Pedagogical potentialities of lesson study for the reconstruction of teachers' dispositions

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THEORETICAL BACKGROUND

Which aspects of our mind come into play at the moment of action? Why are there so many contradictions between what we say and what we do? Why has our teaching practice remained unchanged for decades, despite major advances in educational research? When we started this ambitious project alongside the research group, our main motivation was to study the intrinsic, tacit and implicit component which Schön (1998) termed *knowledge-in-action* within the educational sphere. We proposed studying which dimensions formed part of the so-called "teaching action patterns", and specifically, to understand the interaction between them. Based on current contributions from neuroscience (Deyfrus and Deyfrus, 1986; Immordino-Yang & Damasio, 2007; Damasio, 2010; Rodriguez and Fitzpatrick, 2014; Mora, 2014), we wished to deal with the perplexity we feel when we see how conventional, explicit, analytical academic knowledge still prevails in practice, without any attention to the implicit, habitual, automatic components, loaded with emotional tonality, which substantially shape our conduct (Grazaniga, 2011; Pozo, 2014).

With this background, our theoretical review starts with Polanyi (1983), with the need to know and transform the thinking of teachers, integrating all cognitive and emotional dimensions which come together in action, going beyond knowledge which can be relayed through words. At the same time, in Schön (1998) we have seen a distinction between *reflection-on-action* and *knowledge-in-action,* demonstrating the existence of a rational, reflective mind and a methodological and automatic mind. We then discovered Argyris (1993) and his *theory of action*, which deals with the differences between espoused theories and theories-in-use*;* Korthagen (2005, 2008, 2010) who, with his discourse on *Primitive Gestalts* and *Informed Gestalts*, shows us the possibility of reconstructing this implicit component*;* and finally Pozo (2014), who, with his theory on *implicit learning* closes a theoretical framework which motivates us to continue searching for a research context in which to reach this essential component in teaching activity.

All these authors highlight the idea that there is a gap between two areas of knowledge: (1) The knowledge we gather in our interactions with the world of ideas; and (2) The knowledge we actually use to act effectively in a specific situation. To a large degree, they all speak of a dual mind: an ancestral, implicit mind which governs us without our knowledge and which is characterised by being quicker, more economic and silent, and another which is more rational and which, despite culturally being considered more efficient, is often limited to rationalising *a posteriori* the beliefs which are provided by this other implicit mind (Pozo, 2014, Kahneman, 2011; Marina, 2012, Perez-Gómez, 2012; Evans, 2010).

In this theoretical context, we prepared a shared framework which can be seen in Soto, Serván, Pérez-Gómez and Peña, (2015), in which we clarify the meaning, dimensions, limits and interactions of two oft-confused concepts: *practical thinking* and *practical knowledge.* We define ***practical knowledge*** as the set of knowledge (associations between stimuli and simple

and complex ideas), skills (groups of procedures), values (core meanings for the subject), attitudes (predispositions to act according to values and situations) and emotions (somatic reactions to situations) which operate quickly, economically and efficiently in an automatic, implicit manner without the need for consciousness, and which shape our perception, interpretation, decision-making and actions. Meanwhile, ***practical thinking*** is understood as that which fulfils a much more holistic, systematic function which includes *knowledge-in-action* plus *reflective knowledge-on-action,* both put forward by Schön (1998), and which operates as a more rational, conscious and slower mind. In other words, whilst practical knowledge is automatic and implicit in the action, practical thinking refers to practical, reflected knowledge which coincides with the patterns of understanding and action which come from consciousness, making them explicit in order to question them and transform them (whenever we decide to do so).

Once the theoretical bases had been clarified, a series of general questions came about, looking mainly to respond to the need for integrated teacher training models. For this reason we began to study a specific training model such as Lesson Study (LS)[1], with the following initial aim: Could LS contribute to the transition between practical knowledge and practical thinking in teacher training? (Soto, Serván, Pérez-Gómez and Peña, 2015).

As different researchers (Elliot, 2012, Suzuki, 2012, Cheung and Wong, 2014; Dudley, 2012; Lewis, 2002, 2009) have shown, Lesson Study comprises a complex catalogue of processes which help generate cooperative contexts in which practice is recreated in order to improve teaching in the real scenario in which it takes place, whilst promoting collaboration and research as fundamental aspects in order to improve teaching practice. Lesson Study therefore became the ideal context to develop our research, since it combines action (practical knowledge) and reflection (practical thinking).

