

# Learning ‘Rules’ of Practice Within the Context of the Practicum Triad: A Case Study of Learning to Teach

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## Abstract

This case study sought to determine the professional development circumstances in which a preservice teacher learned rules of practice (Wittgenstein, 1996) on practicum while interacting with a cooperating teacher and university supervisor. Borrowing from a theoretical conceptualization of teacher professional development based on the postulates of a general theory of learning (Berducci, 2004; Nelson, 2008) and collective action (Wittgenstein, 1996), this study showed that teaching rules of practice is (i) effective when it makes use of contexts and exemplars anchored in the preservice teacher’s experience and, (ii) before the preservice teacher is able to follow the rules in the classroom, he needs to be monitored by the cooperating teacher and university supervisor within a community of practice. These share with the preservice teacher the cognitive background and associated intentions that they bring to the setting and that he does not (yet) have and that he will construct through discourse and actual teaching.

**Keywords:** Teacher training; pre-service teacher; training collective; work rules; learning circumstances.

### **Résumé**

Cette étude de cas a cherché à déterminer dans quelles circonstances de perfectionnement professionnel un enseignant en formation a appris les règles de pratique (Wittgenstein, 1996) pendant son stage, tout en interagissant avec un enseignant coopératif et le superviseur académique. S'appuyant sur une conceptualisation théorique de perfectionnement professionnel des enseignants basée sur les postulats d'une théorie générale de l'apprentissage (Berducci, 2004; Nelson, 2008) et de l'action collective (Wittgenstein, 1996), cette étude a montré que l'enseignement des règles de la pratique est efficace quand il fait usage des contextes et des modèles ancrés dans l'expérience de l'enseignant en formation et, avant que l'enseignant en formation soit en mesure de suivre les règles dans la classe, il doit être suivi par l'enseignant coopératif et le superviseur académique au sein d'une communauté de pratique. Et ce, afin de transmettre et de partager avec l'enseignant en formation les compétences cognitives et les intentions associées qu'il n'a pas (encore) et qu'il va construire à travers le discours et l'enseignement proprement dit.

**Mots clés:** Formation des enseignants; enseignant en formation; formation collective, règles de travail, circonstances d'apprentissage.

## **Learning 'Rules' of Practice Within the Context of the Practicum Triad: A Case Study of Learning to Teach**

### **1. Introduction**

The aim of this study is to determine in what work training circumstances the collaborative work of university supervisors (USs) and cooperating teachers (CTs) is optimal for enhancing the preparation of preservice teachers (PTs) for their work as practicing teachers. To succeed in answering this question, this study (i) generates questions from the literature based on details of the implementation of the principle of alternating between work and work training, (ii) presents an original framework for looking at the principle of alternating between work and work training, (iii) describes the results of a case study guided by this framework, and (iv) makes propositions to optimize the principle of alternating between work and work training.

#### **1.1. The Principle of the Alternating in the Heart of the Reform of the Teacher Training Program in France**

As part of a project to standardize university diplomas within the European Union, France is reforming the training programs for PTs. National policies have been optimized by placing more emphasis on greater "*coordination between the various components of teacher education*" (Communication to the European Parliament, 2007, "*To improve the quality of the training of the teachers*"). French universities have thus been invited "*to organize their work collaboratively and in partnership with the public schools*" to a greater degree, "*which implies a back-and-forth between the field (the schools) and the training site (the university)*" (OECD, 2005). Teacher training in France is comprised of two distinct steps, in contrast to the training practices in a number of other European countries. The first step for future teachers is to obtain a Bachelor's degree. Once this degree has been obtained, national competitive exams are taken. Those who succeed are accepted into a University Institute of Teacher Training for one year of specialized training, during which time they have the status of preservice teacher (PT). As this preservice training is limited to just one year, the recent reform tries to optimize this experience. It emphasizes the principle of alternating work/study based on the assumption that there is a reciprocal impact of (i) training sequences for PTs, with CTs in the public schools and/or with USs at the teacher training institute, and (ii) sequences of practical work experience in the classroom. This latest reform gave greater importance to classroom experience for PTs—which was defined as the "structuring element of training"—and proposed a reorganization. For 50% of the time, the PTs' classroom work is organized exclusively as a placement "with responsibility" for a class for a whole academic year. They work only with their pupils. The CT and US make regular visits to the classroom and engage with the student teacher (ST). The other days of the week were devoted to training at the university institute under the direction of USs.

#### **1.2. The Principle of Alternating Work and Work Analysis: Difficulties and Questions**

The principle of alternating between study at the university and work experience in the school system is thus at the heart of this reform. However, several reports have pointed to the difficulties of this type of professional development structure (for a review, see: Chaliès, Cartaud, Escalié & Durand, 2009), and a detailed analysis of the contents and consequences of PT programs has revealed fragmentation in these programs, which are designed and implemented at the university while the actual organization of 'know-how' is in the schools (Cochran-Smith, 2003). PTs regularly find themselves in the situation of being unable to link

the theoretical information offered at the university with the practical experiences of the classroom (Korthagen, Loughran, & Russell, 2006).

Despite the shortcomings revealed by these studies, however, the principle of alternating work and work analysis in PT professional development has rarely been questioned. Instead, many of the findings have highlighted the need to redefine the university/school partnership (Haymore Sandholtz, 2002) in order to build “*a curricular coherence*” (Levine, 2006) and enhance the effectiveness and efficacy of the alternation between the two institutions (Authors, 2010). These studies have called for the construction of a new form of professional development based on a “*community of practice*” (Wenger, 1998) wherein the USs and the CTs work in partnership (Mullen, 2000). First conceived within the framework of professional development with “*mentor teams*” (Smith & Evans, 2008) or in physical education in a “*collaborative learning*” environment (Keay, 2006; 2009), this form of professional learning creates a rich “*hybrid space*” (Zeichner, 2010) in which PTs, CTs, and USs can find mutual professional benefit (Coffey, 2010). Studies conducted in physical education have shown, for example, that PT professional development constructed on the basis of collaborative learning offers learning opportunities for both PTs and CTs, notably during observation periods and lesson planning (Sinelnikov, 2009). Other studies have demonstrated that CTs can become better mentors through closer collaboration with USs as they help PTs to understand and use innovative teaching methods such as the *Sport Education Model* (MacMahon & MacPhail, 2007) or the *Model-Based Instruction Approach* (Metzler, Lund & Gurvitch, 2008). In addition to working collaboratively during meetings with the PTs, CTs and USs tend to look for the links between the different types of professional development and practice in this type of environment (Allard et al., 2007), and this favors the development of a “*coherent intellectual program*” (Lamb & Jacobs, 2009).

