clarify them in order to understand and analyse their meaning, limits and interactions, which would allow us to share and specify that which underlies the processes we include in these concepts. We therefore understand Practical Knowledge (hereinafter PK), or Schön's *knowledge-in-action* (1983), as being the set of beliefs, abilities, values, attitudes and emotions which operate automatically, implicitly, without the need for consciousness, and which influence our perception, interpretation, decision making and actions, whilst Practical Thinking (hereinafter PT) fulfils a more holistic, systemic function, including reflection processes (consciousness). These processes may be developed before, during or after the action, whilst to carry them out in practice they must become habits and automatic reactions which govern, in part unconsciously, the subsequent processes of perception, interpretation and decision-making in the new, uncertain situations we face (Pérez, Soto, Serván and Peña, 2014).

PK, which guides the daily practice of teachers, is developed principally through context and experience (Anderson & Bird, 1994; Borko & Putman, 1996; Brookhart & Freeman, 1992), since, given its nature, it is difficult to verbalise and articulate in words (Brown & McIntyre, 1995; Carter, 1990; Stanulis, 1994). Furthermore, Argyris (1993), within what is known as action theories, suggests that there is a gap between our discourse (oral or written) (espoused theories) and what we actually do (theories-in-use). Therefore, one of the purposes and interests of our research is to recognise such gaps in order to consider and manage them.

Lesson Study in the Reconstruction of Practical Knowledge

Based on the need and interest set out above, it is necessary to recognise and understand the relationships established between the dimensions which make up PK, present in both proclaimed knowledge and knowledge-in-use, as have traditionally occupied the content of educational discussion, which can lead us to know and understand our PT and any gaps between such knowledge (Soto, Serván, Peña & Pérez, 2013). We propose broadening the focus of interest of the Lesson Study in order to include not only the improvement of the "lesson" or practice (Stigler & Hiebert, 1999), but also the understanding and reconstruction of the PK and PT of teachers (Korthagen, 2008) in both initial and in-service training when working cooperatively on the design of a

teaching lesson which aims to provoke learning in students (Soto, Serván, Peña and Pérez, 2013).

Analysing further, we can say that unless the teacher is capable of reconstructing his or her beliefs, images and *intuitive Gestalts*, as developed –without the need for consciousness or reflection– in the long process of socialisation as a student or teacher, in order to transform them into *informed Gestalts* resulting from scientific and espoused theories and one's own relevant experiences and those of others (Korthagen, 2008), there are no guarantees of conscious action adapted in line with the new, complex, ever-changing contemporary educational challenges which guide practice in complex classroom situations. For this reason we start from the basis that Lesson Study constitutes, in our opinion, a fundamental resource and procedure to facilitate the internal contrasting of the espoused theories of the participants whilst designing the methodological cores of the action and, above all, between the design and application of the proposal (Pérez, Soto, Serván and Peña, 2014). With this motive in mind and the methodological approach presented below, we aim to answer the following after applying Lesson Study in this group of Pre-School teachers: Are there changes in PK and PT? Are the gaps between espoused theories and theories-in-use modified? What was the impact on their professional growth?

STUDY CONTEXT

The empirical part of this research was carried out over two school years, when two processes were developed: one to investigate the evolution of PK and PT and its possible reconstruction through seven case studies, and one to understand the processes of cooperative research during the application and development of this methodology through a multi-case study, the eighth one, based on the progress of the teachers during the LS process.

Before explaining the different stages of the research, it should be noted that the methodological strategies used during the research process included tools such as the account, observation and in-depth interviews. These latter two were supported with essential photographs, videos and audios in order to describe the dimensions of the PK and PT of the teachers from the triangulation of the evidence collected.

RESEARCH STAGES

Phase 1. Period prior to LS: Selection, negotiation, training and start of individual case studies

In this phase, the research team held meetings to discuss, debate, learn and understand the philosophy and methodology of the LS, the cooperative action-research projects, the conceptualisation and dimensions of PK and PT as a step prior to establishing the categories of observation and design of instruments for analysis of the case studies. This led to a series of evocative, open, flexible guidelines being designed in order to collect critical incidents and relevant situations which showed PK and PT from the declarative perspective and in action. These guidelines were useful for the drafting of an autobiographical account by the teachers, in which they expressed their main ideas and

re-orientations on teaching throughout their personal, academic and professional trajectory considered retrospectively and introspectively.

