Revisiting the Concept of
Competence as an Organizing
Principle for Programs of Study:
From Competence to Competent
Action


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Abstract

The authors of the present document, who are researchers at the Observatoire des réformes en éducation (ORÉ) of the Université du Québec à Montréal (UQAM), offer some theoretical and practical reflections on the use of the concept of competence as an organizing principle for programs of study. Beginning with an analysis of the notion of competence as this is conceived and used in certain disciplinary fields, they go on to propose a situated perspective.

Inspired primarily by perspectives from the didactics of vocational training and work carried out by Philippe Jonnaert since the 1980s, the authors identify the three cornerstones for the development of competencies: situations, competent action, and situational intelligence.

Finally, on the basis of their experience in both Canada and Niger, the authors illustrate how program content can be organized according to this perspective.

Key Words

Competence, curriculum, program (of study), action, situation, competent action, competent functioning
1 Introduction

In a recent article, the authors describe a number of difficulties – epistemological, theoretical and technical – resulting from the use of competence as an organizing principle for programs of study. Delory (1991) has long decried the proliferation of meanings that have been assigned to this concept, despite the fervent interest it has received in contemporary educational reforms. The work in which the authors are presently engaged has allowed them to further their reflections on the use of the concept of competence as the main principal for organizing programs of study. An analysis of the literature in certain fields that frequently appeal to the concept of competence reveals both discrepancies and uniformities in how this concept is understood. The authors then propose a definition of competence from a situated perspective. In fact, one of the crucial aspects that consistently emerged from their analyses is the undeniable link between the notion of situation and the concept of competence. The situation is both the origin and the criterion of competence (Jonnaert: 2002a). It is only in situation that a person develops his/her competence, and therefore the situation is the source of competence. Furthermore, it is only by dealing effectively with this situation that a person can be declared competent: the competent handling of a situation thus constitutes the principal criterion for evaluating situated competence. As Jonnaert (2002a) indicates, “(…) competencies can only be defined in relation to situations, and are therefore as much situated as knowledge is situated in its physical and social context. The concept of situation thus takes on a central role in the learning process: it is only in situation that a learner can construct, modify or disconfirm his/her situated knowledge and develop competencies that are equally situated. This constitutes a determining factor in school learning (...). Education is no longer a matter of teaching decontextualized subject-matter content (geometric shapes, addition of fractions, mental calculations, rules of syntax, verb conjugations, etc.), but rather of identifying situations in which learners can construct, transform or repudiate the knowledge and competencies associated with this content. Subject-matter content is no longer seen as an end-in-itself, but rather as a means at the service of handling situations, just as any other resource.” (pp. 76-77) This observation emerges from numerous articles by the present authors, and constitutes the basis for assigning such importance to situations in programs.

1 Jonnaert Jonnaert, Barrette, Boufrahi and Masciotra, 2005; this paper can be consulted on the ORÉ Website: http://www.ore.uqam.ca

2 The authors have focused on three broad disciplinary fields among those that frequently refer to the concept of competence in their work and publications: (1) the field of didactics, pedagogy and curriculum studies; (2) the field of cognitive and workplace psychology; and (3) the field of ergonomics and didactics of vocational training. Although the authors have chosen this particular categorization, the fields sometimes overlap.

3 Jonnaert and Pallascio, 1996; Jonnaert, 1996; Jonnaert, 1997; Pallascio and Jonnaert, 1999; Jonnaert, 2000; Jonnaert, 2002b; Jonnaert, 2003; Masciotra, 2004; Masciotra, 2006; etc.
of study, including those in the provinces of Quebec and Ontario in Canada, as well as in Niger. Such a new and different perspective calls for a departure from the traditional tools and methods for designing programs of study. Instead of starting with mathetical analyses\(^4\) of traditional subject matters (mathematics, history, biology, geography, etc.), the authors begin by analyzing the actions of people in situation.\(^5\) Thus the starting point for analyzing competencies is the actions that a person in situation undertakes and the resources required to perform those actions. This is what the authors have designated by the expression “competent action in situation”. Traditional methods of identifying and analyzing lists of decontextualized competencies provide little information for teachers who wish to help their learners develop their competencies as effectively as possible. By contrast, descriptions of situations, possible actions in these situations, and useful resources for those actions provide more thorough information on the basis of which teachers can establish the conditions necessary for the development of competencies. The central question that must be addressed in reforming programs of study is thus: “What are the conditions for a learner to act competently in a given situation?” In other words, the description of competent action in situation takes precedence over descriptions of decontextualized competencies contained in a repository.\(^6\) This involves a radical change in the habitual practices of program designers. In the present text, the authors describe how they came to adopt this perspective on situated competence and competent action in situation.

After situating their reflection within the complex context of contemporary reforms in education, the authors present the results of their analysis of existing conceptions of competence. They then suggest an operational definition of competence. The final section outlines their approach to the notion of “competent action” as understood in terms of competent functioning of a person in situation.

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\(^4\) Mathetics is a “method developed by T. Gilbert for analyzing teaching content and learning situations. It is a top-down method that involves the analysis of complex behavior into its more basic constituent behaviors.” (D’Hainaut, 1988: p. 477).

