

Professional Learning Through Video: Reflection of a Pre-Service Teacher One Year On

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The research presented in this paper investigates a pre-service teacher's reflection on professional learning using the medium of video. To promote a reflective activity, we invited the pre-service teacher—now a titular teacher—to comment on their activity while remarking on a recording of one of their lessons conducted one year earlier. The lesson was performed in a professional high school, followed by a meeting with the teacher and a university tutor. Quali-quantitative analysis was used to analyse the data—where the teacher's reflections emerged during their viewing of the lesson—to trace the typology of the comments of the pre-service teacher, and the topics of the reflection. The analysis highlights the dimensions of reflective activity, which can be a reflection of the professional learning of the pre-service teacher in one year. This study provides useful information in describing the process of professional learning and, at the same time, supports the integration of video into pre-service teacher training as a tool of reflection.

La recherche présentée dans cet article vise à étudier la réflexion d'un enseignant en formation sur son apprentissage professionnel en utilisant le milieu de la vidéo. Afin de promouvoir une activité de réflexion, nous avons invité un enseignant en formation—maintenant enseignant titulaire—à verbaliser sur son activité pendant une leçon enregistré un an plus tôt. La leçon a été réalisée dans un lycée professionnel, suivie d'une rencontre avec l'enseignant titulaire et un tuteur universitaire. L'analyse quali-quantitative est utilisée pour analyser les données—toutes les réflexions des enseignants que sont émergé lors de la vision de la leçon—tracer la typologie des commentaires de l'enseignant, et les ses réflexions. Cette étude fournit des informations utiles pour décrire le processus d'apprentissage professionnel et, dans le même temps, soutenir l'intégration de la vidéo dans la formation initiale des enseignants comme outil de réflexion.

In many countries, a common educational issue is promoting the professionalization of teaching and revising teacher training programmes (Cochran-Smith & Lytle, 1999; De Kock, Slegers, & Voeten, 2004; Escalié & Chaliès, 2011). Teacher training has to bridge the gap between theory and practice, helping pre-service teachers to successfully link pedagogical knowledge to classroom practice (Borko, Liston, & Whitcomb, 2006; Cochran-Smith & Zeichner, 2005). Indeed, many pre-service teachers struggle when trying to integrate knowledge into the practical context of a classroom (Blomberg, Stürmer, & Seidel, 2011).

Observing a classroom video can help pre-service teachers relate their university learning to their classroom methods, while also bridging the gap between theory and practice (Abell &

Cennamo, 2004; Gaudin & Chaliès, 2012). Video can potentially support reflection, an essential component in teachers' professional learning. According to Seidel, Blomberg, and Renkl (2013), many studies with video have been integrated into the context of the professional learning of practicing teachers. Some studies have examined pre-service teacher training by means of video-based approaches (Koc, 2011; Rosaen, Lundeborg, Cooper, Fritzen, & Marjorie, 2008; Santagata & Angelici, 2010), usually focused on group settings (Sherin & van Es, 2009; van Es & Sherin, 2008). However, there is a general lack of knowledge about the integration of video into pre-service teacher training (Santagata, Zannoni, & Stigler, 2007).

In this paper, we focus on a pre-service teacher's reflection through video to explore professional learning from a longitudinal prospective. For this, we have organized a session of "auto-confrontation" (Clot & Fata, 2000; Clot et al., 2000; Mollo & Falzon, 2004). In this situation, the pre-service teacher is solicited to talk about their activity within a recording of a lesson undertaken one year earlier. We believe that the opportunity to analyze teacher reflections is a valuable opportunity that can provide useful information in describing the process of professional learning. The research supports the use of video in the teacher training as a tool for reflection, capable of opening to new perspectives to support self-analysis. First, we discuss the role of reflection in professional learning supported by video. Then, we present our study and the results.