Whatever the structure of the professional development model that is adopted, the collaborative process seems to be most crucial to the success of the PT and the work of the CT and US triad. However, although considerable information has been brought to light about the modalities for structuring such models, few studies have focused on how they actually function. No study has yet evaluated the repercussions of these new PT training programs in physical education, and the type of work that is defined and carried out separately or together by teacher educators has been examined only tangentially.

The aim of this case study was thus to determine what professional development circumstances for collaborative work between the PT, CT, and US are optimal for physical education PTs learning; this is a central element for greater coordination between the various components of teacher education.

## 2. Theoretical Framework

In this study, work and work training were conceptualized on the basis of postulates borrowed from a general theory of learning (Berducci, 2004; Nelson, 2008) and collective action (Wittgenstein, 1996).

### 2.1. Work: Realize Actions that are Governed by Rules or Which are the Follow-up of Rules

In this theoretical framework, the rules are nothing more than normative situated experiences accepted in the professional community (Authors, 2010). They thus have authority only if the PT decides to follow them or is encouraged by the CT and/or the US to follow them (Nelson, 2008). The notions of “governed by” rules and “following” rules (Wittgenstein, 1996) are that a member of a community behaves in harmony and in accordance with the consensus of the community about a rule and in doing so appreciates its

importance for the community and the activities that the community engage in. More exactly, the notions of 'governed by rules' and 'following rules' are different in this study. In a large number of professional situations, the PT realizes actions "governed" by rules. These rules were implicitly learned (Lave & Wenger, 1991) through non-verbal interactions and/or informal alignments with the practice of the other members (Rogoff, Matusov, & White, 1996) during their participation in the essential professional practices of the community. They are not conscious but—in the future, thanks to a reflexive engagement with the US and the CT—can become so. In other professional situations (as in this study), the PT realizes actions that are the "follow-up" of pre-conscious rules and potentially can be expressed because of what they learned during previous use within the practice setting. More exactly, there are in this type of situation two types of understanding: a PT's after-the-fact understanding of her work experience in connection with "*following a rule*" and understanding-in-action in the classroom circumstances or "*obeying a rule.*" This rendering of the theoretical framework clarifies three key assumptions relative to the PT's practice in these situations.

## **2.2. Work Training: Ostensive Teaching, Explanations, and Help in Following the Rules**

**2.2.1. Meanings of the rules are taught so that PTs can make sense of their experience.** The first assumption is based on the postulate that PTs' ability to correctly attribute meaning to their classroom experience is conditional on prior learning (Williams, 1999; 2002). Based on the conceptualization of learning used in this study, this implies learning "rules" (Wittgenstein, 1996). When they are learned, the PT can then construct the meaning of their classroom experiences and/or discuss these experiences in post-lesson training situations (e.g., the post-lesson interview). In this paper, we use the example of 'the warm up' in physical education as 'a rule' that by consensus (and based on the accumulated knowledge and wisdom of the community) has particular characteristics that the members of that community understand, abide by, and acknowledge. As such, adherence to the notion of 'the warm up' is one instance of how physical educators are defined by the physical education community at the same time as they define themselves as members of it. Gustaffson (2004) insisted on the role of community in all intelligible action and noted that "*rule-following presupposes a community of rule-followers.*" It is thus the professional collective, US and CT, that permits novices to participate in and learn rules of practices (Matusov, 1998) that pertain to the particular activities within the community. Within the framework of collective action theory, this learning occurs during "*ostensive teaching*" (Wittgenstein, 1996), by which trainers teach the meaning of professional acts and actions that are presented as exemplary. The trainers choose these acts according to what is observed (e.g., during the lesson) or demonstrated (e.g., during a training sequence at the university). As CTs work with PTs, the hope is that they establish for each stated rule a "*meaningful connection*" (Wittgenstein, 1996) between the language experience (e.g., the verbal label "present a situation of apprenticeship to the pupils") and practical use of the stated rule and the experiential circumstances with which it is identified, ostensibly shown but rarely put into words (e.g., the teachers' activity is demonstrated by the CT in class or on video at the university by the US. In new circumstances, the learning of a rule establishes a meaningful connection with the community of practice that supports the rule and therefore that learning becomes a "*measuring rod*" for interpreting experience and acting (Williams, 1999).

**2.2.2. PTs need explanations of how the learned rules can be used.** The second assumption is that after rules are learned through ostensive teaching, a period for "*explanation*" (Wittgenstein, 1996) and "*critical debate*" (Williams, 1999) is important. This is the moment when PTs begin to question their educators, CTs, or USs, or when the educators themselves provide feedback on the PTs' first attempts to follow the rules. The educators teach ostensibly by providing multiple examples of the rules that have been agreed

upon by consensus within the community (so mostly, they are attentive to examples in class of the follow-up of particular rule shared during ostensive teaching) and ought to be followed by members of the community. They do so with the goals of resolving PTs' alternate understandings and leading them to gradually appreciate and use the rules of practice in their own classroom. It is important that these first attempts be "*monitored*" by the collective for their conformity (Nelson, 2008), because as learners, PTs are not able to associate the intention shared by the collective about the rule during the first instances of rule-following (Nelson, 2008). It is only through repeatedly following the rule in a wide variety of contexts and gradually coming to fully appreciate the rule's significance that PTs will progressively succeed in intentionally drawing upon and including the rule (Berducci, 2004) in their own practice. PTs don't become rule-bound but rather rule-guided in their practice. From this perspective, PTs' professional development appears more as a "*participation*" in the mature practices (Rogoff, Matusov, & White, 1996) and language (Berducci, 2004) of the community than as an "*internalization*" of inter-psychological or social instruments (Matusov, 1998).

