

**Teacher Education in Light of a Few Principles, Theories, and Studies on Vocational Training and Adult Education**  
**La formation des enseignants à la lumière de quelques principes, theories et travaux de la formation professionnelle et de la formation des adultes**

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When Adult Education Invites Itself to the Debate About Teacher Development

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Article abstract

The objective of this article is to critically examine teacher education based on the concepts, principles, and practices of adult education, vocational training, and continuing vocational training. We will discuss a few aspects of teacher education from the perspective of our research and our theoretical frames of reference, touching on the fields of initial and continuing vocational training, as well as adult education, work psychology, and developmental psychology (Pastré, Mayen, & Vergnaud, 2006, Mayen, 2007). We will also draw from a research study on professional work and training in very different sectors: railroad transportation, public works, agriculture, human services, technical-commercial services, guidance, and orientation. This allows us to examine teaching in the light of what we know of other forms of work, and teacher education in the light of what we know of vocational training and adult education.

# TEACHER EDUCATION IN LIGHT OF A FEW PRINCIPLES, THEORIES, AND STUDIES ON VOCATIONAL TRAINING AND ADULT EDUCATION

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**ABSTRACT.** The objective of this article is to critically examine teacher education based on the concepts, principles, and practices of adult education, vocational training, and continuing vocational training. We will discuss a few aspects of teacher education from the perspective of our research and our theoretical frames of reference, touching on the fields of initial and continuing vocational training, as well as adult education, work psychology, and developmental psychology (Pastré, Mayen, & Vergnaud, 2006, Mayen, 2007). We will also draw from a research study on professional work and training in very different sectors: railroad transportation, public works, agriculture, human services, technical-commercial services, guidance, and orientation. This allows us to examine teaching in the light of what we know of other forms of work, and teacher education in the light of what we know of vocational training and adult education.

LA FORMATION DES ENSEIGNANTS À LA LUMIÈRE DE QUELQUES PRINCIPES, THEORIES ET TRAVAUX DE LA FORMATION PROFESSIONNELLE ET DE LA FORMATION DES ADULTES

**RÉSUMÉ.** Cet article a pour objectif d'interroger la formation des enseignants à partir des concepts, des principes et des pratiques de la formation des adultes, de la formation professionnelle et de la formation professionnelle continue. Ces trois catégories de formation dessinent des champs de pratiques – et pour partie – des champs de recherche et des champs théoriques qui ont un grand nombre de points communs, bien qu'ils ne se recoupent pas entièrement. Nous allons donc discuter quelques aspects de la formation des enseignants à partir de notre propre perspective de recherche et de nos cadres de référence théoriques, inscrits dans le champ de la formation professionnelle, initiale et continue et de la formation des adultes ainsi que dans celui de la psychologie du travail et du développement (Pastré, Mayen & Vergnaud, 2006, Mayen, 2007). Nous allons le faire aussi à partir d'une expérience de recherche consacrée au travail et à la formation de professionnels de domaines très différents : transports ferroviaires, travaux publics, agriculture, service aux personnes, services technico-commerciaux, conseil et orientation. C'est ce qui nous autorise à examiner le travail d'enseignement, à la lumière de ce que nous savons des autres formes de travail et la formation des enseignants à la lumière de ce que nous savons de la formation professionnelle et de la formation des adultes.

The approach adopted in this article stems from an initial observation, namely that teacher education seems often to be considered a separate form of training altogether; the same can be said of the work involved in teaching (Mayen, 2011, forthcoming). Yet, it appears to us that one of the means to renew ways of thinking about teaching and teacher education is to avoid conceiving of them as exceptions. Each form of work has its own specificities, but nevertheless falls under the scope of a larger category, that is, work itself, which is the subject of work psychology and ergonomics.

Our experience in work analysis also indicates that professionals always think and say that their work is unlike any other. Teaching shares many properties with other types of professional activity, and, like all types of work, it also has its specificities. Consequently, it should be possible to consider teacher education as another form of vocational training, another form of adult education, and another form of continuing education. After all, there is no credible premise for us to assume that teachers and future teachers are any different from other people: they learn, reason, and act according to the same laws.