\(^5\) Since 2003, Masciotra has published numerous articles about what we refer to as “competent action in situation” or ‘competent functioning in situation’. These documents can be consulted on the ORÉ Website (see note 1), and on the CYBERDIDAC program Website: http://cyberdidac.uqam.ca, as well as on the Ministère de l’éducation, du loisir et du sport du Québec (MELS) Website: http://www.mels.gouv.qc.ca/DFGA/portail.html. This approach is also discussed in the Cadre d’orientation du curriculum du Niger, (document COC, 2006), a document written at Niamey by the Direction des curricula du Niger, with the collaboration of Jonnaert and Ettayebi.

\(^6\) From the French “référentiel”: a document that groups together and organizes information in a particular area or semantic field and that can be publicly consulted by those concerned (e.g.”référentiel des compétences”: “repository of competencies” - such a repository identifies a certain number of competencies and provides a decontextualized description of each of them).
2 The General Context of Educational Reforms

A significant undercurrent of reform is sweeping across numerous educational systems on different continents and across a wide variety of cultures and educational traditions (M’Batika, 2004). The interest shown in curriculum development by these various countries and regions is, however, relatively recent. Initial preoccupations focused on schooling and access to education, and it was only later that stakeholders sought to render their educational systems accountable in terms of indicators of student performance in different subject areas. To this effect, they appeal to databases resulting from large international studies such as that conducted by PISA. Over the past twenty odd years, those responsible for educational systems have also become interested in topics related to the content of school learning, curricula and programs of study. They have been seeking new approaches for reconstituting the curriculum and its programs. However, within a given educational system and despite their interdependence, curriculum and program have different functions.

A “curriculum” defines the broad orientations that guide an educational system. Jonnaert et Ettayebi (2006) compare the curriculum of an educational system to the Constitution or fundamental law that governs a country or region: “A curriculum is to an educational system what a Constitution is to a country.” A curriculum enables the educational system of a given country or region to respond to the needs of its population. In this sense, Jonnaert and Ettayebi (2006) specify that a curriculum is both general and inclusive: it provides an orientation to the programs that it includes. Curriculum reform surpasses, and cannot be reduced to, program revision. A program of study specifies learning content in a particular domain, and in any educational system there can be as many programs as there are subject areas. However, programs must respect the orientations of the curriculum. Traditional programs of study are designed according to what is referred to as the rational planning approach (Jonnaert, Masciotra, Boufrahi and Barrette, 2003). Found almost everywhere throughout the world, such programs offer students a “menu” for learning in the form of an organized body of school subject matters. Each subject matter is broken down into a set of embedded hierarchical objectives that are sequenced in successive steps from the most specific right up to terminal objectives. The basic models for such programs are inspired by, among others, Tyler (1949, 1964), Lindvall (1964), Gagne and Briggs (1974) and the whole drive for objectives-based pedagogy that ensued, particularly from the writings of Bloom (1956). According to this perspective, programs of study are sufficient unto themselves and subject matter content takes priority. The objectives-based model has dominated the world of education and guided school learning for the past 50 years. The approach involves the division of subject matter content into discrete micro units, an organization that corresponds to Taylor’s model of assembly line production. Such programs were potentially suited to the

7 Program for International Student Assessment.
social requirements of the time, and thus the curricula, which provided the general orientations of these programs, also facilitated their adaptation to societal needs (see point 2 below). Recall, however, that all this took place in the 1950’s!

At the present time, a range of new parameters is calling for an adaptation of the curriculum that can respond more adequately to the demands of contemporary society. It appears that the existing technical model has become outdated. In the text that follows, the authors describe three significant parameters that cut across a variety of other parameters characterizing the new educational needs of our time.

(1) A new conception of knowledge has made its appearance on the scene (Jonnaert, 2006b) as a result of the emerging knowledge society (Bindé, 2005), where information originating from sources outside the school setting are sometimes more important than the content provided in programs of study. The notion that intelligence is distributed between cognitive artifacts and cognition itself calls for a critical look at traditional approaches to teaching that conceive of the learner as a cognitive whole and involves a much more complex understanding of the teacher’s relationship to knowledge and school learning. “The emergence of the knowledge society has created a demand for key competencies in all spheres of life: personal, public and professional. Ways of accessing information and services have changed, as well as the very structure and makeup of society itself.” (Commission of the European Communities, 2005a: 3). Thus, knowledge is no longer considered as a fixed entity, capable of being reproduced according to a transmission model of teaching. Rather, it is dynamic and situated, in constant interaction with multiple sources of information that far surpass the traditional models of teaching. Learning content can no longer be specified simply in terms of lists of discrete items of knowledge in a program. Current programs are thus inadequate for teachers to address the complex challenges of knowledge and competencies inherent in a perspective that transcends that of the ‘cognitive whole’.

(2) The social demand is no longer focused on sequencing tasks. Employers expect workers to approach their work situations from a more comprehensive and integrated perspective. “The organization of work is changing. The days of Taylorism have come to an end, along with objectives-based programs, which constitute to some extent an educational outgrowth of that perspective. For example, in the all-new assembly plant of ‘Smart’ cars, teams of workers take responsibility for the total assembly of a vehicle. Each car thus becomes the project of a team of employees, each with a different area of specialization.

