TACIT KNOWLEDGE: REVISITING THE EPISTEMOLOGY OF KNOWLEDGE

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ABSTRACT. The concept of tacit knowledge encompasses all of the intricacy of the different experiences that people acquire over time, and which they utilize and bring to bear in carrying out tasks effectively, reacting to unforeseen circumstances, or innovating. The intuitive nature of tacit knowledge, its particular context, and the difficulty of expressing it in words call into question the very foundation of the notion of competency and its value in education. What parameters might be used to clarify tacit knowledge and its place within so-called "organizational" knowledge? Certain characteristics of tacit knowledge may contribute new considerations to the ongoing debate as to the true nature of competency.

LE SAVOIR TACITE: REVISITER L'ÉPISTÉMOLOGIE DES SAVOIRS

RÉSUMÉ. La notion de savoir tacite implique toute la richesse de l'expérience qu'une personne acquiert avec le temps, qu'elle mobilise et qu'elle met en œuvre dans le but d'accomplir efficacement une tâche, de réagir à des imprévus ou d'innover. Le caractère intuitif du savoir tacite, son contexte particulier et la difficulté à l'exprimer en mots interrogent les fondements mêmes de la notion de compétence et sa valeur pour l'éducation. Que seraient les paramètres pouvant nous aider à préciser le savoir tacite et sa place dans l'ensemble du savoir dit "organisationnel" ? Certaines caractéristiques du savoir tacite peuvent apporter de nouveaux éléments au présent débat quant à la véritable nature de la compétence.

FOREWORD

Experts who leave the workplace often take irreplaceable know-how with them, leading not only to an immediate loss of institutional knowledge but also to a host of subsequent ramifications. One need merely consider the sometimes enormous costs spent on training newcomers in work-specific knowledge (Ferrary, 1999). Sometimes, such consequences do not become apparent until long after the departure of the expert (Mayère 1995), especially in cases where the knowledge was held by a key figure or where no one else was even aware the knowledge existed (Régnier, 1995).

This same issue applies to the field of education. It is anticipated that an aging workforce and retirement-inducing policies will soon produce significant movement in this area and a resulting inestimable loss of expertise. This is all the more relevant in that expertise in this field tends to develop in isolation and individually (Hannum, 2001). The quality of teaching in schools, colleges and universities is contingent primarily on the experience of teachers and professors, experience that often manifests itself tacitly (Gerholm, 1990). And what about learners who learn chiefly through contact with tacit knowledge (Clewett, 1998)? Indeed, Gerholm states that student-teachers develop know-how tacitly as they socialize with seasoned teachers. So it is easy to appreciate the impacts of significant personnel movement on the quality of learning, since student-teachers encounter fewer role models from whom they can draw this tacit knowledge.

As one of the first and foremost sources of professionalization, educational institutions have the essential objective of preparing the next generation for the workplace. Increasingly, employers are taking an active part in academic curricula; the needs of employers often exceed specific academic requirements and call for a solid base of experience, i.e., a "practical sense" of the field or profession. Indeed, it is for this reason that internships, along with work-study programs and buddy systems, are more and more common. These training practices have the advantage of fostering the development of practical skills and conveying tacit knowledge in the work environment through real experience.

Tacit knowledge is therefore a significant consideration for teacher training and adult education. This article explores the nature of tacit knowledge and how its parameters can complement the notion of "competency."

INTRODUCTION

One cannot help but be amazed at the profusion of different viewpoints espoused by various authors in defining the concept of tacit knowledge. For example, various researchers have examined tacit knowledge in terms of practical intelligence (Sternberg, Wagner, Williams & Horvath, 1995), of having a "knack" (Albino, Garavelli & Schiuma, 2001; von Krogh, 1998), of implicit knowledge (Régnier, 1995; Reix, 1995), of informal competency (Durant, 2000; Ferrary, 1999), or of something along the lines of intuition (Brockmann & Simmonds, 1999; Leonard & Sensiper, 1998).

One notable explanation for this proliferation of definitions of tacit knowledge might be the fact that researchers often approach the question from different theoretical and/or practical angles, each highlighting certain aspects of knowledge that others have sometimes neglected. Take, for example, the areas of computer science, systems theory, or engineering, all of which revolve around formal aspects of knowledge; these fields focus primarily on cutting-

edge technology, especially artificial intelligence, to reproduce knowledge or to model human functions. Other disciplines as diverse as education, sociology and management tend to address more social aspects of knowledge; here, the emphasis is on understanding how knowledge develops and is transferred between individuals and among groups in the workplace.

But whatever the reigning theory among scholars, their definitions of tacit knowledge are often superficial, almost as if it were a "catch-all" category (Eraut, 2000) or a generic concept that encompassed all informal knowledge. While this perspective has the advantage of applying to a wide variety of situations, it does little to foster a more thorough investigation of the subject. Indeed, many studies, more specifically those in the field of knowledge management, do not distinguish between knowledge that can be – but that has not been – formalized, and knowledge that cannot be formalized. Moreover, little distinction is made between tacit knowledge as something an individual (or a group of individuals) possesses, a characteristic of knowledge itself (of its purpose), or a contextual phenomenon. This makes it extremely difficult to compare models of knowledge in organizational or educational settings.

A FEW EPISTEMOLOGY BASICS

The literature does show a definite consensus about the concepts of data, information and knowledge as very distinct from one another.

Data are conventional representations of fact, generally the result of observation or measurement – either qualitative or quantitative – of the environment. Data are devoid of intention, which is why they are considered to be objective (Prax, 2000). Information refers to data that have been organized in such a way as to hold meaning (Albino et al., 2001) or intention. While this makes information seem rather subjective, the meaning contained in information remains fixed and concrete, generally in written, oral or visual form (Prax, 2000). Hence, information can be accumulated in different ways: a symbol, a research paper, a skills framework, a book, a software application, a computerized database, a library, etc.

Knowledge refers to information that a person has assimilated and interpreted on different occasions (Durant, 2000). Knowledge is therefore a much more complex concept than information, precisely because it is intimately associated with the person who possesses it. Say, for example, that I consult a book on pedagogy. This gives me access to information. Reading the book allows me to acquire "knowledge" about pedagogy, and I would then be able to say that I have learned something about teaching. However, learning teaching methods "by heart" does not in itself constitute knowledge. To really speak of knowledge, I must first understand the information I have read and then give it a personalized meaning, otherwise what I have learned amounts only to "book learning."[1]

It is also generally accepted that knowledge is the essence of any skill that can be used to solve a problem (Leplat, 1990). If one transposes this notion into the workplace, one might say that information is transformed into knowledge when people understand, interpret, put into practice, and integrate information in their duties (Lee & Yang, 2000). A similar perspective suggests that knowledge consists of "programs" (routines) that people know how to execute and of determining principles of when and how to use them (Stinchcombe, 1990). From this standpoint, I could claim knowledge of pedagogy if I possess resources (knowledge of pedagogical concepts, principles, techniques, context, etc.) that allow me to realize a potential I have built from information about pedagogy. My knowledge would thus be the result of an accumulation of new information that helps to strengthen my previously acquired learning.

Some authors state that these circumstances are insufficient to describe knowledge; that it must also be based on its deliberate meaning, within a given context (Nokana, Toyama & Nagata, 2000), and insofar as it is socially accepted (von Krogh, Ichijo & Nonaka, 2000). In the absence of this social recognition, an individual can never possess more than information about any given subject. For people to be recognized as having knowledge, they must demonstrate abilities and prove themselves,[2] even if they appear to have sufficient "learning." Leading intervention models involving knowledge or competency are based on this idea of proving oneself.

It would be useful at this point to review the definitions of various types of knowledge in order to better recognize the parameters specific to tacit knowledge. There are two main approaches to categorizing knowledge that emerge from organizations: the "competency nomenclature" approach and the "knowledge as a resource to formalize" approach.

COMPETENCY NOMENCLATURE

Theories of work and organizations focus chiefly on the generic meaning of the word "competency," which is usually linked to performance in the workplace (Jonnaert, 2006). Authors disagree, however, when it comes to the precise nature of a competency: a learning objective, a specific task, a behaviour, a complex problem-solving system (knowledge, know-how, social skills), a collection of resources (individual and organizational), a potential, etc.

Regardless of the definition, the concept of competency is associated with notions of "ability" and "skill" in doing something (Zarifian, 2009, Le Boterf, 2001). The notion of "ability" is used to convey a competency that can be described using action verbs (ability to explain, to organize, to plan, to communicate, etc.). Skill, on the other hand, refers to a more qualitative dimension (efficiency) of the behaviours related to a given ability (Jonnaert, 2006). Competency thus consists of both what a person is required to carry out (a given ability) as well

as any specific talents[3] (skills, know-how) that the person could employ in the service of the organization (Alsène, Gamache & Lejeune, 2002).

Le Boterf (2002) defines competency in terms of know-how (or "knowing how") in work contexts characterized by repetition, routine and simple tasks, carrying out instructions, and strict regulations. However, in contexts of uncertainty, innovation or complexity, competency is defined more in terms of knowing how to *act* and *react*.[4] Le Boterf here points to another form of the practical model related to "empirical know-how" and "experiential knowledge" that refers to a kind of practical (or contingent) intelligence, with which people are able to size up a situation and unconsciously grasp the important information, even if initially they also employ action-based know-how acquired through experience and repetition. This concept is expressed well in familiar expressions such as "to have the hang of," "to have a knack for," "tricks of the trade," and "savvy" (Le Boterf, 2002).[5] Empirical know-how (or knowing how to act) would thus be difficult to express and formalize if it were vaguely referred to by Le Boterf as a kind of tacit knowledge.

The notion of competency thus refers to a classification of different types of knowledge[6] and as such provides an "ideal" (and necessary) model of work in an organization, with the objective being to evaluate how this model exists within the organization in order to maximize excellence, or to better manage it.

KNOWLEDGE AS A RESOURCE TO FORMALIZE

Given that one of the primary goals of knowledge management is to preserve knowledge within an organization (Lejeune, Gamache, Mbassegue & Alsène, 2001), the act of formalizing knowledge is a necessary and determining factor in achieving this goal. Indeed, specialists place great emphasis on the formalization of knowledge (Prax, 2000), and even more so on important phenomena such as organizational memory (Dieng et al., 2000) and organizational learning (Lawson & Lorenz, 1999).

Another classification of knowledge has hence developed around the idea of formalization, one that revolves around the concepts of explicit knowledge and tacit knowledge. This differentiation of knowledge stems from the work of Michael Polanyi (1966). Polanyi was the first person to use the term "tacit" to designate a form of knowledge that derives specifically from experience and intuition. In his book *The Tacit Dimension*, he states that a significant portion of a person's knowledge is tacit in nature, that is, difficult to translate into rational language, as opposed to knowledge that can be expressed by rational language. He adds that tacit knowledge refers more to the "art of knowing," while explicit knowledge can easily be translated into rational language. In speaking of tacit knowledge, Polanyi is referring to common physical abilities, such as swimming, and to more specific intellectual abilities, such as those

employed by a surgeon during a complex procedure, for example. To paraphrase Polanyi, experts always know more than they can tell (1966, p. 5).

While knowledge management specialists consider the tacit/explicit classification fundamental (see von Krogh et al., 2000; Dieng et al., 2000, Nonaka & Takeuchi, 1995; Prax, 2000; among others), they nevertheless often neglect essential properties of tacit knowledge, as originally defined by Polanyi. In fact, within organizations, the tacit/explicit classification is generally employed merely to distinguish informal knowledge from formal knowledge, which implies that non-formalized knowledge is necessarily tacit. Yet, as we will see, there are several forms of "informal" knowledge, including, in particular, different types of tacit knowledge.

Hence, a number of authors suggest grouping knowledge into three broad categories: formalized knowledge, "formalizable" knowledge, and tacit knowledge (Alsène et al., 2002; Gamache, Lejeune, et al., 2001; Boudreau, 1998; Reix, 1995; Nonaka & Takeuchi, 1995).

Formalized knowledge

From the perspective of knowledge management, formalized knowledge is that which has already been made explicit, "codified," or recorded. It may exist, for example, in a book, a report, a collective agreement, a posted regulation, course notes, as a piece of data, or as a symbol. It may also exist within computer systems such as the Internet, sound files, databases, bulletin boards, CD-ROMs, digital video files, or any other information-based application or media. It is something we want to preserve and disseminate, even in the absence of the person who formalized it (Reix, 1995). Insofar as the knowledge is formalized, one may suppose that it can be more easily transferred among people (Eraut, 2000; Brown & Duguid, 1998; Inkpen, 1996), either through reading, presentation, logical deduction (Lam, 2000) or through information and communications technology (Dieng et al., 2000).[7]

"Formalizable" knowledge

This is knowledge that, even if it can be, has not yet been formalized. This category can be further subdivided. There is *non-formalized* knowledge. For instance, in every organization there is knowledge that could be formalized either orally or through other media (texts, visual, audio) that has not yet been formalized. This information remains non-formalized not because it is tacit in nature but because the need to formalize it has not arisen within the organization.[8] There is also knowledge that has remained non-formalized because it is complex and difficult to define. Take *scientific knowledge*, for example, which may be interpreted through research but falls within the framework of a stringent and often lengthy scientific process, whether it be qualitative or quantitative. There is also *knowledge related to social context*, which can poten-

tially be made formal but for which attempts at formalization are resisted, and indeed which may go purposefully unexpressed by those who possess it (Bès, 1998). For example, one might prefer to hide knowledge to obtain, negotiate for and/or retain certain privileges – think of a specialist who does not want to formalize a part of his or her knowledge in order to maintain a position of power, or a privilege, within the organization. Beneficial knowledge may thus go unused for these reasons (Gerholm, 1990).

Another form of non-formalized knowledge related to social context concerns the values and social standards shared to a greater or lesser degree by members of a group (i.e., rules of conduct). Reix (1995) states that every group has its own version of this type of knowledge, and especially that part of it which goes unexpressed; this can sometimes lead to stereotypical or routine behaviours. Most knowledge related to social context can be formalized insofar as one can overcome the barriers occasionally created by certain organizational dynamics such as power trips and various alliances or strategies put in place by such "games" (Lejeune et al., 2001; Albino et al., 2001; Bès, 1998; Régnier, 1995). In cases where it appears that otherwise "formalizable" knowledge remains inaccessible, one can suppose that it is, by its very nature, "implicit," i.e., that it is not formally expressed but that it can be deduced or inferred (explicitly) based on various observations or thorough research.

Tacit (or "unformalizable") knowledge

Tacit knowledge, by its very essence, cannot be formalized; it cannot be explained using rational language. It is therefore nearly impossible to transfer it to another person except through methods such as observation, imitation, socialization, the use of metaphors (Gamache et al., 2001; Alsène et al., 2002; Nonaka, Toyama & Nagata, 2000; von Krogh et al., 2000), or by other training-related means such as internships, work-study programs, buddy systems, mentoring, and job rotation.

In short, one should bear in mind that tacit knowledge, among all types of knowledge, poses the greatest challenge with respect to formalization, whether it be in the field of competency management, which approaches tacit knowledge as practical or empirical know-how (knowing how to act) that only exists insofar as it can be evaluated (Prax, 2000), or in the field of knowledge management, which seeks only to appropriate tacit knowledge to make better use of the knowledge of those within the organization.

A CLARIFICATION CONCERNING THE CONCEPT OF TACIT KNOWLEDGE

In most dictionaries, the word "tacit" is defined along the lines of being that which is "unexpressed" or "understood" among several people without being explicitly stated. Often, such definitions also refer to the notion of "implicit-

ness", that is, the latent content of a proposition or fact as opposed to what is formally expressed.[9] This is a good illustration of the complex nature of tacit knowledge, which is often confused with implicit knowledge (see, for example: Eraut, 2000; Vincenti, 1990; Savoyant, 2008).