The need to deconstruct in order to rebuild meanings: from theorisation of practice to experimentation of theory

It is understood that *practical knowledge* can only be transformed if it first becomes *practical thinking,* i.e., it becomes conscious. We have therefore tried to define a framework of analysis for the stages of the Lesson Study, in order to analyse the nature of the mental and corporal processes which each of them demanded. For this reason, we have referred to Korthagen (2005) and his vision of reconstruction of intuitive methods, and we assume that *practical knowledge must incorporate active processes of personal and group reflection (conscience) in order to become practical thinking* (Soto, Serván, Pérez-Gómez and Peña, 2015). This process, which coincides with *reflection-on-action* by Schön (1998) or the ***theorisation of practice*** put forward by Hagger and Hazel (2006), involves reflection[2] (Calderhead, 1989) by the subject on

[1] Lesson Study is understood as a strategy for teacher training and proficiency, consisting of shared reflection cycles which focus on how pupils learn, with the ultimate aim of improving teaching. For this reason, a group of teachers work together, designing, developing, researching and analysing their own practice (Lewis, 2009; Cerbin and Kopp, 2006).

[2] Perrenoud (2004), basing his work on Schön, states that there is no complex action without reflection during the process, meaning reflective practice can be understood as reflection on the situation, the objectives, the means, the resources, the operations under way, the provisional results and the envisaged evolution of the action system.

the action (before, during and after) and on other situations, with the aim of forming concepts, outlines, maps and models of personal experiences and practical situations (Schön, 1998). However, the process does not finish here: in order for reflection to be operational, it must change into generally unconscious, automatic habits which intervene quickly and efficiently in the subsequent processes of perception, interpretation, decision-making and action which will come about in the uncertain, new situations we face. This process is analysed by Korthagen (2010) as *reduction of theory in order to govern practice*, and is similar to the *reconstruction of practical knowledge* put forward by Pérez-Gómez (2012). In this case, it has been decided to call this process ***experimentation of theory*** (Soto, Serván, Pérez-Gómez and Peña, 2015). This consists of the gradual formation of new *informed habits* through a systematic process of progressive, constant incorporation of new ways of doing, perceiving, interpreting, taking decisions and acting, all coherent with the new theories acquired.

The primacy of the dispositions

It is on this complex holistic conceptual scenario that subjective dispositions (emotions, attitudes and values) appear as one of the most definitive components in the configuration of practical knowledge and its transformation into practical thinking, as we will see in the analysis of the main case studied.

RESEARCH STAGES

Although most of this work was developed in a main case study, it is also true that there are two preceding publications which came about thanks to an initial dummy-run case study carried out in the stage prior to gain practice. The empirical part of this initial approach to the research lasted seven months (from January to July 2011). The procedure was very similar to the study presented below, which is the main case study upon which the results of this work are based. For this reason, in this summary I will only explain the stages and design which correspond to this main case study.

Over the course of the two years (2012-2014) during which the fieldwork was developed and the reports drafted, two stages can be highlighted: (1) A pre-stage prior to the LS[3] based on: (a) The initial case study focused on analysing knowledge and practical thinking in general; and (b) the particular teaching dispositions of a specific teacher with regards to teaching methods and content; and (2) A stage following the LS, the main aim of which was to detect

Reflecting during the action consists of asking oneself what is happening or what is going to happen, what we can or must do, what the best tactic is, what orientations and precautions we need to take, what risks exist, etc. *Reflecting on action* is a completely different matter and involves seeing the action itself as the object of reflection and looking for its ethical meaning and its technical efficiency. Reflecting is therefore not limited to evoking, but rather involves criticism and analysis: a process in which rules, theories and other actions –whether imagined or experienced in a similar situation– are linked to each other.

[3] Further information on how the intermediate part of the LS was developed can be found in the following publications: Soto, Serván, Pérez and Peña (2013); Peña, Vasquez, Rodríguez, Becerra, García and Pérez (2014).

the most outstanding changes and modifications in those dimensions previously indicated, specifically those dispositions which come about due to involvement in the LS.

The following outline shows the timeline of the different stages and the data collection instruments used.

Figure 1. Methodological outline

RESULTS

In this section I have divided the results and categorised them in line with the goals I set at the beginning, as summarised in the following questions:

- What information, both theoretical and empirical, does exhaustive study of the dimensions of practical knowledge offer us?
- Which dimensions of practical knowledge are most likely to produce change or reconstruction, and, in consequence, to improve educational practice?
- Which teaching dispositions favour reconstruction and are therefore useful for professional development?
- Which moments provided by Lesson Study significantly favour the reconstruction, or, where appropriate, the reaffirmation of teaching dispositions?