#### ARE PRE-SERVICE TEACHERS ADULTS?

Adults are no longer children. How often have we heard the reminder made to trainers that they must take into account the life experiences of their adult students? Adult education has increased the number of novel forms of education and training in order to make a distinction between the adult learner and the school student. Adults generally go through learning processes in which transmitted knowledge is related to the diversity of learning they have acquired over the course of their lives. As a result, the design of any adult training path is marked by the will to link and to alternate between theory and practice. (Dominicé, 1996, p. 96)

These statements made by Dominicé raise an important question: Are future teachers indeed adults?

In adult education, “adulthood” is not only a function of age. It primarily has to do with personal and professional life experience. In other words, when adults enroll in any kind of training, they are no longer students out of high school or university. Their studies are often far behind them. They have or have had a professional life. They have or have had their own family life (in most cases). The training in which they take part is a step along a life and professional path, and sometimes along an already-extensive path of continuing education. Many, though they appreciate the joys of trainee or student status, consider themselves professionals first of all, even when they are undergoing retraining or are new to the area they are studying.

After discussing adults in vocational training, this paper will more specifically examine adults who are trainee teachers. Young adults studying to be teachers generally have little life experience and little or no work experience. *Some* of

them, nevertheless, arrive with the baggage of previous experience acquired over the course of several jobs closely related to teaching. These more experienced students are often older and have family lives as fathers or mothers. However, in our experience, they do not see these various social and work experiences as preparing them for the teaching profession. Such experiences are not often taken into account by teacher trainers, and very few studies are devoted to the benefits that teachers can gain from leveraging work experience acquired in settings other than educational ones. Finally, little scientific research deals with the question of transferring competencies from one work situation to another.

### IS TEACHER EDUCATION INTENDED FOR ADULTS?

Adult (and professional) status depends not only on age, experience, or emotion; it is a relation between the person and his or her environment. The question now arises: To what extent do the work contexts and professional situations of trainee teachers take into account their status as adults and future professionals?

In adult education, trainers know they are dealing with adults. Following William James (1889, trans. 2010), we could say that knowing and believing are mutually supportive. Trainers of adults appear to tacitly agree that the individuals with whom and for whom they work are adults. This belief is characteristic of trainers. In the tradition of adult education in French-speaking countries and in North America (Lindeman, 1926, Knowles, 1990), seeing people as adults primarily means avoiding the conditions and practices of education in school settings, notably in their most “school-like” dimensions.

As suggested by Dominicé (1996, p. 96), adult education strives to set itself apart from education in schools, and trainers strive to set themselves apart from schoolteachers. They uphold their titles as trainers and do not want to be seen as teachers or act like teachers. This was recently underscored by trainers of the *Association pour la Formation Professionnelle des Adultes* (association for the vocational training of adults), or AFPA, who defined training as a modern occupation (Tourmen & Prévost, 2010, Mayen, 2009). The identities of these trainers are constructed and defended through differentiation. This has gone quite far in some cases, with theoreticians being led to invent the term “andragogy” (Knowles, 1990) and others defining the concept based on the postulate of a fundamental difference between the learning processes of children and adults.

In terms of teacher education, andragogy has particular resonance: it supposes that adults cannot be educated like children – not because children learn differently than adults, but because the way children are taught is hardly considered acceptable for adults, or even very effective in general.

## IS TEACHER EDUCATION A FORM OF VOCATIONAL TRAINING AND ADULT EDUCATION?

Do teacher trainers work with adults (do they feel like trainers of adults)? Do they maintain this? Are their principles and practices based on this conviction? Do they see future teachers as adults? Do they believe this in a conscious and active way that guides their actions, reasoning, and choices? Do they have an obligation to ensure and defend their identity, values, and practices as trainers of adults? Are they familiar with adult education, its positions, its theoretical fields, its practices?