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8 The term ‘cognitive artifact’ designates all the contributions to cognitive activity provided by the physical and material environment in which a person exercises that activity. Such contributions include a computer, material for taking notes (paper, pencil, etc.), a dictionary, computer programs, electronic databases, etc., as well as the way in which the person uses these resources. These supports become ‘cognitive artifacts’ by virtue of the interaction that the person establishes between them and his/her cognitive activity.
They coordinate their respective expertise, resolve problems that they encounter and together bring the assembly of the vehicle to a successful conclusion. The tasks are not divided up and decontextualized, dissociated from the final product and independent of the actions of the other members of the team. The approach is comprehensive, contextual and situated. Each action undertaken by an employee is not only coordinated with the actions of his/her fellow workers, it is also rendered purposeful by the final product: a fully finished vehicle. This method of organizing work not only assigns full responsibility for the final product to the teams concerned, it also presupposes a wide range of new competencies on the part of employees and the coordination of their respective areas of expertise. While this new approach to work requires the development of high levels of competence, statistics indicate the contrary, namely, a weak mastery of basic competencies among a high percentage of workers. The adequacy of existing educational systems to prepare employees for these new modes of organizing work and for the knowledge society is questionable. Several surveys conducted by the IALS\(^9\) show that a significant number of adults from various Western countries do not possess the basic competencies in reading and writing to function successfully in society. For example, data from the Council of the European Commission\(^10\) indicate that nearly one-third of the European workforce, that is, 80 million people, are under-qualified, while between now and 2010, 50% of new jobs created will require highly qualified workers and only 15% will target the unskilled or less qualified. Along the same lines, the IALSS\(^11\) measured the levels of adult competence in literacy and numeracy.\(^12\) In 2003, the results of the IALSS found that 15% of Canadian adults, more than 3 million persons between 16 and 65 years of age, showed low levels of competence on the evaluation scale used to gauge the results of these surveys. Such people are clearly at risk, and their low levels of competence on the evaluation scales of the IALSS tests can have a direct impact on their capacity to participate in the economic and social life of the country. While the world of work is moving towards new models of production requiring high levels of competence on the part of workers, an increasing number of people in the Western world are manifesting low levels of competence.

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\(^9\) International Adult Literacy Survey.
\(^11\) International Adult Literacy and Skills Survey, a survey on adult literacy and competencies. The IALSS is a joint project of the Canadian government, the United States’ *National Center for Education Statistics* (NCES) and the Organization for Economic Cooperation and Development (OECD) Based on an international survey of adult literacy, the IALSS assessed competencies of adults in four areas: prose and document literacy, numeracy and problem-solving. The data from these surveys can be consulted on the Website: [http://www.statcan.ca/Daily/Francais/050511/tq050511.htm](http://www.statcan.ca/Daily/Francais/050511/tq050511.htm) (site consulted on August 20, 2006).
\(^12\) The concept of numeracy is not as uniformly agreed upon as that of literacy. For Jonnaert and Koudgobo (2005), numeracy includes all those competent actions that a person undertakes to deal effectively with everyday situations that require the use of basic mathematical resources.
The digital revolution imposes another major constraint on educational systems in general. In contemporary societies affected by the turmoil of the digital revolution, a vast store of information and knowledge has become accessible via the media. However, the capacity to access, process and assimilate this flood of information and knowledge varies from one social group and country to another: “not only do the most socio-economically disadvantaged groups have the least access to information and knowledge (the digital gap), they also experience greater difficulty assimilating knowledge and information than those who occupy higher positions on the social ladder. The same gap can be observed among nations. This leads to disparity in the relation to knowledge itself (cognitive gap). Given equal access, the gains in knowledge that accrue to those with high levels of education significantly exceed the gains that can be achieved by those with no or limited access to education. Thus, the generalized dissemination of knowledge, far from reducing the gap between the most advanced and the least, may, in fact, contribute to widening it.” (Bindé, 2005: pp. 167-168). This twofold rupture, digital and cognitive, constitutes a major challenge for educational systems. Accounts of these disparities are alarming, and are as significant in northern countries as in southern. The importance of including programs on the use of information and communication technologies (ICTs) in the curriculum seems obvious: “The impact of new technologies on the creation of knowledge is considerable and has resulted in appreciable gains in terms of both its accessibility and management. (...), the proliferation in our environment of virtual objects that are infinitely changeable and accessible facilitates collective work and the acquisition of shared knowledge: learning, which has long been restricted to specific settings, such as the school, is on the verge of becoming a virtual space on a planetary scale, accessible from great distances, and where it is possible to simulate an infinite number of situations.” (Bindé, 2005: p. 48). It is now generally acknowledged that ICTs promote quality education. Too often, unfortunately, policies on the use of ICTs have not been examined on a comprehensive scale and are limited to investments in equipment. The necessary conditions for their integration into learning are rarely met. “Information and communication technologies (ICTs) can facilitate learning by doing (through computer simulations, for example). They can vastly increase the information resources available to learners, thereby changing the relationship between teacher and student. They can facilitate collaborative learning and provide rapid feedback to learners. These outcomes do not result simply from the introduction of computers into the learning setting, however. An appropriate policy framework is needed in which ICTs are used to tackle educational problems; significant investment is made in training teachers and managers to change their knowledge and behaviour; qualified technicians and support staff are available; and funding for maintenance, access to the Internet, and upgrading is sustainable. These conditions are rarely met, especially in developing countries.” (The World Bank, 2003: p. 20). It is no longer enough for governments to decree the use of ICTs in school and to provide equipment for a certain number of classrooms in order for ICTs to become pertinent resources for learners to construct knowledge and develop competencies. Much more is required! Chapman and Mähic (2004) emphasize the need for a conceptual framework based on clear guiding principles for the implementation of
ICTs in the classroom. Above and beyond such a conceptual framework, a re-examination of the very foundations of traditional conceptions of learning seems urgent, one that would involve redefining the cognitive activity of learners using ICT artifacts. “The cognitive activity of users of digital technologies, even when they are working alone, is in fact distributed between themselves and these artifacts, and this applies as much to perception, memory, and logical operations as to learning. The world of visible objects that we have ‘before our eyes’ nowadays depends on a cognition that is shared between ourselves and the cognitive artifacts that become increasingly ‘transparent’ as they become more effective. The era of distributed cognition is upon us.” (Bindé, 2005: pp. 51-52). In discussing “the “situated approach to competencies,” the authors refer to different perspectives associated with situated action and situated cognition (Suchman, 1987; Baersiswyl and Thévanaz, 2001), situated learning (Lave and Wenger, 1991) and distributed intelligence (Perkins, 1995). The notion of distributed cognition developed by Bindé (2005) corresponds in many ways to that of situated cognition as defined by Jonnaert et al. (2005: p. 684). It is a view of cognition linked to social practice, distributed through the body and the activity of the person in situation, and even to the situation itself and its context. Cognition is thus at the centre of a group of dialectical relations between the person in action, his/her own cognition, the situation, and the physical and social context. The acting person is not divorced from her context of action in the world, she determines it every bit as much as she is determined by it. The person is an acting whole, fully engaged in the world, in an arena of complex interrelations: person-acting-in-setting (Lave, 1988). ‘Situated cognition’ clarifies and gives priority to the person as a being who constructs herself as she constructs her environment, in a dialectical relationship with it, in order to develop her competencies. By putting the person back into the situations and contexts with which she interacts in a constructive manner, situated cognition constitutes a pertinent framework for understanding the development of competencies. ICTs, when a person actively uses them, are necessarily part of these situations and contexts. The notion of situated cognition embodies all the elements with which a person in action interacts. In this perspective, the action of a person in situation is based on a wealth of resources, of which ICTs constitute an integral part. Reciprocally, the use of ICTs reinforces this situated approach to cognition. The introduction of ICTs in the classroom, therefore, presupposes the kind of in-depth reflection that surpasses the mere framework for reforming programs of study, but which should provide program writers with a better orientation to their task.