PRACTICAL KNOWLEDGE, THE KEY TO TRANSFORMING PRACTICE

I have spent a great deal of time directly observing teaching practice and am now in a position to reiterate the idea which makes up the title of this first section of results. Practical knowledge, along with all its different aspects, has been key to explaining teaching practice, beyond that which teachers are consciously able to express through words. For this reason, the transformation of practice is always preceded by transformations in practical knowledge, or, expressed in other terms, of processes of *theorisation of practice* and *experimentation of theory*.

In the first case study carried out on the teacher in the group of fourteen infant school teachers, I was able to see first-hand how information on practice developed during action is greater than that which could be obtained in an informal conversation about it, most notably because, as Polanyi (1983) stated, we know more than what we can express through words. And this is more than evident in day-to-day teaching practice.

> *Day by day I was able to see that corner work involved making use of each mini-area which had been created in the classroom to carry out different types of activities (building, painting, symbolic playing, library, etc.), with the children moving about independently. However, I saw very little pupil work during this time, since, according to the teacher, it was not fundamental for the project. Rather, she considered it a "time-out", where each pupil could do whatever he or she desired* (External Observation Diary, 2nd February 2011).

The potential of covering this practical thinking in initial and ongoing teacher training can be seen in the evidence such as that set out above, which show that it indeed governs behaviour and action, and, in this case, it was clear that the teacher, from her *knowledge-in-action* (Schön 1992, 1998), believed project work to be the central aspect of her practice, perhaps as it is where she most strongly felt that the main objectives set by most teachers before a class were achieved: the acquisition of content. Or simply because it was the moment of the day when she led the group and everybody followed her, as shown in the following metaphor which she described in one of my interviews with her:

> *For me, project work is like making a large fabric, in which I am the needle and pupils are the threads. The thread passes through the eye of the needle, just as they introduce themselves inside me, since they are part of me on a personal level. I move with them in the direction they set, but at the same time I set the direction within the context of the fabric.* (In-depth interview, 10th June, 2011).

Possession of control over what children learn during the school day was a key belief which emerged in this first case. A widely held belief which teachers seldom reassess: Is it possible to know what children learn? Is so much control by the teacher necessary? In the specific case of this teacher, all these questions can be answered in a single word: security. Teachers are afraid of "letting go" or "going with the flow", and hence assume the role of group leaders in the belief that the class cannot progress without their instructions.

If, from initial and ongoing training, strategies were used which allowed teachers to access this practical knowledge –remaining critical at all times and contrasting their action against what they think– schools would be living institutions which change with the passing years and, in short, become places which learn whilst teaching (Santos-Guerra, 2000).

In this specific case, the teacher's experience led to her taking a giant step forward in her conception of her excessively interventionist teaching role, causing her to give pupils more freedom to decide what they wanted to learn. In other words, this teacher, once her practical knowledge had become explicit, decided to truly listen to her pupils.

TEACHING BELIEFS, THE MIDDLE GROUND BETWEEN DECLARATIVE KNOWLEDGE AND UNCONSCIOUS DISPOSITIONS

If we recall the words of Pozo (2014), all explicit learning feeds initially off the products of implicit learning, in the form of beliefs, expectations or implicit theories which will restrict the type of representations which can be constructed through these explicit processes. However, in turn, these progressive processes or levels of explicitness will encourage a change in the implicit representations.

One of the most notable aspects of the results obtained is that the specific dimensions of the teacher which are shown through the profiles described in the fifth and final article form part of action patterns which cover both the conscious and the unconscious plane. Both

dimensions are worked on and become apparent in the field of action. However, in this specific case, although all dimensions can be found on the conscious plane, it is knowledge and abilities which basically fill this axis, whilst dispositions (emotions-attitudes-values) cover the most unconscious plane. Given the results, it can be concluded that beliefs are located in the most unconscious part of knowledge, where they receive the influence of the other unconscious dimensions; it is for this reason I am interested in studying dispositions through them.

The following figure shows the distribution of each of the dimensions of practical knowledge. Coinciding with the tip of the iceberg, most of the espoused theories which dominate thinking in the case of the teacher correspond, above all, to academic, pedagogic, socio-political, ethnic and ideological knowledge and to abilities which –although automatic– the teacher is fully conscious of. In this discourse there will be no room for those related to the most affective dimensions.