The evidence collection period ran throughout the second term of school year 2012-2013. Each case involved an average of 12 days of observation, 3 in-depth interviews and some informal conversations. Based on analysis of the most relevant records, dialogues and observations of their practice, an initial report was carried out without losing sight of the focal points of the research: content and methodology.

Phase 2: Application and development of LS cycles (Start of the eighth multi-case study)

This phase saw the start of the LS experience corresponding to the eighth case study, in which the group of teachers successfully concluded two cycles: the first was carried out from March to July 2013, and the second from October 2013 to January 2014. A total of 14 work sessions were developed, not at regular intervals but rather in line with the availability of the teachers.

In the particular case of this research, the LS consisted of seven phases orientated by a series of goals which the teachers aimed to reach, some of which focused on promoting professional development, such as: a) Adopt a less directive role in group interaction; b) Develop new strategies of observation and documentation in order to assess pupils in micro-environments; and others focused on generating learning in pupils, such as: a) Promote collaborative work among pupils; b) Develop actions to facilitate divergent thinking; c) Boost mathematical logic.

The following phases were developed in the LS: (1) Define the problem; (2) Design the lesson; (3) Teach and observe the lesson; (4) Discuss the evidence collected; (5) Analyse and review the project; (6) Teach the revised lesson; and (7) Analyse and discuss the experience in a broader forum.

Phase 3: Period after the LS, completion of case studies and drafting of reports

In this phase the researchers returned to the classroom to obtain evidence of contrast during a second period of analysis in the second term of school year 2013-2014, which involved an average of 7 observation days, 2 in-depth interviews and some conversations. Observation focused on recording critical incidents, features which defined their teaching profile, and evidence of change. Moreover, they were orientated towards recognising the perceptions and opinions of the teachers on the LS experience. In order to analyse the information obtained during this phase and have elements for contrast, we continued the same process as in Phase 1, but now with the aim of preparing the post-report. This report was carried out in a different manner, synthetically and focused on showing the transformation and/or evolution of PK based on the features which characterise the teaching style of each teacher.

This situation led us to understand and identify the potential of LS in the Spanish context for the possible reconstruction of the PK and PT of the teachers, the main results of which are presented below.

PRESENTATION AND ANALYSIS OF CASES

The cases are presented below, along with a description of their different nuances and an analysis of the impact of the Lesson Study on their theory and teaching practice. A number has been allocated to each case for the purpose of anonymity.

Case 1

This teacher has 12 years of professional experience. Thanks to her experience as a pupil at an Educational Renovation school she has always taken a non-traditional approach to schooling, and is often involved in training and research activities at the Teachers' Centre (CEP) and at the University.

During the first stage of investigation she was in charge of a pre-school year one group (age 3 years) made up of 25 children. The classroom was organised spatially according to the corner-work methodology. However, the teacher said that her practice was based on project work, which she carried out in conjunction with her cycle colleagues, in particular the teacher in charge of the same year level, in order to design coordinated activities with both groups. In this case it could be said that the school approves and supports the development of innovative practice by teachers. Moreover, a key strategy in practice was the assembly, which she used as the basis for the emergence of the projects and, in consequence, for the course of the activities to be developed with the group.

For her, Lesson Study was a complete growth experience which allowed her to share experiences, ideas, concepts and proposals in order to develop a joint activity among a group of teachers working on the same educational level.

As a result of this experience, the time sequence she used prior to the Lesson Study (entrance, assembly, corner-work, break, relaxation, assembly, corner-work, assembly and wind-up) remained virtually intact. It could be said that the substantial changes with regards to the organisational structure of the classroom, the role of daily activities and the development of the assembly were minimal, perhaps because she felt more secure doing things this way. Nevertheless, there were changes in specific details, such as the spaces, with the incorporation of new corners (nature corner). Perhaps her participation in the Lesson Study led her to reflect more on this teaching strategy.