Teachers Reflection for Professional Learning

The development of reflective thinking is increasingly a focus in teacher training. The process of self-reflection is very useful for increasing skills, promoting professional learning, facing changing professional contexts (Alsup, 2005), and facilitating the creation of alternative scenarios (Korthagen & Vasalos, 2005). The formation of the teaching profession is a process which is always in progress. It involves the interpretation and reinterpretation of experience (Kerby, 1991). A reflective approach to practice is helpful in identifying the strengths and weaknesses of teaching practice and improving upon it (Impedovo & Khatoun Malik, 2016). According to Vloet (2009), these reflective processes have to take place before, during, and after professional actions. Reflection has an impact on a teacher's professional identity (Walkington, 2005), which is composed of three sub-identities: pedagogical expertise, subject matter expertise, and educational expertise (Beijaard, Verlop, & Vermut, 2004). Recently, teachers' professional identity has been conceptualised as a continuous and dynamic process of sense-making and reinterpretation of values and experiences, which are, at the same time, unitary and multiple, continuous and discontinuous, individual and social (Akkerman & Meijer, 2011).

Reflective practice should be promoted by any educational system and its development is the responsibility of all teacher educators, both at university and in schools (Brockbank & McGill, 2007). Reflection could be a prompt for professional learning to develop the expertise of the teacher, helping in the introducing of innovations (Impedovo, 2016).

Student teachers find it difficult to pay attention to key elements of classroom instruction (Star & Strickland, 2008) and to deal with the complexity of classroom interactions (Stokking, Leenders, de Jong, & van Tartwijk, 2003). The ability to observe and interpret is the basis of a teacher's professional vision (Goodwin, 1994). It also includes knowledge of the relationship between teaching and learning goals, the importance of specifically and explicitly addressing learning, and aligning instruction according to those learning goals (Seidel et al., 2013). One possibility of supporting this process is represented by the use of digital video: video-aided

reflection can influence teachers' ability to change (Tripp & Rich, 2012). For this reason, in the next section we focus specifically on the role of the video in supporting teachers' reflection.

Teachers' Reflection Through Video

The spread of technology, due to the so-called "Web 2.0" and the transition from analogue to digital recording means that video tools are simple and easy to use. There is a great emphasis today on using digital video in education (Brophy, 2004) and, in particular, in training novice teachers (Cannings, Talley, Redmond, & Georgi 2002). This trend finds its antecedent in microteaching (Allen & Clark, 1967). This technique originated in the 1960s at Stanford University, to train people in specific skills, following a modelling approach. The microteaching approach lost popularity because it was too specific and did not take into account the complexity of interactions between teachers and pupils in the classroom setting (Santagata, 2010). In general, there is a tendency today towards a more holistic and integrated approach, articulated at different levels of reflexivity.

The video is the stimulus for the activation of contextualised knowledge of teaching and learning (Kersting, 2008) and provides indirect teaching experience (Miller & Zhou, 2007; Sherin, 2001). Brouwer (2011) identifies three domains of the application of video in education: orientation, support, and assessment. According to Seidel et al. (2013) using video in teacher education can increase pre-service teachers' ability to apply the knowledge gained during training.

There are three methods of training teachers supported by video which meet diverse learning objectives and competences (Masats & Dooly, 2011). Firstly, the viewing of videos helps acquire and exercise methods of observation and analysis. Secondly, video-modelling is produced by teachers, which is aimed at providing the skills and attitudes to be acquired. Third and finally, video-coaching—which is created by the teachers themselves—is a source of discussion and comparison with colleagues. Video helps instructors assess the strengths and weaknesses of their teaching, noticing (van Es & Sherin, 2008) or calling out (Frederiksen, Sipusic, Sherin, & Wolfe, 1998) what is relevant in a classroom situation.

Recently, great interest has been shown in the process of reflection and the sharing of video in the teaching community (Rich & Hannafin, 2008). There is ongoing discussion regarding the efficacy of watching videos of their own teaching versus others' teaching (Seidel et al., 2013; Tripp & Rich, 2012). Personal relevance in a video is perceived to play an important role in the process of in-depth analyse and can increase awareness in the reflection process (Pinsky & Wipf, 2000; Rich & Hannafin, 2008; Rosaen et al., 2008; Snoeyink, 2010). The opportunity to review teaching methods with the support of tutors or experts is an essential condition for the development of teaching expertise (Jacobs, Kawanaka, & Stigler, 1999). However, video is not effective in itself (van Es, 2009). To be useful, it must be embedded in appropriate instructional contexts and with adequate scaffolding.