Figure 2. Representation of the organisation of the dimensions of practical thinking and knowledge in accordance with Mara's levels of consciousness

The evidence shows that, in the specific case of this teacher, her Lesson Study Experience has bolstered or supplemented the dispositions, rather than transforming them, leading to practice which is much more in line with a series of beliefs which, in this case, are in a process of continual (re)construction. Specifically, the following trends can be highlighted:

- The initial belief, based on the teacher as a model or focal point, gave way to a position of trusting pupils as being key to learning. In this case the teacher takes a step back.
- The balance existing between planning and flexibility was transformed into a firm commitment to coordination. Following this Lesson Study experience, the teacher accepted that, when planning and making decisions in the classroom, this individuality surpassed individual territory, which is why she decided to look for help from colleagues and other agents.
- The core dimension of respect and trust as the basis for a good climate became more complex, placing more importance on diversity and adding the opportunity for face-to-face interaction offered in the environments.
- Finally, the reconstructed belief in a learning model based on flexible, democratic and rich contexts implied commitment to and trust in the consolidation of educational ideals in her teaching practice, resulting in greater coherence between theory and practice. This led to the teacher taking a step forward in her habit of planning, as she switched from planning content and methods to planning contexts.

COMMITMENT AND INTELLECTUAL OPENNESS. DISPOSITIONS PAR EXCELLENCE FOR THE RECONSTRUCTION OF PRACTICAL KNOWLEDGE.

The dispositions which predominate in the teacher's personality –closely related to the "positive dispositions for teaching" envisaged by Socket (2006), Costa and Kallick (2000) and Hansen (2001) of *persistence, curiosity and open-mindedness*– have substantially favoured the reconstruction of practical knowledge. Intellectual curiosity, independent thinking and commitment could be specified as the dominant dispositions which have produced greater pedagogical meaning and specialisation in the teaching action, and that, in this specific case, these dispositions have focused on generating greater autonomy among pupils.

Specifically, the results of the research confirm the following with regards to these key dispositions:

Commitment

Lesson Study has helped reinforce the disposition based on *commitment* to a teaching methodology in line with the ideas she has most reflected on. According to Domínguez (1996), basic values such as solidarity, tolerance, justice, equality, freedom and peace are too abstract for conceptualisation, particularly at this educational level. It is therefore necessary to promote and reinforce attitudes and behaviours which can be easily contextualised within pupils' day-to-day experiences in the classroom. For this reason, this teacher always strives *to create a climate of confidence and ease* in the classroom. A climate which favours interaction and which Mara often used through strategies based on a sense of humour:

> *In the Art environment, Mara prepares the materials to continue with the roof of the house. Two girls come up to her to help, and Mara asks them to look for the glue. The girls start to look through the drawers, but cannot find it. In the meantime, Mara chuckles to herself as she observes them (it turns out that the glue is in a huge container on the floor right next to them). After a while she asks if they have found the glue. The girls say that they haven't, at which point Mara places the container on the table, much to the amusement of the class. The girls are astounded. They all start laughing* (Individual Observation Diary, p. 9, 27/1/2014).

Attention

The moments of debate, contrast and discussion have helped accentuate the disposition of *attention* based on pupils' processes (documentation). Specifically, this experience has led to the teacher showing greater concern for watching, observing, paying attention, anticipating and focusing her attention on pupils through, most notably, active listening, observation and scrutiny. In accordance with Hoyuelos (2007), Malaguzzi (2001) or Meritxell Bonás (cited by the Infant Education Territorial Network of Catalonia, 2012), documentation is the most powerful weapon in this long war to make pedagogy –a pedagogy requiring teamwork, discussion, curiosity and uncertainty– credible and widespread A pedagogy which trusts in pupils and their potential, which works because each pupil can be free and is accompanied at

all times on this exciting adventure of discovering the world, of wanting to know it, interpret it or change it in order to contribute actively to personal emancipation.

> *Mara passes through all areas, checking that everything is going well and looking for processes to photograph and document. She has her camera with her at all times as she moves around the classroom, answering pupils' questions and comments, and even taking part in specific activities such as a poster they are preparing for one of the environments* (Individual Observation Diary, p. 2, 23/1/2014).

Reflection

The mechanism of group design and discussion of the Lesson Study has allowed *reflection* before, during and after the action to be experienced and received in a positive way:

Reflection for action (before the action). With regards to this type of reflection (Schön, 1992), there has been substantial enrichment in this teacher's reflective practice, both in terms of the depth of this reflection and in her teaching methods and content.
Analysing the content, we discovered that, whilst in the pre-stage the teacher focused solely on the most cognitive and superficial aspects of competences, in the stage following Lesson Study she included affective aspects in her planning, which she understood as being key to forming competent citizens.