When I come into the classroom the group is all ready to start breakfast. I notice how the teacher seems unconcerned, searching for something inside her desk. I take the chance to inform her of my intentions (the gifts), and she suggests leaving the classroom to show her what I had brought (the plant and the turtle), which she clearly appreciates and thanks me for. She tells me this is just what her and the class needed, an area for contact with nature which, "as we will have seen", was missing in the classroom (Observation Diary Phase 2, Case 1, p. 1).

There were also changes in her knowledge of pupils and their need for autonomy, with the incorporation of the need to modify aspects which were hitherto "unquestionable", such as breakfast time, with self-regulation by pupils being reconsidered in this time period. Changes also came about in the reflective and declarative process, consolidating some beliefs with regards to the development of spontaneous practice, reaffirming her observation competences and declaring that she is now more attentive and expectant with regards to pupils' movements within the corners, which she now tries to document.

“... so now I give them more freedom and try not to limit the number of spaces for children as much, because I have seen the relationships that exist between them. And then I decide what type of intervention I have to do” (Interview Phase 2, Case 1).

With regards to observation ability, she admits that before LS she was not aware of what she observed whilst her pupils were doing corner-work, as she states that she did not know how to observe the representation of what they were learning or preparing.

While the teacher is moving among the children in pairs, asking, inquiring and making suggestions about what they are doing, I notice that a couple of children are shaping playdough with a plastic roller. The teacher takes pictures of them, unlike last year, when she would have taken photographs of the objects they had made (Observation Diary Phase 2, Case 1, p. 3).

Case 2

With only seven years of teaching experience, this teacher is one of the least experienced in the group. All her experience has been in different schools in different locations, where she has worked on a temporary basis. It was not until school year 2011-2012 when she started working in a school with an ideology based on project work at cycle level that she started questioning the functionality of the textbook. Since then, her concern and interest in improving her practice and consolidating her own method has encouraged her to participate in training and research programmes such as LS. Moreover, her domestic upbringing takes on great importance in her teaching practice, where she values and sets aside time to training personal habits, order and discipline.

With regards to her experience with LS, she considers it relevant thanks to the possibility of developing teamwork. Indeed she claims she has been fully supported when looking for innovative work alternatives.

I like working in a team, I can see that it is actually more beneficial. We do the same things but with less effort whilst also preventing comparisons between the cycle teachers, and the work receives proper backing. Even so, it is not easy (Interview 2, Phase 2, Case 2).

She also values the observation and documentation carried out during the process, which she considers very important, although she has been unable to incorporate them since she finds the process rather overwhelming. And finally she believes that the work done in the LS lasted too long, considering the lack of progress relative to the investment made.

I never used to keep a record of observation and documentation; I didn't even know it existed. I have learned about it now with the LS, and the truth is that I like it. You discover things you did not realise in the children. It allows you to recognise the competences they acquire (Interview 1, Phase 2, Case 2).

Given all of this, some of the changes identified in the PK on content and methodology remain at reflective, declarative and small actions level, and respond to a greater degree to the beliefs, emotions and values built up throughout her personal, school and professional life: She believes that the content to be developed in the child is expressed in the current official curriculum, which she considers to be a guide. She does not verbalise this clearly, but rather deals with it implicitly through activities both before and after the Lesson Study. With regard to her way of working, this experience has made her reflect on her teaching role, and she now recognises that she is too interventionist, in particular in work with the textbook. However, in an attempt to

change after the Lesson Study, she now only gives instructions on which activity and how to do it, without specifying which material, decision and modification is approved.

So sometimes I don't say anything. If they want to use a pencil, let them use a pencil; if they want to use a pen, let them use a pen. Anyway, I am not going to rub out anything they do. They are all processes, and in this regard I want to be less interventionist (Interview 4, Phase 2, Case 2).

With regards to free play and corner-work, she believed that any activity such as this could generate learning without much teacher intervention. In her practice this could be seen in the absence of explicit intentionality in the corners; she now recognises the importance of having a purpose and defined materials, along with an accompanying role for a specific end. Moreover, despite considering projects as the best alternative to generate learning, her practice is governed by the textbook.

