Observing new university professors in class: initial results of the effects of intensive training on teaching practices[1]

Osservando in classe i nuovi professori universitari: risultati iniziali degli effetti della formazione intensiva sulle pratiche didattiche

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ABSTRACT
Some studies have shown that professors who benefited from teaching training modified certain of their practices. Our research aims to measure certain effects of teacher training on new university professors' practices, and to answer the following question: does intensive training have observable effects on teaching practices? To do so, we observed twelve Québec and French professors, six who received such training and six who did not. Our initial results suggest that short-term training has little effect on practices observed in the classroom, and that integration of evaluation, knowledge transfer and the development of a reflective capacity are the least observed acts.

Gli studi dimostrano che gli insegnanti che hanno ricevuto una formazione pedagogica hanno cambiato alcune delle loro pratiche. La nostra ricerca si propone di misurare alcuni degli effetti della formazione degli insegnanti sulle pratiche dei nuovi professori universitari e rispondere alla seguente domanda: una formazione breve produce effetti osservabili sulla pratica di insegnamento? Per fare questo, abbiamo osservato dodici professori Quebechesi e Francesi, sei che avevano ricevuto una formazione breve e sei non formati. I nostri risultati preliminari indicano che la formazione breve ha poco impatto sulle pratiche osservate in classe e che l'integrazione della valutazione, il trasferimento delle conoscenze e lo sviluppo di capacità di riflessione sono gli atti meno osservati.

KEYWORDS
Pedagogical Acts, Teacher Training, New Professors, Observations, University Pedagogy, Teaching Practices, Francophone.
Azioni Educative, Formazione all'insegnamento, Nuovi Insegnanti, Osservazioni, Didattica Universitaria, Pratiche di Insegnamento, Francophono.

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Introduction and context of the research

In the last few decades, in Canada and the rest of the world, the field of university education has changed considerably due to a number of factors such as the nature of university financing, the employability of students, the higher number of people seeking university education and a growing need for specialized labour power (Conseil supérieur de l'éducation, 2003; and Dejean, 2006). These factors present difficulties for universities, including that of training an increasing number of students while preserving the quality of education. In this period of change, when universities must deal with new publics in an increasingly competitive context, it seems a sound strategy for them to do all in their power to retain their students and provide them an appropriate education. This challenge confronting universities is also against a backdrop of educational reforms of all sorts which focus on student learning and are concerned with the quality of education (Roegiers, 2012). For a few years already, a number of universities, worried about the situation, have been offering new professors[2] pedagogical training, with an emphasis on student centred learning (Frenay, Saroyan, Taylor, Bédard, Clément, Rege Colet, Paul, & Kolmos, 2010; and Hénard, 2010). Yet there has been little investigation of the effects of such training on teaching practices. However, to establish their relevance and to ensure their full development, it is vital to determine whether they have any repercussions in practice (Frenay et al., 2010; Gibbs & Coffey, 2004; and Postareff, Lindblom-Ylänne, & Nevgi, 2007, and 2008). In that respect, our study will allow for a better understanding of the conditions required for training programs to be more efficient.

This article deals with preliminary results of observations of professors in the classroom. This is part of a longitudinal research project to measure the effects of teacher training and pedagogical support on new university professors' practices, as well as on students' motivation and learning. A number of instruments are being employed (including interviews, observations and questionnaires) to collect data over a three year period (from 2014 to 2016). We would like to stress that this article only presents the results of analyses based on the initial observational data. Others analyses are currently in progress. The principal objective of the observations is to determine whether intensive training (of 15 hours) has a discernible effect on classroom teaching practices of new professors. Underlying this goal is the question of whether there are differences between new professors who are trained and those who are not in terms of their focus on learning. These observations are based on twelve new professors from various disciplines, teaching at the Université du Québec à Montréal and at the Université de Rennes (France). They were observed in class in the fall of 2014.