**2.2.3. PTs need help in following the rules so that they have a broader understanding and range of activity in the classroom.** The third assumption is that when PTs decide to follow the rules learned in professional development settings, they extend the meaningful connections and the usefulness of the rules, as well as expanding their own understanding of the rules (e.g., the PT will adapt the follow-up of the rule according to their pupils: the delivery of the instruction being shorter and simplified with underachieving pupils). More specifically, they begin to identify "*family likenesses*" (Wittgenstein, 1996) between unfolding circumstances and the professional development circumstances in which they learned the rule, and these circumstances function like a "*measuring rod*" (Wittgenstein, 1996). The PTs use these meaningful connections to make sense of a complex network of resemblances and become able to understand the circumstances of the new situation. It can be assumed that PTs have finally learned the rule when they are able to see that it is "*being played out*" and are themselves able to produce a series of acceptable or satisfying performances in conformity with the rule. In these circumstances, it is then possible to consider that PTs have understood what is expected of them. So as Rizzolatti & Arbib (1998, p.189) state, "*By 'understanding' we mean the capacity that individuals have to recognize that another individual is performing an action, to differentiate the observed action from other actions, and to use this information to act appropriately.*"

Based on these three assumptions, this study responded to the following research question: in which training circumstances does a training collective teach work rules and monitor rule-following so that PTs can give meaning to their work experience and act in the classroom in conformity to the rules?

### 3. Method

#### 3.1. Training PTs in France

As opposed to teacher education in many European countries, the French system has two distinct steps that all teacher candidates undergo. The first step is five years of classes at the university, with two or three internships lasting one or two weeks apiece in the public school system to observe the practices of expert teachers. At the end of this phase, future teachers take a national examination and, if they pass, they are given the status of PT and undergo professional development for one year. This year is organized on an alternating basis with half of every week spent at the university with the USs and the other half in the public school system working in a classroom under the supervision of a CT.

### 3.2. The Professional Development Component Under Study

The professional development component examined in this longitudinal case study was the “*training visit*” (the word ‘training’ is a direct translation from French and is used here for consistency with the professional development documents and mandates in France). It was chosen because it is currently the only component in the national teacher education program that brings together the PT, US, and CT in the public school system. More exactly, it is institutionally considered as dispositional, allowing for the engagement with communities of practice between these various actors in professional development. The professional community is thus formed to follow each PT throughout the entire school year. Three times per year (in October, December, and February), the three triad members meet together for a training visit. Between these meetings, each PT continues to be followed by the CT in regular visits. Whether training visits or regular visits, the professional development sequences follow the same format: observation of the PT’s lesson with his or her students followed by a post-lesson interview with either the CT and US or just the CT.