All these upheavals, ranging from new social demands to a radical change in perceptions of cognition, call for a different approach to curriculum and the content of programs of study. Contemporary reforms of curricula are part of the many changes that confront today’s schools. Almost all of them involve major transformations. Braslavski (2001: p. 10) considers that, on a worldwide scale, reflections and research on curriculum are guided by four principal orientations:
A redefinition of the concept of curriculum that differentiates it from plans and programs of study;
A diversification of methods for curriculum development;
The introduction of changes to the structural aspects of the system that regulate learning paths;
The introduction of changes in the content and methods of teaching.

Beyond these four broad orientations guiding curriculum development, Braslawski (2001: p. 13) notes five areas around which educational reforms across the world tend to converge:

- Recognition of the need for structural flexibility;
- An orientation of all education and training towards the development of competencies;
- An effort to reduce the fragmentation of learning by promoting inter- and multidisciplinary pedagogical practices;
- The introduction of options for students, where these did not previously exist;
- A return to project-based teaching/learning.

The reforms currently being undertaken in different countries share these orientations and commonalities. Almost all of them, whether in the process of being developed or already validated and implemented, are based on four different cornerstones: (1) a ‘logic of competencies’, (2) a socioconstructivist perspective, (3) a focus on the learner, (4) a strong emphasis placed on learning situations. An analyst is likely to find these four principal characteristics in most current reforms, combined in a more or less coherent and felicitous manner across a wide variety of curricula.

If the current reforms seem to be unavoidable, do we really have the tools to render them operational? Can the very concept of competence, which is so often invoked these days, be used as “a fundamental principle for organizing programs of study,” and if so, under what conditions? In the following section, we discuss some reservations with respect to the reforms that are presently taking place, on the grounds that certain basic concepts have not yet become sufficiently stabilized to serve as tools for curriculum development.

### 3 Some Confusion

The reforms actually observed vary considerably from one country to another, but all of them exhibit worrisome signs of uncertainty and hesitation that threaten the stability of the very