One must admit that to pose these questions is already, to some extent, to assume their answers. Teacher trainers do *not* correspond to the profile of trainers of adults as described above. They are academics or even schoolteachers themselves. This means that they practice their profession in a world with academic features. We should specify that our intent is not to say that trainers of adults are better or more effective trainers, or even that adult education is the best model. It is simply very different.

Many characteristics of the institutional, material, organizational, and social environments seem to indicate a marked distance between teacher education and adult education. These characteristics principally affect future teachers enrolled in training, but also the trainers of these teachers, since they create an environment very similar to the school environment offered to or imposed on students.

In numerous and profound ways, the institutional and organizational conditions of teacher education resemble the “prototypical” or even stereotypical conditions and modes of the school. These are precisely the conditions and modes from which adult education seeks to distinguish itself. In this text we will deal more specifically with the conditions of adult education and teacher training in France:

- Trainee teachers are divided into cohorts; the groups bring together large numbers of students. In adult education, the number of *stagiaires* or trainees (the term used most often to designate students in adult education) is, on average, limited to 15 or so.
- In teacher education, the facilities are often similar to those of schools (and universities) and the rooms are often organized the same way. Sometimes they are even classrooms. Adult education centres, though they sometimes appear similar, nevertheless offer spaces devoted to social life and spaces that mirror professional settings. The rooms are configured as conference rooms rather than classrooms.
- For trainee teachers, training situations are identical to their work situations. In other words, the trainee teacher goes from being a student in a classroom to being a professional in a classroom. In contrast, for students

in other kinds of vocational training, the places where training takes place (rooms, including technical means for learning) are not the same as those of their work situations.

- In teacher education, there are few workshops like those found in vocational training, in which one practices, handles instruments, and cooperates with others. Stubborn and persistent ideas reinforce this phenomenon: teaching is considered intellectual rather than physical work (even though the body is constantly in motion and is instrumental to action); teaching is seen as work done without tools (even though observation of teaching shows its nature as a craft when it comes to both preparation and implementation, as well as the ongoing use of a large variety of tools which are not only semiotic).
- The divisions, durations, and rhythms found in teacher education are close to those experienced previously in school. The trend in adult education is to preserve a system of day or half-day units.
- The division of disciplinary units in teacher education is also patterned after the school model, while in vocational training for adults the unit is patterned after the occupation and situations.
- In teacher education in France, methods as well as relationships between teachers and trainee teachers can be very school-like; in adult education, a vast set of conditions have been historically and practically called into question and re-elaborated to provide appropriate measures for adults (Schwartz, 2009): organization of space, relational modes between trainers and adult learners, active methods, a combination of inductive and deductive approaches.
- Evaluation is a constant concern in teacher education, just as it is present in classes from primary school to university. In adult education, trainers handle evaluation with greater reserve and defend their adhesion to principles of formative evaluation (Gravé, 2002).

### *The paradoxical place of experience in initial teacher education*

Experience constitutes one of the hallmarks of adult education (Balleux, 2000, Mayeux & Mayen, 2003, Mayen, 2009). The consideration and recognition (as well as validation) of experience have come to constitute major elements of adult education. This has given rise to innovative pedagogical practices (Solar & Hébrard, 2008) that take experiential knowledge into account, as well as theoretical research that compares experiential knowledge with other forms of knowledge, notably theoretical knowledge (Institut Jacotot, 2010). The central conception (or belief) can be stated as follows: Adults have experience. This is the source of related conceptions that have many practical consequences; this experience has a certain value; it must be expressed and re-appropriated;

it must be acknowledged. Training and teaching content must take this experience into account, first to harness this possible resource, and second to analyze and overcome obstacles to new learning.

Teaching occupies a particular place when it comes to experience. In contrast with many professional sectors in which future professionals have virtually no experience in the area they are studying, future teachers have considerable experience in education. They have substantial experience as students at various education levels, as well as social and cultural experience with educational matters. Like everybody else, they are immersed in a society where school instruction and education-related matters are discussed daily in all sorts of media. They listen to and participate in the usual discussions. They have read books and watched movies on schools, teachers, and students. In other words, their experience is saturated, immense, complex.