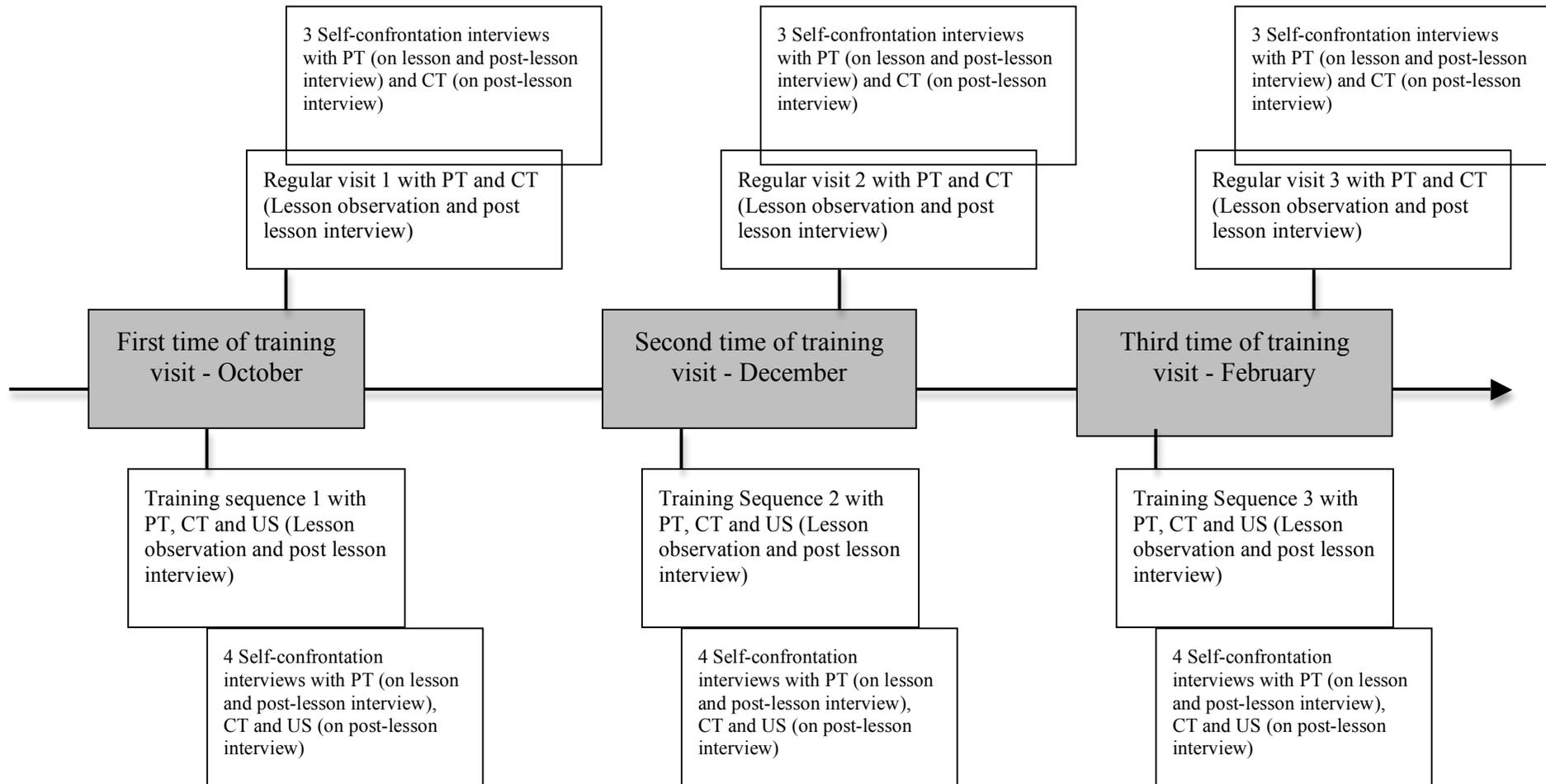
### 3.3. Participants

A triad (PT, CT, and US) volunteered for this longitudinal case study. The group was followed over the course of a school year for the three training visits and then for the three regular visits in the following week. The PT was 24 years old and had obtained the “Certificate of Aptitude for Teaching Physical Education and Sports,” which is a requirement for teaching in French middle schools (12 to 15 year-olds) and high schools (15 to 18 year-olds). At the time of the study, she had little professional experience. Since receiving certification, she had had only 14 days of teaching in the current school year during a “responsibility” internship. During this internship, she had taught her own class with the assistance of a CT for two days per week. The CT was 58 years old and was an experienced physical education teacher. She had been teaching for 38 years, including being a CT for 11 years. As a CT, she had attended several training programs at the university to develop her CT skills. The US was also 58 years old and had been a physical education teacher for 30 years, including being a CT for 12 years. The focus of his research was teacher education and he was considered an experienced US. This triad was selected because it was judged to be typical of most triads. The PT had completed five years of university education without failure. The CT was recognized by her peers as an experienced physical education teacher and had been trained in mentoring. The US was an experienced teacher educator, physical educator, and a CT.

### 3.4. Data Collection

Data was collected on three occasions: October, December, and February. On each occasion there was a *Training Visit* followed one week later by a *Regular Visit*. For the Training Visits (between CT, PT, and US) both the lesson and the post-lesson interview were videotaped. These were followed with four self-confrontation interviews: two with PT (on lesson and post-lesson interview) and one each with CT and US on post-lesson interview. These were also videotaped. For the Regular Visits (between CT and PT) that followed one week after each of the Training Visits both the lesson and post-lesson interview were videotaped. These were followed with three self-confrontation interviews: two with PT (on lesson and post-lesson interview) and one with CT on post-lesson interview. These were also videotaped. Therefore, for this case study, 21 self-confrontation interviews of the duration of approximately one hour each were also recorded (Figure 1).

Figure 1. Device and Data Collection



The self-confrontation interviews were conducted by one of the researchers after each lesson (for the PT), post-lesson interview of training visit (for PT, CT, and US) or regular visit (for PT and CT). They served to help in reconstituting the rules followed by the members during the post-lesson interview under consideration. All followed the same protocol. With semi-structured questioning, the researcher sought to determine (i) the language used by each triad member to label the viewed events, and (ii) the corresponding experiential circumstances shown and/or described; that is, the meaning each member attributed to her own or the other members' actions. The researcher thus prompted each member to describe and justify what he or she meant in the viewed situation (for example, "*Can you tell me what you are trying to do right here?*"). He regularly asked questions or made remarks to obtain further detail on a judgment ("*So here in the warm-up, you still have to accompany them, don't you?*") or to start a critical exchange ("*What's interesting here is that you don't tell her this as clearly as you just told me*"). During these self-confrontation interviews, both the researcher and the interviewee had a remote control device so that they could stop the tape and rewind, depending on the meaning of the events being viewed.

### **3.5. Data Analysis**

Each triad member's activity and each articulation during the post-lesson interview was analyzed. More specifically, we sought to identify the rules that were followed by the members during the interviews, using the procedure described by Chaliès, Bertone, Flavier & Durand (2008) and Chaliès, Bruno, Méard & Bertone (2010). The collected data were thus processed in four successive steps:

- (i) The recorded data were transcribed verbatim and the entire corpus was broken down into units of interaction. These units were delimited by the meaning each member attributed to the events being viewed during the self-confrontation interviews. A new unit of interaction was created each time that the interviewee changed the object of meaning (Table 1).

Table 1.

*Illustration of Data Analysis.*

<b>Excerpt from the post-lesson interview with the PT and CT during the second regular visit</b>	
PT: I think that I have to add the muscular intensification in my warm-up.	
CT: Yes. They need it, it is sure.	
PT: Either at the end, or at the beginning. For the moment, I do not know exactly but I have to add of the intensification because ... Because in fact I believe that I have still completely in the spirit no needs of the pupils ...	
CT: And thus there in your lesson you discover them in fact ...	
PT: Yes there I see that they are disintegrated. It is true that I make not too much account, which there is, they make it not for the house, they make it not in, you see.	
CT: Yes. It is the only moment with you when they have a physical activity. And thus it is not only the problem of or you make in your warm-up the intensification. It is all the same especially to question on what you make do to strengthen. Some make it only with you. You really have to take into account it.	
<b>Excerpt of the self-confrontation interview between the PT and the researcher regarding the post-lesson interview</b>	<b>Analysis</b>
PT: there, it is difficult there. She lets me reflect.	<b>Unit of interaction 1:</b>
R: Difficult?	<u>Judgment given by PT:</u> "It's difficult"
PT: Yes because she stays in her trainer's role there. She lets for me look there.	<u>Meaning attributed by the PT:</u> It's difficult because "she stays in her trainer's role"
R: That is " role of trainer "	
PT: She does not answer me. She repeats in fact my question. But in the same time she directs me to what is important so that after I reflect about it. There she says that it is necessary to think of the fact that some go in for sport except the school.	<u>Request for judgment</u> from R <u>Meaning attributed by the PT:</u> "to stay in trainer's role" is valuable in circumstances, "she does not answer", "she repeats in fact the question" and "she directs me to what is important" leads to "she lets me reflect".
R: She thus helps you when meme then?	
PT: Yes she gives me in a way the precautions to have in the idea.	<u>Request for judgment</u> from R  <u>Meaning attributed by the PT:</u> "she gives me in a way the precautions to have in the idea". <u>Formalization of the rule:</u> ["The CT stays in her trainer's role" is valuable in circumstances "she does not answer", "she repeats in fact the question", "she directs me to what is important" and "she gives me in a way the precautions to have in the idea" leads to "she lets me reflect".
PT: It is difficult. Because I have not ... But well it is interesting	<b>Unit of interaction 2:</b>
R: I do not indeed understand? Interesting but in the same time...	<u>Judgment given by PT:</u> "it is difficult but well interesting" <u>Request for judgment</u> from R
PT: Yes, There we are on how to make a good muscular intensification in the warm-up). She directs me on the important aspect. To make of the intensification it is at first knowledge what you make it by questioning you about what you make according to the capacities of your pupils in fact.	<u>Meaning attributed by the PT:</u> "To make a good muscular intensification" is valuable in circumstances "to question on its contents according to the capacities of the pupils"
R: And your question of the placement then?	
PT: In fact it is not so much there the problem apparently. The problem what that is rather kept silent make, the contents of the intensification. Not to hurt them for example. And thus the placement with regard to the other contents of the warm-up is not the first question to arise.	<u>Request for judgment</u> from R  <u>Formalization of the rule:</u> "To make a good muscular intensification" is valuable in circumstances "to question on its contents according to the capacities of the pupils " and not only "to question on its placement with regard to the other contents of the warm-up" leads to "not to hurt them".