> *Activities for emotional education (emotions): Dialogue in the assemblies to recount our personal experiences, make proposals and reach agreements, bring things from home for the different micro-environments, collaboration with families in the different class and school activities* (CC, 15/9/2013).

If we focus on the methods, the pre-stage was notable for the need for multiple methodological strategies, since, in her own words: *All of the strategies I use in the classroom have their own attraction. I could not conceive my practice working with just one of these methods, since pupils are human beings and therefore need communal moments during which they can look at each other, talk and respect each other's turns (referring to the need for the assembly). The different methods I use –which are all open and flexible models– offer different ways of communication and understanding of one's own and other people's thinking* (EP2, Stage 1, 13/11/2012).

However, in the stage following the Lesson Study, the teacher only talks of the microenvironments as a strategy per excellence, based on previously conceived spaces designed for pupils to learn freely and autonomously. They are therefore the most relevant and suitable way for personal and interpersonal development.

Reflection-in-action (during the action). According to Perrenoud, once in action there is little time to meditate, and any reflection is mainly to guide the next steps and decide on the way forward. When teachers focus all their attention on leading the class, they do not have time to reconsider, given the need to be constantly taking small, instant decisions. These micro-decisions (Enggleston, 1989, cited by Perrenoud, 2008) bring about a mental activity which limits reflection in the moment. This occurred in Mara's practice before the Lesson Study. Her day-to-day practice was laden with micro-decisions which prevented her from reflecting on the moment, but now that the children are busy on their emerging stories in the micro-

environments, it is they who make their own decisions, with the teacher just observing, helping and reflecting. The result is a broadening of the opportunities to reflect during action.

Reflection-on-action (after the action). In the pre-stage it could be seen how Mara observed and took notes on the individual progress of children in terms of acquisition of curricular content, most notably mathematics and reading and writing, in order to monitor their progress. In the post-stage, having set aside more time for attention and observation of pupils, the goals were much broader and went beyond the mere acquisition of content.
Mara now reflects on how to improve her practice, in particular with regards to coherence between what pupils do and what her initial expectations were, and also on the methodology, specifically its role within the learning environments.

Trust

This pupil-focused learning resulted in the teacher having more trust in autonomous learning, respecting the different rhythms and needs of pupils (Díez, 2013).

THE RECONSTRUCTION OF PRACTICAL KNOWLEDGE THROUGH COLLABORATIVE WORK: KEY STRATEGIES

The results set out in this fourth and final section correspond to those presented in sections three and four. Particularly notable is the theoretical approach which tries to relate the processes of reconstruction of practical knowledge (theorisation of practice/experimentation of theory) with the processes provided by the Lesson Study strategy in our experience carried out in Málaga.

As explained in the theoretical part of the work, the theories which underpin teaching practice come to light mainly in the moments of reflection, analysis and observation of practice. Individual and group deliberation and observation can bring about the first movement in the formation of thinking, a movement we have defined as *theorisation of practice*, identified mainly as:

- The pre-stage of the Lesson Study, which comprises the definition of the problem and the cooperative design of the Experimental Lesson, particularly those moments which, when defining the problem, stimulate reflection on their own experience, casting light on the virtues and failings of their daily practice, aiming to identify the knowledge, values, attitudes, skills and emotions related to them.
- The moments of observation of the lesson, when teachers record and collect evidence of learning by students, invariably coinciding –for the teacher not developing the lesson– with a process of educational observation and documentation from a perspective different to that commonly found in the classroom.
- The lesson review stage, through the contrasting of evidence collected by the teacher, offers the opportunity to question and discuss as a group the strengths and

weaknesses of one's own practice, both in the design of the Lesson and in its development.

Experimentation of theory comes about above all during the development of the Lesson, both in the initial moment and also in its second implementation following review in light of the evidence collected on the first occasion. The protagonists of this process were therefore the teachers in charge of developing the experimental lessons. However, all teachers in the group have implemented new action mechanisms deriving from the new enriched understanding in both the design of the lesson –when the proposal and its development begin to take shape– and in the reformulation for a second intervention, thus opening up the possibility to consolidate new subjective dispositions and habits regarding understanding, decision-making and action. It can therefore be stated that these two processes have enabled the following:

- To experience the new theory through the implementation of agreed new abilities and attitudes which, as we have seen, have contributed to the formation of new *informed habits.*
- To observe the plasticity and flexibility of their thinking, allowing them to deal with the emerging processes found in any educational practice, even those based on shared research.