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13 From the French expression, ‘logique de compétences’, signifying the ‘logic’ according to which a competency operates, that is, the way it functions, develops and is exercised.
educational system that generated them. Traditional curricula, along with their theoretical and methodological frameworks, have, for the past five decades, been developed according to an objectives-based approach. A substantial theoretical and empirical corpus exists to this effect. The methodological tools deriving from this firmly entrenched curricular theory are supported by an extensive body of literature and research from across the world. It is on this basis that the present tools and methods are constructed and validated by the experts who have been given the responsibility for developing the new educational curricula. This obvious paradox runs the risk of compromising a significant number of curriculum reforms that are presently underway (Jonnaert, 2001; Jonnaert, Barrette, Boufrahi and Masciotra, 2004; Jonnaert and Masciotra, 2004). The four cornerstones of the reform identified above as well as the educational aims and policies of the countries involved represent a significant departure from an objectives-based approach to curriculum, behaviorism and the piecemeal breakdown of school earning into micro-objectives (Jonnaert, 2001). While the objectives-based approach advocates the sequential subdivision of learning content into micro-units, a competency-based approach favors situations as the entranceway to learning, which implies a more comprehensive and interdisciplinary approach (Jonnaert, 2002; Legendre, 1998, 2004). Moreover, while the objectives-based approach is a direct derivative of behaviorism, the present curriculum reforms are more closely aligned with a socioconstructivist perspective, which is epistemologically far removed from behaviorism (Legendre, 2004; Jonnaert, 2001). To use traditional methods of an objectives-based approach to develop curricula that respect the new imperatives and policies of educational systems seems to be risky at best, if not impossible.

To develop a competency-based curriculum within a socioconstructivist perspective involves a radical revision of traditional methods (Jonnaert, Barrette, Boufrahi and Masciotra, 2005). But we are hardly there yet. The present article focuses exclusively on the concept of competence and its pertinence within a curricular perspective for designing programs of study. The difficulties encountered clearly indicate the need for a genuine theory of competence, which is still in its infancy today.

4 A Genuine Theory of Competence Remains to be Constructed

To articulate a comprehensive but tentative definition of the concept of competence is inadequate for the development of anything that might be pertinent to the domain of education. At the moment, we have only begun to scratch the surface. A genuine theory of competence, which is still in its infancy today.

14 See, for example, the Journal of Curriculum Studies; also, among others, the work of pioneers such as D’Hainaut, 1988; Taba, 1962; Tourneur, 1974; Tyler, 1949 and 1964; Schwab, 1962; Wellington, 1981; Weiss, 1973; etc.

15 See Jonnaert, Barrette, Boufrahi and Masciotra, 2005.
competence remains to be constructed. The use of the concept of competence for curricular purposes has been initiated prematurely, long before the debates and research surrounding it have terminated, as if a quick and rudimentary definition could suffice to build a curriculum based on a logic that has not yet been fully theorized.

The pressure exerted these days on curriculum developers is enormous. Referring, for example, to the curriculum reform in adult general basic education in Quebec, Medzo and Ettayebi (2004: p. 45) describe the complexity of the task: “(...) the development of a learner-centered curriculum poses a threefold challenge: it involves first of all establishing an educational system the aims of which must address the needs of society and at the same time respond to the needs of the learner. Then, the approach to education, the structural organization of the system and the educational services it provides must be redefined in a language that is meaningful to adult learners. Finally, the task of school personnel, who are called upon to support adults in their lifelong learning endeavor, must also be redefined.” The educational policy makers expect program designers to develop programs according to new theoretical and epistemological frames of reference: competencies, as opposed to objectives, socioconstructivism as opposed to behaviorism, situations as opposed to disciplinary content, emphasis on the learner as opposed to the teacher. These orientations, often prescriptive in nature, render traditional modes of program design outdated. Those working on the development of new curricula are faced with the challenge of building a new structure with nothing but outdated tools at their disposal. The situation is complex and in some regions creates inconsistencies in their approach to program design (Jonnaert, Barrette, Boufrahi, Masciotra, 2005). Program designers working in the field are often expected to create new methodological tools at the same time that they create the new curriculum (Jonnaert and Masciotra, 2006), even though the very foundations remain subject to incessant controversy. In the absence of new models, program designers quickly resort to Bloom’s taxonomies, Gagné’s behaviorist conception of learning, De Landsheere’s or D’Hainaut’s theories of objectives, etc. Such “reforms” are not real reforms and in the long run, constitute nothing more than a delusion of which the first victims are the learners. A theory based on a logic of competencies within a curriculum perspective has yet to be developed. Its application to program development has to be verified and validated. At the present moment, apart from definitions of a few concepts such as that of competence, no adequately structured framework is available for program writers. Several hybrid models are in circulation on the educational market, most of which involve a conceptual shift from the notion of competencies to that of objectives and objectives-based programs. Unfortunately, reforms that are based on these hybrid models, emanating from North American and European schools, constitute only piecemeal endeavors that satisfy no one.

Program writers are left to shoulder an enormous burden. With no guidelines available, they are expected to develop programs and simultaneously experiment with methods for developing them. This kind of blind groping in the dark cannot lead to any satisfactory theorization. The results are sometimes catastrophic, and this unfortunately in areas of the world that stand to benefit most from a radical reform of programs of study. Such makeshift
solutions involving concepts that are too quickly or poorly theorized and not validated for use in curriculum development, as is the case with the concept of competence, only serves to generate staunch resistance to the current reforms.

5 Toward a Conception of the Notion of Competence

In order to develop a theoretical framework for a logic of competencies within a curricular perspective, the present article draws on the results emanating from an analysis of the literature. It then takes up the results that emerged from the experience of accompanying program writers during the course of their work. This section describes the process adopted in order to obtain a kind of semantic closure with respect to the concept of competence: “(...) Two rules appear to be essential to the advancement of knowledge and scientific discussion: a rigorous analysis of the ‘objects’ of knowledge and the methods used, and observance of the so-called ‘rule of semantic closure,’ which requires, despite the multiplicity of meanings inherent in natural languages, a degree of precision and limitation of the possible significations that can be attributed to a concept.” (Van der Maren, 1995: p. 24.)