In practical terms, however, the sole common feature of these two concepts – tacit knowledge and implicit knowledge – is that neither one is formally expressed. But tacit knowledge is not simply knowledge that has not been formalized but that could potentially be made formal, such as, for example, social norms or that which is "unsaid" but rather implied. In fact, in competency management, we have seen that tacit knowledge is described as an "empirical know-how," or a "knowing how to act" when faced with change, constraints, or unforeseen events (Le Boterf, 2002). Such indefinable variables force people to act and react to the circumstances, to improvise, to use their imagination and intuition in short, to make use of tacit knowledge. No formalized knowledge will help make the related activity more effective. From this point, we can say that some of what is considered practical knowledge lies outside the scope of competency because, even if its results can be defined and observed to a relatively high degree, it remains too difficult to measure directly (i.e., during the action), simply because it is too difficult to put into words.[10]

Finally, it should be mentioned that not all practical knowledge can be explicit (for example in a skills framework), some being defined in a rather general manner and in terms of results (Alsène et al., 2002), other being ignored (Brown & Duguid, 1991)[11] or sometimes even being unknown to the company or educational institution.

However, highlighting certain properties makes it easier to grasp tacit knowledge in a general fashion.

Intuition

All researchers agree that tacit knowledge is closely linked to intuition (Albino et al., 2001; Eraut, 2000; Wong & Radcliffe, 2000; Brockmann & Simmonds, 1997; Leonard & Sensiper, 1998; Régnier, 1995). Like a sort of "flair" or special sensitivity, intuition is the referent according to which someone reacts without having an opportunity to rationally analyze the situation (Behling & Eckel, 1991). Baumard (1996) talks about the sensation of "déjà vu" as being a manifestation of tacit knowledge, in particular when someone finds him or herself surprised to know the solution to an unprecedented problem. One will recall Polanyi, who believed that as experts build experience in their fields, they also develop a personal and intuitive vision, which allows them to come up with solutions without always being able to rationally explain the process they used to find them. This phenomenon seems to manifest itself more specifically in corporate management. Indeed, the value of traditional decision-making models based on rational analysis has long been questioned

(Brockmann & Simmonds, 1997; Nonaka, 1994). It is suspected that intuition — to a much greater degree than reason — underpins organizational decision-making (Giunipero, Dawley & Anthony, 1999). This lays out a general range for intuition with respect, for example, to technical or technological problems faced by a machinery operator.

Context

Many authors in the field of knowledge management mention context as being an essential property of tacit knowledge. Eraut (2000) writes that a tacit reaction to the unforeseen is related to the context of the activity rather than to the task itself. For example, a task characterized by routine is frequently punctuated by short periods of adaptation to the task's changing circumstances; in this case, the tacit knowledge consists of perceiving the "details" of a change in work situation. When perception is at a rather "unconscious" level, people tend to focus their attention on the unusual aspects of the situation, based on which the knowledge is put into use (Valente & Luzi, 2000). Along the same lines, Bès (1998) states that the major hurdle inherent in acquiring and using knowledge (in the sense of knowledge management) rests in preserving the context in which the knowledge is developed: "For companies, knowledge is a special resource, because it is both inseparable from the company's activity, and hence from the context of the activity, and continually being renewed" (p.41).

It is to this context of activity that Lam (2000) is referring when he cites Barley (1996): "Embodied knowledge is also context specific; it is 'particular knowledge' which becomes relevant in practice only in the light of the problem at hand." It is also to this type of knowledge, which is generally non-transferable from one situation to another, that Hayek (cited in Myers, 1996) refers when he examines the question of knowledge that is not officially organized: "knowledge of the particular circumstances of time and place." In this way, tacit knowledge can help explain the limits of the competency-based approach, which is essentially based on formalization.

Regulation or control

Another fundamental characteristic of tacit knowledge, related to context, is that it is used primarily for the purposes of regulation in the workplace. Wong & Radcliffe (2000) speak of physical operations such as movement, coordination and specific skills that allow physical activities to occur. Other authors speak of routines during a particular task, when the person no longer has to think about the activity being carried out (Eraut, 2000). An example often given in the literature is riding a bicycle, which goes beyond the mere routine in extreme situations (see: Wong & Radcliffe, 2000; Eraut, 2000). In a traffic jam, for example, in addition to the basic routines that allow one to maintain one's balance and steer the bicycle, one must make a succession of reflexive

reactions and rapid, unconscious decisions (e.g., knowing exactly when and how to change lanes, etc.). Ferrary (1999) uses the term "micro-competencies of human regulation" to refer to this phenomenon, a term employed in the area of industrial control systems. These micro-competencies help maintain the operating balance of complex and structured industrial systems, despite environmental variations. Such know-how is indispensable (but impossible to automate) to the proper operation of automated facilities, with tacit knowledge being necessary to mitigate uncertainty or inadequacies in industrial processes (Wood, 1989). It is also this control function of tacit knowledge that serves an "informal" organizational memory (Girod, 1995). As such, there is even some concern that formalizing this type of knowledge would disturb the mutual adjustments of this same organizational memory (Baumard, 1996). Bear in mind that the control function of tacit knowledge consists of employing know-how in reaction to unforeseen circumstances without being able to clearly express how it works.

Experience

When examining how tacit knowledge is learned, reference is generally made to the fact that it is primarily acquired by doing an activity (Wong, 2000), or through direct experience (Ferrary, 1999). One might say that experimentation is the learning process employed by people wanting to tacitly "polish" their know-how. This, too, refers to expertise that a person develops through sustained repetition of an activity. In this sense, the time it takes to acquire experience acts as a sort of indicator of the degree to which tacit know-how is mastered: the years of practice, unique to each person, create a certain assumption as to how well the tacit knowledge is mastered (Wagner & Sternberg, 1985; Colonia-Willner, 1999; Wagner, 1987). For example, Brockmann & Simmonds (1997) believe that seniority in a company has the benefit of exposing employees (e.g., through transfers) to new and varied problems, along with entirely different and new solutions, which would explain how tacit knowledge is learned through experience.[12]

It is understood that talent is intuitively honed through experience. Over time, people refine their knowledge of how to act through chance discoveries, tips and tricks. At higher levels, they become very perceptive, i.e., able to grasp things that go unnoticed by the average person. The subject becomes expert, is acknowledged as such, and is therefore competent.

TOWARD A DEFINITION OF TACIT KNOWLEDGE

When knowledge management is used to examine knowledge in an organization, it generally refers to a distinction between explicit and tacit. We have seen, however, that it is much more practical to think of knowledge in an organizational setting in terms of the following distinctions: *formalized knowledge*

(i.e., information), *non-formalized knowledge* (but that can be formalized), and *tacit knowledge* (difficult and even impossible to formalize).

In addition, if one accepts that formalizing knowledge will always alter it in some way,[13] one might further the discussion by arguing that all formalizable know-how has a tacit dimension, that is, that knowledge is always made up of a part that is tacit and another that can be formalized (Leonard & Sensiper, 1998; Eraut, 2000). In this sense, that which is expressed formally never quite completely encompasses the issue; therefore that which is written, specified, codified, or formalized is simply information that is available when applying informal know-how. Hence, learning a tacit action in some way fills an undefined space left by formalized knowledge. This space refers to the context in which any knowledge is used in the complex workplace environment. But above all, one might say that, beyond its essentially intuitive nature, the primary characteristic of tacit knowledge, while being observable,[14] is that it remains difficult to put into words.

So we can now identify four main modes of expression of tacit knowledge. There is a basic cognitive mode, that is, applicable to decision making in the workplace. This mode of expression refers to what Mintzberg, Raisinghani and Théorêt (1976) describe as the "unstructured" decision process, as opposed to a logical approach to solving problems. Explicit knowledge is only a small part of what a person would normally use when making decisions in the workplace, since such decisions are more intuitive in nature.

A complex cognitive mode, found in solving multi-disciplinary problems such as those faced by scientists, is one of the more revealing forms of tacit knowledge (Mascitelli, 2000). Solving such problems relies on an ability to recognize interconnections between different fields of knowledge and to anticipate solutions without necessarily being conscious of the process (Giunipero et al., 1999). This is recognized as a particular quality of tacit knowledge.

Another mode of expression of tacit knowledge is related to the social relationships inherent in "social occupations" and, more specifically, to the process of influence that characterizes organizations. Consider leadership in the workplace, for example the "flair" of supervisors who have refined their approach to teamwork over many years. They have learned to assess a situation, know their employees, unconsciously grasp relevant information, and use their intuition in order to motivate their team.[15]

Finally, tacit knowledge may have a sensorial mode of expression, such as that of a master violin maker who uses a tuning fork to carefully select a particular tree that will provide the wood needed for his or her vision of the perfect instrument; or the fighter pilot who is able to maneuver in extreme flight conditions, reacting to the sensitivity of the instruments. Think also of the sense of smell of a perfumer who is able to differentiate the essences that

make up a perfume, or of the highly developed sense of taste of a chocolate maker, who can detect an imperfection in one of the ingredients in a chocolate truffle. Not to mention artisans in general.

It should also be stressed that tacit knowledge can encompass more than one of these modes at once.

CONCLUSION

One can conclude from this that tacit knowledge is a special high-level awareness of "how to act" that people develop over time and that they employ to solve practical problems at work and elsewhere. If one accepts that the notion of competency is central to education in the workplace, then tacit knowledge must call into question the basic tenets of teaching and training. Tacit knowledge cannot be taught. It is conveyed, in a normal environment, through observation, proximity, socialization, and "sharing of good practices." This particularity of tacit knowledge emphasizes the value of competency development methods that are relatively widespread in industrialized societies: the buddy system (or tutoring), mentoring, work-study programs, internships, and so forth.

Because the experience of tacit knowledge relies on close links between subjects and their environments, professionalization specialists see it as a missing link in competency: tacit knowledge refers to a personal, "non-formalizable," and even indefinable dimension of one's knowledge of how to act that is deeply rooted in the work setting. This will certainly fuel the current debate between proponents of conventional education based on competency and learning objectives and those who favour continuous or lifelong learning and the recognition of experience.

NOTES

1. i.e., information that I have integrated and organized but not experienced first hand.
2. Or become competent...
3. Which are translated primarily in terms of know-how and social skills.
4. Tardif (2006) is in agreement, stipulating that a competency is above all knowledge of how to act rather than merely know-how specified by the organization.
5. One need only think of people who are described as having a "green thumb."
6. Knowledge, know-how, social skills, etc.
7. And which can therefore be learned through a systematic process.
8. e.g., a procedure that might be integrated into a job description.
9. It is not immaterial that the word *tacit* comes from the Latin *tacitus*, from *tacere*, "to be silent" (Lejeune, 2005).
10. However, tacit knowledge (like any knowledge) is reproducible, as is, for example, any artistic production.
11. Which would confer an "implicit" character upon tacit knowledge.

12. This also fits with the idea that tacit knowledge is inherent to the context in which it is employed.
13. "To speak of something changes it" (Altheide & Johnson, 1994, p. 493).
14. Either indirectly, in terms of results, or directly, by observing an expert in order to pick up "tricks of the trade," which the observer then adapts in his or her own fashion.
15. One might even say that tacit knowledge is an important factor in the effect of a person's charisma on others.

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TOWARD A TRANSFORMATION OF PRACTICES IN TEACHER EDUCATION

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ABSTRACT. This article underscores the need for a profound transformation in the training processes of future teachers, and thereby in teaching practices. The text first presents various grounds for this transformation, citing social, economic-political, teleological, axiological, epistemological, and psychological factors. It then focuses on teacher development practices that need to change, highlighting the modifications to be brought to educational objectives, and in particular underscoring the essential need for a new approach in terms of relationships to knowledge and to students and other teacher educators. Finally, the article offers approaches for change in teacher education. In so doing, it argues for the establishment of appropriate conditions, the piloting of change, and for changes in the context of training and evaluation processes.

POUR UNE TRANSFORMATION DES PRATIQUES DE FORMATION À L'ENSEIGNEMENT

RÉSUMÉ. L'article met en évidence la nécessité de modifier en profondeur les processus de formation des futurs enseignants et, par là, leurs pratiques d'enseignement. Dans un premier temps, il avance différents motifs justifiant cette exigence en faisant appel à des facteurs sociaux, économico-politiques, téléologiques et axiologiques, épistémologiques et psychologiques. Dans un deuxième temps, l'article se penche sur les pratiques de formation qui doivent changer en soulignant les modifications apportées aux finalités éducatives, en relavent l'impératif d'une nouvelle approche du rapport au savoir et du rapport tant aux étudiants qu'aux autres formateurs. Enfin, dans un troisième temps, des modalités de changement sont proposées. Sont ainsi abordées la mise en place de conditions appropriées, le pilotage du changement et les transformations elles-mêmes dans les pratiques de formation et dans les processus d'évaluation.

INTRODUCTION

The intent of this text is to highlight the need for university professors — and for that matter for primary and secondary school teachers, with certain adaptations in light of the level of instruction and students — to profoundly change their practices relative to the training of future teachers. This matter is hardly the fancy of unhinged or disgruntled individuals seeking to create problems for faculty members. Instead, it is a requirement that has grown

from profound economic, political, social, cultural, and other transformations. Along these lines, Théberge, Bourassa, Lauzon and Huard-Watt (1997) submit that the training model currently in effect must undergo substantial change to adapt to social transformations and new training orientations.

We will approach this subject based on three questions. First, why should practices in teacher education change? In other words, why should trainers change their habits, their familiar ways of thinking and doing things, which they've mastered and with which they are comfortable? This first question necessarily leads us to questioning the reasons for expecting, promoting, or sometimes even imposing change. Second, what needs to change? What aspects should this change address? Third, but certainly not least, how can change be accomplished? How can trainers modify their teaching-training practices?

It is equally important, as a preliminary step, to situate this critical reflection on the practices of teacher education in a framework of adult education. In Quebec, student teachers begin their teacher development at 18 or 19, and complete it four years later at about 22 or 23, normally. We can thus hypothesize that university teacher educators are addressing adults, that is to say, human beings who have achieved their physical growth and have developed, in a way that suggests they are balanced and mature, the intellectual abilities needed for engaging with life in a reflective, responsible, and autonomous way. The orientations that ground the perspective we develop here are built on the need to treat these students as adults and, more specifically, as teachers growing in strength. We thus reject any tendency to "mother" these students or any concept or practice that could infantilize them or consider them to be immature beings.

WHY CHANGE? A PARTIAL LIST OF REASONS

Many reasons or factors lead to the need to change practices in teacher education. Without attempting to provide an exhaustive survey, we will present a few of these reasons, in no particular order.

First, social factors related to the evolution of human relationships have created the need for a transformation in educational systems in view of changing teaching/learning relationships, and this implies a prerequisite or at least concomitant change in training. The democratization of social relationships — and hence the rejection of elitist advantages underpinning the training of a privileged class — has led to the conception of a school open to all students regardless of their socio-economic, cultural, and religious background. Access to education is a social norm that requires the consideration of teaching practices of social and physical differences of all kinds. In addition, a growing concern has developed for questions of social justice and equity, as well as equal opportunity. Debates in the West increasingly extend from strictly economic questions of class struggle to include social matters, particularly those related

to the recognition of the human dimension — human dignity and self-respect — for all human beings. These orientations influence policies and educational sensibilities, ruling out processes of discrimination and segregation.

Although in our capitalist societies most social conflicts have primarily concerned economic inequalities over the past two centuries (Caillé, 2004), the question of recognition has in the last few decades become increasingly central to debates (Lazzeri and Caillé, 2004), to the extent that Fraser (2004) describes it as "the paradigmatic form of political conflict" (p. 151, our translation). Expressed through the various women's, ethnic, cultural, religious, gender, and other movements, these debates seek the acceptance, respect, and acknowledgment of identity-related specificities, both individual and collective. Economic exploitation and redistribution have been supplanted by — or in some cases supplemented with — socio-cultural domination and the denial of socio-cultural recognition. These are the primary reasons for feelings of social injustice. This change in the reading of social relationships requires the establishment of new relationships between educational players in school settings, based on equity, respect for others, and social justice.