She recognises that using project work is the best way to deal with diversity, since it means and allows pupils to learn at their own rate and in line with their individual needs, and for this reason she doesn't agree with or feel comfortable using the textbook (...). However, in the school garden project she had thought about using worksheets focusing on graphomotor competences and the acquisition of reading and writing, which she would use to build up a book. (Interview 6, Phase 1, Case 2).

Case 3

With over 25 years of teaching experience, this teacher is one of the veterans of the group. Working at the same school on a permanent basis for the last 15 years has allowed her to consolidate her practice and become a reference point in her immediate educational community. Her passion for art and creativity means she focuses her practice mainly on the application of arts and free drawing as methodological tools aimed at the acquisition of reading and writing, boosted by the cycle project or by comments or accounts of pupils in the assembly. She believes that anything done in class can be used for learning and growth in terms of personal, emotional and conceptual aspects. She also accepts that she tends to be "bossy" and interventionist in practice, although she feels that at times this is not such a bad thing.

I think I am very affectionate, and it is hard for me to keep quiet. I am too interventionist and perhaps I should take a step back and really try to speak less. (Interview 5, Phase 1, Case 3).

With regards to the Lesson Study, she believes it is important to set boundaries in terms of time, participants and focal points, otherwise the work becomes cumbersome and tedious. However, she believes that this experience has led her to understand the importance of her role as an observer, designer and analyser. She also sees another way of doing things, and realises that teachers share concerns despite the diversity of realities and the re-evaluation of collaborative work.

After passing through this experience, the changes identified in her practical knowledge around the focal points described appear to have remained at discursive, reflective and awareness level and/or small incorporations in her practice. In consequence, her ways of working did not generally change after her involvement in the Lesson Study, since right from the start she placed her trust in "improvisation", on what she had stored on her "hard drive" and her repertoire of proven activities.

The content dealt with focuses on the acquisition of reading and writing, since she recognises certain weaknesses in other areas of the curriculum such as mathematical

logic. Methodologically she focuses on the cycle project as a thematic guide, understanding that work is structured and organised through the assembly, the worksheets and free play. The tasks are organised, orientated and determined at the assembly, where oral expression and the development of some social competences are also promoted. She then proposes the "worksheet", which involves drawing and writing on a blank piece of paper in line with indications, which she checks at her desk. Towards the end they move onto free play or "corner-work", which is not particularly structured and which serves as a transit activity in which pupils decide where to go, who with and what to do, and which the teacher uses to do her tasks.

With corner work, I have to trust that whilst they are playing they are also relating, cooperating, developing language and social competences to resolve conflicts. But I can't say I see this, I can't understand how far each pupil goes. That's why common, shared activities give me reassurance and security (Interview 1, Phase 2, Case 3).

Despite emphasising that her reflections and changes have, for many years, resulted from a process of questioning practice, in the second phase of observation, after the Lesson Study, methodological changes were identified in the reorganisation of spaces, apparently due to the incorporation of a micro-environment and the application of a first cycle of LS in her classroom.

The teacher was responsible for applying the experimental lesson in the first cycle of LS, in which she designed a mathematic thinking micro-environment which was incorporated into the classroom; as time passed, the materials were left out of place, the sense of space became blurred and the children showed little interest in using the areas. (Daily Observation Phase 2, Case 3, p. 2).

Her interventionist teaching role remained, although there was evidence of attempts to establish other strategies to regulate and relate with pupils. Moreover, observation and documentation processes were included in short moments of free play and other activities.

The children were on the rug with some construction materials she had recently introduced in the classroom. The teacher incorporates these materials for a few moments, then goes to her desk and returns with her tablet to take some photographs of them using the jigsaw pieces, without this in any way distracting the children, after which she goes to another space... (Observation diary Phase 2, Case 3, p 13).

Case 4

This teacher has 28 years of professional experience, and is one of the oldest in the group. Her teaching experience is particularly influenced by the time she spent at a municipal centre which had a strong culture of collaboration. This led her to question the meaning of the textbook, and to opt for a methodology based on classroom projects. She recognises she enjoyed a positive school experience, and was able to satisfy her family's expectations by completing university studies despite never standing out as a student with high marks. She defines herself as a vocational teacher, and she remembers certain teachers and their passion and good work from her time spent at school. This teacher places great importance on relations and affection with both pupils and their families.