A schematic representation of the processes of reconstruction of practical knowledge (theorisation of practice and experimentation of theory) with regards to the stages experienced in the Lesson Study would be as shown in figure 16. This shows how, in the part to the left, *theorisation of practice* corresponds to the process in which new knowledge and beliefs are constructed through analysis, comparison and observation of practical knowledge, which, in turn, corresponds to the stages of analysis and observation of the Lesson Study. Meanwhile, the part to the right shows the *experimentation of theory* when the new knowledge and beliefs are experienced in practice and repeated, becoming consolidated in new practical knowledge. This process of experimentation of theory corresponds to the design and development stages of the Lesson Study.

Figure 3. Stages in the reconstruction of practical knowledge and its relation to the stages of Lesson Study

SPECIFIC CASES

Specifically, in the research developed with the seven case studies, as shown in the article titled "Seven singular and converging training itineraries related to Lesson Study", it can be confirmed that processes of *theorisation of practice* have come about to a greater or lesser degree in all cases. The discussions, comparison of experiences and readings made in the group meetings provided by the Lesson Study have, in all cases, lead to the reformulation of

some beliefs related to the profession and to our mission as teachers, such as that which defends the conceptualisation of an interventionist teaching role, and which, in these cases, has been re-orientated towards teaching models based on free, autonomous learning by pupils (Malaguzzi, 2001; Díez, 2007). This new awareness has possibly been stimulated by the methodology chosen by the group for the *experimental lesson* they designed. A methodology based on designing powerful learning environments, which, as they saw for themselves, promoted the development of pupils' skills (Pérez-Gómez, 2012).

The move towards *experimentation of theory* came about through the incorporation of new methods and habits in practice. Specifically, almost all cases show certain changes of attitude with regards to free playing and learning by pupils in the environments, leading to increased attention and a clear improvement in ability to observe (Hoyuelos, 2007). The teachers studied now tend to observe and pay attention to the most subtle and tacit aspects of life in the classroom, unlike previously when they focused solely on results.

The single case study considered in more detail in the last article showed the incorporation of new *informed habits* (documentation, non-intervention, trust in pupils' processes, reflection, collaboration with the teaching partner, etc.), resulting in the reconstruction in practice of some basic fundamentals, particularly those related to teaching methodology, which have favoured the following advances and developments:

- Greater security to deal with innovations based on free, autonomous learning by pupils, in accordance with the educational freedom approach (Montessori, Reggio Emilia, El Martinet, El Pesta, Summerhill, etc.). In this method, which is based on the freedom of the learner, guidance comes not from the teacher but rather from the interior forces which are built up as the pupils express themselves at liberty.
- Search for richness in horizontal cooperation through the teaching partner. As Stenhouse (1987) stated, the power of an isolated teacher is limited. Although coordination is generally more time-consuming than working alone, sharing doubts, contradictions, problems, successes and failures with others is a highly important part of personal and professional development (Imbernón, 2007). In this regard, Lesson Study has proven to be a strategy which allows active, critical participation from the educational context itself, and is a dynamic and flexible training process which promotes a culture of collaboration.
- Enrichment of theoretical foundations through fine tuning of the *Informed Gestalts* put forward by Korthagen (2008) and which affect the most internal layers of the teacher's personality: those which allow us to question our mission and our most deep-rooted values and which shape our decisions and actions (Pérez-Gómez, 2012).

CONCLUSIONS

Although it is difficult to reach conclusions in a process which is unfinished, I will try to summarise some of the main ideas I have extracted over the course of four years of intense work.

To begin, I would like to consider the foundations of the research by paraphrasing Cuban (2013) in his book *Inside the Black Box of Classroom Practice*. There is a long-standing tradition which understands teaching as the transfer of key knowledge, skills and values. This is the reason why people who become teachers reproduce what their teachers did with them, adopting the same teaching habits. It could be said that there is, to some degree, a teaching protocol which is familiar to all of us and which persists not only through reincarnated habits but also because teachers blindly believe in its efficiency and effectiveness. Moreover, the politicians who oversee educational reform commit two fundamental errors: (1) Believing that redesigning and replacing laws on education will change teaching and learning in schools; (2) Believing that schools and classrooms are wide-ranging but uncomplex systems which can be modified by changing some of their parts.