Second, numerous economical-political factors related to transformations in the capitalist world call for profound changes in educational systems. The neo-capitalism strongly established since the 1980s and supported by neoliberal ideology has imposed new expectations for educational systems. We will only mention four that nonetheless clearly show the expected transformations. To begin with, the social and economic cost of failure and dropout within the secondary school context — which translates into a loss of social status, an inability to find qualified work, and a resulting social burden (unemployment, social assistance, etc.) — has led governments to adopt various measures to promote academic perseverance and success. It also, however, demands the institutionalization of a system based on competitiveness, performance, and accountability. The concern for efficiency and the cost-quality-results relation is another predominant theme in the educational world. Finally, these economical-political changes have imposed a new governance of educational systems through changes in hierarchical power relations, with the introduction of accountability at all levels and the need for active participation and inter-relations in activities.

Third, teleological and axiological factors relative to the aims of educational systems have led to their transformation. The traditional school formed an elite group, a minuscule percentage of the population, essentially made up of individuals from favoured and dominant classes. The phenomenon of massification has led to the conception of different aims in education, especially since the number of years of schooling has been raised. Thus, for instance, the need for a qualified labour force and for high-level technicians and professionals is increasingly felt, and the foremost aim of transmitting culture and traditional values tends to be replaced by occupational training.

Fourth, epistemic factors related to the results of research conducted over the past 50 years have led to the consideration that the relation to knowledge is a determining factor in more ways than one. Much work, including that of Bourdieu and the New Sociology of Education in Great Britain, has clearly shown the role played by knowledge in social selection. Works in line with this British current in the 1960s on the structuring of teaching content and its modes of transmission have highlighted, among other things, the effect of the stratification of school subjects on socio-educational processes. Bernstein (1971, 1997*a*, 1997*b*) and Young (1971), who distinguish between "collection" and "integrated" curricula, especially underline the intrinsic hierarchical nature of the former and the powerful process of social selection and control it implies, as well as the higher social status of teachers who teach subjects judged to be more important. According to Bernstein (1971), "How a society selects, classifies, distributes, transmits and evaluates the educational knowledge it considers to be public, reflects both the distribution of power and the principles of social control" (p. 47). In addition to noting the existence of a significant ideological undertone in certain academic subjects, Bernstein advances that the curricular structuring itself is a carrier for sociological-ideological options subservient to a certain conception of power relations in a given society. Far from transmitting disinterested scientific knowledge, the educational disciplines reflect and maintain the distribution of power in society and, as a result, are socially determined. Bernstein (1975) also states that

> formal educational knowledge can be considered to be realized through three message systems: curriculum, pedagogy and evaluation. Curriculum defines what counts as valid knowledge, pedagogy defines what counts as valid transmission of knowledge, and evaluation defines what counts as a valid realization of this knowledge on the part of the taught. The term, educational knowledge code . . . refers to the underlying principles which shape curriculum, pedagogy and evaluation (p. 264).

In sum, specific forms of knowledge are canonized at the curricular level and power reifies and calcifies these forms to its advantage.

It should be noted that teachers are currently expected to train individuals not only to possess knowledge, but also — and especially — to be able to implement it. Knowledge consequently becomes an indispensable and unavoidable means, but the fundamental aim is the ability to implement this knowledge in new, innovative, and complex situations.

Besides the disciplinary compartmentalization and social hierarchization of school disciplines, Beillerot (1989), Charlot (1997), and Lenoir (2005) have highlighted the epistemic centrality of the relation human beings have to knowledge as well as their need to (re)construct it. In the traditional conception of education, knowledge has three possible distinct and complementary conceptions. It is either the product of a revelation that can be transcendent or handed down from "scholars;" the result of a contemplation, with knowledge

having been produced in the past; or the result of a disclosure, with knowledge being the product of a planned process, conceived and managed by specialists. In all cases, however, it has been grasped as a pre-existing "given," as a reified object to transmit. Today, however, it is important to conceive the relation to knowledge in a different way.

Fifth, numerous psychological factors, related among other things to transformations in students, call for a profound change in the dynamic of teaching/learning relationships. We will note here only two factors, though many others could be mentioned. Firstly, world events find their way into our homes immediately through television and especially the internet. Technological transformations in communication means have radically changed conceptions of the world, particularly among young people, who are increasingly familiar with these new technologies. Secondly, the ways of thinking and sensibilities, if not values, of these young people substantially differ from those of previous generations, and school no longer has a monopoly on knowledge or training. We must therefore acknowledge our obligation to differently conceive teaching/training approaches.

WHAT SHOULD BE CHANGED? A LOOK AT TRAINING PRACTICES

It is of course practices in teacher education that must be modified to favour changes in teaching practices, along with structural revisions — for example concerning the curriculum and organizational management — which we will not address here. But what does this mean? Without presenting an exhaustive review, we will examine four dimensions of the change that we believe must occur, and which cannot be neglected by trainers of future teachers.

First, the system of teacher education and its various stakeholders (leaders and teachers) must seek a transformation of their relation to educational aims. In a 1967 article, Bourdieu — who preferred to speak of functions rather than aims, to highlight the collective rather than individual nature of these matters — distinguishes between internal functions relative to preservation (cultural legitimization, passing on the cultural heritage, self-perpetuation) and external functions relative to adaptation (both social, i.e. integration into society, and economic, i.e. adaptation to economic needs through preparation for an occupation). He thus underlines the overlapping of these functions, their heterogeneity and irreducibility, and the possibility for governments to promote some of these to the detriment of others. Whatever the aims chosen and the choices relative to society, it is important in our view to appropriate three complementary perspectives: adopting a logic of complexity (Morin, 1990) rather than of simplification; adopting a logic of action rather than an encyclopedic logic, in view of the professionalization of the teaching occupation; and uniting the mind, the hand, and the heart. This last perspective respectively involves closely associating the epistemological perspective of meaning (the

questions of the why and the what, the knowledge), the perspective of acting (doing), and the perspective of attitudes (*savoir-être* or knowing how to be) in teaching and training processes.

Second, it is important to change the relation to knowledge, that is, to go from an additive and cumulative vision of knowledge to an integrative, if not interdisciplinary, one. The question of knowledge also requires that we pose three epistemic questions: Firstly, what is the status of knowledge, or to put it otherwise, what is our understanding of the nature of knowledge? Secondly, how is knowledge accessed — in other words, given the answer to the first question, how can one conceive of the way human beings acquire knowledge? Thirdly, what modes should be established to enable this access or, to put it otherwise, given the answers to the two preceding questions, what means, resources, devices, and the like should be used to enable human beings to learn? These epistemological questions also bring up the question of meaning, which, as Fabre (1999) has noted, has three inter-related and inseparable dimensions: the propositional nature of knowledge, or its comprehensibility as a relation to concepts (the epistemological perspective); the reference of the object of meaning, or the relation to the world that it permits, rather than the sole reference to some school knowledge (the sociological perspective); the manifestation of the object of knowledge, or the relation to the subject who is questioning him- or herself (the psychological perspective) and that is related to the functionality of knowledge. It is this perspective that Fabre (1999) supports — and here, we are already imagining what kinds of changes need to be implemented — a problem-situation must be founded on constant questioning, must implicate reliance on a process of conceptualization, anchored in the social life and meaning-making of students.

Third, it is necessary to change one's relationship with students. We will treat only four aspects that we nevertheless consider fundamental. First, it is imperative to consider each student in his or her singularity, and this implies the establishment of differentiated pedagogy. Second, it is just as important to take into account the learning and experience already acquired by the student rather than seeing a *tabula rasa*, a blank page. Third, and consequently, it is essential to conceive of the teaching/learning process as work that deals with error as a fundamental part of learning. Rather than being penalized, error would be addressed by pedagogical intervention; it is precisely this error that justifies and legitimizes the teacher's work. Fourth, it is equally important to consider students as human beings in their own right, regardless of their social status, ethnic background, culture, etc. These are human beings who have rights (not only responsibilities) and are to be respected, hence the importance of recognizing them in their dual dimension, singular (unique beings) and universal (members of the human community). This, thus, implies that we need to implement relational and socio-affective dimensions that are sufficient to

create favourable conditions for putting into play students' learning processes. Moreover, the conception of teaching must go from a vision of transmitting knowledge to one of being a mediator. This means that a teacher-trainer's responsibility is to establish the conditions judged to be most favourable — in view of the context and certain constraints — to favour, stimulate, support, and regulate learning processes, the relation students establish with teaching content. To put it otherwise, teachers are in charge of the conditions for learning, but the students remain responsible for their learning. Furthermore, in the frame of initial teacher education, the students are adults at least 19-20 years old in their first year of university and at least 23-24 years old upon completing their training. They should, as a result, be treated foremost as adults rather than students, especially since they are future teachers. We will come back to this aspect later.

Fourth, relationships with colleagues also need to change. The individualist and compartmentalized vision of teaching is no longer appropriate. Secrecy and opacity in professional activities carried out in isolation must be supplanted by collaboration and partnership aiming to better facilitate training in a coherent and integrative horizontal and vertical perspective. The perspective of complexity necessitates partnerships based on organizational modes that break through isolated teaching and draw on interdisciplinary approaches.

HOW CAN CHANGE BE EFFECTED? MODES TO IMPLEMENT

Changes in teaching-training practices cannot be based on a teacher's individual will. They must primarily be founded on an institutional policy decision and a structure of governance sustaining this decision throughout the change process. An innovative process must take place. A number of conditions for successful innovative change in education have been summarized by Collerette (2005), by Nutley, Percy-Smith and Solesburry (2003), and by Rohrbach, Ringwalt, Ennett and Vincus (2005), and include the following:

- Consistency between the project of change and the values and beliefs of the potential users: teachers, directors, administrators, parents, etc.
- Consistency between the expectations and needs of users and the characteristics of the project.
- Users' perception of self-efficacy (leaders, teachers, and students).
- User involvement in the change process.
- The need for a piloting committee to guide and regulate the change process on an ongoing basis.
- Strong leadership and active coordination of leaders in the piloting of activities.

- The existence, when it comes to actions and expected results, of clear and permanent directives that can nevertheless be adapted according to the dynamic of change.
- A truly collaborative climate and the implementation of a culture of participation as concerns educational institutions.
- A solid level of training and support in all phases of the change process.
- The availability of time and material resources.
- The availability of human and financial resources.
- The quality and importance of regularly disseminating results.
- The establishment of regular and sustained contact between those disseminating knowledge and users, and a set time for sharing this knowledge.

It should be kept in mind that the question of piloting a change in training begins with a policy decision that can be taken within an institution. For exemple medical training at Sherbrooke University was rethought, and has, as a result, adopted (for almost 20 years) a problem-based approach excluding any formal education, so that classrooms have even been eliminated. Similarly, certain engineering training programs at the same university are today conceived based on a project-based approach and, right from the first weeks of training, grant central importance to the multi-referential and multi-dimensional facets of a complex professional practice. We likewise believe that teacher training must be re-conceptualized, especially so as to eliminate the sterile and dangerous opposition between theory and practice, as well as other traditional modes and conceptions of action still implemented that hinder the improvement of educational processes in a democratic context.

We would like to add six other conditions for change in line with the practice of teaching-training. It is important first to conceive of one's practice differently by clearly answering the six following questions, thus explicitly circumscribing the dimensions addressed by a curriculum:

1. What are the socio-educational aims pursued by the education (training) involved and what learning is targeted as a result (the "why" of teaching)?

2. What are the objects of learning and training, that is, what content stated in the curriculum must be taught (the "what" of teaching)?

3. Which students are targeted by the teacher-training in terms of psychological, social, economic, and cultural background (the "to whom" of teaching)? On this point, we consider that future teachers should be seen not as students, but as potential and up-and-coming teachers, thus bringing to the fore the questions of responsibility, ethics, and professional conduct in the professional training process. Rather than see themselves as mere doers of tasks (Tardif and

Lessard, 1999), they would consider themselves active players involved in an individual and collective process of analysing and developing competencies, going "from consumption predetermined by experts to active involvement" (Conseil supérieur de l'éducation, 2004, p. 56). The question of "recognition," in the Hegelian sense, each day appears to us more fundamental.

4. What are the teacher-training modes adopted (the "how" of teaching)? On this subject it would be important to design alternation processes [practica] involving closer collaboration between the university and practice settings to strengthen the link between theory and practice. It would also be relevant to conceive of training in an interdisciplinary frame so as to inscribe it within the paradigm of complexity and enable the elaboration of multi-referentialized and multi-dimensional training situations from an integrative standpoint. This could require the formation of training teams rather than only thinking of training in the additive and cumulative terms of successive courses.

5. What resources are drawn on to carry out this teaching-training (the "with what" of teaching)?

6. How are these five dimensions articulated and how do they allow for meeting the pursued objectives and objects of teaching-training (Lenoir, Maubant, Hasni, Lebrun, Zaid, Habboub et McConnell, 2007).

A change in practices of this magnitude also rests on the consideration of teaching practices still in use, regardless of education level (from preschool to university). The participants' acceptance and follow-through will result from, among other things, the consideration of their everyday common-sense practices, their ways of doing things in the frame of an occupational habitus. Drawing on these practices as a point of departure will enable a critical and reflective approach, thus avoiding top-down and "applicationist" approaches. The training models currently in place, top-down and prescriptive, have proven ineffective. Meirieu (1988) objects to "the 'applicationist' model in education, a dangerous old illusion according to which one needs only analyse a situation as completely as possible to deduce the principles and modes of educational action" (p. 143, our translation). Based on European research and various North American research work, Charlier (1989), shows the impasse created by such normative and "impositional" approaches. Bru (1994), for his part, highlights the impasse resulting from recourse to any method at all, as "it is vain to try to define a teaching method universally superior to all others" (p. 104). He also highlights that "theoretical models are generally models for the practice of teaching, but one should rather endeavour to construct models of teaching practice in its complexity, its tensions, its contradictions, its contextualization" (p. 104, our translation).

As previously mentioned, one prerequisite for change concerns the need to ascribe meaning to learning. This requires the anchoring of teaching in situa-

tions. At the heart of the teaching/learning process one finds not the student (psychologizing excess), the knowledge (epistemological excess), or the teacher (demiurgical excess), as Meirieu (1985) has well shown. It is the teaching/learning situation that lies at the heart of the teaching/learning process. This notion should not be understood in its common sense dimension, but rather drawn on as a theoretical construct in accordance with the works in which it was developed. We are here referring to the didactic conception of the situation (Brousseau, 1972, 1986), to its psychological conception (Vergnaud, 1992, 2000), to its functional conception as found in professional didactics (Pastré, 2002, 2008; Mayen, 2001, 2004) and its anthropological conception (Freire, 1972, 1974, 2005). These various conceptions are examined in a special journal issue that will be published in October 2011 (Lenoir et Tupin, in press).

Regardless of the theoretical perspective adopted, in our view teacher-training must be anchored in situations according to three perspectives involving a number of dimensions:

- A socio-educational perspective tied to the evolution of the educational system and to social realities (contextual and historical dimensions).

- A socio-educational perspective tied to the teacher's frame of reference, both external (curricular dimensions) and internal (epistemological, socio-affective, moral, and ethical dimensions).

- An operational perspective representing the actualization of this frame of reference in teaching practices (didactic, psychoeducational, organizational, and mediating dimensions).

Consequently, it can be seen that trainers — and hence teachers — must define themselves as mediators, that is, individuals who take on the responsibility of offering conditions judged most favourable to promote the student application of learning processes.