Methodologically, she focuses on a series of strategies which are based on research, experimentation, dialogue and participation, or the promotion of metacognition, through corner-work, project work, the assembly, directed and free activities, pen and paper

activities, games, etc. She places special emphasis on literacy, the development of mathematical logic and artistic activities.

The teacher has a positive opinion of her LS experience, which provides a platform of security and cooperation for teachers sharing the same concerns, whilst also providing support at moments of solitude when she was unable to count on her cycle colleague or "teaching partner".

Well, I have loved it. I think it has given me more confidence because I have seen that there are other people who also have the same concerns (...). That has helped me (...). It resolved my concerns, any feelings of discomfort which I may have had. Any concerns would be pooled and solved (Interview 2 Phase 2, Case 4).

After the Lesson Study, some changes in her practical knowledge on knowledge and methodology could be identified on a discursive and reflective level, and/or in the incorporation of small modifications in her practice:

- With regards to free play and corner-work, the teacher recognises the educational potential of free play corners, and starts to document information systematically, for example recording spontaneous conversations in the corners during free play time. She recognises she finds this difficult to implement, compared to obligatory corner work involving pen and paper activities in which the teacher is often very much present and which, methodologically, she maintains.

I note that the teacher almost always has the camera on the table. She seems to take photographs of moments which previously went unnoticed; she pays attention to what happens in spaces where she only used to go when called or to sort out conflicts, such as the corner devoted to symbolic playing, and also collects evidence. This means that the teacher devotes less time to carrying out support functions during corner work, and considerably reduces the time spent preparing materials or bureaucratic functions, which practically disappear, whilst incorporating a new task: observation of pupils. (Observation diary, Phase 2, Case 4, p. 10).

In this manner the teacher has redesigned and pedagogically reformulated all classroom corners. During the first period of observation in the classroom, the teacher was of the belief that these spaces set aside for playing were not so important, although on a declarative level she recognises that they did result in learning. In practice, this was manifested by her failure to attend to or observe playtime and by her lack of clear objectives in this regard.

You see, I have always had a lot of environments, and I still have them for playing activities. But I was not conscious, I had not systematised the objectives which could be successfully formed and created there. The objectives were not properly defined. For me they were more... Rather than being a prize for when I finish the activity, they were much freer... although I had not systematised them. I was aware that they fulfilled a series of objectives, but I had not written them down (Interview 2 Phase 2, Case 4).

- Regarding her work, her participation in the experience has made her reflect on her role in the classroom, which she defines as interventionist, whilst some modifications related to limiting her interventions and the use of the whistle have been identified.

Sometimes when pupils address her in the assembly, she asks them to address the rest of the class rather than her. The teacher appears more restrained in her interventions, giving more time to pupils to express themselves or say what they want, assuming a more secondary role in group interactions during the assembly and going along with the interest which emerges (Observation diary, Phase 2, Case 4, p. 101).

Case 5

This is a teacher with over 20 years of experience, who has, alongside her cycle colleague (Case 3 teacher), forged a common identity by promoting cycle project work which they show to other teachers through collaboration with Teachers' Centres and the University, where they impart in-service training courses. They also share the prestige of focusing their practice on the acquisition of reading and writing, even though they recognise this is not their main aim, which they achieve in this case through activities based on reading stories during the assembly, drawing up worksheets and free drawing which arises from the cycle project or the assembly. It should be noted that this teacher gives special importance to relationships in the classroom and understands that her interaction with pupils is affective and affectionate in a maternal sense.

She understands Lesson Study as a space for reflection on her daily work, and admits that such reconsiderations do not simply become open, explicit actions, but rather a different way of looking at the group which involves a gradual change of activities.

This teacher changed classroom and grade (from 5 years to 3 years) during the study. However, her beliefs and knowledge with regards to content and methodology remained firm, and she continued to give priority to the acquisition of reading, writing and mathematical thinking in both grades. Her working day was structured by the assembly, story reading, worksheets, free playing in the corners, and by carrying out some activities related to the project work which the teacher established along with the other pre-school teachers. This persistence of her educational objective responds to the "prestige" granted by the families and the educational community when children finish pre-school knowing how to read and write.