1. The issue

To deal with current developments and better prepare their students for their graduates, some universities have decided to adapt to the diversity of their students by adopting various measures. Now, much of this adaptation falls upon professors, who design the courses and teach the students, but who, in the view of many, are ill- equipped for the reality of the classroom, particularly at the start

2 The term *professor* is used in this article in the generic sense and, in the French context, designates a teacher-researcher, a university professor or a lecturer.

of their careers (Dyke, 2006; Frenay et al., 2010; Kane, Sandretto, & Heath, 2002; and Romainville & Michaud, 2012). Indeed, new professors tend to be focussed on themselves, on what they are doing, and on the content of their courses (Boice, 2000). Few diversify their teaching practices and, in certain disciplines, the traditional lecture is the dominant form (Langevin, 2007). These practices are not in line with those recommended by educational reforms. These would include, for example, placing the student at the centre of pedagogical activity, the integration of learning, and the adoption of various strategies for dynamic and interactive instruction. These observations are not surprising if we consider that a majority of university professors are not trained in pedagogy and are often hired on the basis of their expertise in their discipline and their publications in academic journals.

Studies on educational practices at university often address the issue of perceptions (St. Pierre, Bédard, & Lefebvre, 2012; and Trigwell, Prosser, & Ginns, 2005). These are self-reported data which, according to Menges & Austin (2001), reflect only part of the reality. Some research which attempted to measure the effects of training on student learning obtained no significant results, although a number of scholars recognize that student-centred teaching has an impact on learning (Gibbs & Coffey, 2004; and Ménard, Legault, St. Pierre, Raîche, Nault & Bégin, 2012). Similarly, there have been only a few studies focussing on teaching practices associated with the training received, and they too provide few meaningful results. Kane et al. (2002) also maintain that, in the university context, it has not been shown that professors apply the pedagogical training they have received to the actual classroom situation. Finally, other scholars observe that university teaching practices employ traditional methods and little innovation (Frenay et al., 2010; and Romainville & Michaud, 2012). The lack of pedagogical training is often questioned, but the literature is not conclusive in this regard. Thus, our research question is the following: what effects can intensive training have on teaching practices?

2. Frame of reference

2.1. Pedagogical training of university professors

The pedagogical training of university professors in Canada has evolved considerably since the first initiatives in 1960 (Taylor & Bédard, 2010). From training where teaching was seen as a technique to training aiming to transform conceptions and practices as a function of student learning, pedagogical development for professors has become more complex and has adapted quite well to educational trends (Saroyan, Amundsen, McAlpine, Weston, Winer & Gandell, 2006; and St. Pierre et al., 2012). More and more universities have pedagogical development centres or specific infrastructures which offer training to equip professors for their university tasks. The approaches proposed are many and extremely varied, ranging from required courses for new employees to ongoing support by peers.i In Canada, most universities offer new professors teacher training, which can range from several hours (10 to 15 in most universities) to three courses of 45 hours each (over one year in several universities). Professors usually remain free to register or not, and universities vary tremendously in their degree of encouragement to do so. Nonetheless, university pedagogical development plays a significant role in Canada (Taylor & Bédard, 2010). There are also Canadian associations such as the Society for Teaching and Learning in Higher Education which bring together pedagogical counsellors and university professors. In France, the same movement is getting underway: in the last few years, university pedagogy

has become a stated objective of the Ministry of National and Higher Education and Research (MENESR). In this country, teachers' pedagogical skills are now a criterion for establishments' accreditation.