Finally, the question of evaluation is an intrinsic part of teaching/learning situations and does not appear only from the standpoint of evaluating cognitive learning, since, in a curricular perspective, objects of teaching cannot be reduced to cognitive knowledge. Instead, they encompass other types of *savoir* (knowledge), *savoir-faire* (knowing how to do,) and *savoir-être* (knowing how to be) that must be actualized in a *savoir-agir* (knowing how to act) required by the competency-based approach. But the question of evaluation is also directly related to the teaching-training practices implemented. Indeed, from a curricular perspective evaluation must be considered from two angles: first, that of evaluating the competency acquired by pupils as a product of learning and as a process used to acquire this learning, and, second, that of implementing the official curriculum, which is delivered (rather than merely learned) while taking into account the dimensions we have discussed above — in this case the evaluation of teaching becomes inseparable from the evaluation of learning.

To conclude, we would like to illustrate what we have proposed using a concrete example related to the evaluation of learning, conceptualized according to the logic of the competency-based approach. We have been teaching the course *FFE 413-Fondements de l'éducation et système scolaire au Québec* (educational foundations and the Quebec educational system) offered in the fourth and final year of the preschool and primary school education baccalaureate at the Faculty of Education at the Sherbrooke University. Offered to future teachers primarily concerned with the intensive (four month, full teaching workload) practicum and with searching for a teaching job for the following year, this course was not central to their concerns and was treated as a *pensum* to suffer through.

With two, then three colleagues — and with the assistance of a colleague from another faculty and support from assistants in a spirit of collaboration and partnership — we brought together the groups (some 160 students between 23-24 years old) and shared the 45-hour workload. We chose 13 themes on current and thought-provoking questions that constitute essential issues in education as well as problems encountered today by future teachers in school settings. These include immigration and the school; professionalization and the professional identity; social stakes in education: equity, religion, and secularism; recognition; culture, the school, and teachers; school-family-community relations; aims of the school in a globalization context; pedagogical movements; major currents in sociology and psychology; etc. Cognitive content, which is generally little-known or unknown to teachers, was addressed based on situations from Quebec and Canadian social life, current debates in society (or extending beyond it owing to their stakes), problems encountered in the realities of schools, Quebec educational orientations or policies, etc.

The 13 sessions (if we exclude the first and last) were organized as follows:

- Mandatory readings before each course on the current theme, along with guiding questions.

- A formal PowerPoint presentation of roughly 90 minutes highlighting the essential aspects of the theme and presented to all four groups in an auditorium.

- A roughly 90-minute period, in separate classrooms, for discussion with the future teachers in each of the four groups. This period was hosted by one of the professors and addresses the content of the presentation as well as questions of the future teachers concerning the prior readings and guiding questions, some of which required the establishment of links between course content and various aspects of the teaching function.

As for evaluation, consistent with what we have presented, we propose among other things (since three evaluations are required according to faculty regulations for undergraduate studies) a written assignment — completed in groups of two or maximally three students — comprising a letter of one to five pages

addressed to the Quebec ministry of education on one of the current issues in the Quebec educational system. The issue chosen must be in line with one of the themes seen in class. The letter must take stock of the situation considered a socio-educational issue, show what makes this an issue, highlight its components by referring to publications, survey debates on the subject, and finally advance propositions in view of correcting or adjusting the situation. Since this is a group assignment, the submitted document must of course include the final version of the letter along with a page of bibliographical references consulted, as well as all supporting material produced by the students, organized chronologically: rough drafts, notes, emails, various previous versions, etc. This method affords a look at the processes of production, of consulting proposed resources, and of documentary research. These steps are currently carried out using an integrated online system, namely Moodle, which also permits various types of follow-up. The best letters are then sent to the ministry, signed by their authors. A somewhat similar evaluative process is used for individual work related to the required readings.

In this way, we intend to implement the contextual and integrative dimensions in a meaningful situation underpinned by an explicit intention, and requiring the mobilization of knowledge, and the use of a heuristic inter-subjective and progressive path.

CONCLUSION

Changing one's training practice can certainly result from an individual choice. Many teachers engage in a significant process of change throughout their careers. Institutional change, however, requires more than individual wills. It demands a political will — mobilized not from a position of power held by institutional leaders, but primarily from one of accepting leadership (Zaleznik, 1970). As we have noted elsewhere (Lenoir, 2004),

> leadership, which Tannenbaum, Weschler and Massarik (1961) define as "interpersonal influence, exercised in situation and directed, through the communication process, toward the attainment of a specified goal or goals" (p. 24), sets itself apart, by its unstable and situational character, from formal power that is permanent and instantaneous, and from competence that is permanent and evolving. It also distinguishes itself from expertise, owing to the principal factors of recognition, personality, the position and the situation — rather than sets of skills — and owing to the pursued aim: that of leading and convincing — as opposed to acting as a consultant and ultimately serving as a model of reference (Lenoir, 2004, p. 15).

While the importance of leadership is fundamental, and if the active presence of leaders is essential to the success of a change process, so is the maintenance of objectives and orientations. There is nothing worse than changing, let alone replacing them. The modes implemented must, however, be adapted, adjusted, and regulated; they cannot be set in stone. Hence the need for an initial and

ongoing consultation phase. Collerette (2005) attributes lack of success in organizational change to six main factors: insufficient promoters and support; insufficient priority; the absence of a common reading; brief and inadequate efforts; inadequate management; and insufficient monitoring. Change can only be effected if, in the initial awareness of the need for such a change, there is a shared reading of problems within the institution, a mobilization of influential players who might play a leadership role, a critical mass of partisans, and a well-documented and well-argued presentation of the problem written in clear and simple terms and highlighting that the problem is an important issue for concerned players and from a social and contextual standpoint.

In short, a change in training practices will not happen overnight. It will require an in-depth preparation phase to put pressure on concerned players and involve them in a methodical, rigorous, and stimulating process of change. If significant progress has been made in the last decade, a Copernican revolution is still to come in teacher education, and appears necessary if we are to support and achieve consistency with the logic of professionalization.

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FACULTY CONCEPTIONS OF TEACHING: IMPLICATIONS FOR TEACHER PROFESSIONAL DEVELOPMENT

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ABSTRACT. In this paper, the need to assist university teachers in thinking carefully about what they are teaching, and how this relates to and coheres with their own professional development, is outlined. The underlying argument being made is that any efforts designed to extend and encourage scholarly teaching require us to consider the faculty experiences of understanding their subject matter, and in doing so, to help them to see how their understanding relates to what and how they teach. In other words exploring lecturers' conceptions and epistemological beliefs about teaching may assist in the improvement of teacher education, professional development programs and teaching centres at the university.

CONCEPTION DE LA FACULTÉ EN RAPPORT AVEC L'ENSEIGNEMENT : IMPLICATIONS SUR LE DÉVELOPPEMENT PROFESSIONNEL DES ENSEIGNANTS

RÉSUMÉ. Dans ce papiersont soulignés la nécessité d'aider les enseignants à réfléchir soigneusement à ce qu'ils enseignent, et sur comment cela se rapporte à et coïncide avec leur propre développement professionnel. L'argument sous-jacent étant que tout effort visant à développer et à encourager l'enseignement universitaire exige que nous prenions en considération les expériences de la Faculté en rapport avec lacompréhension dela matière enseignée et, ce faisant, les aider à voir comment leur compréhension se rapporte à ce qu'ils enseignent et à comment ils enseignent. Autrement dit, en explorant les conceptions et les croyances épistémologiques des enseignants sur l'enseignement pourrait contribuer à améliorer la formation des enseignants, des programmes de développement professionnel et des centres d'enseignement à l'Université.

Many researchers have pointed out that university teaching and classroom behaviour activities are determined by a set of theoretical frameworks that is belief driven (Clark & Peterson, 1986; Marland, 1995, 1998). Over the years, a growing body of research has helped to provide evidence that undercover such beliefs (known also as epistemological beliefs) offer insights as to how lecturers promote their actual conceptions of teaching across educational settings.

These "beliefs" appear to play an influential role in lecturers' judgements about what knowledge is relevant to a particular situation (Pajares, 1992). From this, it can be concluded that there may be a direct relationship between lecturers' beliefs and their conceptions of teaching. Identifying such a relationship could be valuable in supporting the arguments that lecturers' theoretical frameworks are, indeed, belief-driven (Marland, 1995, 1998). Through the years, many studies have demonstrated that there are definite links between these concepts (Brown & Rose, 1995; Kagan, 1992; Nespor, 1987).

According to Schommer (1994), personal epistemological beliefs vary from "naive" to "sophisticated." For example, a lecturer who holds naive epistemologies generally believes that knowledge is simple, clear and specific, whilst the learning ability is innate and fixed and can be transmitted directly to the students. A lecturer who holds sophisticated beliefs will assume that knowledge is complex, uncertain, and tentative, and can only be gradually constructed by the learner (Howard, McGee, Schwartz, and Purcell, 2000; Schommer, 1994).

Findings by Hashweh (1996) stated that teachers who held constructivist or sophisticated beliefs were more likely to encourage students' conceptual change than teachers who held more dualistic or naïve beliefs. As such, they were more able to conceive of teaching as facilitating, rather than transmitting knowledge.

Building on the epistemological beliefs argument, Kember, over 14 years ago, found similar findings after his review of literature on the conceptions of university teachers. Kember (1997) concluded that there was a high level of agreement between the findings regarding teacher-conceptions (similar to the naïve beliefs) and student-conceptions (similar to sophisticated beliefs).

Broadly speaking, a teacher-conception of teaching is one where the teacher's job is conceived of as knowing the subject and then accurately transmitting that knowledge to the students. In this way, students are dependent on the lecturer for knowledge – hence these conceptions may be also referred to as "lecturer-dependent" (Varnava-Marouchou, 2007).

A student-conception is one in which high quality learning is viewed as "requiring active construction of meaning and the possibility of conceptual change on the part of the learners" (Watkins 1998, p. 20). From this point of view it is the teacher's role to facilitate and to encourage the student to seek responsibility for their own development –hence these conceptions may be referred to as "student-dependent" (Varnava-Marouchou, 2007).

Nevertheless, the importance of conceptions about the nature of knowledge and epistemological beliefs and their relevance to any teacher professional development are still unexplored, despite the fact that there is an increased need to understand how lecturers' conceptions affect their classroom practices (Hofer & Pintrich, 1997; Prawat, 1992).

TEACHER PROFESSIONAL DEVELOPMENT: THE CURRENT PROFILE

The current arguments in favour of enlarging teacher professional development are increasingly widespread: the need to improve student learning experiences; to enhance teaching efficiency; to increase the use of information and communications technologies, and to raise awareness of the impact of globalisation on academic life (Nicoll & Harrison, 2003) are just some of the benefits sought from such programs. But perhaps the most prominent argument remains the promotion of quality and excellence in education. The improved quality of education, however defined, "often requires teachers to change their classroom practices, sometimes radically" (James, 2005, p. 105), but these ideas can only take place if the lecturers "themselves have learned" (p. 105). Teacher learning is therefore a necessary condition for student learning. To this end, several studies have illuminated the importance of making teacher education programs compulsory for all those wishing to teach.

The most comprehensive research published in the UK (Gibbs & Coffey, 2004) studied, over a long period of time, trainee lecturers and their students in 22 universities in eight countries. It concluded that training can indeed improve various aspects of teaching as evaluated by students. Most importantly, however, training can help lecturers improve their students' learning. That is, if you "train higher education teachers to teach, they will do a better job than untrained ones" (Trowler & Bamber, 2005, p. 80). In light of these arguments, some countries including Sweden, Australia and the UK are considering introducing compulsory teacher training for higher education lecturers. Some have even gone as far as implementing such a policy.

The National Council of Universities (NCU) of Norway, for example, has already decided that all appointed lecturers should go through training of about 100 hours (3-4 weeks) to achieve "basic pedagogical competence." Progress in the UK towards compulsory training in the UK has been slower, and although it was planned to take effect in 2006, it has not yet been fully implemented. This policy originated with the introduction of the Dearing Report (National Committee of Inquiry into Higher Education [NCIHE]) in 1997. The report stated that university lecturers should receive professional development training in order to improve teaching quality and student learning: "It should become the norm for all permanent staff with teaching responsibilities to be trained on an accredited course" (NCIHE, 1997, para. 70).

On the recommendations of the committee, the Institute for Learning and Teaching in Higher Education (ILTHE) was established, subsequently to become a key component of the national Higher Education (HE) policy (Gibbs, 2003). As a result, many universities in the UK started providing teacher training courses for higher education lecturers.

The fundamental argument made here is that good teacher training, professional development programs and teaching centres should concentrate on

the development of the student and, in particular, on the improvement of student competences rather than on the development of the discipline and transmission of the subject. If this argument holds true, then it justifies the compulsory training policy both in Norway and now in the UK. It is believed that making educational development courses compulsory will eventually lead to "better equipped lecturers, who are able to use a range of methods to develop the competences of a new type of student for a post-industrial society" (Trowler & Bamber, 2005, p. 83). However, there are reasons to question the vigour of this argument.

The importance of "conceptions of teaching" on the professional development of lecturers

There is, as yet, little research linking effective student learning with improvements deriving from lecturer training (Trowler & Bamber, 2005). Of the studies that have been involved in such research, there is no apparent attempt to link teacher training and student learning outcomes (Radloff, 2002; Rust, 2000). Indeed, in a recent study, Hobson (2003) found that many student teachers were sceptical about the potential benefits of their teacher training program, especially the "theoretical" part. However, this does not mean that teacher training courses are not effective, simply that "significant evidence has not yet been gathered" (Gibbs, 2003, p. 130).

There is, therefore, a surprising lack of a developed theory or validated research in this area (Trowler & Bamber, 2005; Trowler & Cooper, 2002). Perhaps, however, in order to improve learning in higher education, we do not so much need more research into the psychology of learning or teaching methods, so much as we need a different type of research (Ramsden, 1987).

A different way of looking at teaching possibly involves a drastic shift of perspective: a change in the way of looking at the educational world (Ramsden, 1987). This is undoubtedly different from some previous beliefs about learning, even though it may in the end prove to be a complementary rather than a conflicting approach. For example, whilst there are no direct relationships between lecturer training and student outcomes (Trowler & Bamber, 2005), there is an abundance of research linking teaching conceptions, teaching practices, learning conceptions and learning outcomes (Biggs, 1999; Dunkin & Precians, 1992; Kember & Kwan, 2000; Martin, Prosser, Trigwell, Ramsden, & Benjamin, 2000; McAlpine & Weston, 2000; Ramsden, 1992).

There are at least three arguments that have led to the current debate regarding university teachers' conceptions and their relevance to the professional improvement of university teaching.

First, there is clear evidence indicating the links between teaching conceptions, teaching methods, and student learning. Two studies in particular stand out: that of Trigwell and Prosser (1996a, b) and that of Kember and Kwan (2000). In

both studies, it was reasonable to draw the conclusion that university lecturers adopted teaching methods that were in line with their beliefs about teaching. Other researchers have repeated the same view: "Fundamental changes to the quality of university teaching are unlikely to happen without changes to professors' conceptions of teaching" (McAlpine & Weston, 2000, p. 377).

Similarly, Pajares (1992) argued that the conceptions of teachers influence their judgements which, in turn, affect their classroom teaching behaviour. In the same way Kane, Sandretto, and Heath (2002) suggested that such research is embedded in the understanding that teaching conceptions direct and influence teachers' practices.

Furthermore, many researchers argue that the teaching practices adopted by lecturers are based on their beliefs and conceptions, and in turn affect the way in which students approach their own learning. For example, Gow and Kember (1993) claimed to have found empirical evidence that adopting predominantly "transmission conceptions" in teaching (as defined by Kember, 1997) discourages students from adopting deep approaches to learning.

Secondly, over the last 25 years or so, there has been much research evidence concluding that teaching improvement depends on the existence of student-centered conceptions of teaching. Empirical evidence such as that provided by Gow and Kember (1993) and Trigwell and Prosser (1996b) has led to the assumption that improvements in university teaching must be underpinned by conceptions of teaching that are likely to lead to high quality student learning outcomes. Literature in this area indicates that university teachers' thinking must move away from a teacher approach and towards a student one in improving both teaching methods as well as student learning outcomes (Saroyan & Amunsden, 2001).