The teacher has changed classrooms this year, and is now on the ground floor, in a classroom with direct access to the rear schoolyard, which is used by the primary school children at break time; although it is smaller in size, the layout of the furniture is the same as in the last cycle: tables in the centre, surrounded by shelves with materials for use by pupils (Observation diary, Phase 2, Case 5).

Possible changes after the LS were, quite significantly, on a declarative level. She now recognises the need to "leave the children alone", in the belief that while "playing" they are also learning. In consequence, she changed the order of activity of the corner-work before completing the worksheets, setting aside more time for observation instead of carrying out other tasks at this point.

I now leave children much more to themselves, and have changed the period for free play, which previously was: whilst they were playing, I would prepare the material. Not now. Now when they play it is because they are also learning. Previously it was hard for me to see the importance of this, and indeed it caused me to have a guilty conscience: if I am not with the children then it is like I am not doing my job. This has changed. Now I think: whilst they are doing, I am observing (Interview 1, Phase 2, Case 5).

Case 6

The case 6 teacher has extensive experience in teaching, dating back over 20 years. Lively, fresh, restless, unorthodox, committed... This teacher is, as she herself says, an emotionally intuitive person who is motivated more by emotions and moods than by

reasoning or the search for external success. Although her childhood experience of school was monotonous and boring, which marked her family's expectations, she has found her true identity and role within the classroom, where she says she is very happy doing what she does.

As a child I could never imagine how this would feel... the truth is that this job is extremely rewarding (Interview 1, Phase 1, Case 6).

Indeed, every school she has worked at has brought her something different, helping her to become a teacher who is characterised by her commitment to the profession and to her pupils, who give her the strength to continue fighting for a publicly funded, educational school which focuses on dialogue, cooperative work and love of learning through playing and experimentation.

As she declaratively states, the experience of participating in the Lesson Study group, understood as a platform for security and as a space for cooperation and empathy between teachers, has given her the impetus and energy necessary to radically change her practice. Indeed, although she had been going over this in her mind for several years, she had never dared to make it into a reality until she completed this powerful experience of Lesson Study.

For me, LS has been a complete learning process, one which opens up your mind. My involvement in the group has made me more empathetic. I think the atmosphere was comfortable and fluid at the same time. We would interrupt each other a lot... maybe we were hooked. Things would have been a different had we not been so enthusiastic (...). Although it is also true that it has been a very long process and some people have become bored with it. (Interview 1, Phase 2, Case 6).

The most notable changes detected in her theory and in her practice after completing the Lesson Study include: Firstly, the restructuring of her practice through the inclusion of a new methodological, spatial and temporal approach which focuses primarily on a model of learning based on rich, flexible, democratic contexts in contrast to the different teaching strategies (assembly, projects, dynamics, etc.) she previously carried out at the same time.

The first changes perceived in her are related to space. The classroom is no longer full of furniture and materials, as was the case last year. It has become a much more open space which is also more welcoming. The classroom now has a layout based on micro-environments (rather than corners, which is the name she used last year). It is not one classroom but two, used by a total of 52 pupils (the two groups of pre-school five-year-olds), compared to the 26 last year and in the previous phase. This new, remodelled version of this teacher's practice includes a new participant: her teaching partner, who teaches the same level, who joined her before the start of the school year in order to create this specific curricular proposal (Observation diary, Phase 2, Case 6, p. 1).

Her teaching role has also changed towards a model of process documentation which, although initially more difficult due to it not being automatic, she has included in her practice thanks to her involvement in the Lesson Study.

At times it can be difficult. If I sit down to describe the processes, I get interrupted and that makes me nervous. So, even though I may miss a few things, I prefer to do it when I've finished rather than when the pupils are present, at least until I get the hang of it. Otherwise the stress will get to me, and I will lose my good humour. I can't help it. I get tense and can't work. I get blocked (Interview 3, Phase 2, Case 6).

Secondly, there has been an exponential increase in the practice and in the discourse of related ideas thanks to her belief in the cooperation of the whole school community.