This work offers a response to this resistance to change and to progress in education. It demonstrates the potentiality of Lesson Study for the transformation of schools in the 21st century and the construction of a reflected, shared, emerging pedagogical capital for teachers. When teachers work together to examine students' work and to analyse their practice, they collectively discover what works and what doesn't, and are able to draw up alternatives for improvement. In this manner they build a culture of learning through their own experience, and, in consequence, beliefs change, teaching practice changes and isolation gradually disappears (Stenhouse, 2007). This idea, which pedagogues and experts in education have put forward for many decades, is now being more widely spoken about thanks to neuroscience. Specifically, Linda Graham (2013) focuses on the potential of personal interactions. Her theory is based on the belief that isolation and a lack of challenges and stimulation damage brain health, since brain plasticity is influenced, for better or worse, by the quality of the interactions we have with other people. This would corroborate the idea that schools have to change in order to respond to the demands brought by new findings in this new science.

The type of analysis I have used to check the changes which have occurred before and after the Lesson Study are also notable for their complexity and exhaustiveness. According to Marina (2012), one of the greatest challenges facing educators this century is to efficiently educate the unconscious, since it has been shown this is key to people's behaviour (Damasio, Claxton, Dijksterhuis, Harré, Dawson, Pellicer, etc.). Throughout these three reports completed for the second case study, I have strived to explore practical knowledge, or what Schön (1998) refers to as knowledge-in-action; Pozo (2006) and Marrero (2009) as implicit theories; Kinsella and Pitman (2012) as phronesis; and Contreras and Pérez de Lara (2010) as tacit knowledge, and from here I would like to extract two important ideas:

1. Conscious control of action rests on unconscious routines. As stated by Hamachek (2009, cited by Korthagen, 2010: 99), we consciously teach what we know, whilst we unconsciously show who we are.

2. Observation and reflection on one's own practice, along with quality of interaction, are key aspects to voluntarily control unconscious mechanisms.

With regards to this idea, I also defend the importance of dispositions such as this mix of emotions, attitudes and values which affect the quality of reflections and interactions, and, in consequence, the much-needed predisposition to personal growth. Of the seven case studies carried out in the research project, the most outstanding, in terms of transformation, are those dispositions which derive from commitment and from intellectual curiosity. With this I would like to highlight the primacy of emotional aspects over rational ones (Mora, 2014; Sousa, 2010; Davidson and Begley, 2012; Damasio, 2001).

Through the case study carried out on Mara, I have verified the idea of Morgado (2007) on the balance existing between emotion and reason. Emotions influence our spontaneous reactions, our way of thinking, our recollections, the decisions we take, how we plan the future, our communication with others and our way of behaving. In this specific case, Mara's emotions –based on opening up to new practice and experiences, security thanks to the theoretical foundations, and strong commitment towards an educational school in line with current pedagogical theories– have helped achieve the ultimate goal of the reflective and collaborative process in Lesson Study: the transformation of teaching. A transformation which, almost two years on from when she stepped into the classroom for a second time to collect evidence of reconstruction, is still bearing fruit. The teacher I initially knew as an "isolated teacher" has revolutionised infant teaching in her school thanks to her project of replacing classrooms with learning environments. This reflective, committed, intellectually curious teacher has captured the attention of universities, is regularly invited to speak about her experiences at conferences, and is gradually becoming an opinion-maker in terms of educational practice in infant education.

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METHODOLOGICAL OUTLINE				
STAGES		DESCRIPTION OF THE ACTIVITY		
STAGE I Analysis of practical knowledge *SEPTEMBER 2013 - JULY 2013*	*Sept. 2012 March 2013*	*Initial case study of the teacher's practical knowledge*	Nº Observations	*58 (174 hours)*
			In-depth interviews	*3 (2 hours, 30 minutes)*
			Spontaneous conversations	*6*
			Analysis of documents	• *Schedules* • *Planning* • *Teaching proposal* • *Marks reports*
	April 2013 July 2013	*Drafting of the first report*		
Intermediate stage: LESSON STUDY	*March 2013 July 2013*	*Cycle 1: Search for focus, design, implementation, observation, analysis, reflection and conclusions.*		
	Sept. 2013 January 2014	*Cycle 2: Redesigning the lesson, 2nd implementation, observation, analysis, reflection and conclusion.*		
STAGE II Analysis of the reconstruction of practical knowledge	*Jan. 2014 Feb. 2014*	*Further analysis of reality, search for evidence of reconstruction*	Nº Observations	*13 (65 hours)*
			In-depth interviews	*3 (1 hour, 45 minutes)*
			Analysis of documents	• *Curricular specification* • *Quarterly assessment reports*
	April 2014 July 2014	*Drafting of the second report and the reconstruction report*		
JANUARY 2014 - SEPTEMBER 2014	*Sept. 2014*	*Negotiation of the reports*		