University pedagogical development has also been the subject of specialized conferences and a number of studies and publications describing some measures adopted, means of encouraging professors' involvement, and the role of pedagogical development centres and pedagogical counsellors (Frenay et al., 2010). On an international francophone level, let us draw attention to two key conferences: Questions de pédagogies dans l'enseignement supérieur (QPES [Questions Related to Pedagogy in Higher Education]) and that of the Association internationale de pédagogie universitaire (AIPU [the International Association of University Education]). In Canada, we may also mention the presence of the annual conferences of the Société pour l'avancement de la pédagogie dans l'enseignement supérieur (SAPES [Society for the Advancement of Pedagogy in Higher Education]). These conferences, amongst other things, offer the opportunity to question the effects of pedagogical training of professors on their teaching practices. For these various issues, Taylor & Rege Colet (2009) propose a frame of reference in which professors take the time to reflect on their pedagogical development. In particular, they base themselves on the studies of Frenay, Noël, Romainville & Parmentier (1998), who suggest that pedagogical training allows for clarification, confrontation and improvement of perceptions with the objective of consistency within the act of teaching. Furthermore, studies by Gibbs & Coffey (2004) and by Postareff, Lindblom-Ylänne, & Nevgi (2007; and 2008) demonstrate that university professors having benefitted from pedagogical training shifted in their practices from an approach based on the transmission of content to one more centred on learning.

2.2. University teaching practices

Certain researchers have noted a growing interest in the study of teaching practices in the classroom, thus underscoring a need to improve our understanding of factors affecting the quality of teaching techniques and the results of learning (Leduc, Le Coguiec, & Ménard, 2013; Lenoir, 2012; and Postareff et al.). In this context, we recognize the importance of the distinction made by Clanet & Talbot (2012) between teachers' practices and teaching practices. The former refer to all of a teacher's practices, including those outside of the classroom, while the latter refer to pedagogical activities in the classroom in interaction with students. Thus, within the framework of our study, we will refer more to teaching practices, defined as "…the unique, real and distinctive way a person carries out a professional activity: teaching" (Altet, 2002, p. 86). They include the performance in class, as well as the adaptation of knowledge and decision-making related to the context of the course and the institution (Bédard, 2006).

The work of Trigwell et al. (2005) has allowed us to draw up an Inventaire des approches de l'enseignement [Inventory of Teaching Approaches] revealing professors' favourite pedagogical approaches. These are presented in the form of a continuum and range from education centred around the transmission of knowledge to education focussed on learning (Kane et al., 2002). Thus, on one hand, what is important is what professors do, how they transmit the subject matter, in a process of transmission-reception. These practices, primarily centred around the transmission of content, reflect the supremacy of the subject matter, of which the professor is usually the sole transmitter. Subsequently, it is the professor's role to evaluate its acquisition. (Langevin & Bruneau, 2000). At the other end

of the continuum of Trigwell et al. (2005), it is what the learners do which is important. The teaching-learning relationship is part of an interactive process aiming at the construction of knowledge and favouring conceptual changes with respect to the subject matter. In this case, the professor renders the students intellectually active, and encourages the organization of knowledge and the transfer of learning in concrete situations. Other studies report on the gaps between professors' declared practices and those observed in the classroom, as well as between their perceptions and their practices (Andiliou & Murphy, 2010; Kane et al., 2002; Menges & Austin, 2001; and St. Pierre et al., 2012).

The work of St. Pierre et al. (2014) has also provided a foundation for our research. During an investigation conducted in 2012, they synthesized the research of a number of scholars linking teaching to the focus on learning and came up with seven acts of pedagogical intervention. These are: acting on earlier knowledge, making students active, generating and taking advantage of interactions, supporting the organization of knowledge, integrating the evaluation of learning, favouring the transfer of knowledge and developing a reflective capacity. Further examination of these acts led them to uncover three levels of focus (p. 43):

- level 1 where professors themselves perform the cognitive and metacognitive operations;
- level 2 where they encourage the students to perform certain cognitive and metacognitive operations; and
- level 3 where professors place students in a context where they must themselves decide on the cognitive and metacognitive operations to perform and then carry them out.

In our study, we employ the seven acts of St. Pierre et al. (2014), as well as the three levels of focus on learning to observe professors in the classroom.