Thirdly, there is an increase in evidence indicating that the professional development of teachers which focused entirely on improving teaching methods has limited prospects in improving actual teaching. According to Ho, Watkins, and Kelly (2001), a number of educationalists stated that "providing tertiary teachers with prescribed skills and teaching recipes" (p. 144) will not necessarily improve their teaching practices and thus improve student learning. Ho, et al added that teacher professional development work must go beyond teaching methods and address the issue of conceptions that may "bring about fundamental changes toward teaching excellence in tertiary teachers" (p.144).

Whilst it is important therefore to identify the various ways in which university teachers can develop professionally, it is equally important to identify the ways in which they conceive of teaching, and how these conceptions may relate to students' learning. If relationships to student learning could be established, as many researchers have indicated in recent years, then helping lecturers change their teaching conceptions would probably improve the quality of student learn-

ing (Trigwell, 2002). As such, the lecturers' conceptions of teaching may have a significant role to play for teacher education programs, university teaching centres, and in-service training courses in particular.

CONCEPTIONS OF TEACHING: IMPLICATIONS FOR TEACHER PROFESSIONAL DEVELOPMENT

An important result of any research on university teaching is its application in supporting faculty, especially the less experienced ones, in their professional development. It is suggested that a more consistent faculty development policy based on conceptions would help lecturers to develop and manage their beliefs. Subsequently, the links described between conceptions of teaching and learning are hoped to assist in any future teacher development programs and teaching centres in general. Gibbs (1995) argues for a greater awareness in research into student learning and its implications for lecturer development.

Research has undoubtedly highlighted the important role conceptions play in the development of teaching practices. Gow, Kember, and Sivan (1992) identified faculty development as an important part of their research on conceptions. They emphasised the significance of "mak[ing] changes in line with the practitioner's beliefs" (146). Entwistle and Walker (2000) argued for faculty development that would support lecturers in developing more sophisticated conceptions of learning and teaching. Ho, Watkins, and Kelly (2001) provided concrete evidence that conceptions can indeed lead to improvements in teaching strategies and eventually in student learning.

So the evidence is clear: university lecturers' conceptions of teaching are seemingly related to their teaching practices and consequently to their students' learning outcomes. This has led to the acknowledgement that genuine improvements in lecturers' practices have to begin with a change in their thinking about teaching (Bowden, 1989; Gibbs, 1995; Gow & Kember, 1993; Ramsden, 1992; Trigwell, 1995).

This leads to the conclusion that if we wish lecturers to adopt "student-centred" (Kember & Kwan, 2000) approaches to teaching, and students to adopt meaningful "learning-oriented" (Varnava-Marouchou, 2007) approaches to learning, then it is important to direct lecturer development and training efforts towards evaluating their conceptions of teaching and to engage in teaching for understanding (Ho, 1998). An appreciation of university teaching is therefore incomplete without a consideration of the lecturers' conceptions about teaching and a systematic examination of the relationship between those conceptions and actual teaching practices.

It is evident that current teacher training programs and the development of university teaching centres in recent years are not doing enough to challenge lecturers' conceptions or preconceptions about "what learning to teach ought to entail" (Hobson, 2003). The notion that effective learning involves conceptual

change (Ho, 1998) has already gained acceptance in the context of teaching school-age students (Ramsden, 1988; Svensson & Hogfors, 1988). However, in the field of teacher development in higher education, it is only recently that this idea has been taken up with some degree of seriousness. Staff developers have begun to argue that educational development is itself a learning process for lecturers and that effective teaching program need to bring about conceptual changes. Even though lecturers' conceptions are known to be inflexible and difficult to change (Fosnot, 1996), some methods for shifting these conceptions have met with some success (Hollingsworth, 1989).

One suggestion arising from this debate is that formal teacher training programmes would place greater emphasis on the ambiguities that exist between what lecturers and their students perceive as good teaching. Such a process would offer students and faculty an opportunity to express their own priorities in their own words, which could then provide a basis for improvements in any future teacher education and training programs. In the professional context, this would mean investing in specific training programs to tackle conceptions of teaching. Similarly, workshops and seminars can provide a good opportunity for building awareness regarding the importance of conceptions of teaching. Indeed, Bowden (1989) designed a one-day workshop which focused on helping teachers to match their teaching practices to their intended learning outcomes for students. In his workshop, Trigwell (1995) attempted to change participants' conceptions of teaching by increasing their awareness of the existence of other conceptions that were more helpful to better learning.

Thus, teaching conceptions are expected to become more significant in the analysis of teacher education, not only in understanding meta-cognitive activities and processes, but also in understanding how to teach. This suggests that, if academic practice in teaching and learning is to be effectively developed, then not only do the existing beliefs of university teachers need to be the starting point for improving approaches to teaching, as a number of researchers have advocated (see, for example, Gow, Kember, & Sivan, 1992; Trigwell & Prosser, 1996a; Elby & Hammer, 2001), but also much more attention needs to be given to the way in which different beliefs operate in a particular context, and the means by which individuals construct their role as teachers in relation to perceived contextual constraints. For example, Ho (1998) and Ho et al. (2001) emphasize the importance of encouraging teachers to examine, confront and challenge their conceptions and argue this is a necessary first step to better teaching practices. Martin and Ramsden (1992) supported an approach that gently builds on the conceptions that teachers bring with them to the development processes, suggesting that "the knowledge, skills, and the concepts must be integrated and reintegrated by each teacher during a slow process of gaining understanding" (p. 155). Devlin (2003) and Hativa (2000) provide some evidence that conceptions may shift through coaching the application of teacher practices in student or learner focused ways in particular contexts.

Eley (2006) suggested focusing on developing skills/repertoires within specific contexts and noting whether changes to conceptions follow.

These arguments provide a good start to any future progress in teacher training and professional development programs. The conceptual change approach has developed as a way of achieving real progress in higher education teaching, even though the actual task of changing such conceptions remains enormous. The challenge now for research around university teaching development is to determine more precisely the part that conceptions play in the process of teaching improvement and, ultimately, in ensuring the quality of student learning.

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HISTORY AND PERSPECTIVES OF ADULT EDUCATION AND PROFESSIONAL TEACHER EDUCATION: BETWEEN COMPLICITY, DISTANCE, AND RECOGNITION

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ABSTRACT. This text is divided into three broad sections. The first section will elaborate the figure of professionalization, which today appears to be the target of professional training policies. It also seems to be considered a means and thus a guarantee of the professional aim of proposed training. On what ideological and pedagogical presuppositions is this professionalization based? The second figure embodying professional training contexts is that of knowledge. What knowledge is present in the professional training of teachers? Is it involved in professionalization processes? If so, in what ways? To what extent does the tone given to professionalization – whether in connection with the objective of instruction, socialization, or qualification – determine a specific sense for Knowledge and for the knowledge defined and articulated in professional teacher training? The third symbolic figure of professional training is that of the school-life relationship. Where does professional training begin and end? What are its territories? Can it exceed the usual territories and hence the expertise expected of a professional? By examining these three forms, we hope to offer the reader a new approach to professional teacher training inspired by a reminder of the aims and values of adult education.

HISTOIRE ET PERSPECTIVES DE LA FORMATION DES ADULTES ET DE LA FORMATION À L'ENSEIGNEMENT : ENTRE COMPLICITÉ, DISTANCE ET RECONNAISSANCE

RÉSUMÉ. Ce texte s'organise en trois grandes parties. Dans la première partie, nous dessinerons la figure de la professionnalisation. Celle-ci semble aujourd'hui la visée des politiques de formation professionnelle. Elle est de toute évidence aussi considérée comme un moyen et donc comme une garantie de la finalité professionnelle de la formation proposée. Sur quels présupposés, tant idéologiques que pédagogiques, cette professionnalisation repose-t-elle? La seconde figure incarnant les contextes de formation professionnelle est celle des savoirs. Quels sont les savoirs présents dans la formation professionnelle des enseignants? Participent-ils, et de quelles manières, aux processus de professionnalisation? Dans quelles mesures la couleur donnée à la professionnalisation, qu'on la mâtine de l'objectif d'instruction, de l'objectif de socialisation ou de l'objectif de qualification, détermine un sens spécifique au Savoir et aux savoirs définis et énoncés dans la formation professionnelle des enseignants? Troisième figure emblématique de la formation professionnelle, celle du rapport entre l'école et la vie. Où commence et où se termine la formation professionnelle? Quels

sont ces territoires? Peut-elle aller au-delà des territoires habituels et donc de l'expertise attendue du professionnel? En traitant tour à tour de ces trois figures, nous devrions proposer au lecteur une nouvelle approche de la formation professionnelle des enseignants en lui insufflant un nouveau souffle par un rappel des finalités et des valeurs de la formation des adultes.

THE COMPLEX REALITIES OF TEACHING

Since the 1980s education has become considerably more complex, notably owing to increases in responsibilities for teachers and the diversification of student populations (Barrère, 2002). As a result, teachers are confronted with contexts that often overlap and with conditions that are sometimes new, for which their initial university training has not necessarily prepared them (Carbonneau, 1993). As Brodeur, Deaudelin and Bru (2005) have pointed out, a number of dimensions inherent to the professional development process remain to be elucidated, particularly those involved in the period of professional entry (Martineau & Presseau 2007). The issues and difficulties facing new teachers in their classroom situations as well as in their relationships with families and the community constitute a subject of major concern, as is clearly demonstrated by the special report of the Quebec Ministry of Education journal *Vie Pédagogique* (September & October 2003) and a seminar held in Quebec on May 20-21, 2004 (ministère de l'Éducation du Québec [MEQ],[1] Centre de recherché interuniversitaire sur la formation et la profession enseignante [CRIFPE],[2] Comité d'orientation de la formation du personnel enseignant [COFPE][3]). These meetings have brought to light the effects of unsuccessful professional integration on the medium- to long-term continuation of teachers in the profession. This issue leads to a questioning, before employment even begins, of the processes of professional learning meant to prepare the way for successful professional integration. More generally speaking, it also raises the question of the relevance of professional *dispositifs*[4] or training plans adopted and overseen by higher education institutions. We should also note the return of the almost ancient quest for the elusive link between training and employment (Tanguy, 1998) that has emerged from debates on teacher education. These debates have to do with ensuring that the financing provided to teacher training institutions guarantees that they will provide students the most adapted preparation possible for the job market.

If professional training is highly lauded and valued in the official discourse on teacher education, this is because it is counted on to improve the competencies of teachers and ultimately the academic perseverance of students. Behind this orientation one finds restated a premise shared today, as much by researchers (Fullan & Stiegelbauer, 1991) as by political leaders (American Council on Education, 1999), namely an affirmation of the teacher's role as a significant vehicle for improving students' academic performance. The success of educational reform thus seems to depend strongly on the involvement and conviction

of concerned players – and especially teachers – in the evolution of educational models, in the improvement of educational contexts, and in a transformation of the practices of the professionals concerned. Various publications (Mendro, 1998; Powell & Anderson, 2002) have underscored the essential role of teachers in successfully introducing a new curriculum (Lenoir, 2005).

Consequently, decision makers in charge of school systems have gradually geared the policies of professional teacher training toward the promotion of training plans, approaches, didactic-pedagogical situations, and methods likely to create the conditions for successful professional learning. They have especially banked on the role of practica (Correa Molina & Gervais, 2008a) as an opportunity to create these learning situations. These leaders also count on scientific research to supply organizational and pedagogical proposals likely to facilitate transitions between knowledge stemming from training and knowledge acquired over periods of employment. The expectation is also that these proposals will concern plans for guiding the first years of employment, which are considered crucial for the successful professional insertion of beginning teachers. In light of these various expectations, research on teacher education has fostered the scientific project of better defining the right teaching practices assumed to establish conditions for student success. Analysis of research conducted on teaching practices in North America (Lenoir et al., 2006) and of research on professional teacher training (Gauthier & Mellouki, 2006) show that the scientific community examines two principal aspects of teaching work seen as possible responses to political and social expectations: first, analysis of teaching practices; and second, analysis of training plans in professional teacher training, principally in terms of training content and the theory-practice relation. These two aspects share the same objective: training a high-level teacher, an expert in the instructional and professional success of education. Although certain works increasingly examine the role of practica in training (Correa Molina & Gervais, 2008b), few seek to analyze formal and/or informal processes of professional learning found in the various phases of insertion and professional integration.

Research on the professional training of teachers today does not seem to be concerned with the question of knowledge, whether the knowledge targeted in training, already acquired by teachers-in-training, or constructed during training and over the course of the various experiences leading to employment. What characterizes this knowledge and how is it linked to the competencies present in the various teacher training frameworks? The nature and functions of the knowledge required to build and develop professional competencies are also neglected in research on professional teacher training. Insofar as they are absent from scientific research, these various aspects of professional training constitute grey or even neglected areas likely to harm the evolution of teacher education policies over time. Due to a lack of precise indicators to support the implementation of training plans and an inability to rely on results or propos-

als stemming from the academic community, public decision makers may be tempted to resort to a few received ideas, in particular the notion that placing subjects in an employment situation is, in itself, the sole end and means of professional training. The recent decision in France to reconsider the place and function of university training institutions for teacher education attests to this skepticism concerning a professional training of teachers that seems unable to respond to social expectations, and political pressure, especially during elections. The lack of data on the conditions required for professional learning may in time compromise not only the professional insertion process, but also the quality of education offered to students, as the most difficult courses – those addressed to students at risk or with learning difficulties – are often left to beginning teachers (COPFE, 2002). We can therefore make a first observation concerning the presence of grey areas or even "black holes" in research on professional teacher training.

The object of this text, however, is to show that these black holes are in no way exclusive to teacher education contexts. In our view, they are components of the contexts of professional training plans at large. To support this thesis we have identified and chosen three figures embodying these contexts and presented as conditions for implementing professional training policies and training plans: the figures of professionalization, knowledge, and the school-life relationship. As we will see, each of these figures is accompanied by its own questions and points of insecurity. But we will also see that they represent grand designs, even if the paths for implementing them are not without obstacles. By outlining the context for reuniting professional teacher training and adult education, we also hope to lay the foundations of a new ambition for policies of professional teacher training marked by the founding values of lifelong education. Ultimately, it is our intent to recall the axiological, scientific, and praxeological heritage of adult education. We would like to demonstrate its visionary power in connection with the evolution of training plans and policies in teacher education.

THE MONOTONOUS DIRGE OF DISCOURSES ON PROFESSIONALIZATION

In analyzing the evolution of teacher training policies, we could a priori admit that the professional nature of this training is all but ubiquitous. We should recall that a number of research reports in Canada (Tardif, Lessard, & Gauthier, 1998), studies in Europe (Eurydice, 2004), numerous and sometimes strong recommendations stemming from committees or work groups related to the Ministry of Education (Rapport Bancel in France in 1989; La formation à l'enseignement, MEQ, 2001) have, over the past twenty years, supplied decision makers with pertinent arguments for differently conceiving teacher training plans, in particular by encouraging the development of a professionalization (Altet, 1994; Altet & Bourdoncle, 2000) of the teaching occupation. In other words, for the last twenty years an objective that is also a wager have

been forcefully set down – that of conceiving of teacher training with a view to improving the professional competencies of teachers. Although educational projects foremost aim to prepare citizens for the society of tomorrow, they must be able to rely on competent professionals, and this ultimately necessitates an improvement in the quality of teacher training plans and hence the compelling obligation of professionalization.