Considering the centrality of teacher's reflection for professional learning and the potentiality for the use of the video to support it, we invited a pre-service teacher to volunteer and talk about an activity they conducted in a recording of a lesson undertaken one year earlier. This research device is proposed to all student-teachers within the formative framework of their teacher training. After one year in a Masters of Teaching program, the researchers propose to all the student-teachers in the program to join a reflection session. In the following sections of the article, a study of a voluntary teacher is presented and discussed.

Study

Aim

This research aims to examine how reflection is related to professional learning through video coming from the experiences of a pre-service teacher. Two research questions guided this work:

1. What kind of reflection is triggered in a pre-service teacher through the viewing of a video of his/her lesson, one year after the teaching took place?
2. What aspects of professional learning changes are outlined by the teacher's point of view during the viewing of a video of own lesson, a year after the teaching took place?

To answer these questions, we invited a pre-service teacher to speak to their thoughts on watching a recording of themselves teaching one year earlier. We believe that the possibility to analyze teachers' reflections is a valuable opportunity that can provide insight into how potential reflections relate to professional learning. The focus of the study is one pre-service teacher's understanding of reflection through video, in order to explore professional learning from a longitudinal prospective. Indeed, we would like to trace the professional learning of pre-service teachers along a temporal axis from their first real lesson as a student teacher to their role as a part-time in-service teacher a year later. To better understand the study, we proposed a preliminary description of the French teacher training context, in which the study is situated.

Context: Teacher Training in France

To teach professionally in high schools in France, the student teacher must hold a Master's degree in educational program, called "Métiers de l'enseignement, de l'éducation et de la formation." This degree is provided by a university following a successful result on a national examination. In this way, the teacher gains a "Le Certificat d'aptitude au professorat de lycée professionnel," and is able to teach in primary or secondary schools. Since the beginning of the 2013 academic year, the Higher Schools of Teaching and Education in France provide specific teacher training based on theoretical and practical experiences. This enables student teachers to build competencies related to the knowledge taught in the different teaching units throughout the curriculum. In this way, the student gradually becomes a teacher practitioner, with a close connection to practice.

In the first year of the Master's degree, a practical part-time experience in school (called "stages") is undertaken by the student. Stages for the student-teacher are assigned by the teacher training department in consideration of the respective subject areas (languages, mathematics, literature, art, etc.) and grade level (kindergarten, primary, high school, college). Stages are based on the observation of a school teacher in a classroom, aimed at the construction of teaching skills. During the stage, the student teachers can also actively participate in the ideation of teaching sequences. The formative goals are achieved in close collaboration with the educator-teachers of the teacher training department and under the guided supervision of the teacher-in-charge.

In the second year of the Master's degree, student teachers are admitted to the national examination and so long as they are successful, have the status of official trainees and can undertake practical experience in schools, corresponding to part-time in-service teaching. The practical experience allows each part-time in-service teacher to be a teaching professional under

appropriate monitoring and supervision. With this status, the teacher carries out all the components of the teacher's role, participating in all activities concerning the life of the school, in terms of teaching (preparing lessons, assessment, etc.), academic support, and institutional involvement (participation in school projects, etc.).

Aix Marseille (ESPE in French)—the site of our study—developed a strict integrative approach that utilizes specific training experiences called “Travaux Dirigés” (Guided Work units). These are located between the university and the school, allowing a “round trip” between practical experience (first observation internships and a second stage, which involves more responsibilities), and the teacher training curriculum. This system allows real exchanges between students, tutors, and trainers about professional issues referred to as the common experience of teaching, or educational sequences. Two steps guide the organization of the guided works unit. Firstly, there is the practical experience of the student in the classroom setting, carried out in the presence of a teacher and a university tutor. Secondly, the teacher and tutor perform an interview with the pre-service teacher to assess and interpret the first professional practice elements and make the connection between knowledge and professional practices. Our study is situated in this specific formative context, and is described in the next section.

Method

The Participant of the Study

The participant in this study is a 23-year-old female pre-service teacher whom we will identify as L. She holds a Bachelor's degree in Industry, Technology and Electrical Engineering from 2010, a Higher National Diploma in electrical engineering gained in 2012, and also a professional licence as a Technical Coordinator for Electrical Installations, awarded in 2013. In 2014, she attended the second semester of the first year of the Master's degree to become a teacher of electrical engineering. In that time, we contacted L and videotaped one of her first lessons (Cheneval-Armand & Impedovo, 2016). At that time, the professional experience of L was four weeks of training conducted as part of the training curriculum in the first semester of the Masters course. This first study was inscribed in a more general research project about professional development of pre-service teachers.