A pupil uses his chance to speak at the assembly to show the teacher a first reader he has brought to school. The teacher looks at it and asks, one by one, who has a book like this at home. She doesn't

seem to like the fact that parents are using first readers with their children in the evening, as if this was going against her way of conceiving literacy work (Observation diary, Phase 2, Case 5, p. 44).

And thirdly, there has been an enrichment of reflection *for* and *on* action, and of espoused theories. Indeed this experience has provided the teacher with additional theoretical support which has allowed her to better substantiate what she does and has increased the need for reflection both before and after the action, most notably with regards to the improvement of her practice in general, and of the content, methods and relations with the school community in particular.

The Lesson Study has showed me a lot of reading material, which I have used to theoretically substantiate what I do. This has helped me a lot in specifying the curriculum design (...). I believe it has been a mix of many different things which have all come together, and I probably wouldn't have made this suggestion to my colleague had it not been for this experience (Interview 2 Phase 2, Case 6).

MAIN FINDINGS

Having gone over each of the cases, we discovered common aspects which show in each of them the reconstruction of their PK and PT after completing the Lesson Study, which are as follows:

- Each of the cases reveal changes in the PT of the teachers, although with different levels of influence and effect in terms of their personal, professional and contextual circumstances.
- Most of them denote the existence of certain dissonances, different in nature and level, between what is espoused and what in fact takes place in day-to-day practice.
- They show different levels of transformation and reconstruction in each of the cases, from the simple *theorisation of practice* (reflecting on unconscious aspects which have no effect on practice) through to the configuration of *informed habits*, i.e. changes consolidated in teaching practice, resulting from conscious reflection on the most unconscious practical knowledge.
- They indicate the relevance of cooperative training environments as a means of personal and professional growth, helping to generate trustworthy contexts in order to provide emotional security and take on the challenges of educational innovation.
- The main changes and modifications shown in the teachers correspond, to a large extent, with the objectives set out in the LS.

CONCLUSIONS

It has been shown that LS is an initial and in-service teacher training proposal which promotes the development of collaborative work, enabling the exchange of perspectives and experiences which enrich teaching work and create awareness of the levels of congruence between one's own practice and current pedagogical foundations, based on reflective processes through which it is possible to contribute to the reconstruction of PK and PT. It is therefore worth asking: What use was the exhaustive review of the different aspects of PK and of focusing on the personal history of each of the teachers?

On an individual level this complex process of data collection during the pre- and post-phases of LS has allowed us to compile data on the characteristics and nature of the PK of each teacher, thus giving us the opportunity to see which aspects are most conducive to reconstruction, i.e. those which touch the most conscious part (knowledge), since those which are more primitive and automatic (emotions and values) are also the most deep-rooted and, therefore, the most difficult to question or reconsider. For this reason, all reconstruction processes appearing in this study are the result of reflection on a series of knowledge related to teaching and learning, followed in some cases by their consolidation in practice through more automatic habits or competences such as student-centred planning, and more unconscious attitudes, focused in this case on a new approach with greater attention to pupils.

Although the results obtained on an individual level will be presented in greater depth in future publications, we can at this point state that the reasons why some teachers are more resistant to change than others are closely related to their motivation or disposition with regards to their mission as teachers and to the external circumstances of the school in which they work. Whilst on the one hand we find cases in which the constraints

imposed by the school lead to stress and despair from not being able to implement such changes (Cases 2 and 4), on the other hand we have open, flexible schools which allow teachers to freely and autonomously experiment with theory (Cases 2, 3, 5, 6 and 7). We found that whilst in some teachers the motivation, legitimacy and security generated by external factors (educational community and society in general) prevent them from reconsidering what they do, although not what they think (Cases 3, 4 and 5), in other cases intrinsic motivation and personal commitment to improvement, as corresponding to personal factors present in the innermost dimensions of their practical knowledge, stimulate their desire to transform their practice in order to improve and develop professionally in line with their theoretical and hypothetical approaches (Cases 1, 2, 6 and 7).

We can therefore conclude that it is important to recognise the importance of practical knowledge in the initial and in-service training of teachers and in identifying the influence it exerts over our most everyday actions. In consequence, teacher trainers need to recognise its implicit nature, in order to rethink training strategies based on the reproduction and repetition of unquestioned knowledge (rather than skills, attitudes, values and emotions).

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