In order to reach semantic closure, the first step for researchers is to identify those authors who are regularly cited in texts representative of disciplinary fields frequently invoking the concept of competence. Then, with the help of a grid, they analyze the principal conceptions of the notion of competence conveyed by each of these disciplinary fields. The analytical grid is applied to a corpus of texts in each of the fields concerned, thereby disclosing the essential underlying tendencies toward different conceptions of competence. The analytical grid is based on four definitions: the government of Canada’s definition of “essential competencies”; the definition found in the IBE Thesaurus (2004); Pastre’s (2004) definition; and the definition given by Jonnaert et al. (2005). The criteria are subjected to successive modifications and validations. The grid is used to analyze 21 approaches to the concept of competence covering three disciplinary fields:

- Category A: didactics/pedagogy/curriculum
- Category B: sociology/psychology of the workplace / cognitive psychology
- Category C: ergonomics / didactics of vocational training

As part of a wider study, this analysis was realized in the context of research on essential competencies for adults in the business world. The research was assigned to a team of researchers from ORÉ at the time of a competition organized by the Social Sciences and Humanities Research Council of Canada (SSHRC) and Human Resources Development Canada (HRDC).

The analytical grid can be found in Appendix 1 and the criteria and sub-criteria in Appendix 2; this grid can be accessed on the l’Observatoire des réformes en éducation de l’Université du Québec à Montréal, (ORÉ) Website: http://www.ore.uqam.ca
Care was taken in the selection of texts to ensure an equitable distribution across the three fields. The analytical grid is subdivided into a series of criteria and sub-criteria, which are presented in Appendix 2. These criteria cover the epistemological dimension, the main focus of competence, its scope, dynamics and aim. Without going into an exhaustive analysis of the results of this process, the researchers were able to uncover a number of significant findings. The results were reviewed by categories of authors and are presented in Appendix 4. The overall results of the compilation are displayed in Appendix 5.

The analysis of these results shows that activity in situation is considered to be of fundamental importance in a logic of competencies. Competence cannot be reduced to a simple description of an expected action or behavior; it is much more than that. Several authors, particularly those in Category C, ergonomics and didactics of vocational training, transcend this simplistic view and see competence as an ‘organizing structure of activity’: “Knowing is first and foremost adapting to situations, ‘playing one’s hand well,’ not allowing oneself to be overwhelmed by events. This implies that the activity of the subject must be organized, with a blend of regularity and adaptability to changing circumstances. We must therefore presuppose that activity is structurally organized. And an analysis of competence involves identifying these organizing structures of activity.” (Pastré, 2004: p. 8). In this sense, being competent is not simply a question of applying knowledge to a situation; it also involves organizing one’s activity in order to adapt to the characteristics of the situation. Competence can thus be understood as “the dynamic organizing structure of activity that allows a person to adapt to a class of situations on the basis of her experience, activity and practice.” This perspective is interesting, because if the authors, those who fall into Category C, manage to analyze competence as an ‘organizing structure of activity’ for a class of situations, the results might provide some useful insights for designing programs that aim to promote the development of competence to handle these situations. Researchers at ORÉ find such an approach to be quite productive, particularly with respect to their work on program development in Canada and Niger. The conception of competence that emerges from the texts in the didactics of vocational training seems to be quite homogeneous. It offers interesting perspectives for reflection on curriculum. In contrast, the epistemological obscurity characterizing the claims of authors in Category A (didactics, pedagogy and curriculum) renders their use doubtful. By the same token, the claims made by the authors in Category B (cognitive psychology and social psychology) are too restricted in scope to be any more useful than those of Category A. For this reason, the researchers at ORÉ were particularly inspired by the work being carried out in the didactics of vocational training.

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18 The table in Appendix 3 provides further details on the authors examined and the distribution of texts across the three domains.

19 The analyses of these results are the object of a research report (in progress), which can be consulted on the ORÉ Website as of January, 2007.
6 A Situated Perspective on Competence

Situated competence is of course “grounded in the situation.” This is a truism and a statement of the obvious! It refers to the action of the person in that situation: her competent action. According to this perspective, the person’s adaptation to the situation and its context is an essential condition for the development of competence. For Pastré (2004), competence is a dynamic structure, firmly rooted in the person’s experience and practice in situation. It is through her activity that a person constructs her competencies. “A variety of resources is thus mobilized in action to actualize competence. From the perspective of situated cognition (Lave, 1988, 1991), these resources have a structuring function with respect to both action and the person that constitutes a dialectical relationship. (...) There are thus no boundaries between the internal and external aspects of experience. The situated cognition approach views the person and her action as essential resources for learning.” (Jonnaert et al., 2005: p. 677).