In the year after the lesson was videotaped, L was successful in passing the national exam and obtaining her official qualification to become an in-service teacher. At the time we contacted her to participate in the reflective activity through the video, she was enrolled in the second semester of the second year in the Masters program, and was engaged in teaching part-time at a school. Therefore, at the time of this second research session, she had completed one year of classroom teaching experience. Below, we focus on the reflective activity through the video review with L.

Corpus Data and Data Collection

We have adopted a specific approach to data collection based on confronting participants with the video recording of their own activity (Mollo & Falzon, 2004). We have opted for the method referred to as “auto-confrontation” in the ergonomics literature, particularly within the French literature (Clot & Faïta, 2000; Clot et al., 2000). In this technique, the participant discusses the recording of their teaching.

L was invited to review the video of her classroom teaching taken one year before. The recorded video was composed of two parts, totaling 145 minutes. In the first part of the video, L conducted her first lesson for about 113 minutes. The teacher in charge of the course and the university tutor were sitting in the class to observe her. The lesson was inside the Guided Work unit in the second semester of the Masters course. There are 12 male students present in the classroom, all about 18 years old. They are attending the first year of a Bachelor's degree in Professional Electronics, Energy and Communications. The discipline of this technological and scientific training is called Industrial Science and Technology. The lesson was called *Pipeline Sections and Protection of the Installations*, and had the goal of enabling future electricians to determine the sections of a pipeline and the standards of protection for the pipeline. L presented her lecture with the support of a computer linked to a projector and a blackboard. The teacher's computer screen was projected on the wall in front of students to enable them to follow it. At the end of the teacher-student's lesson, L met with the school teacher-in-charge of the classroom and the university teaching tutor for about 32 minutes. The aim was to discuss the lesson and provide L with constructive feedback. The researchers were also present.

In this study, we analyse L's reflections on the video of herself teaching in the previous year. This process also known as "auto-confrontation." A transcription of L's thoughts is the corpus data of this study. The auto-confrontation was carried out in a quiet room by one of the authors involved in this study. It lasted about two hours. L was invited to review the video of her past classroom teaching, and to decide the points at which to stop and comment on classroom events (Jacobs & Morita, 2002). At the same time, the researcher also proposed some prompt questions to stimulate her reflection. Five examples of these questions are provided:

- Would you start the lesson in the same way?
- How would you organise the same lesson today?
- Do you feel the use of technology in that lesson was appropriate?
- What do you think today about the feedback given to you by the university tutor or the teacher in charge?
- What sensations do you feel during the viewing of your lesson?

The opportunity to collect L's reflection might provide useful information in describing the process of professional learning. The data comprised of L's thoughts are analysed in a qualitative methodology.

Data Analysis

The data analysis was characterised by the following steps:

1. We recorded and transcribed the auto-confrontation.
2. Two researchers independently read and analysed the reflections. The reading phase was crucial to familiarize the researchers with the content of the data.
3. A content analysis was conducted to answer the first research question about the kind of reflection that was triggered by the pre-service teacher's viewing of her previous lesson.

A codebook was built to map the typologies and topics of L's opinions, as shown in the Appendix. Two main dimensions with respective categories were considered:

- Typologies of comments: illustrative comments aimed at describing the situations as they appear in the video, explanatory comments used to explain the classroom events; and comparative comments that contrast with current teaching practices.
- Topics of comments: personal engagement and emotive activation, interaction with students, teaching and didactical process, the use of artefacts with reference to the use of artefacts (computer, file, etc.).

The codebook was applied to the whole data set, which was composed of 130 of L's comments. For each comment, double coding was implemented by two of the researchers. In this first step, an agreement in the typologies of comments and the topics of comments had to reach 70%. After discussing the controversial cases—those where 70% agreement was not reached—with the third researcher, a total agreement on the topics and typologies of the comments was obtained. Then, to answer the second research question, a discourse analysis was performed to explore the self-perceived changes in professional development traced by the pre-service teacher during the reflective activity. In particular, we performed this analysis tracing linguistic temporal indicators (like before, now ...). In the following section, we explore the results in relation to the two research questions. Following this, we move to a critical discussion of the results.