(ii) For each unit of interaction, the object of meaning was identified. The object was associated with the set of circumstances that the member used to explain the way he or she gives meaning to the event.

(iii) The rule followed for each unit of interaction was formalized. By convention, each rule was labeled from (a) the object of the meaning attributed by the triad member, (b) the set of circumstances evoked by the member to support the meaning, and (c) the observed and/or expected results (see above). Each rule was labeled strictly using the interviewees’ vocabulary.

(iv) Finally, the validity of the results was tested by comparing and contrasting the interpretation of the data by two researchers working independently (in addition to and separate from the research collection the data). Less than 5% of the identified elements was a source of disagreement and these were removed from the analysis. Overall, sufficient information was collected and successfully analyzed (i.e., the identification of the three parts that constitute a rules) that identified 754 distinct rules in total for the data corpus (Table 2).

Table 2.

*Total Number of Rules Followed by the Actors During Training Sequences and/or in the Classroom.*

	Rules followed by the actors			
	PT	CT	US	Total
<b>Time 1 – October</b>				
PT’s lesson	23	-	-	23
Post-lesson interview of training visit (PT, CT and US)	50	28	46	124
PT’s lesson	18	-	-	18
Post-lesson interview of regular visit (PT and CT)	45	41	-	86
<b>Total</b>	<b>136</b>	<b>69</b>	<b>46</b>	<b>251</b>
<b>Time 2 – December</b>				
PT’s lesson	37	-	-	37
Post-lesson interview of training visit (PT, CT and US)	39	45	31	115
PT’s lesson	22	-	-	22
Post-lesson interview of regular visit (PT and CT)	42	31	-	73
<b>Total</b>	<b>140</b>	<b>76</b>	<b>31</b>	<b>247</b>
<b>Time 3 – February</b>				
PT’s lesson	35	-	-	35
Post-lesson interview of training visit (PT, CT and US)	41	33	41	115
PT’s lesson	26	-	-	26
Post-lesson interview of regular visit (PT and CT)	41	39	-	80
<b>Total</b>	<b>143</b>	<b>72</b>	<b>41</b>	<b>256</b>

## 4. Results

This longitudinal case study sought to determine the circumstances in which a training collective had an impact on work rule-learning and rule-following by PT. It specifically tried to determine the circumstances in which educators (CT and US) taught and monitored rule use that made it possible for a PT to adopt a community consensus intention for the rule and in this way develop professionally as a member of that community. The principal results were obtained by circumscribing the PT's rule-learning steps in response to research question.

### 4.1. To Teach a Rule: It is Important to Make Reference to the Experiential Circumstances that the PT Needs to Identify in the Classroom

We drew upon the rule related to 'the warm-up' in physical education classes whereby the warm-up should first have a general component (cardiovascular and respiratory) followed by an activity-specific component (that includes movement patterns related to the upcoming lesson activity).

In the example provided, during the self-confrontation interview that followed the first regular visit, the PT called the researcher's attention to the warm-up she had assigned to her students in the beginning of the lesson by following the rule [*"Realize that core muscle work is missing in the warm-up"* is valuable in circumstances where *"to have planned it but not done it because of a lack of time"* leads to *"bring it up again during the interview"*]. The PT paused at this part of her lesson because she was having difficulty getting things going even though she had planned it all out. In other words, she had known since the first training visit (just prior to the post-lesson interview being considered) that, whatever the sport, a warm-up should consist of a first general component to gradually raise heart and breathing rates, as well as sport-specific exercise of greater intensity to prepare for the upcoming activity. She also knew that elements of the *"core muscle"* exercise should appear in the general part of the warm-up (Excerpt 1).

#### *Excerpt 1:*

PT: So what happened, the last time, they... with J. (the US), they were giving me a hard time about the order of the warm-up exercises.

Researcher: Yeah...

PT: About what comes... the cardiorespiratory warm-up that comes before the stretching, the stretching that comes before this, the hips that come before the quadriceps, the quadriceps...

Researcher: So, there's a question that is implied by this, I mean it's about the warm-up contents or about...

PT: About the order. OK, I need, I need to put in some work on the core muscles (abdominal and back). That's what I planned but I didn't do it and so I said that I knew that it was important, but uh... I didn't know where to put it.

Researcher : So there you are asking her: where do I put it?

PT: Yeah.

Researcher: And so, and it shows by a concern with the order because they had already picked up on it.

PT: That's it.

The PT had learned the rule with the CT and US during the first training visit and was able to follow it in some circumstances. She first followed it in her lesson planning; the *"core muscle work"* could be seen in her *"lesson plan."* She had also followed the rule during the post-lesson and self-confrontation interviews when she specified what had happened in the

classroom and suggested new elements of interpretation. She had not actually managed to follow the learned rule in the classroom circumstances, however (Self-confrontation Excerpt 2).