Constructivism has led the authors of the present document to view the development of a competency as a function of a person’s adaptation to and interaction with the situation and its context. Internal and external resources play a contributory role in the development of competence within the learning process. The competence that is thereby developed is thus “specific to the situation or the class of situations.” In this sense, for Jonnaert et al (2005: p. 674), competence is “the use, by a person in a given situation and context, of a diverse but coordinated group of resources; such use depends on the selection, mobilization and organization of these resources and the actions that they support in order to deal effectively with a situation.” However, the analyses and reflections presented in Section 5, the perspective offered by situated cognition, and the propositions emanating from the didactics of vocational training all indicate that competence cannot be defined without taking into consideration the experience and activity of the person. Competence, as Pastré (2004) insists, is also a dynamic organizing structure of activity, firmly grounded in the experience and practice of a person in situation. From now on, beyond simply drawing up lists or repositories of decontextualized competencies, priority must be given to describing the competent action of a person in situation with a view to developing a situated approach to competence.

From a thorough analysis of this approach, the following section provides some answers to the question that was posed in the introduction to this text: “Under what conditions can a learner act competently in a given situation?” This ‘situated’ definition of competence constitutes the basis for identifying the most suitable point of entry for the development of programs that respect a logic of competencies, namely, situations.
7 Situations as the Point of Entry for Programs of Study: Toward the Development of Competency-Based Programs

In this section, the authors provide some ways to think about the development of competency-based programs from a situated perspective. They are based on two lived experiences on the part of the researchers at ORÉ: the first took place in Quebec and the second is still in progress in Niger. These experiences are also supported by a volume of work, research, and publications that has been produced since the end of the 1980s by Philippe Jonnaert and successive teams collaborating with him. This section is descriptive. The reader is introduced to the path that teams of program writers follow from the initial survey on the real-life situations of learners up to and including the development of matrices for the analysis of competent action. These matrices provide the writers with a means of organizing program content. The programs themselves may take a variety of forms.

7.1. Banks of Situations

A situated approach to competencies for the development of programs of study presupposes certain preliminary conditions. Taking situations as the point of entry for writing programs obviously requires that writers be cognizant of these situations a priori. Such basic material is crucial to the development of programs that respect a logic of competencies. Since this material is hard to come by in the school itself, the first step in the process is to build a bank of situations.

To this end, and taking Niger as an example, a team from ORÉ has set up a series of 47 regional forums. These latter take the form of focus groups in different regions of the country, and their objective is to identify the situations that the entire Nigerian population must be able to deal with effectively. In Quebec, at the time when the reform of the programs in adult general basic education was initiated, a survey of the target population was carried out prior to undertaking the writing process. In both cases, the situations identified reveal a significant gap between the learning content traditionally specified in the programs of study and the situations for which the target population wishes to develop competence. In Niger, the population was just emerging from a food shortage crisis when the regional forums were instigated in September of 2005. Most Nigerians consider schooling to be obsolete; the youth coming out of the educational system, they claim, are not adequately prepared to tackle their everyday situations. Most of the knowledge constructed in school cannot be adapted to their daily lives. In Quebec, the real-life situations identified by the survey uncover more needs on the part of adults at risk in Quebec than what traditional program content addresses.

20 These two operations, in Niger and Quebec, were piloted by M. Ettayebi, international consultant and researcher at ORÉ.
Furthermore, observations of those populations that deal with these situations on a daily basis disclose a wealth of endogenous knowledge that is far removed from the school knowledge described in programs. Traoré (2006) has shown that the Siamous, of Burkina-Faso ethnicity, do not use a base ten numbering system, which is the system taught in school, when they engage in commercial transactions. When exchanging money in CFA francs, they habitually count in multiples of five. Other numbering systems are used to count, for example, the number of mangos to bring to the market. In the same study, Traoré (2006) relates that to build a rectangular cabin, the Siamous start by drawing the diagonals, whereas in school pupils learn about rectangles from the properties of their sides and angles. Soto Cornejo (1992) has made similar observations with respect to the Mapuch peasants in the Cordillera of the Andes Mountains in Chile. He describes, for example, the procedures used by the illiterate population to measure the area of their land in order to estimate the appropriate amount of seeds to sow. In his work as an ethno-mathematician in several African countries, Gerdes (2006) highlights the fact that these populations, who are barely if at all educated, use a spontaneous form of mathematics to deal with everyday situations that require mathematical resources. Above and beyond these particular examples, the analysis resulting from all these surveys of the practices of different populations in their real-life situations uncovers considerable endogenous knowledge that is often at odds with traditional school knowledge and conspicuously absent from most programs of study.

Beyond such reports, the results of these surveys far exceed the researchers’ expectations and convey substantial information:

1. The diversity of situations evoked by the target population, which schooling is intended to address through the development of competencies;
2. The disparity between the situations identified by the target population and the traditional content of school learning, which, in many cases, is not pertinent to dealing with these situations effectively;
3. The existence of endogenous knowledge that is neglected in school and in fact often conflicts with traditional school knowledge, while in everyday real-life situations it is this kind of endogenous knowledge that is most often used by the inhabitants;
4. The absence of relevant situations for whole branches of traditional disciplinary fields, which calls for in-depth reflection on the content of disciplinary fields that is typically addressed in school.