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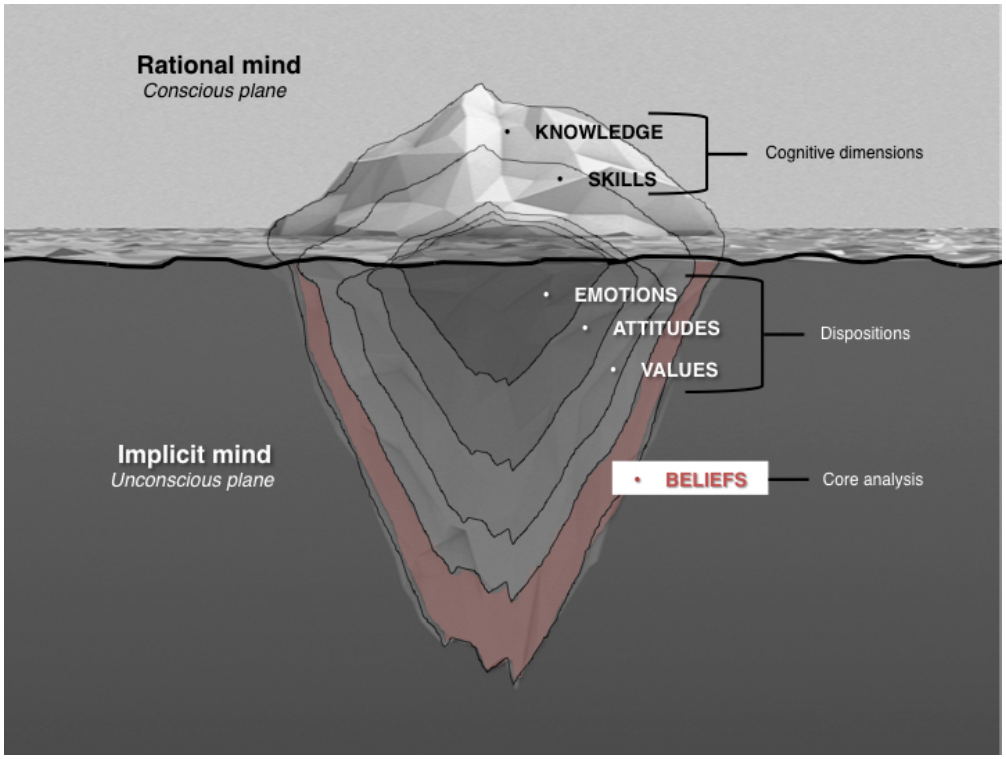

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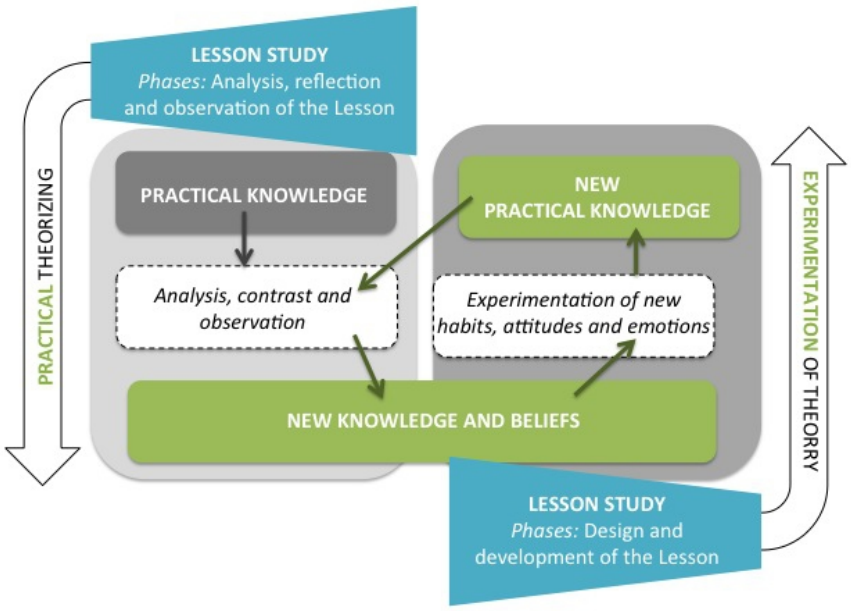

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