3. Methodology

3.1. Subjects

The present text concerns the results from observational data on twelve new professors, with no more than three years professorial experience, from the Université du Québec à Montréal and from the Université de Rennes 2. At the time of the initial analyses, at the start of the research, we had only the data from these universities. The professors teach in various disciplines and, to participate in the research, they had to have not received pedagogical training and have had little teaching experience. Table 1 details the division of professors into two subgroups. Since we present here the first data of our study, the professors involved did not yet have the opportunity to tell us if the training was effective or not for them. This will be considered later on in the research.

Professor	Discipline	Years of Experience as a Professor	Brief Training Received at the Start of the Research Project
1	Education	2	No
2	Education	1	No
3	Design	2	No
4	Philosophy	2	No
5	Management-Marketing	1	Yes
6	Political Science	1	Yes
7	Linguistics	1	Yes
8	Computer Science	2	Yes
9	Dentistry	3	Yes
10	Law	3	yes
11	Life and Environmental Sciences	3	No
12	Archeology	3	No

Table 1. Division of New Professors by Subject

3.2. Instrumentation

Both universities offer professors a intensive course of 15 hours at the start of their career. This encourages teaching focussed on learning and considers the context of the practice of each individual. The research team reached a consensus on the content of the 15 hours of teacher training offered by the two universities. Training was done face to face during two consecutive days. Objectives of common learning were drawn up and the contents were described in detail under three main rubrics: planning, teaching, and learning and evaluation. More precisely, the following subjects were to be covered during the training: the context of higher education, modes and strategies of intervention, support for the students, motivation, the integration of information technologies, learning strategies, particularities of large groups, evaluation of learning with their modalities and communication with the students. The training sessions were offered by pedagogical counsellors from each university. The training was focussed on the learner, with interactive methods, and small group and transfer activities.

In employing the work of St. Pierre et al. (2014) as a guide, we developed an observation grid for the months of April to October 2014. This was focussed on the pedagogical acts of a professor while teaching (DeVellis, 2012; and Dupin de Saint André et al., 2010). In so doing, we utilized theoretical concepts related to student-centred acts and teaching practices. (Please see the reference framework.) Since our study is also interested in the effects of pedagogical activity on students, we added two other acts to the seven acts of St. Pierre et al. (2014): giving meaning to learning and guiding students in their activities. The grid used to observe the professors has a vertical scale with three levels - never, sometimes, and often - for most of the statements, and a horizontal scale corresponding to the pedagogical acts. We verified that the content of the training offered to the professors in the course of the research was consistent with the terminology of the grid. The grid was first tested by the assistants, with the help of an hour-long teaching segment recorded on video, before being validated by the research team and revised in the light of the research frame of reference. Table 2 shows an extract from the grid used to observe the dozen professors. (Level 0 is in white – the professor himself or herself performs an action which is not in itself a cognitive operation, level 1 is in yellow, level 2 in green and level 3 in blue). Finally, it should be noted that the observers also had to record the context, the arrangement and the climate of the class, student behaviour and the particular events at each session.

Levels	Supporting the Organization of Knowledge	Never	Sometimes	Often
0	Refers to the plan of the session if presented at the start of the session.			
1	Repeats or reformulates the same idea.			
1	Explains or summarizes the ideas, notions or essential concepts, himself or herself.			
2	Leads the students to summarize the ideas, notions or essential concepts.			
2	Uses a student's intervention to make links with the content, himself or herself.			
3	Uses a student's intervention to lead the student to make other links.			

Table 2. Extract from the Observation Grid in its Final Version

3.3. The research process

The dozen professors were divided into two subgroups of six each, of those who had undergone the intensive training session of 15 hours (at the end of the summer or beginning of the fall of 2014) and those who had not. Each professor was observed once for three hours by one of the research team's assistants, around the middle of the fall semester of 2014, that is, not long after the training, in a regular class of their choice. All the professors observed were giving lectures, with or without some interactivity. The observation teaching contexts had a duration of a semester and had different cohort sizes.