Excerpt 2:

PT: There, we're on the warm-up. (...) And there I come back (in the warm-up) with the core muscle work because I realize that that's what's missing, which in fact I had planned for but didn't do because I didn't have enough time.

Researcher: When you tell her there, are you thinking what you said to me just now? I mean, you tell her but knowing that... well... you had planned it but you didn't do it or... really because there when you say this...

PT: No, there I know that I planned it but I didn't do it.

The PT justified her difficulty in following the rules taught by the CT and US to ensure a thorough and well-ordered warm-up. First, she considered that she "*didn't have enough time*" to do everything she had planned. Also, what the CT and US had actually said during the earlier training sequence did not help her to see a procedure that she could follow to manage to efficiently order this part of the lesson (Self-confrontation Excerpt 3).

Excerpt 3:

PT: No, there I know I planned it but I didn't do it. But on the other hand I ask her (the CT) an indirect question. I ask her before or after, I don't know. When I talk about the warm-up, I tell her that I need to add a step. But before or after, I don't know. I don't know where to fit in the step but I know there has to be one.

Thus, although she knows that "*a step has to be added*" (in the warm-up), the PT does not know where to "*fit it in.*" Aside from its singularity, this result points to the question of the educator's activity while teaching a rule to the PT. This example not only reveals the inadequacy of rule-teaching based only on a verbal statement of the rule, but it also emphasizes the importance of the "*meaningful connection*" between the statement of the rule ("*order the warm-up*") and the experiential circumstances that need to be associated with it. The trainers in this example set up a meaningful connection without, however, being precise enough about the circumstances associated with it. In other words, because they did not make good enough use of the circumstances similar to those experienced by the PT in her class, the educators did not help her to construct expectations that would have allowed her to look for and identify similarities between rule-following in training sequences and in the classroom circumstances in which this rule should also have been "*played out.*" The PT was able to follow the rule, however, in circumstances that were "*in the same family*" as the exemplary circumstances ostensibly shown in training; that is to say, she was able to follow the rule in the post-lesson or self-confrontation interviews or the lesson planning.

In addition to pointing to the importance of the type of circumstances associated with the rules taught, this result shows the importance of associating all ostensive teaching with explanations based on the PT's initial attempts at rule-following. Explanation would in fact have enabled the educators to more clearly specify the past experiences associated with the rule and thus facilitate future rule-following.

#### **4.2. To Facilitate the First Attempts at Rule-following: Monitor the PT's Conformity to the Rule and "Lend" her Professional Intention**

The results above raise a question: when the circumstances associated with the statement of a rule are close enough to the PT's classroom circumstances, does the CT's and/or US's ostensive teaching lead systematically to the emergence of efficient action in the

classroom? The self-confrontation excerpt that followed the first regular visit opens this discussion.

*Excerpt 4:*

PT: That, that's in reference to what J. (the US) and she (the CT) had seen in track and field.

Researcher: Why?

PT: Because I was not doing a track and field class. I wasn't doing an aerobic warm-up (cardiorespiratory).

Researcher: And so there, when she (the CT) said that?

PT: For me, she said good, you understood. You did an aerobic warm-up.

Researcher: OK. So you made them run, if I understood correctly.

PT: Yeah, really fast.

Researcher: What do you mean by really fast?

PT: Three minutes.

Researcher: To make her happy? No, I don't know, you just said...

PT: A little, a little bit to make her happy... I'm not sure.

R: That is?

PT: There in fact what he pleased with is that I make a methodical warm-up, as they want in fact.

R: Methodical? It does not suit to you?

PT: Yes it is necessary to go through all the warm-up steps in the right order... and to respect them... In the order all the time.

R: You are not convinced yet.

PT: Not all the time do the aerobic (cardiorespiratory warm-up) first and then stretching, I do not know if it is really...

R: And thus there you...

PT: She (the CT) thus waits for that I please her.

This excerpt documents the PT's success in acting in conformity with the rule learned in training, which confirms the hypothesis in the first analysis. However, during the first attempts at rule-following in the classroom, the PT did not immediately associate the community consensus intention of the rule with her acting in conformity to the trainers' expectations. Specifically, despite the PT's success in carrying out the action, she was not guided by the intention to obtain the results usually expected by experts in this community of practice. She had followed the rule with several other intentions, very much indexed to the training circumstances in which she had learned the rule. The PT acknowledged, in fact, that she had followed the rule that the trainers had taught her [*"Do a methodical warm-up"* is valuable in circumstances where *"go through all the warm-up steps in the right order"* leads to *"do the aerobic (cardiorespiratory warm-up) first and then stretching"*] in order to please them [*"I said to myself: they want to see a little (cardiorespiratory warm-up) so I'll give them a little"*].

This excerpt thus raises a question about the timing and circumstances required by the PT to build a connection between rule-learning and rule-following in the classroom and the results expected from the rule. The following excerpt from the self-confrontation interview following the second training visit (nearly two months later) suggested hypotheses in response to this question (Excerpt 5).

Excerpt 5:

PT: It's what I was saying the last time. I made them (the students) run to make them (the CT and the US) happy. There, it's the same thing.

Researcher: So there when she says this to you?

PT: I know very well that I made them run for three minutes, I did it, I didn't say it to them but I did it to make them happy (the trainers). When you do it like that, it serves no purpose. (...)

Researcher: OK. And it's something that you've done?

PT: Yes, the warm-up... in fact, they (the CT and the US) criticized me in track for not having a purely aerobic warm-up and so all at once, I said to myself: they want a little, I'm going to give them a little but without...

During this interview, the PT correctly followed the rule with the same intention of pleasing the trainers ("*I know very well that I made them run for three minutes, I didn't say it to them but I did it to make them happy*"). The PT's initial intention had thus not changed very much since the first regular visit (two months ago). This suggests that professional development can be a rather long process, although based only on the PT's rule-following behaviour one might conclude that learning was complete and stabilized. The finding that the PT had not yet constructed the professional intention generally associated with the rule more broadly questions the professional development environment and/or the learning disposition of the student. This longitudinal case study in fact shows that the PT did not always follow the rule [*"Do a methodical warm-up"* is valuable in circumstances where *"go through all the warm-up steps in the right order"* leads to *"do the aerobic (cardiorespiratory warm-up) first and then stretching"*] in order to prepare her students for their upcoming activity. The following self-confrontation excerpt about the first regular visit clearly documents the rule followed by the PT (Excerpt 6).