Olson's (2005) book on pedagogy and the institution elaborates the idea that educational institutions are so familiar that they seem natural and inevitable. According to Olson, culture has become second nature. This observation has numerous consequences in practice: educational institutions and their components influence those who work in them – including future professionals – without their realizing it. For a young and future teacher, the buildings, rooms and their organization, sounds, smells, furniture, ways of getting to places and passing people, norms of politeness and conversation, division of time, words, categorizations, and evaluation all belong to a familiar environment.

The word *familiar* should here be understood in its radical sense. In keeping with James (1907, 1975), this environment constitutes a world of habits; this does not mean only that education professionals and future professionals are used to it, but that these habits compose a cultural world. This world is so familiar that it seems natural to those who are used to it; its cultural or conventional – and hence constructed – nature is forgotten.

Some behaviours find their way into this environment because the setting suggests or imposes them. In all cases, it provides a framework. Ways of getting to places, movements, and rhythms are managed by an organized and well-equipped system (e.g., a bell to mark starts and stops), places designated within room configurations (e.g., pre-installed tables and chairs, a board for writing), organized tools, instrument systems imposed or offered, relationship norms, more or less implied communication and cooperation contracts, roles, and all the other members of this world who act as if everything were normal or natural.

One must adopt a sufficiently unfamiliar conception to consider that action is shared between actor and environment. A large part of our action is taken on by the environment and by the countless cultural constructions of which it is composed, and which are such a matter of habit that we no longer see them

as such. The principal advantage is that we do not need to think about them and can thus focus on other things. Driving a car is, to a significant extent, taken on by the outside world: the road is indicated and, in a sense, need only be followed. More than a medium on which to drive, it is an easy direction to follow and a reference for advancing a vehicle in the right direction. Countless signs point to required actions. Today, a host of instruments are responsible for the vehicle's direction, speed, and inside temperature. Similarly, a supermarket is never just a place where consumers make conscious, free, and voluntary decisions. The desired action is predefined and guided by organized paths, by the size and shape of shopping carts, by the configuration of aisles and shelves, by sounds and announcements, by a variety of semiotic stimulations. This is effectively and humorously portrayed in one of the movies from the living dead series by George Romero, titled *Dawn of the Dead*. Thousands of zombies show up at a shopping centre abandoned by the living, and one of the characters explains that this habit is so well ingrained that it is the only memory remaining in their rotted brains.

Strong familiarity can be considered a major obstacle to engaging in education-related training and work, as it renders transparent what should be questioned. How could training be designed and implemented to make strange what is so evident that it is no longer even perceived? How could it be made into the setting for a "break," enabling future teachers to take a certain distance from the school experience? We here refer not only to an intellectual distance – through reflection and review or examining one's life as a student, as is often practiced – but a distance created by a cultural world of training deliberately favouring forms other than those found in school settings.

***Practical knowledge and the professional world: References from vocational training for adults***

A tradition persists in continuing vocational training: knowledge, that is, the knowledge stemming from the scientific disciplines and constituted fields, shares prestige with action-related knowledge, which can also be referred to as practical or experiential knowledge. For trainers, this practical knowledge always represents an essential part of what is to be learned and what is to be taken into account and valued. Practical intelligence and occupational skills and know-how are recognized as forms of knowledge just as noble as academic forms. There is a valuing of what Sennett (2008) calls the "craft culture." It is the practice and mastery of work situations that serve as a reference. A good professional is not primarily one who knows, but who knows how to do something. This does not mean that knowledge does not have its place. It is even a necessary condition to know how to do something well – but it is neither predominant nor independent from action situations or its actualization.