Results

The results are organised to answer the two research questions. In the first section we map the typologies and topics of reflection that emerged during the reflective activity through the video. In the second section, we focus on the self-perceived professional learning changes in L's perspective.

Teacher Reflections on the Video Recording: Typologies and Topics

In this section we highlight typologies and topics of reflections produced by L during the vision of the recorded lesson. In relation to the typology of reflections, out of the 130 total comments, L used descriptive comments in 36% of all reflections, explanatory comments in 27%, and 37% of comments were on comparison and change (Figure 1).

The topics identified were related to the four main areas that reflect the complexity of classroom teaching management: personal engagement and emotive activation, interaction with students, management of the teaching process, and the use of artefacts. In relation to the topics of the 130 comments, 38% of the reflections of L are related to the dimension of teaching, 30% to the management of the interaction with the students, 18% to emotional aspects, and 14% are related to the use of artefacts during the lesson (Figure 2).

In what followed, we further analyse the changes that L stresses during the auto-confrontation session.

Professional Learning: Self-perceived Changes

In this section we examine the subjective elements of professional learning changes. The changes are stressed from the areas of professional learning emerging from L's reflections. These four areas include a) personal engagement and emotive activation, b) interaction with students, c) management of the teaching process, and d) the use of artefacts.

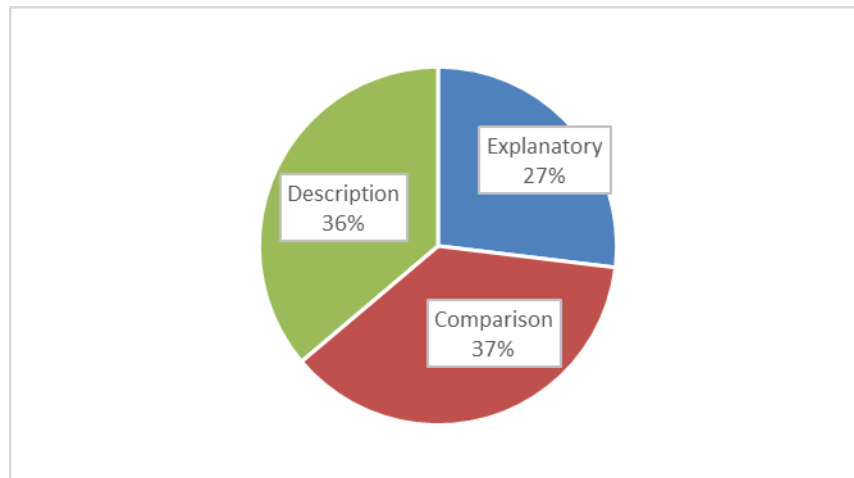


Figure 1. Typology of Reflections During Auto-Confrontation.