3.4. Analysis

To compile the observational data on the dozen professors observed, we placed an instrument allowing for analysis of the results for each of the nine acts next to the observation grids completed by the assistants. The instrument includes the name of the nine acts and has four columns representing the levels of focus on learning. For each professor, the analysis consisted of transposing this instrument for each of the acts, the combination of occurrences and the frequency noted by the assistant as a function of the levels of focus. As Table 3 demonstrates, this scale offers the advantage of an overall visual reading of the results. In this example, we readily see that the frequency often appears at levels 0 and 1 and that level 3 is rarely attained.

Professor's code X_XX_XX				
Gives meaning to learning		often	sometimes	never
Acts upon earlier knowledge		often	never	never
Supports intellectual activity	often	never	sometimes	never
Assists students in their activities		sometimes	sometimes	
Encourages and draws upon interactions		never	sometimes	sometimes
Supports the organization of knowledge	often	often	never	never
Integrates evaluation into learning situations	never	never	never	never
Encourages the transfer of new learning	often	often	never	never
Develops the reflective capacity		never		never

Table 3. Example of a Preliminary Analysis of a Professor

Thus, we obtained a precise description of each professor's acts in the classroom. To complete the analysis, each of these descriptions was placed in one of the two subgroups, of the trained and untrained professors, for purposes of interpretation. Finally, we note that the presence of occurrences in the observation grid contributed to a more detailed reading, allowing us to offer a more precise interpretation.

4. Results and interpretations

Tables 4 and 5 reveal the results of the preliminary analysis of some observational data for each of nine acts as a function of each of the two subgroups (trained and not trained).

Acts observed	Levels of Focus			
	0	1	2	3
Gives meaning to learning		3 never 2 sometimes 1 often	2 never 1 sometimes 3 often	4 never 2 often
Acts upon earlier knowledge		2 never 3 sometimes 1 often	4 never 2 sometimes	4 never 2 sometimes
Supports intellectual activity	3 sometimes 3 often	4 never 1 sometimes 1 often	2 never 3 sometimes 1 often	2 never 3 sometimes 1 often
Assists students in their activities		2 never 4 sometimes	1 never 5 sometimes	
Encourages and draws upon interactions		6 never	3 never 3 sometimes	4 never 1 sometimes 1 often
Supports the organization of knowledge	2 never 4 sometimes	2 never 2 sometimes 2 often	3 never 3 sometimes	4 never 2 sometimes
Integrates evaluation into learning situations	5 never 1 sometimes	4 never 2 sometimes	4 never 2 sometimes	6 never
Encourages the transfer of new learning	4 never 2 sometimes	3 never 1 sometimes 2 often	4 never 2 sometimes	5 never 1 sometimes
Develops the reflective capacity		5 never 1 sometimes		6 never

Table 4. Compilation of the Results of Six Professors Without Training for Each of the Acts

Acts observed	Levels of focus			
	0	1	2	3
Gives meaning to learning		2 never 2 sometimes 2 often	2 never 2 sometimes 2 often	4 never 1 sometimes 1 often
Acts Upon earlier knowledge		4 sometimes 2 often	3 never 3 sometimes	6 never
Supports intellectual activity	1 never 2 sometimes 3 often	3 never 3 sometimes	5 sometimes 1 often	4 never 2 sometimes
Assists students in their activities		2 never 4 sometimes	2 never 4 sometimes	
Encourages and draws upon interactions		4 never 2 sometimes	2 never 3 sometimes 1 often	2 never 3 sometimes 1 often
Supports the organization of knowledge	3 sometimes 3 often	1 never 2 sometimes 3 often	6 sometimes	3 never 3 sometimes
Integrates evaluation into learning situations	2 never 3 sometimes 1 often	4 never 2 sometimes	4 never 2 sometimes	6 never
Encourages the transfer of new learning	3 never 2 sometimes 1 often	2 never 3 sometimes 1 often	5 never 1 often	5 never 1 often
Develops the reflective capacity		5 never 1 sometimes		6 never