This recognition of the importance of practical knowledge nevertheless comes with reservations. The positions defended by theorists of adult education come



under the scope of emancipatory orientations. More generally, scientific or technological knowledge, which is less tied to concrete situations, occupies an important place in these positions because it is considered an essential means for emancipation and education. Both positions – the one close to the concrete professional world and the one geared toward emancipation – are carriers of tension and can be found systematically in all professional sectors. Some currents, such as those of conceptualization in action (Vergnaud, 1997, 2008) and professional didactics (Pastré, 2008, Mayen, 2007, Pastré, Mayen, & Vergnaud, 2006), uphold a particular position by highlighting that forms of conceptualization can be found in all professional situations, along with highly general and abstract forms of reasoning and acquired learning. Having professionals and future professionals work based on situations and practical knowledge applied in situations rests on the hypothesis that more general knowledge and reasoning can be developed.

This reveals a problem specific to education and a number of professional situations in human services, namely what could be defined as the relativity and plurality of knowledge. Although things are not so clear-cut, it can be observed that in many “technical” areas one finds a certain amount of recognized and validated theoretical, procedural, methodological, and practical knowledge. Though variations do exist, professionals (and their trainers) have access to referential knowledge to solve numerous problems and to carry out numerous tasks. Moreover, this knowledge often pertains to one or two dominant scientific and/or technical areas.

This is not the case for all action involving other human beings, for example, supervision, guidance, orientation, instruction, and care. In education, different theoretical currents related to different disciplines coexist (more or less successfully) in the same teacher training. One same phenomenon can be interpreted differently depending on whether it is considered from a sociological, psychological, didactic, or pedagogical standpoint. The fragmentation of sociology and psychology add to the confusion. The relativity of knowledge also comes from the fact that numerous learning-related phenomena are still not understood. Even when established and proven knowledge exists, however, it often contradicts the firm beliefs of parents, society, or at the least certain groups of society, institutions, and teachers themselves. All of this creates an environment that pre-service and in-service teachers and their trainers must deal with. This is not merely a case of ineffective contexts, but of essential aspects of situations that generate much confusion and many obstacles for thinking and learning.

Another question that arises in most teacher education programs is that of the time granted to learning. We will discuss this subject in the following section, but it should be noted that this question especially has to do with pedagogical, psychological, and sociological knowledge (and not so much didactic knowl-

edge when, in mathematics for instance, it is relatively technical). Indeed, in many curricula, the time devoted to discovering, exploring, and assimilating this knowledge is limited. We nevertheless know that understanding and ultimately mastering this knowledge requires time and maturation, as does building understanding between this theoretical knowledge and the practical consequences that can arise in an action setting. We should always keep in mind the time required for us, as researchers in education and training, to come to a more or less suitable grasp of constructivism and to be able to use it practically in research or teaching – a practical use that consists neither in boasting of its superiority, nor in “selling” its associated procedures.

### TIME ACCORDED TO LEARNING

Vocational training is fairly lengthy for most occupations. Moreover, even when it involves substantial teachings in basic science, for example, training is mostly geared toward the scientific and technical disciplines addressed for professional fields. Education presents an unusual case, as most of the curriculum concerns the discipline that will be taught, and only a very small part concerns knowledge and practices in line with teaching itself. If we add to this a certain setting aside of what constitutes learning processes in general and professional learning in particular among teacher trainers themselves – as if these matters did not really concern them – we arrive at a rather curious situation.

Time is a critical dimension of all learning, and hence of all professional learning. It plays a part in many basic learning phenomena. The first relates to the quantity of what must be learned, both theoretically and practically. This aspect was discussed earlier in the text. The second relates to the integration of the various components of action into an organized dynamic whole: conceptual levels and action rules, action rules and operations for carrying out action. In teacher education, one can see the extent to which trainers say that they ascribe importance to theoretical knowledge and to reflective reasoning abilities. However, one can also observe that the time devoted to learning this theoretical knowledge is limited and sometimes virtually inexistent, as are opportunities to reflect on it and to consider its practical consequences in terms of concrete tasks and ways of doing things in a situation. The reflective activities offered seem to go in only one direction: revisiting action through knowledge. There is hardly any occasion to revisit knowledge through action; in other words, to implement knowledge and to integrate it as an actual component of action. It is as if training programs and trainers are unaware of the place that knowledge actually holds within activities related to information gathering, reasoning in a situation, and the control and regulation of concrete and ordinary action. Here again, in contrast to certain currents of vocational training and adult education, knowledge appears to occupy a place and to have a role in overseeing action in terms of discussion and reflection. It does not seem to be considered something intended to become integrated and assimilated into

action itself, and as a result, it is forgotten by experienced professionals who see it as external knowledge.