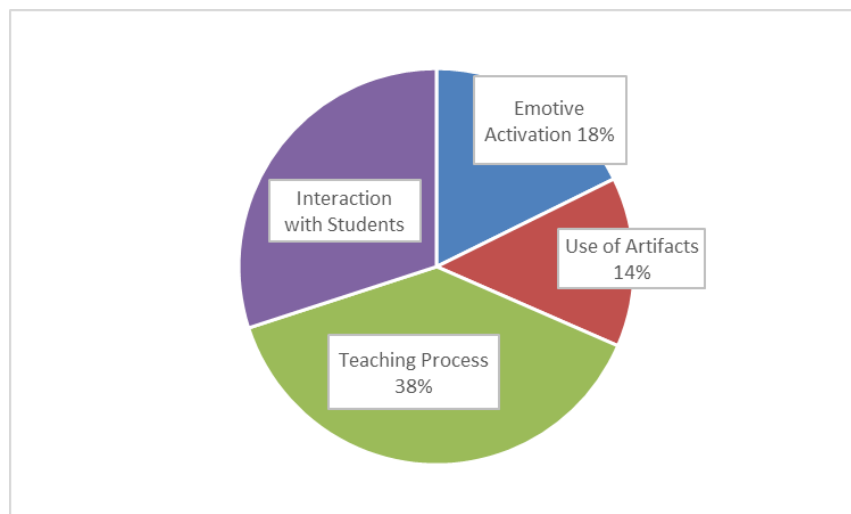


Figure 2. Topics of the Reflections Emerge in the Auto-Confrontation Session

Personal engagement and emotive activation. During the viewing of the video, L commented several times that she looked stressed carrying out her first lesson. She noted that the stress was manifested by a rigidity of movement and the position of her body. Indeed, she remained behind the chair for most of the lesson and moved around the artefacts (computer and blackboard). She also highlighted some actions, such as tapping her nails on the table, commenting it on negatively. She describes her nonverbal behavior, highlighting changes with respect to her current behaviour in classroom: “It would be unbearable for me to do that today, giving the students the impression of ‘move!’ ... I don’t think that I was ready to be put in front of the students because I didn’t know them, and I was forced to do it.”

She believed that she was not adequately prepared for a formal first real lesson. From the comments, it appears that the reason for this stress lies in the presence of her university tutor and the teacher in charge of the lesson to observe and evaluate her performance. During the watching of the video, L commented her emotive activation performed during the first lesson:

I move quickly in the end, I became more and more relaxed. ... Now I have realised this, I do not just read the text and I am no longer in a 'breathing space.' I am able to say a full sentence [laughs]. I go into the topic and everything becomes easier. Also there I felt protected behind the chair but now I do not feel this! ... It is hard to watch myself take the lesson.

Stress becomes less evident towards the end of the video, when she started to move between the students. Related to the activation of her emotions, she noted a significant improvement when compared to a year previously, in recurring articulation between "before" and "now." Furthermore, she suggests an emotional difficulty with regard to the viewing of the video after one year.

Interaction with students. L. highlights some aspects of interaction with students that she failed to manage during the lesson, such as eye contact and verbal communication: "Firstly, I do not look at the students at all. Here is a student whom I just didn't see. I think I didn't have the right attitude. ... I've said 'shut up' and then I smile, and then I tell myself this is not credible."

The reasons L interprets her teaching this way can be traced to her rigidity of movement and her lack of listening skills. Indeed, L describes herself as "cold". For example, she noted that a student gave her back the USB key and she did not say anything, not even "thank you." During the revision session, L was able to identify ambiguous and contradictory aspects in her behaviour during her first lesson. This rigidity begins to fade when the students asked some questions: "The fact of being able to return to this, I said to myself, it is great, their questions helped me. So I thought that they are open to learning something new."

Regarding the changes about interaction with students when compared to her experience today, she reports two examples, one related to the checking of students' understanding and the second related to difficult questions asked by the students:

I have not asked if they understood, this is something I do all the time now. Today, sometimes it happens that I ask if they have understood, but when I look at the written task, I wonder why they told me 'yes' but have not given the correct answer so I ask them to explain better ... Today, if they ask me a question that I don't know the answer to, I say that I do not know, I do not know this factor.

She considers how she is more able to adapt the lesson to her class, due to experience with students during the year of teaching. So, finally, she links theory of teaching and learning and real practice in class.

Management of the teaching process. Regarding the management of the teaching process and interaction with students, L considers herself to have used a traditional lecture format—very formal and inappropriate for the context—delivering to the students more than guiding them. Indeed, she asks few questions and offers few opportunities to interact with the students, conducting a very formal lesson. With regards to the didactical aspects of change, she noted that she

had a choice of three curriculum topics to perform in class and in the end I chose the most complicated [laughs], too complicated also for the students because there are too many factors, values ... I should have asked the students to explain the objectives in their own words, without visual support so I could walk about the classroom more freely. And that's how I do it now. There I use very theoretical problem-solving methods and don't connect with their reality. Today, I select real

problems from their professional trainership in electrical and engineering company or their everyday life. For example, for another lesson, I asked them to take pictures during a problematic situation during their trainership and bring them to the classroom so we started the course with something real.