Table 5. Compilation of the Results of Six Professors With Training for Each of the Acts

If we glance at the overall results of our observations, we note that the acts are usually performed with a frequency ranging from never to sometimes (thus, often is rarer) and level 3 is very seldom reached. (The frequency never is predominant). Acts which are performed sometimes are divided between levels 1 and 2, and level 0 obtains the most sometimes. Therefore, with a cautionary note that these are simply preliminary results, the professors observed give lectures or interactive classes which mainly reach levels 1 and 2 of student-centred learning.The acts of integrating evaluation into learning situations, of encouraging the transfer of knowledge and developing reflective capacity seem to be the least observed in the classroom. It is true, however, that two of these three acts are difficult to observe and more influenced by the classroom context: professors do not mention evaluation at every class (let us remember that only one class was observed for each professor), and tend to broach the issue of knowledge transfer at the end of a teaching-learning sequence. The development of students' reflective capacity also seems to be an especially challenging aspect for the professors. On the whole, there is no significant difference between the untrained group of professors and the trained group, even if the trained group has a few more professors supporting intellectual activity and encouraging the organization of knowledge more systematically.

More precisely, in examining the descriptions of each of the professors (for example, please see Table 3), we note that only three professors out of the dozen observed seem to often give meaning to learning. Three do not do this at all and the others sometimes explain the utility, the importance or the interest of what is being learned or describe the contexts. (These elements stem from the analy-

sis of the observation grid and give a precise description of each of the acts. For example, please see Table 2). Few professors call upon previous knowledge. Five sometimes reach levels 2, and 10 amongst them do not reach level 3 (those who do reach it only do so once) and only three professors sometimes make connections between earlier knowledge and new information or remind students of the earlier work. In the group of untrained professors, only a single professor supports intellectual activity more consistently, often at levels 0, 1 and 3. Half often pose such questions as did you understand? or do you have any questions? and allow time for students to reflect before responding. Seven professors never pose questions and do not propose activities leading students to perform complex operations. More than half of professors sometimes offer support in the classroom and half prompt students to interact in leading a discussion or in proposing activities (level 3). All address the group as a whole and three (from the untrained group) do so often. Five professors sometimes support the organization of knowledge at level 3 (on average, just once) and seven never reach that level. Concerning the integration of evaluation into learning situations, seven professors do not integrate it in the classes under observation and five include formative evaluation (level 0). No one reaches level 3, to bring students to evaluate themselves or their own teamwork. Only four suggest specific means by which students could improve. To encourage the transfer of new learning, six professors end the session with a summary (level 0) and four themselves make the connection between the newly acquired knowledge and a simple context of application, by making use of examples, analogies, and anecdotes. Only two professors (one from each of the groups) explain how one proceeds to analyze or resolve a problem, a case or a situation. In other words, ten professors do nothing to develop students' reflective capacities.

5. Discussion

This initial examination of the results of observation leads us to believe that, in this particular context, intensive training, such as that offered by the universities, has little immediate effect on teaching practices. Except for acts of supporting intellectual activity and organization of knowledge, our preliminary analyses indicate little difference between the untrained group and the trained group of professors. A few other studies have reached similar conclusions (Gibbs & Coffey, 2004; Postareff et al., 2008; and St. Pierre et al., 2014), although those of Gibbs and Coffey, (2004) and of Postareff et al. (2007 and 2008) seem to demonstrate that university professors who benefitted from teacher training shifted from an approach concentrated on the transmission of content to one more focussed on student learning. Nonetheless, in the latter two studies, the training offered to professors was more than 15 hours and was spread over a period of 4 to 6 months, which is very different from our training of 15 hours. According to these scholars, the longer the training, the greater the effect. Postareff et al. (2007) even suggest that intensive training does not have positive effects on practices. Let us also emphasize that their results are not statistically significant, which might be explained by the presence of multiple uncontrolled variables, such as the experience of the trainer, the number of years of experience of professors and too short a period of observation. Amongst these factors, we believe that the length of the training is a determining factor. Moreover, the time invested by the professors in adopting new practices in the classroom must also be considered to qualify these initial results. Neither do we pose the question of the period of retention following the training, as St. Pierre et al. (2012) did during a study of teaching practices in an innovative context. They conclude that, despite the initial training, practices were not attaining the level of innovation expected and even tended to regress with time.