Excerpt 6:

Researcher: Here, I think you're going off on something different. Here I have the impression that you're telling her I didn't do it because I thought they needed it, right?

PT: No, but, I... I realized that they needed to do it more than I had thought, in fact. For me, the core work, it's part of gym, period. And when you see them, you say, no but you can't just skip it.

Researcher: So why did you skip it during your class?

PT: Because... because for me, the warm-up, I'm not yet into my lesson and I want to get into it. It's not that I'm wasting time with the warm-up but still it shouldn't take me 25 minutes of my lesson (...). If you want, I have the impression that ... all the things that are prepared are just side things for the action, to me. Uh, the moment in the show, the moment where they pick up the equipment... well, OK, that's, that's important. But for the moment...well, I want to really get into the lesson.

The PT behaved in a questionable manner (she "*skipped*" the core muscle work even though she conceded that it was important). The results show that the PT's actions conformed to the educator's expectations on the surface but they also suggest that educators may need to "supervise the intentions" of PTs during the first attempts of rule-following. Trainers are needed during these early instances of rule-following so as a community of practice they can monitor the attempts to apply the rule in many different circumstances.

The following self-confrontation excerpt after the second training visit realized in December shows the importance of this observation. In fact, the observation of these early failures in rule-following was an important indication that let the educators step in with

complementary ostensive explanations. Thus, during the second training visit, the PT followed the rule about the cardiorespiratory component in her warm-up without expecting much. As a consequence, she forgot to explain the goals and give instructions to the students. This is revealed in a US interview (Excerpt 7).

*Excerpt 7:*

US: In track, I don't remember what it was, about what we had said it, in track, there was a side to it, I think it was the warm-up, she (the PT) said, "We're going to run from marker to marker, turning each time" and then there you are. We're going to run, we're going to warm-up. Why? Because I said so. There's no, there's no, the student has no goal, in fact.

Researcher: So there's still something that persists with S. (the PT) there.

US: That's it. (...)

Researcher: Yeah, it's something, it gets to you because it makes, there you...

US: Well, it seems, yes, pretty important in her... It seems important, especially when she's going to get them (the students) started in work groups and then, there, whether she wants it or not, they are going to have the freedom...

Researcher: Yeah.

US: So sooner or later, if she wants to work in small groups, where by definition she can't be everywhere at once, the students are going to have to do a part of the work. And that, it's learned in the warm-up.

This excerpt shows that the US was involved in ostensive explanation to facilitate the connection between a professional action in conformity with the rule and the result expected by the community of practice: not "*to please the trainers*" but "*to help the students to become autonomous in their work*" and improve the efficiency of the cardiorespiratory warm-up.

## 5. Discussion

The object is not here to generalize the results of this longitudinal case study. These last ones are rather discussed with reference to the theoretical framework. On this base, propositions are made to try to optimize the organization of the work arrangement of the educators and so allow the PT to learn new work rules and practices that constitute the work of the community.

### 5.1. Collaboration of Trainers to Engage the PT in Learning the Work Rules

When the ostensive teaching of rules was superficial, it delayed the PT's professional development. When the PT engaged in training interactions with little ostensive teaching—that is, with few concrete, observable and circumstanced examples of correct and/or incorrect rule-following—she did not succeed in following the rule in the classroom in the manner expected of and consistent with the community consensus regarding the rule in the community of practice. Also, because she had difficulty learning the rules without ostensive teaching by the educators, the PT ended up responding to their questions and expectations, and even her own classroom difficulties, by simply reorganizing the personal meaning of her professional experiences. This reorganization allowed her to interpret the events discussed by the educators or experienced in the lesson in the professional development situation, but she could not respond with efficacy. Thus, because of this incomplete ostensive teaching of the rules, numerous occasions for training were transformed into "*lost opportunities to learn to teach*" (Valencia, Martin, Place & Grossman, 2009).

The results of this longitudinal case study therefore reinforce the idea that ostensive teaching of work rules is necessary if PTs are to build meaningful connections (Wittgenstein, 1996). This idea closely parallels, for example, the findings of Cothran et al. (2008) regarding PTs, which indicated that PTs preferred a "*direct mentor style*" in which the trainers fulfilled their role as "*problem solvers*" rather than an indirect method based on the model of "*reflective questioning*." Meaningful connections are built on the basis of exemplary examples of rule-following, especially when the rules are not known and mastered by the PTs (Williams, 2002). Thus this needs to be a judicious balance between problem-solving and reflective questioning. This theoretical reading doesn't question the necessity of the development of reflexivity in teacher training. This reflexivity is not, on the other hand, the point of departure in the training that would allow them to construct new knowledge or new skills. In this reading, the reflexivity is in combination with or as a result of the learning of new meanings of professional acts and actions that are considered exemplary in the community. It arises from the professional development which the trainers also have to accompany either in training (US in university) or in class (CT in school).

Theoretically, these results reinforce the hypothesis that Wittgenstein's distinction between "*following a rule*" and "*obeying a rule*" needs to be taken into account in alternating work/work analysis programs for PTs. As Gustaffson remarked (2004, p. 126), "*The danger seems to be that 'acting in accordance with the rule' collapses into 'thinking that one is obeying the rule',*" especially when one adopts a conception of training that overemphasizes the place of PTs' reflectivity and problem resolution. The results suggest the value of clearly differentiating two types of understanding: the PT's after-the-fact understanding of her work experience in connection with an effort of formulation ("*follow a rule*") and understanding-in-action in the classroom circumstances ("*obey a rule*"). This distinction was crucial in this case study, notably to understand the PT's difficulties in changing her behaviour in the classroom based solely on the statement of a rule in training (point 4.1. in the study results).