It should be noted that the organization of the course was based on the style of her professor and it did not necessarily reflect her own style. A second important aspect that she considers is the gap between practice and theory:

I think I have learned how to bridge the gap between theoretical knowledge and the ability to put it into practice. There are many things I now know how to do quickly. But this year I became aware that I could not explain it in a clear way. So I learned how to explain it. And I have to explain it to students who never heard about it before. Before, I explained it as though I was reading it for me. I learned this aspect for myself and not from the teacher training. I think that this skill is now learned thanks to my students. Now I provide many concrete examples. Finally, if I had to do it again I would put the students in pairs or in groups to work together on the computer with a practical problem, then I would do a simulation of the problem with some software. Now I know to manage the students as individuals and not as a group.

Use of artefacts. Regarding the use of the artefacts, L underlines some problems she had with them during the lesson, such as the form of the instructions to perform the exercise, the computer connected to the projector, and the blackboard. In regard to the the\early teaching experience compared to the experience gained in the year, she considers two aspects of change. The first was related to the layout of the assessment task proposed to the students on the paper. The second was the use of projector during the lesson:

An image from the presentation was gone and I did not tell them. It was a catastrophe! When it is the first time it happens and the support leaves you ... I said to myself it is not possible! I had to think more widely and I thought about doing a pdf or a paper version. ... Today I would not use this type of layout because students do not follow it. I remember, it was a big problem to fit all the information on only five pages! Today, in my lectures, I don't use the projector for that. Students use computers directly in their hand or their iPads. Today, the only thing I project is the results of the test or a correction of their homework.

Finally, L reports that the different use of artefacts caused her to remain behind the chair all the time. This means how the use of artefacts was rigid and imposed by the situation already existent, showing her passivity in change and adapt it to her needs.

Summary of the auto-confrontation. We summarise the changes between the first lesson and after a year of teaching experience, as shown in Table 1. Regarding personal engagement and emotive activation, the student-teacher recognizes the rigidity in her body and in her interaction with the students, feeling, after one year, more competent in the emotional management, and aware of the importance of self-control. Concerning the teaching and didactical process, she recognizes the need to be more flexible and ready to adapt to the students' need, fostering a relationship with them as a class and as individuals. Lastly, regarding the use of the artefacts, she describes herself as more competent, with a critical approach to the limits and the potential for the use of technological tools.

Table 1

Professional Learning of L in One Year

Dimension	First lesson	After a year
Personal engagement and emotive activation	Stress and rigidity in the body and verbal communication	Self-control and confidence in personal competence
Interaction with students	Limited and teacher centred Lack of eye contact Lack of control questions	Constant questions of control Student centred
Teaching and didactical process	Passively following the instructions of the teacher	Flexibility in relation to the students and contextual aspects
Use of artefacts	Passive adaptation Lack of control of operation Negatively influencing the lesson	Critical and instrumental use/non-use in relation to learning objectives Not invasive in the lesson Delegates to students, also for collaborative or group activities

In her first lesson, L found difficulties in giving attention to key elements of classroom instruction and dealing with the complexity of classroom interaction, an aspect already outlined in the literature (Star & Strickland, 2008; Stokking et al. 2003). After one year of teaching, the teacher is able to identify the key elements of classroom management, and shows knowledge of a higher level of expertise (Putnam & Borko, 2000). In particular, L became more aware of the interests and needs of her students, taking care of their feelings and emotions and focusing on the nature of her communications with them. At the same time, L has developed a professional vision (Goodwin, 1994), displaying abilities in linking teaching and learning goals (Seidel et al., 2013). All these elements can have a significant impact on her class (Korthagen & Vasalos, 2005).

Discussion and Conclusion

This paper is an account of reflective progression of one teacher over one year and the use of video to provide evidence of that. In particular, the research was aimed at examining the pre-service teacher's reflections elicited using the recording of a lesson undertaken by the same teacher a year before. The focus is the individual perspective of a pre-service teacher's reflection through video to explore professional learning from a longitudinal prospective. From the auto-confrontation session, we highlighted the typology and recurrent topics of the teacher's comments. Following this, we stressed the changes in professional learning outlined from the teacher's point of view. Although we are aware of the difficulties in generalizing the results, given the qualitative nature of the study, the qualitative analysis performed gives us the opportunity to analyse the kind of reflections and the professional learning changes performed by this teacher. The results confirm the centrality of the reflection, useful for enhancing skills and for constructing and negotiating meaning. Reflection on teaching practices can help to identify ways to improve teaching expertise, like the ability to notice and interpret classroom situations, analyzing and inquiring about them.