For now, our observations indicate that professors themselves often perform the cognitive and metacognitive operations, leading us to suppose that they are more involved in a process of transmission-reception on the continuum of Trigwell et al. (2005) and less focussed on student learning. Considering that levels 2 and 3 are seldom attained by the professors observed, the students are not very encouraged to be intellectually active, and the development of their capacity does not seem to be occurring through questions or activities in which they could explain their way of understanding the contents. The most challenging acts to organize are the integration of evaluation, the transfer of new knowledge and the development of the reflective capacity. Even if evaluation is sometimes difficult to observe, our initial results suggest that, amongst the professors observed, evaluation is seen as quite separate from teaching, rather than being on a continuum or in harmony (Scallon, 2004). Even the trained professors (evaluation having been covered in the training) do not appear to use evaluation as a real support for learning and, thus obscure the advantages related to regulation (Allal, 2013). As for the transfer of knowledge, above all, the professors whom we observed consistently provide a synthesis to conclude the session and do not ask students to identify new contexts for application (Tardif, 1999). Although our observations are not seeking to determine whether or not there is a transfer of knowledge, but rather to observe whether the professor encourages it in the classroom by leading students to reflect on different contexts, this initial result is similar to the work of Kane et al. (2002): a preoccupation with the transfer of knowledge does not seem to have been demonstrated through concrete actions in the classroom.

6. Conclusion

Here we have only considered one aspect of the longitudinal study, that of the immediate effects of intensive training on teaching practices. Furthermore, for the sake of brevity, we have only discussed the observational data. Thus, our objective was to see whether there were differences observable between the trained and untrained professors in terms of focussing on learning in their teaching practices. The preliminary analyses presented here lead us to believe that, in the short term, training has little very effect on practices observed in the classroom, and that the integration of evaluation, knowledge transfer and the development of the reflective capacity are the least observed acts. Let us stress, however, that these results do not really demonstrate the temporality of our study: for now, the effects of intensive training are not very visible, but they might become apparent later. This long-term evolution is exactly what we aim to explore in our research, with data collected over three years.

Obviously, here we should stress the limitations of focussing exclusively on observations. First, examining only observational data in isolation from other types of data provides merely a partial interpretation of complex teaching practices (Bru, 2014). A more detailed analysis will be done with the interview data and that from the questionnaires distributed to students for each of the three years of the data collection. Let us recall that the goal of our study is to look upon the effects of pedagogical training and support on professors' practices and on their students' motivation. Second, we admit that a 15 hours training represents an overview of the complex subject of teaching. However, it also represents the reality of the teachers involved in our research. Their institutions offer short term training and sometimes mid term training of 45 hours. Next, although all the assistants were trained a number of times, not just once, on the manner of recording observations in the grid, the very process of observation includes a subjective element which we attempt to reduce to a minimum. Still, we cannot

ignore the fact that some biases are inevitably at play during observation. Nonetheless, this constant preoccupation resulted in the most precise grid possible of observable elements. We should also emphasize that the assistants were supervised on a regular basis by the research team to ensure help was always available to deal with any hesitation or confusion in the use of the grid. Finally, the statements describing the nine acts are relatively meaningless if considered in isolation. They are intimately linked when it is a matter of teaching practices; their significance lies in their relation to the other statements and, together, they describe the complexity of a professor's acts in the classroom.

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