This recurring discourse on professionalization nevertheless conceals unspoken elements and exhibits a few grey areas or black holes. In the tradition and heritage of the work of British and North American sociologists, various definitions of "profession" and "professionalization" have emerged. Chapoulie (1973), Dubar and Tripier (1998) clearly show the different grey areas in these definitions. Following Dubar, we can consider that profession and professionalization are closely related terms: "professional groups are not separate, unified, established, or objective professions as the functionalist tradition stemming from Durkheim or Parsons might imply. As Strauss (1961) clearly saw, these are historical processes of constant segmentation, competition between segments, professionalization of certain segments and de-professionalization of others, and periodic restructuring influenced by movements of capital, the policies of states, or the collective actions of their members" (Dubar, 2001, p. 58).[5] Although the terms "profession" and "professionalization" echo each other, it should be kept in mind that the first texts examining professionalization primarily sought to define it as a process. These texts aimed to describe the various steps leading to professional status. We should note that professionals are defined by three characteristics: an activity carried out in the frame of a monopoly, an activity of practice evaluation, and an activity of transmitting knowledge and know-how.

The sociology of work (Dubar, 2001) has expanded the notion of profession and shed a different light on professionalization, notably by inviting us to take into account the knowledge that composes activity. Reference is made to the specific competencies of a professional group and the presence of tacit knowledge in professional activity. With the work of Hughes (1996) and Becker (2001), however, a gradual shift can be observed between profession, professionalization, and professionality. Emphasis is placed on the heterogeneity of paths and of practices within one same professional group. In this context, a profession is therefore the provisional result of a progressive process inscribed in an individual and collective history, using an introspective approach of activity analysis and of contingent practices, and targeting the signification of an identity for the professional group concerned. This clearly shows that to address professionalization is, de facto, to interrogate at the same time the notions of profession, activity, practice, knowledge, and identity. It is also to seek to pose, in line with what could be called a "designer" approach (Barbier, 1997), the question of processes and knowledge drawn on to create the conditions for professionalization.

The works of Wittorski (2007) examine the various facets of professionalization and postulate training and work as means to support the professionalization process. Professionalization is hence defined as a "process of constructing learning, knowledge, and identities recognized as belonging to the chosen profession" (p. 3). Professionalization is also examined on the one hand as a meeting point between intentions expressed by organizations and work systems, and on the other as a demand, expressed by subjects, for recognition by the business. The attribution of the quality of "professional" thus depends on a dual action: the subject's development and acquisition of recognition for acts in a given environment, and the environment's social recognition of this subject, according to legitimacy criteria (p. 3). As a result, it is important to remember that professionalization is read, analyzed, and interpreted from two points of view or even two postures: that of the subject and that of the organization. But it should also be noted that the reading, analysis, and interpretation of professionalization processes can be centred on the training plans proposed by institutions, as well as on the situations leading to individual and collective professionalization. Regardless of the nature of these two perspectives of professionalization – which relate to the subject-organization relation and the training-work relation – the Anglo-Saxon heritage of the sociology of professions remains present. From a functionalist standpoint, it is the institution that seems to define the goals and functional modes of a professional group. It is the institution that appears to organize the conditions for professionalization via specific training plans and approaches. From an interactionist standpoint, it is the subjects, in the implementation of their intentions and practices, who define the field of professionalization and take part in its development process. Consequently, professionalization constitutes a complex reality inasmuch as analyzing it necessarily leads the researcher to question various terms (activity, intervention, practice, professionality, knowledge, situation) both specifically – in their semantic and polysemic singularities – and collectively – in their mutual and reciprocal relations, along a threefold axiological, scientific, and praxeological plane. And yet, when examining training plans in professional teacher training (La formation à l'enseignement, MELS, 2001), we can identify two neglected elements. The first concerns the absence of a grammar for understanding the sense and function of terms used. The term "competency" is barely or not at all explained, especially in terms of its epistemological foundations. The terms "training plan," "approach," and "method" are not made any clearer. Finally, what can be said of the word "didactic," which in Quebec covers more than half of the courses offered to teachers in training and remains undefined on a scientific level? These terms tend to become common sense notions. As a result, such words – whose scientific understanding is essential to designing and implementing professionalization processes – belong to the vocabulary of what is taken for granted. We can nevertheless rest assured that this shift toward common sense is not noticed by users. It most often enables the mask-

ing of a scientific anchoring in professional training. The second neglected element constituting teacher training plans has to do with the absence of organizational and didactic scenarios supporting the aim of professionalization. In other words, institutions of professional teacher training are free to choose the training plans that appear to meet the objective of professionalization. And what can be said of the players involved in these training plans who struggle to determine the meaning of the terms developed in and through the training plan and yet who are not invited to take part in the debate on the didactic-pedagogical choices made by the designers of such plans?

In the field of education, Agulhon (2001) notably shows how the term applies to a number of related occupations. Professionalization can also be found in the work of Benguigui (1967) and Monjardet (1968). It is especially the work of Demailly (1987), Isambert-Jamati (1992), and Bourdoncle (1991), however, that adopts the perspective of the sociology of professions to examine human service professions, particularly by studying the work of teachers. The work of Lessard and Tardif (1996), which also draws from the sociology of professions, reveals the limits of the discourse and writings defining education as a profession and those presenting teachers as a professional group. We should recall that the thesis of considering education a profession rests on several arguments. First, teaching activity is part of a societal aim. It is deemed essential to the functioning and development of society. Second, this activity is prepared in the frame of professional training in a high-level university setting – a guarantee of professional expertise. Third, it supposes or presupposes a significant capacity for adaptation to situations, and requires the adjustment of practices to new educational and pedagogical contexts. Basing themselves on these various postulates, recent reforms in teacher training target two objectives: professionalization and the professional development of the subject. In view of reaching these objectives, an approach (analysis of practices), itself part of a championing discourse on an updated and re-contextualized pedagogy (*alternance* or alternation between periods of theory and practice), is gradually becoming the cornerstone of training plans targeting the two objectives of professionalization and professional development (Perrenoud, 2001). However, despite all of these characteristics that might lead us to say that education is indeed a profession, Lessard and Tardif point out the question of knowledge and that of teacher training as potential obstacles to a definitive affirmation. The uncertain nature of the knowledge in education, the difficulty of conferring upon it a status and function in the professionalization process, and the question of the nature and meaning of teacher training that does not always appear to guarantee the establishment of professional learning situations all constitute forms of "no man's land" that can lead to speaking of education as a semi-profession (Etzioni, 1969) or as a not-quite profession (Goodlad, 1990). From this standpoint, if we are going to interrogate professionalization,

we must insist on looking at a central aspect of the issue – the question of processes. This also leads to analyzing the knowledge present and/or desired in these processes, and to positing the learning act as the central condition for implementing a plan for professionalization. But the limits of the thesis of education as a profession, as referred to by Lessard and Tardif, can also be found in works dealing with other human service professions.

Education is not the only profession concerned by this issue of professionalization; it in fact touches upon nearly all human service professions. Indeed, these grey areas appear to be equally present in research on several other professions. In works on senior educational advisers; on teacher aides (Piot, 2001; Clenet, 2001), in which it is primarily the activity that is examined; on socio-educational contributors and especially childhood specialists (Boutanquoi, 2002), in which the notions of social representations and practices are used to study professional activity; on social stakeholders (Piot, 2006; Jaeger, 2009), who particularly emphasize the question of knowledge and practices, the most recent of which study the activities of guidance, accompanying students, and coaching (Vial, 2007); and on health professionals (Orofiamma, 2006), we can observe that two difficulties appear when examining work in these human service professions. The first difficulty is that of identifying a grammar that might be agreed upon by the academic community. We can even consider that certain terms – such as "practice" or "intervention," for example – express different meanings and do not all belong to the same scientific paradigm. Consequently, it appears difficult to establish typologies and hence comparisons between these various professional activities. It seems just as hasty to consider a given activity as belonging to one same professional group, owing to an inability to compare various forms of professional action from one profession to another. The second difficulty is that of the methodology chosen to analyze work in the human service professions. The epistemological postures, methodological perspectives, and tools for collecting, treating, and analyzing empirical data are variable and hardly permit the establishment of comparisons likely to permit an identification of the broad characteristics of work in these professions (Lenoir et al., 2006). We can see, therefore, that it is not enough to forcefully invoke the ambition of a professionalization of teacher training for this professionalization to be able to create the conditions for successful professional learning. Hence, besides this question of the meaning and elements constituting professionalization processes, the question of the presence or absence of professional learning situations must be posed when a professional training plan is introduced and piloted. In sum, analysis of the first symbolic figure of professional training – that is, professionalization – reveals three neglected elements as missed opportunities: the teleological element, the didactic-pedagogical element, and the linguistic element.

ON THE SUBJECT OF "KNOWLEDGE": BETWEEN THE OBLIGATION OF PROFESSIONALIZATION AND THE DESIRE FOR A "PROFESSIONALIZING" TRAINING

Confronted with these stakes and challenges that come with the objective of professionalization, teacher training institutions (*Hautes écoles*, *instituts universitaires de formation des maîtres*, education and education science faculties, and the like) have strived for more than twenty years to improve teacher training. In this frame, educational policies, especially in the French-speaking world (MENRT, 1999; MELS 2001) on the basis of researcher recommendations (Meirieu, 1989; Paquay, Altet, Charlier, & Perrenoud, 1996) – as in the English-speaking world (Feiman-Nemser, 2001; Darling-Hammond, 2000) – have attempted to develop and put into place new teacher training curricula. These curricula have been based on three broad principles: the recognition of the professional nature of teaching or its "professionality", the implementation of a professionalization process, and the use of various space-times for training embodied by various carriers of knowledge. These three principles rest on the premise that all professional training establishes professional learning situations. Durand (2008, p. 33) elaborates on this idea by identifying several implicit presuppositions in the policies of teacher training. We will address only four. First, training centres disseminate varied knowledge gained from research. Second, this knowledge varies depending on the settings where action takes place. Third, teacher training can, as a result, boil down to an opposition between categories of knowledge. Fourth, teaching leads to the acquisition of experiential knowledge. We would like to add a fifth presupposition, namely that professional training designs and implements professional learning situations. In addition to these presuppositions, we can consider that one of the first grey areas relating to the question of knowledge types in professional training is the one revealing a confrontation between three postures seeking to describe professionalization processes: an epistemological posture, a cognitivist posture, and a posture originating from the action sciences. The epistemological posture seeks to identify the various knowledge types in play in professionalization processes. We can identify various works seeking to draw up typologies of knowledge (Malglaive, 1992; Fabre, 1999; Beauvais, 2003; Astolfi, 2004). Other works instead choose to use the word *connaissance* (roughly translated as "what is learned," a more basic form of knowledge, Bourgois & Nizet, 1997, or even "competence," Rey, 1996, Perrenoud, 2008). This enterprise of identifying knowledge and its forms is not without perils. Indeed, two impasses can be reached in this delicate work. The first is the risk of isolating knowledge from action. In the endeavour of developing typologies, knowledge is extracted from its contexts so that it can be defined and so that differences can be illustrated in terms of the status, functions, and aims of this knowledge. This substantiates certain common-sense conceptions to the effect that the product can be isolated from the process

(Develay, 1992), that it can be quantified and named, enabling observation of the circumstances and conditions under which it is called upon in action. This attempt at an infinite categorization of knowledge can lead the researcher and/or practitioner to consider an infinite number of knowledge families and to forget that knowledge can be defined only "in relation to" (Charlot, 1997). The second impasse created by this extraction of knowledge from the contexts in which it acquires meaning lies in the fact that such a conception proposes to admit a dual specificity of knowledge, namely variability and heterogeneity. From this perspective, the premise of the nature of knowledge variability and heterogeneity prompts the establishment of spaces for confrontation between knowledge types and thus invites a reading of cognitive processes involved in professionalization situations, such as notably socio-cognitive processes of conflict management (Bourgeois & Nizet, 1997). And yet, in our view it is not so much the knowledge that carries this dual specificity as it is the situations. As a result, it appears necessary to us to define knowledge in and through the situations that support it within professionalization processes. If we consider that an epistemological posture is required to read and understand professionalization processes, it nevertheless remains important to study knowledge in its contexts of activity and situations of use.

Cognitive science for its part seeks to understand cognitive processes involved in professionalization contexts. Durand recalls that two perspectives are directly opposed, namely a constructivist perspective and a social interactionist perspective. In the former, following the Piagetian principle of assimilation-accommodation, human action takes place according to a dual process of adaptation and organization. Consequently, the details of action are unpredictable (Durand, 2008, p. 36) and knowledge is never completed. The issue here is to understand the cognitive mechanisms apt to support the professionalization process. The reference to learning is here explicitly recalled (Bourgeois & Nizet, 1997; Labelle & Eneau, 2008). Nevertheless, when considering this constructivist approach, we can hypothesize that this is liable to cloud understanding and hence impede mastery of professionalization processes; it can hardly help trainers in charge of such processes. The confusion is caused by the provisional nature of knowledge involved and by the fact that this knowledge can never be entirely defined and mastered, since it is inscribed in a "cognitive and practical mastery that always remains incomplete" (Durand, p. 36). The social interactionist approach instead chooses to use the term "activity." According to Durand, "The unit to analyze is the activity within a social action, and learning is explained by participation in organized social interactions" (p. 36). The social interactionist perspective, closer to a Vygotskian reading of constructivism, uses the word "activity" and situates knowledge in a relation to the context and the situation. It grants a central place to the subject, notably by favouring the function of experience. Consequently, it is the subject "acting in a situation" that is examined. By emphasizing the activity, social

interactionism highlights the importance of taking situations into account. The activity-situation pair thus constitutes a paradigmatic figure of the interactionist approach. In our view, however, learning appears to be somewhat neglected in this underlining of the situation and activity. Indeed, what links can be made between activity, situation, and learning? Are situations designed to support learning processes? Is the conception of situations implicitly determined by a conception of learning? Or, conversely, does this conception of situations relate to a representation of the activity organized chronologically and according to predefined space-times? Although the social interactionist perspective appears relevant to us, particularly insofar as it situates the question of knowledge in relation to the situation and activity, in our view learning should be integrated into this approach for analyzing professionalization processes. As a result, it is important to elucidate the foundations and hence choices of postures (the epistemological posture, the cognitivist posture, and the posture stemming from the action sciences) adopted to describe and analyze knowledge within professionalization processes.

The second grey area touching upon the question of knowledge in professional training is that of the nature of knowledge stemming from training and that of the identity of the carriers of this knowledge. A postulate seems to reign in training institutions, namely the one asserting the scientific nature of knowledge transmitted in these professional training *dispositifs* or training plans. The "university" label adds to this guarantee of the scholarly dimension of knowledge found in professional teacher training. But what is the nature of the knowledge stemming from professional training? Mayen (2008, p. 44) considers that knowledge "proposed from the outside is subject to the same criteria of practical efficiency. Its scientific rationality or prescribed nature do not, as a matter of course, grant it entry into the organization of action." For Mayen, within professional training, it is the activity – insofar as it carries the organizing principles of action – which organizes and determines criteria for the legitimacy and rationality of scientific knowledge. It is thus central, in teacher training, to examine how concepts and learning are mobilized in the activity. Following Vygotsky, Mayen seeks to show how concepts and learning are constructed by the subject. According to the same author, concepts and learning are transformed according to two mutually enriching approaches, "over the course of a complex operation aiming to solve a problem and by means of encounters with others and with culture" (p. 55). This would indicate a dual intra- and inter-psychic mechanism governing the elaboration of concepts and learning. Here, by "activity" we mean that which carries the organizing principles of action. That action is the reference according to which one can conceive of the knowledge in play in professionalization processes. Durand (2008) reminds us that it is the various situations offered to teachers in training that determine the meaning and, most certainly, the status accorded to knowledge offered during training. He notably identifies four types of situations:

situations in which immediate efficiency is the measure of the activity and its learning; situations in which the relevance comes down to the consistency of reasoning within a given situation; situations in which consistency is seen in accordance with conformity to the norms, codes, and values of a community; and situations in which the relevance has to do with the status of individuals (p. 38). Besides the question of the relation between situation, activity, and learning, this raises the question of the representations of the various carriers of knowledge regarding situations, processes to learn, activities, and learning. Carriers of knowledge each bring their share of "scientificity" and thus legitimacy to the proposed knowledge. Each sets the tone for the knowledge in question by opting for the bias of the activity and/or the situation and/or learning. This is why it appears important, in order to understand professionalization processes, to base ourselves on an exploration of meetings and dialogue with the various trainers involved in professional training. It is undoubtedly here, for example in workshops for analysis of practices, that we can initiate and organize processes of negotiation, transaction, and guidance (p. 57) seeking to establish the conditions for work on knowledge in a triple relation to situations, the activity, and learning. Finally, it should be kept in mind that the various contributors to professional training vary in the proximity of their relation to knowledge stemming from education science. Trainers in the field, university instructors, professor-researchers, practicum supervisors, associate teachers, and education advisers all confer to knowledge a certain legitimacy and "scientificity." This positioning is seemingly also the product of a relation to the teaching profession. Each contributor's background plays a part in defining the territories of scientific terms in a relation to distance or proximity with terms in the field, which in turn acquire meaning in reference to concrete situations. Finally, it is these various contributors who also propose ways of categorizing this knowledge by using a grammar that is alternately scientific or common-sense. But here again this knowledge must not be removed from its contexts. It can only be acquired and mastered in a relation to the activity, the situation, and learning. It is these carriers of knowledge in their specific conceptions of situations, of the activity, and of the learning act – as well as in the use of terms chosen to describe professional action – which give their representations of Knowledge and of knowledge.