The use of the video can be considered a tool for learning and reflection, facilitating observation and analysis. In particular, the asynchronous use of the video can extend the quantity and quality of classroom observation experience (Marsh & Mitchell, 2014), potentially helping pre-service teachers to bridge the gap between theory and practice (Abell & Cennamo, 2004; Gaudin & Chaliès, 2012). The video gives the possibility of providing a complex assistance to reflective activity, more than only, for example, the feedback from a trusted colleague. Indeed, as suggested by Mollo and Falzon (2004), the use of video recording with respect to the feedback of a critical peer or trainer allows a more reliable technique, avoiding some methodological difficulties like distortions relating to taking notes, and inaccurate reporting, while verbal and/or gestural activity is captured as accurately as possible. However, as considered before, video is not effective in itself (van Es, 2009); it must be embedded in an appropriate instructional context and with adequate scaffolding to capitalize on what video analyzing has to offer (Le Fevre, 2004). Narratives play a powerful role in shaping early-career teachers' understanding of teaching practice, like the central role of receiving feedback in forming professional knowledge and identity in initial teacher education (Philpott, 2016). For this reason, the specific situation of data collection called auto-confrontation (Clot & Faïta, 2000; Clot et al., 2000) is revealed to be a suitable instrument for our intended purpose. In this study, the pre-service teacher had the opportunity to concentrate deeply on her activity, becoming an analyst of her own activity, with the support of the researcher. Additionally, the video was not only discussed for the researchers but also for herself, externalizing her perspective and giving voice to her implicit knowledge. L, during the watching of her video, became progressively more aware of the nature of her activity performed one year before. The researcher in attendance, encouraging explanation during the interview, helped the teacher to carry out her analysis of the video. At the same time the video assisted L in the description of her activity. In this way, the research lead L to elicit her knowledge and clarify what she said.

The auto-confrontation session was performed after a year from the lesson recorded. During that span of time, L completed one year of teaching experience in classroom, making it possible to show her professional development. The video, in this case, works as a recall but also as a rebuilding of her activity (Mollo & Falzon, 2004), forcing not only a better understanding of the activity in a comprehensive perspective, but also a higher level of explanation.

More research regarding the need of the integration of video into pre-service teacher training (Santagata, Zannoni, & Stigler, 2007), is needed, also in a French context. The peer revision of video is interesting for a collective reflection (Harford, MacRuairc & McCartan, 2010; Sherin & van Es, 2009; van Es & Sherin, 2008) and through a collective confrontation (Mollo & Falzon, 2004), supporting practices spreading within the teaching community. An example of professional development video reflection is called "video clubs" (van Es & Sherin, 2010) in which teachers watch and discuss excerpts of videos from their classrooms.

Finally, we can consider that targeted training with guided reflections supported by video recordings could help teachers to improve classroom management, identify situations that are relevant to learning, and engage in knowledge-based reasoning about teaching and learning processes, supporting professional learning. Moreover, such research gives us some suggestions about the teaching models building in the French teaching training context, and in particular about the training experiences of Guided Work units, supporting the importance of the intertwinement between practical experience and the teacher training curriculum for the professionalization of teaching.

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Appendix: The Codebook: Typology and Topic of the Reflections

Dimensions	Categories	Indicators	Example
Typology of the Reflections	Description	Reflections aimed to describe the classroom events, expressed with active verbs in the present or past tense	"I do not look at all of the students"
	Explanatory	Reasons to explain the classroom events, expressed with active verbs in the present or past tense	"I think that I was not yet ready to be put in front of them"
	Comparison	Comparison with current practices, using temporal indicators ('today', 'now') and verbs in the conditional ('I should have') to emphasise the change that has occurred	"I no longer use the projector now" "I should have them interact more..."
Topic of the Reflections	Personal engagement and emotive activation	Reference to the personal and emotional aspects	"I was stressed"
	The use of artefacts	Reference to the use of artefacts (computer, file, etc.)	"The students do not follow that document"
	Teaching and didactical process	Reference to the content or teaching process performed	"Here I do not explain well and I take for granted that everyone knows that aspect"
	Interaction with students	Reference to student interactions	"Here there is a student whom I just didn't see"