Another dimension of time is also involved in learning processes. To address this dimension, we need to briefly come back to the contributions of certain Russian psychologists concerning processes for elaborating action (Leontiev, 1975, Savoyant, 1979). It should first be noted that we are referring to the elaboration of action and not of knowledge, abilities, or competencies. As the term suggests, the elaboration of action denotes the process of constructing and implementing action, or, more specifically, of organizing action. According to this theory, all action is composed of operations which actualize a person's intervention with work objects. Each of these operations must be elaborated, that is, constructed and adjusted in close relation to the properties of the object and situational conditions (available means, nature of the object, rules, criteria for expected results, and the like). Each operation must be elaborated simultaneously with action in its global dimension. The two processes complement and support each other. Even while it is being constructed, action guides the construction of operations and organizes them; these operations give structure to and adjust action in accordance with concrete situational conditions. In this elaboration phase, the learner must devote conscious and voluntary attention and effort to the operations at hand. The assimilation of action corresponds to what is also called automation. The operations are adjusted and form a sequence that no longer requires attention. The operations make up a unit, and action can take place without requiring thought. Action itself can become an operation.

The assimilation of action is often neglected in training and in the learning conditions for professional activities reputed to be intellectual. The time allotted for repeating action and operations is underestimated. Even worse, part of the elaboration process is dismissed because the construction of operations is not taken into account. This might be explained by two hypotheses: first, in teaching as in other work, operations end up being constructed over the course of action; and second, operations are such an integrated part of action for experienced professionals that they are forgotten or appear too obvious. A third hypothesis should also be considered, namely that action is organized exclusively by conscious and conceptual reflection. To put it otherwise, provided that the concept and analysis are present, the action is expected to take place.

We have all experienced the importance of repetition for learning sports movements or technical acts required in daily or leisure activities. This knowledge form nevertheless does not appear to be recognized when it comes to professional activities said to be intellectual.

One might consider that many people do not see teaching as a practical, concrete, and technical activity and that a large part of action is composed of automatic reflexes. This likely inhibits the learning of practical consequences

in line with learning. The learning of concrete action and of the operations that make up each practical work-related act falls under a notion of improvisation or learning by doing. This conception seems to leave out an important factor, namely that in most work activities involving acting with, for, and on others, there are many (and often an indefinite number of) ways to accomplish a task. In terms of the effects produced, all ways are not equal. Most stakeholders nonetheless appear to think that everyone carries out the same type of action the same way, or almost the same way. Giordan & De Vecchi (1990) show that biology teachers at the same academic level believe that they teach the same thing in the same way as their colleagues. The authors also show that the truth is nothing of the sort: the same teachers neither teach the same biology, nor set down the same objectives, nor do things the same way, nor emphasize the same things, and so forth. Roughly the same can be said of action; though it is realized in very different ways, it is difficult to see this without making subtle comparisons. Students, patients, and people who seek advice nevertheless react not only to a global action, but to all the events of which it is constituted, and hence to all the subtlety of operations that occur. Beneath the identical appearance of a generic script are concealed all of the variations of the action. These variations are not only the results of conscious choices or of strategies, but also of the way an action was elaborated when it was learned.