As a result, to think of the question of knowledge in professional training in a different way, it is important to critically examine two dimensions. The first is that of the legitimacy of discourse used in professional training. Is this discourse the result of a didactic transposition (Chevallard, 1985)? Does it embody the knowledge stemming from education science? In this frame, can we identify academic knowledge from education science whose choice and place in the teacher training curriculum are generally agreed upon? In line with Durand (2008), is this scientific discourse conceived as a response to the characteristics of situations? Is it conceived as answers to problems

contained in situations? Does it consist of suggestions for action or answers for building competencies? What might be the place of practical experience in this attempt at dialogue with knowledge stemming from education science? What are the criteria for selecting this scholarly knowledge (Mayen, 2008, p. 44)? Insofar as professionalization processes include both biographical and relational dimensions, how can these various situations be taken into account in formal and informal contexts? Here again, the answer of undertaking work on the dialectic relations between situation, activity, and learning appears to us a tenable proposition. Finally, what is to be made of "general discourse" loaded with values (Durand, p. 35) and highly present in training, as well as in the discourse of beginning teachers (Maubant & Roger, 2009)? The second dimension to take into account when considering the problem of knowledge in professional training is that of finding a grammar for describing, interpreting, and understanding professionalization processes. Saussez recalls that in professional training, "activities of reflecting on experience do not sufficiently address language and its use" (Saussez, 2008, p. 61). Although the last few years have seen a marked increase in workshops and seminars based on experience – and practice-related narrative (Blanchard-Laville & Fablet, 2004), it must also be recognized that little research has examined language as a tool for clarifying the teaching act. To attempt to question the discourse used in professional training is to justly try to update three aims of professionalization processes – use of reflection on action, study of the conditions for constructing learning, and dialogue between the various involved contributors – around a threefold process of negotiation, transaction, and guidance. Saussez therefore invites us to be cautious when it comes to the use of practice-related workshops and seminars. He suggests analyzing discourse "in the sense that it results from real work over the course of which the speaker attempts to shed light on a grey area of his or her experience of the world using language tools" (Saussez, p. 61). This perspective leads us to set down the question of grammar as one standpoint to take into account when working on knowledge in professionalization processes.

In line with this heuristic aim proposed by Saussez, we will now present a third gray area touching upon the question of knowledge in professional training, namely that of the notion of reflective practitioner. The development and implementation of the new curricula was intended to support the emergence of a new teaching posture – that of the reflective practitioner (Perrenoud, 2001). Besides this objective of reforming teacher education curricula, structured around what is close to a didactic-pedagogical device, the specific question of the relation between research and training, de facto, was posed. In this regard, various publications (AECSE, 1993; Paquay, Altet, Charlier, & Perrenoud, 1996; Tardif, Lessard, & Gauthier, 1998) have shown the extent to which training plans in teacher education very early favoured an applicationist model, that is, a model according to which scientific knowledge governs the construction of

professional knowledge. This conception of professional teacher training is hardly different from those governing the construction of other professional training plans preparing for other occupations (Maubant, 2004,a). Indeed, these plans most often give a primordial place to the scientific knowledge that makes up education science by making it the cornerstone for constructing professional knowledge. Although it remains difficult today to recognize the adherence of numerous training plans in teacher education to this model (2004,b), it appears that analysis of the discourse of "newly graduated" teachers (Maubant & Lenoir, 2008) casts doubt on the ability of such training plans to provide future teachers with the knowledge required to practice their occupation. Behind this complex problem of the relation between research and training appears another question, more specifically concerning all professional training, namely the relation between theory and practice. If we notably interrogate professional teacher training plans, the dominant didactic-pedagogical model, which accords a preponderant place to theoretical knowledge to the detriment of practical knowledge, is brought into question (Perrenoud, 2001). Moreover, can we be sure that the knowledge composing teacher education curricula (or knowledge "for" practice) is a faithful translation of knowledge stemming from research (or knowledge "on" practice)? Finally, what can be said of the absence, in teacher training plans, of a real consideration of knowledge stemming from teachers' analysis of their own *savoir-agir* (knowing how to act, or knowledge "of" practice)? In view of these many grey areas, it seems necessary not only to question the training model favoured in teacher education curricula, but also to identify the conditions for transferring this scientific knowledge stemming from educational research into the actual practices of teachers and not only their declared practices. Our intent here is therefore to critically examine the relevance of the organization of professional training plans targeting the professionalization of training subjects.

In the light of a possible discrepancy between teacher training and the knowledge mobilized in the teaching act, it appears essential in our view to investigate research aiming to study professional learning processes. To examine the professional learning processes of teachers in training, various theoretical, conceptual, and methodological frames are used. In the area of teacher education, one perspective was particularly studied by researchers until recently: the socio-organizational perspective seeking to question the various socio-pedagogical models introduced and implemented by teacher education institutions, such as the pedagogy of alternation (Tardif, Lessard, & Gauthier, 1998; Gauthier & Mellouki, 2006; Maubant, 2004b) or the role of practica in training. But it is in the area of research on adult education that one can find, starting in the 2000s, the emergence of educational research seeking to understand the conditions for the realization and success of professional learning (Mayen, 2004; Maubant, 2007). Thus, analysis of the modes of elaboration and mastery of professional knowledge making up teaching practice (Bru, 2002), understanding

of modes for constructing professional knowledge (Clénet, 2003; Mehrand, Ronveaux, & Vanhulle, 2007; Vanhulle, 2008), identification of professional knowledge constructed in initial training and mobilized in the application of professional competencies (Jorro, 2002; Maubant, 2007), and use of training practices intended to work on the learning process of teachers in training (Nault and Lacourse, 2008; Faulx, 2008, Donahue, 2008) are all research orientations favoured and addressed by various research teams in Europe and North America. Reading and understanding professional learning today tends to become the key for research seeking to understand the mechanisms and successful conditions relative to professional teacher training. But here again, we come up against the problem of the choice of words to describe these professional learning situations. There is a pressing need to establish a grammar that might be agreed upon by the various players involved in teacher training. In our view, constructing this grammar requires anchoring in scientific knowledge. We can see beyond doubt that the design of knowledge relates to the design of professionalization. The sense attributed to professionalization will determine the choice of knowledge as well as the identification of a grammar enabling the reading and interpreting of this knowledge. The question of our relation to Knowledge and to knowledge will influence the professionalization process and the way we conceive of professional learning. In our intent to differently interpret professional teacher training, it is therefore necessary to update this mutual envelopment between the figure of professionalization and the figure of knowledge. However, considering professionalization processes and the question of knowledge in play within these processes are certainly two singular approaches that must nevertheless be led together in a quasi-dialectic relation. They also invite us to analyze the professionalizing dimension of these professional trainings. We hypothesize that this professionalizing dimension composing discourses in professional training is situated within the very conception of these training plans, and hence in their organizations. The question of the conception of the professionalizing aim of a given training is directly linked to the conceptions of the relation to knowledge, to those of the activity and situations, to those of learning defended by the various contributors. The more professional training is thought of along a hierarchical line – and this is frequent in educational systems – the greater the over-engineering of training design in the conceptions of the various trainers.

We can therefore consider that to interrogate professionalization in the various professional sectors concerned by this aim of "professionism" (and social occupations are in this group) is primarily to interrogate established processes. It is to study the realities of the professionalizing nature of professional training plans. Analysis of the appearance and rise of these professionalizing training plans reveals two common denominators that often constitute their principal argument. The first is that of the recognition and validation of learning. Professionalizing training plans propose to take into account the learning of

individuals in training, both to answer a demand for individualized paths (Besançon, Maubant, & Ouzilou, 1994 and to adapt to the heterogeneous reality of student populations in training. The second common denominator of these professionalizing training plans is that of alternation. The offered training alternates various space-times (Maubant, 2004) and therefore concerns various temporalities (Roquet, 2007) of a given training path. This training also touches upon connections, linkages, and integrating processes intended to promote its professionalizing aim. Certain courses are sometimes conceived and created in this sense: integration activities. Tools are used: the portfolio (Nault & Lacourse, 2008). And yet, if teacher training plans based on the principle of alternation warrant analysis, it is in order to grasp the relevance of this alternation in terms of the gains it enables for the learning of teachers-in-training (Mehrand, Ronveaux, & Vanhulle, 2007). But it is also to reveal certain absences or neglected elements in the conception of such training plans and/or in the championing inventory of certain pedagogies such as, notably, alternation. Does this refer to knowledge, to situations, or to activities? Is the question of the learning act being taken into account (Aumont & Mesnier, 1992)? Is an examination being carried out of possible contexts of learning in a training situation, in a work situation, or outside training and work situations (Marcel, 2004)? What of informal learning situations, whether intentional (individual, collective) or unconscious, or even tacit (Livingstone & Sawchuck, 2003; Bjornavold, 2001; Gamache, 2004)? What is to be made of forms of "on-the-job" learning (Delbos & Jorion, 1990) or "use-based" learning? Finally, we should note the question of knowledge transmission in organizations or that of the intergenerational transfer of competencies. We could also speak of the rapid development of communities of practice or of mentor guidance practices and of the development of informal groups in organizations, which have proven important factors in the transmission of knowledge and learning within organizations (Lejeune & Brunet, 2006). Finally, we could also find this same idea in the development of social activities in work settings, the consideration of situations in which discussions between peers favour "exchanges of useful methods" and the transmission of knowledge within a work team, for instance, or a social group (Hébert-Suffrin, 1992). Therefore, besides the figure of knowledge and the questions it raises, the identification of conceptions behind the training plans – as well as knowledge of the various situations leading to learning and their geographical and historical place – also come into play in the objective of making professionalization processes intelligible. Having presented the first two figures of professional trainings, that is, that of professionalization and that of knowledge, we would like to guide the reader toward a third figure concerning the teleological aim of professional training: the relation between school and life.

TRAINING, QUALIFYING, INSTRUCTING, OR SOCIALIZING?

We should recall that in Quebec, the missions of the school (MELS 2001) are organized around three objectives: to instruct, to socialize, and to provide qualifications. The share of each objective in classroom functioning is left up to the practitioner. The teacher is conferred the implementation of the three aims, which are presented as complementary in the official texts. Consequently, the teacher, who administers these aims, can choose to prioritize one or another of these objectives or consider – and this most frequently appears to be the case – that all proposed activities target all three aims. Following a close examination of adult education, we could consider that it covers a larger area than professional training does. In *Les composantes doctrinales de l'idée d'éducation permanente,* Forquin (2002) shows how the rise of institutional discourse of lifelong education contributes to the demise of adult education. From this standpoint, adult education is no longer a supplement or a logical continuation of childhood education. It is instead a component, among others, of ongoing and life-long education. The term "education" as opposed to "training" confirms this thesis of an extension of education and its aims to all periods of life.[6] The boundaries between the various forms of education disappear and give way to education situated in the contexts and territories of human existence.

Françoise Laot (2002) develops and elaborates Forquin's thesis by examining the term "adult." What is adultness? What allows us to identify training? Are the permutations of this training found only in the frame of a relation to another person (within or outside of a formal situation)? or only in an individual awareness of the act of training? According to Laot, the term *formation des adultes* or "adult education" appeared in France in 1970. It appears directly related to the development of policies in continuing professional training. We can therefore see a break here between the expression "lifelong education" on the one hand, and the term "adult education" – strongly associated, starting in this period, with objectives assigned to continuing professional training – on the other. It is important to distinguish between the discourse on lifelong education and the discourse on adult education. We can clearly see that both contain political ambitions and ideological aims. According to those championing lifelong education, it is important "to target the idea of infinite perfectibility, stemming from the Age of Enlightenment and Condorcet in particular" (Fabre, 1994, p. 48). For adherents of adult education, it is important to support the development of the professional training mechanism, especially in two specific types of socio-economic contexts – those of technological development and those of industrial restructuring. We have shown (Maubant, 2004) how adult education, notably in France, seeks to resist this new orientation imposed by these two concepts by pursuing one of its founding

functions, that is, democratizing access to knowledge. By contributing to the development of socio-educational actions and the implementation of training for assisting those with social and cognitive difficulties, and by undertaking action so as become involved in training plans seeking to curb social exclusion and economic marginalization, adult education – in France supported and reinforced by the experiences and values of popular education – pursues its ambition of emancipating individuals. As a result, beyond institutional aims, adult education, in its actions and practices, tends to fully maintain its place in the values conveyed by discourse on lifelong education.

Bertrand Schwartz considers that the visionary power of adult education, in France especially, resides in its ability to develop various educational actions simultaneously. The populations targeted by these actions in adult education can by turns be "intentionally weak, intentionally elevated with the training offered by the Conservatoire des arts et métiers, or in between with popular universities" (Schwartz, 1988, p. 9). This adult training can alternately target social and professional promotion (Maubant & Gueneau, 1996), academic remediation, and social and cultural development. The contents offered by this training will seek to address this plurality of populations and objectives. But it is in the values of adult education that one must identify a dimension that might breathe new life into professional teacher education. Referring to Freire, Schwartz reminds us that the Brazilian pedagogue identifies two dimensions addressed in the second and third sections of this text: that of professionalization and that of knowledge. "Which stems from training, and what, notably, is transferred to everyday practice?" Schwartz asks. He also questions the modes of knowledge elaboration. Who introduces, carries, and transmits this knowledge? These questions are all taken on by Labelle. This last author, however, seems to propose to bring together aspirations for an emancipating adult education, thus escaping the melancholy-tinged lyricism evoked by the École républicaine française. For Labelle (1996 p. 41), adult education is that opportunity in which "one finds – in connivance and in a combinatorial context to which each adult holds the secret – the various logics of the desire of the person, and of the demands of society." Does this issue not always lead to the "bringing into reciprocity" (1990) of logics, for the adult at work to progress in his or her awareness as a human being? We can thus consider that adult education in its ability to investigate the professionalizing dimension of the training plan it proposes, notably by questioning the relations between knowledge and work based on a dialogue between activity, situation, and learning, is at the vanguard of reflection on professional teacher training. Through the study of adult courses in France in the 19th century, Labelle recalls the extent to which adult learning must be an individual process linked to work (p. 34). And he adds, "Learning in work and in order to work only has a chance of success if learning takes place together with work, not in a mere relation of simultaneity but rather in a relation of structural contiguity" (p. 35). In adult education,

there is evidently the desire to reconcile instruction and socialization in one same dynamic. This value certainly echoes one of the principles established as a pedagogical posture by the pioneers of New Education, namely work. We consider that adult education offers the perspective of a "second wind" to professional teacher training by situating the analysis of work at the heart of training plans in a dialectic relation with the analysis of learning.

CONCLUSIONS

Teachers: Adults in training?