The degree to which the educators in the training collective are complementary seems to be an important element for making the meaning of the stated rule concrete. This study in no way encourages an artificial division in training work, but instead points to a natural collaboration between USs, who articulate the rules, and CTs, who illustrate and anchor these rules "by" and "on" samples drawn from PTs' classroom experience, so that new expectations can be co-constructed. USs are particularly well-equipped to give a clear statement of the work rules that are indispensable for training PTs and helping them to construct a professional identity; CTs, with their broad experience and knowledge of the teaching context that PTs find of themselves in, have a vast store of exemplary examples for using the rules in classroom circumstances. Without this linking within and across institutions to PTs' experience and "*sampling*" (Williams, 2002) from it, programs that are able to produce PTs with professional intentions firmly associated with the learned rules will remain hypothetical.

## **5.2. Creating a Climate of Trust to Encourage the First Attempts at Rule-following**

In addition to agreeing on the work rules that would be addressed during training, the trainers sought to create a climate of trust for the PT. Although she often did things just to please them, the PT learned many professional actions while under their supervision that would have been quickly abandoned if she had not felt a relationship of trust and complicity.

Despite the climate of trust and the PT's actions conforming to the expectations of the trainers, a crucial issue concerned the need to monitor of the PT's classroom attempts to apply the learned rules by the training collective (point 4.2. in the study results). In fact, a rule can be followed in conformity to expectations, but it may nevertheless be applied in a context of misunderstandings about the expected or desired results. This longitudinal case study seems to show the need for ostensive explanations so that the trainers could clarify any ambiguity about

the utility of the actions learned by the PT. This study did not allow us to distinguish between intentions and expected results, on the one hand, and the actions or operations actually carried out, on the other hand, in a way that would be complementary to the above distinction between “*following a rule*” and “*obeying a rule.*” Nothing in the data allowed us to document a disassociation between the actions learned and the intentions that were supposed to drive it. Instead, the data show early errors in rule-following that were produced when the PT acted in apparent conformity to expectations and then revealed in the self-confrontation interview that her intention (similar to the erroneous actions) was to “*please the trainers.*” In this sense, neither the actions nor the expected results were completely conformed to the trainers’ expectations. Only after extensive explanation of the correct uses of the rule and the identification of corresponding new results were the PT’s actions truly transformed in the classroom circumstances. By taking into account the erroneous actions and considering the actions and intentions “*apparently conforming*” to the rules as consubstantial and unsatisfactory, we see that evaluating PTs’ professional activity only on the basis of observable behaviour is inadequate. This failure is linked to an “*internalist*” conception of PT rule-learning, which assumes that learning a profession proceeds by distinct and alternating steps either in the sense of operational development toward intentional development or intentional development toward operational development. This error is often due to the adoption of a conceptual model based on activity theories (Vygotsky, 1978) that distinguish between intrapsychological motives and the meaning of activity and interpsychological operations and social meaning (Berducci, 2004). This conception introduces a dualism, whereby two actions can be identical but the targeted results and the attributed meaning differ or change, and vice versa. The results of this case study instead show the similar nature of action and intention, with one transforming alongside the other. In this conception of professional development:

*... skills and functions are embedded in sociocultural activity (Lave, 1988). The individual exists in the flow of sociocultural activities and cannot transcend them (...). The notion of development, like the notions of activity and learning, is grounded in meaning and thus is distributed, interpreted and negotiated. Development can be observed and studied as the process of change of participation validated by changing community (Lave & Wenger, 1991), rather than assuming a priori that the psychological plane is more mature than social plane. (Matusov, 1998, p.340)*

Thinking about professional development less in terms of the internalization of social instruments and more as participation in the elaborated sociocultural practices of a community also provides insight into the reasons for the failure or success of the development of meaning and action learned first in training in the various circumstances of PTs’ daily work.

These results confirm the hypothesis that learners are not able to manifest the intentionality that is ordinarily associated with a learned rule during their earliest attempts at following it (Berducci, 2004; Nelson, 2008; Williams, 1999). This hypothesis is of particular relevance to training programs that are organized around a “*community of practice*” (Lave & Wenger, 1991) and that target both the emergence of a common enterprise and “*democratic forms of social relations and practices*” (Whitehead & Fitzgerald, 2007). In fact, beyond the importance of collective stability and the construction of a common history of training between PTs, CTs, and USs, belonging to a “*community worthy of trust*” (Darling-Hammond, 1994) facilitates greater risk-taking on the part of PTs in the course of daily teaching.

In this sense, training based on a more “*collegial*” model (Moran, Abott, & Clark, 2009) seems to favor “*a positive reorganization of the first teaching experiences of PTs*” as well as “*reciprocal professional learning*” among those invested in the program (Cartaut &

Bertone, 2009). It also seems to permit PTs to develop professional skills by offering them not only “*a context for understanding the link between theory and practice*” (Coffey, 2010), but also help in establishing links between the circumstances in which they understand their experience and the circumstances of stable and situated actions. Further, it highlights the important role played by both schools and universities.

Whether or not formally included in an original program, such as the one examined in this study, the work of training collective appears to be quite complex. Future studies on this should further examine the training and work circumstances of PTs with the goal of optimizing this work. Training circumstances should facilitate the collective work of the trainers, and work circumstances should be arranged so that trainers can monitor PTs’ activity and ensure that the rules can be applied in classroom circumstances. The statement of work rules in the training situation should not be confounded with the reflective co-analysis of work and stable practical action in the classroom, but trainers are responsible for the non-linear liaison between these two characteristic modalities of understanding and professional action in teacher-training by “alternation.” On the other hand, future studies will also have to question the circumstances of training in which the learning of professional rules by the PT can also be made implicitly (Lave and Wenger, 1991) through non-verbal interactions and/or through informal alignments with the practice of the other members (Rogoff et al., 1996) during participation in the essential practices of the community. At this level, two questions arise. First, in which working circumstances do the mode of the PT’s participation in the professional community evolve? Or “governed” by rules learned informally, is participation in the professional practices of the community at first peripheral in their position as a newcomer and gradually becomes more and more full and central (Boylan, 2009; Sutherland, Scanlon & Sperring, 2005) over time (as they become old-timers)? Second, in which professional circumstances can the PT contribute to the transformation of the community? That is, what are, if any, the reciprocal learning opportunities within a community of practice?

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