*Learning by doing: An option to be questioned rigorously in teacher education*

Learning by doing seems to be called to become a preferred mode of learning in teacher education, often along with supervision by more experienced persons. Learning by doing is the result of a fundamental phenomenon in learning that can be briefly defined as the relation between ends and means. Action is constructed and adjusted according to its effects. In this situation, learners are all the more likely to construct adequate action if they are provided with immediate and reliable feedback on the effects of their action. Depending on the task, however, the effects of the action are more or less available, more or less immediately provided, and more or less directly and exclusively related to the action of the person in question. Teaching, like counseling or other social service occupations, is not well equipped in this sense. First, the expected effects of the action of teaching are not always defined in advance. These effects are not immediately available and can be due in part to other factors. It thus seems fairly difficult to learn merely through feedback on action. The other drawback of such occupations has to do with their isolation. Unlike many occupations, in which a more experienced person is present or can intervene during an action, teachers are alone. Their tutors cannot take part in immediate tasks or interrupt a class to ask the trainee teacher to start over. The tutor cannot even be present throughout the day or at hand to carry out an intervention. This is very different from the work of a postal worker, for example, who can delegate simple tasks to an apprentice, observe and correct

his or her acts, take control if necessary, and stop and explain an action while it is unfolding. Teachers are immediately confronted with the complexity and global nature of their work. There is no room for progress within a situation, for making mistakes (which are very costly), or for action-related feedback from another person. Unbeknownst to young professionals, this weakens not only possibilities for learning, but also the general expectation level for teachers. Indeed, young professionals apply what comes to mind spontaneously; even if they do reflect, they have no simulation setting to otherwise gauge the effects of their actions, and no repertoire, based on the experience of others, of solutions to the problems they encounter.

To come back to processes for elaborating action, one of the contributions of Russian psychology was to show that it is the realization of a task that organizes tutor interventions, confirmed in observations of work situations (Savoyant, 2010; Mayen, 2002). This means that the interventions of a more experienced person are prompted and justified by the progression of task accomplishment, that is, at the level of operations. It is because an operation involves a risk or is poorly completed, or because a novice makes a mistake or comes across an obstacle and demonstrates that he or she has not yet constructed the operation, that a more experienced person cuts in. This experienced person carries out interventions addressing operations, that is, interventions on the way of doing things and hence on the links between the properties of the object, the concrete conditions of the situation, and the operational progression of action. But because of the particular situation of teaching, which is by nature isolated, this type of tutor mediation is all but impossible. The tutor must become involved after the fact, outside the concrete conditions of action. This makes reflection on and intervention concerning operations very difficult. This does not, however, mean that reflective work is useless. Instead, it simply calls for the establishment of learning spaces such as workshops in which trainee teachers can practice and train, as well as construct – with the help of experienced mediation – the operations and actions through which they carry out their activities.

It should finally be pointed out that viewing teaching as work implies the consideration that, in daily life, professional performance cannot be maximal. It is enough for it to be sufficiently acceptable. Teacher education and competency and training frameworks appear, in light of the limited time given to programs, so ambitious as to be unattainable. In other professional sectors, a competent professional is one who is generally able to uphold a certain level of acceptability, even when situations deteriorate or are more complex, or when the professional is tired or likely to be less focused owing to other pre-occupations. Beginning teachers are held to standards of expert, experienced, and exceptional professionals. This is the level indicated in their training frameworks. One can see how it is ultimately forgotten that for professionals beginning in an occupation, or simply inexperienced in a given area, certain

aspects of work can appear more complicated and formidable than others. In addition, certain “basic tasks” are subjects of concern for them, but of secondary importance to more experienced individuals. This is nevertheless not a reason to minimize such tasks. On the contrary, it is essential to take them seriously and to equip beginners quickly and by all means available (by offering a survival kit, practical operational modes, advice, and practical tips). Aspects perceived as problematic or presenting risks or difficult elements must quickly be addressed through the construction of practical competencies that enable the solving of the most salient problems to free up attention, effort, and interest for the critical aspects of the work. This approach also curbs the incidence of failure situations.

## CONCLUSION

We have examined only a few aspects of teacher education in line with certain principles, theories, and works from the fields of vocational training and adult education, and based on work analysis. Such a comparative approach appears to be fruitful in our view, and would certainly warrant more systematic exploration.

What appears most interesting is to consider teaching as a type of work – just like any other. This entails its analysis as work, as well as the application of laws governing action and the learning of action in other work types.

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