By seeking to sketch the landscape of professional training based on these three figures, as unique yet complementary faces and viewpoints (that of professionalization, that of knowledge, and that of the school-life relation), we have sought to defend the thesis that professional teacher training must remember the founding values of adult education. These values lead us to reconsider professional action as an object of study and as an object of training elaboration. They encourage us to remember that training – including professional training – is foremost a question of learning. Finally, by pushing us to overcome the dilemma of instruction and socialization, the values of adult education also invite us to bring school and life together (Houssaye, 1987). To introduce the values of adult education into a reflection on professional teacher training in its three dimensions (teleological, praxeological, and scientific), it appears important to work in two directions: that of the question of scientific knowledge stemming from research in education science, and that of the question of carriers of knowledge. In view of the dangers weighing on teacher training policies and training plans, it appears essential in our view to identify the conditions for a "second wind" in teacher training. This new dynamic will come from adult education.

NOTES

1. MEQ: Ministère de l'éducation du Québec
2. CRIFPE: Centre de recherche interuniversitaire sur la formation et la profession enseignante
3. COPFE: Comité d'orientation de la formation du personnel enseignant
4. In francophone culture, the term *dispositif* refers to a broad organizational plan or scheme for teacher-training or teaching. It is derived from State and institutional guidelines and requirements, and touches on both the curriculum and the various players who implement the curriculum. It is in this sense that we use the term "training plan" in the text.
5. All translations in the text are ours.
6. To fully appreciate the distinction here implied, it should be noted that adult education is generally referred to as "*formation des adultes*" in French, literally "adult training."

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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, "adultness" 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 seems 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 isles 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 adda 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 preoccupations. 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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BOOK REVIEW

TASOS KAZEPIDES. *Education as Dialogue: Its prerequisites and its enemies.* Montreal and Kingston: McGill-Queen's University Press. (2010). 207pp. CDN$ 29.95. (ISBN: 978-0-7735-3806-1)

This book should be of interest to researchers, teachers as well as policy-makers for it offers a unique global approach to education that is extremely relevant to the challenges of the 21st century. Dialogue is presented not only as a teaching method but as an ideal conception of education, with its own foundations, principles, forms and preconditions, which are needed for the realization of genuine learning institutions. The book may sometimes seem utopian, but it allows us to hope, and hope rationally. The volume may also prove useful to those interested in questions pertaining to religious education in plural liberal societies. Kazepides strongly demonstrates the illegitimacy of doctrinarian religious education with regards to the ideal of an open society that privileges dialogue.

The concept of dialogue is very popular in contemporary academic discourses. Indeed, it is perceived and presented as the solution to the challenges of modernity, or, one could say, to the challenges associated with the disappearance of certainties. Because there no longer are any universal normative criteria to decide on ethical and political questions, we are invited to discuss these issues rationally in order to find consensus through intersubjective understanding (Habermas, 1984). Even though this approach to discourse ethics has itself been criticized for being utopian (Foucault, 1988), Kazepides offers a rather convincing analysis of the educational model necessary for the realization (always imperfect he admits) of the dialogical ideal. The book can thus be read as an analysis of the social, political and epistemological conditions needed for an education conceived as a practice of dialogue.

The book comprises 8 chapters and is divided in two parts. The first part is said to be "therapeutical" and lays the groundwork for the discussion of the second one. It clarifies the basic educational concepts that researchers, policy-makers and teachers too often use in vague and confusing ways. The second

part relies on these clarifications to identify and examine the prerequisites and principles of education and dialogue.

In the first chapter, Kazepides clearly places himself in the classic analytical tradition of philosophy. He stresses the importance of clarifying the concepts we use in order to address educational issues. He defines the nature of the philosophical problems as having to do with the concepts and arguments we use because language doesn't only describe the world, it participates in its construction. The next chapter gives the central and inescapable example of the concept of education.

In the second chapter, the author describes the origins of our concept of education and the criteria that distinguish what is properly educational from what is only of instrumental value. The concept of education can be deceptive and thus pernicious; it is often wrongly described merely as an activity with a beginning and an end or as a natural process that can be scientifically measured and controlled. In fact, education is more correctly conceived of as a human achievement and is thus intrinsically normative – the achievement of the rational ideal – and as an exercise of the mind through the many "language games" of the world. According to Kazepides, the educated person recognizes the demands of reason within each realm of discourse and is engaged in a conversation with the traditions of the past. The confusion surrounding the concept of education isn't solely a problem of language, asserts Kazepides, it reflects our own uncertainties about ourselves, our values and the world. It is because we need to give ourselves a sense of direction that we need theories of education.

In chapter 3, Kazepides makes other important clarifications about the "aims of education." He states that it is inappropriate to talk about the aims of education, for only humans and institutions have aims. It would be more adequate to talk about the criteria and value of education. Talk about aims and objectives can be reductive. For example, the language of objectives is often used to refer to the work of teachers as if it were a set of applicable procedures, but this only reveals the fact that we are incapable of training good teachers who have wider views on their work. Another example is the perceived need for highly trained citizens in a competitive world. Viewing outcomes such as international competitiveness as educational objectives reduces education to a functional means to an end.

The second part of the book begins with a very important distinction between education and its prerequisites, which relies on Wittgenstein's conception of the foundation of knowledge. According to Wittgenstein (1953), there exist "river-bed propositions" which underlie our many language games. They are forms of ordinary certainties, the very ground that we inherit without having the possibility of rationally rejecting or justifying. These propositions comprise for example the law of induction or the belief in the existence of physical

objects. They do not result from our thought but are a condition to it. And they are crucial to Kazepides' argument for, epistemologically and morally, they have a developmental value. This distinction implies that different approaches and methods are required to deal with education on the one hand and its prerequisites on the other. It also reveals the importance of initiating individuals to the rational and moral forms of life as early as possible. It is a shame though that Kazepides does not develop further Wittgenstein's ideas on language games.

In chapter 5, Kazepides develops a social, dialogical approach of the development of the mind while criticizing computational approaches. Education is conceived as a form of free dialogue between the members of a society. The book contributes to the development of Michael Oakeshott's ideas (1989) about education being an initiation in a conversation between oneself and past generations. However, Kazepides prefers the expression "dialogue" to "conversation" because it is immediately normative and inseparable from the demands of reason. What is interesting in this chapter is that it provides a non-instrumental approach to education and explicates the prerequisites, the principles, the character and the appropriate conditions of genuine dialogue. It is a valuable way of getting out of the usual discourse on efficiency in education. However, as is often the case with the defenders of dialogical approaches, Kazepides makes little of the fact that education is primarily addressed to the infant (*infans*), which means "who cannot speak for himself" in latin, and on whom we thus impose forms of language and rationality.

The distinction between education and socialization is also very important. Socialization, as a sociological concept, refers to the fact that human beings integrate the norms, beliefs and attitudes of the society they live in; these values could be Christian, humanistic or modern. If the school inevitably socializes, it must, nonetheless, assume its educational responsibilities, educate to the norms of rational dialogue. Consequently, it must not indoctrinate, which is the main counter-educative form of socialization. The distinction between the metaphorical and the radical approach to religious doctrine is probably one of the most stimulating arguments of the book. Kazepides does not reject once and for all religion or even religious education, he solely attacks the doctrinarian aspect of religious education. Doctrines are unverifiable but still prescriptive, whereas religious images are only models of action, which do not pretend to be rationally justifiable, they are "as if" they were true and their model can give direction to our lives. These images do not pretend to be true nor do they authorize themselves to be prescriptive. In that sense, they are not opposed to the dialogical ideal. Individuals remain free to question and think for themselves.

The dialogical ideal can never be fully attained because we, and our institutions, are not perfectly rational. However, Kazepides claims it is possible to favor the

ideal by transforming our social, political, economic and religious institutions. Of course, a lot of political will and long-term planning would be needed. Chapter 7, thus, denounces the enemies that violate the prerequisites of dialogue. Attention primarily goes to Christian doctrines, the way they pretend to have answers to the mystery of life, but actually inducing only cringing obedience. The prescribed antidote suggested by Kazepides is "sense of wonder" which reinforces questioning and doubt. Teachers, more than anyone else, should be infused by this sense of wonder because they serve as models.

The final chapter categorizes different statements on human nature in relation to what was said earlier about education and dialogue. Against the conceptions of a biologically or culturally "given" human nature, programmatic conceptions, or progressive conceptions, Kazepides, following Sartre or Oakeshott, states that there is no such thing as human nature. A man or woman is free to choose between various possibilities and, despite constraints, he or she is responsible for his or her becoming. The author then goes on to quote Oakeshott: "Human beings are what they understand themselves to be" (as cited in Kazepides, p.174). In this sense, education is not a given nor a political or religious program; it must be carefully planned as an end in itself that promotes human flourishing and rationality. Quoting Oakeshott again, he affirms the human "is a creature capable of learning to think, to understand and to enact himself in a world of human enactments and thus acquire a human character" (p.178). This makes him capable of participating in public life by means of dialogue.

No doubt, the book accounts for the relevance of Wittgenstein's thought in the world of education. Following Wittgenstein's conception of philosophy as therapy, Kazepides presents a very rigorous and precise analysis that clarifies many educational concepts. The references to Wittgenstein's work also offer a useful analysis of the role of river-bed beliefs for education. This allows us to explore the difficulties and the limits of dialogic ideal and to point out with clarity the foundations and prerequisites of its realization. Finally, the volume presents a genuine educational project that takes into consideration the many difficulties of the contemporary world. It has the merit of being very clear, so clear that one could criticize redundancy. Perhaps, the very traditional and somewhat narrow focus on dialogue and its rational prerequisites could lead one to ask whether it is not too restrictive. Some might blame a form of conservative modernism, but the recognition of non-rational elements, those beliefs that underlie and enrich human life, gives it balance. The book is thus a very important contribution to educational ideas and practice.

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BOOK REVIEW

WILLIAM FONG. *Sir William C. Macdonald: A biography.* Montreal and Kingston: Mcgill-Queen's University Press (2007). 336 pp. CDN $34.95 (Cloth). (ISBN: 9780773533042)

The "great man" approach to the writing of history has been challenged by scholars who argue for the contingency of individual action as limited by time and place. The accomplishments of Canada's first prime minister, Sir John A. Macdonald, for example, were not due to a manifest set of personal and professional skills that swept up history in its path. Rather, one side of the argument is that he was allowed to govern at a time that was conducive to his ambitions and inclinations. He worked as an active agent within a complicated set of social, political, economic, and intellectual forces that he and millions of other Canadians had a hand in constructing and manipulating. He was part of a larger chorus of builders of real and ideological conceptions of the new Canada rather than the sole leader of the pack. People are intertwined with historical developments, facing choices that they themselves have created but are predicated on existing conditions. They slip into the historical stream of events, but with both a paddle and sail.

In this light, historical biographies can be tricky to write. They need to strike a balance between analyzing the energy, activity, and impact of historical figures and the controlling nature of their environment and surroundings. Concentrating too much on the former renders the scholarship hagiographic; the latter, and the historical agent becomes impotent and voiceless. *Sir William C. Macdonald: A Biography* is an example of a biography done right. Spending several years researching and writing a biography can make the author a fan of the subject. The temptation to overemphasize one person's crucial role in history can be overwhelming. *Macdonald* starts off, somewhat alarmingly, with the phrase "This is a story of a remarkable man" (p. xvii), written in a brief Introduction by the Chancellor of McGill University. As the book unravels the life of one of the major benefactors in McGill's history, and considering it is published on the centenary of the university's Macdonald College in St. Anne de Bellevue, the statement is forgivable. The book, however, does not

proceed with high and uncontested reverence. It places Macdonald in the historical milieu in which his actions were efficacious. *Macdonald* is a critical history text in the guise of a biography. The reader gets both worlds: we read history through an individual life.

Written "for a broad audience" (p. xv), and pieced together through numerous archival sources, some of which were apparently not too terribly explicative of who the man really was, the life of William Christopher Macdonald (1831-1917) is framed by an attempt to understand Macdonald's personality and motivations. Was he a tobacco baron who could ruthlessly face a workers' strike, or was he a rationalist looking after his economic interests that would benefit Canadian higher education through generous contributions? Was eschewing his rural Prince Edward Island and his religious background an indication of a growing self-sufficiency and the casting away of a past that was an obstacle to a maturing financial acumen and growing personal fortune? Was this independence reflected in his funding and promotion of various educational initiatives and university programs, departments, and faculties where others could gain a sense of freedom to learn, teach, and conduct research according to their own intellectual curiosities?

In the pursuit of these questions, the final chapter is the most enlightening of the book. Macdonald, once a bookkeeper in Boston in 1849, had, at the age of fifty, risen to become one of the richest men in Canada. During this period, he was also one of the country's most assiduous philanthropists. He is depicted as an a-typical Victorian, "a rebel from the start" (p. 271), being variously described as "practical," "secular," "democratic," and a "committed financier of transformation," as if embodying the very character of Canada as it was emerging from a nebulous colony-state to a sovereign jurisdiction cognizant of its British past but focused on its future. Macdonald funded a host of educational initiatives, for example helping to inspire a consolidated schools movement as well as supporting agricultural, nature, and industrial projects and teacher training. In the latter part of the nineteenth century and into the twentieth century, he also ushered in numerous massive research and infrastructure projects associated with the expansion of McGill University. He sponsored and helped direct projects ranging from "the training of homemakers and small farmers…to nuclear engineering" (p. 272). These ventures, which included the building of the Macdonald Institute at the University of Guelph in 1903 for women studying domestic science, showed a man intent to not only improve himself beyond the purview of his own industrial interests, but along the way to improve the community and state. Indeed, a case might be made here that history is altered by the actions of a single person just as surely as this person is a product of circumstance.

This diminutive, unassuming, private, and frugal man who never married or had children left an impressive legacy that helped shape modern Montreal

and McGill. Macdonald's fusing of industrialism and education reveals his intellectual dexterity. This is explored in chronological chapters (a timeline of his life would have been helpful in the appendix, but this is a minor quibble) that include helpful subheadings and images of Macdonald, the people in his life, and the buildings and educational spaces he imagined and funded. In the book, the research alone on Macdonald's genealogy is impressive, and offers the reader a primer on Scottish history and immigration to Canada. The book switches gears nicely throughout; chapters detail the development of financial practices in the rising industrialism of the eastern seaboard of the United States as well as in Montreal in the nineteenth century. The book melds business, educational, labour, and social histories. Macdonald's vaunted mental flexibility is a metaphor for how these intellectual currents intersected.

For readers interested in the history of education, the discussion of the Macdonald-Robertson movement for agricultural and manual training of students and teachers is of note, while those wanting to know more of McGill's past are well advised to pick up the book for the examination of the sheer size and frequency of Macdonald's exhaustive donations to McGill. Chapter 8 discusses Macdonald as McGill's "greatest builder of all…he became known as the second founder of the university" (p. 209), and one is hard pressed to disagree. His role in helping to develop programs related to engineering, physics, architecture, chemistry, law, and history, which included the establishment of research chairs and funds for buildings and various campus facilities (laboratories were built that "were reminiscent of his tobacco works," p. 220), lend credence to the assertion that he was a "facilitator [and] catalyst" (p. 239). Aware of the intellectual and built heritage he was overseeing, he saw himself as a "pioneer" (p. 239).

This is a good book on what appears to be a good man. A reader might argue that Macdonald is analogous to a modern day, self-aggrandizing industrial magnate who made his fortune using exploitative labour practices and manufacturing a product that supported a deadly addiction. This judgement might be softened by considering the social acceptance of tobacco in the nineteenth century, compared to today, and also by Macdonald's philanthropy. His prodigious charity for social betterment is undeniable, but one that history has offered for contestation and discussion. A biography of Macdonald could have fallen squarely on one side of the debate or the other — the evidence is presented that Macdonald and his legacy are less straightforward than simply a self-made man on a mission. *Macdonald* is a vigorous analysis of someone with whom many readers could relate. He was a person who did what he felt was right for society with the resources at hand.

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