A situated approach necessarily brings the everyday life of the learners into the classroom. But this cannot happen unless program writers and teachers are prepared to overcome a whole set of paradoxes. Processing the wealth of information from these surveys can be disconcerting for program writers who, up until now, have habitually approached situations through a single lens, that of traditional school knowledge. This may appear to be quite logical, since that is the business of program writers. However, the resources needed to deal with many of these situations are often of an entirely different nature from those strictly associated with school subject matters. Finally, the situations identified are only
representative of the current state of affairs; they reflect the educational expectations of the target population at a given moment in time. For example, as soon as Niger is no longer subject to the constraints imposed by the food shortage, situations that have been submerged by the weight of this crisis are likely to surface. In other words, these banks of situations must be updated on a regular basis and remain dynamic and open-ended.

Lists of traditional program content, whether they consist of repositories of competencies or objectives, are usually prescriptive and written in stone for relatively lengthy periods of time. In many parts of the world, these lists of prescribed program content constitute norms for teachers: “What I have to teach is what is written in the program” is an echo that reverberates across the teaching world. Some of the researchers at ORÉ observed a lesson on word processing in which the students were learning how to type using a mock wooden keyboard with immobile keys. When a researcher asked the teacher, “Why are the students using a fake keyboard?” the teacher’s answer was simply, “because this activity is inscribed in the program; it’s the competency ‘knowing the arrangement of a keyboard’.” This took place in 1993 in a country in the Northern hemisphere. The sole logic behind this program, entitled ‘Office Techniques’, was to subdivide the learning content into discrete micro-units and, according to this same logic, to ensure that students had sufficient practice for purposes of retention before they moved on to using a real keyboard! This imitation keyboard represents an item of decontextualized knowledge, taught in-and-for-itself, simply because it is inscribed as such in a program of study. It is obvious that in order to learn to act competently in situations requiring the use of a word processing program, a lot of resources are needed besides simply ‘knowledge of the arrangement of keys on the keyboard’. Finally, as it is decontextualized, in other words, ‘removed from any situation,’ the competency that this teacher identifies as knowing the arrangement of a keyboard shares none of the properties of the concept of competence as defined in the previous section of the present text: this so-called ‘competency’ is not a competency at all, since it is removed from its situation of use and makes no reference to any situation or class of situations whosoever. But if it is a platitude to claim that these students are not developing any competence by repeatedly hitting the keys on a wooden keyboard, the same can be said for many of the content items listed in current programs of study, simply because they are ‘removed from any situation’.

Over time, as program writers continue to work on situations, they manage to overcome these difficulties. They patiently set about dissecting, analyzing, categorizing, completing them, etc. At the beginning, their main preoccupation is to uncover the ‘knowledge’ to be taught from each of the situations identified in the survey. “What knowledge pertaining to my subject area does this situation permit me to teach?” It can become practically an obsession, from which they have to be weaned slowly but surely by the researchers accompanying them. Gradually, a new grid for analyzing situations begins to emerge. For example, at the beginning, in order to ensure that their analyses of situations did not leave out any significant ‘item of knowledge’ to be taught, the program writers for adult general basic education in Quebec developed a computerized database of all the content, by subject matter, that they estimated to be absolutely essential for inclusion in the new programs. They soon realized,
however, that starting with disciplinary knowledge is not a satisfactory way to go about the process, since the situations in the bank are, by their very nature, interdisciplinary. More than one, in fact several, disciplinary fields are usually required to deal with certain situations. In addition, other resources besides those associated with school subject matters are needed in most situations. Finally, some situations do not call for resources from any traditional discipline. Thus, subject matter ‘knowledge’ is not the only, nor the main resource for dealing with situations. The following statement proves to be unsettling for those teachers who habitually organize their lessons around decontextualized knowledge: “competent action in situation is based on a variety of resources and not only on disciplinary knowledge.”

The situations that are analyzed are then grouped into classes of situations. These classes are open-ended to allow for the addition of other situations that did not emerge from the survey. The survey elicits real-life situations. But these do not exclude learning situations that teachers may create in order to focus on some item of disciplinary content that they deem essential but that is not necessarily evoked as a resource in any of the real-life situations. A bank of situations is thereby constructed from all these elements, including real-life situations and learning situations.

7.2. Competent Action

At this stage, program writers have at their disposal a bank of situations grouped into classes. Given these classes of situations, the next step is to determine what is involved in order to “deal competently” with them. Thus, for each class of situations, writers have to identify the activities that could be pertinent and the resources upon which these activities are based. This part of the work can prove to be quite complex because, rather than describing what constitutes competent functioning in these classes of situations, the writers, who for the most part are also teachers, have a tendency to focus on the disciplinary content associated with the class. More than this, they tend to use traditional disciplinary criteria to organize the bank of situations into categories of classes of situations. Finally, they often try to identify the “competencies” directly, thereby divesting the situated approach to competencies of all its potential. At this point it becomes necessary to clarify the notion of competent action in situation: “How does a competent person act when dealing with this situation and on what resources do these competent actions depend?”

What is required, therefore, is to describe how competence can be manifested in a specified class of situations, rather than directly deriving the ‘competencies’ from each situation. The notion of competent action becomes central in this type of approach: “What would a person do to act competently in this situation?”

In order to answer this question adequately, it is crucial for writers to engage in simulations, to “put themselves in the situation.” During workshops with the program writers in Niger, such simulations usually evoked a wide range of resources that are clearly indispensable for
dealing with the situation but that are not necessarily included in the lists of abilities and items of knowledge found in traditional disciplinary programs of study. These resources may be dispositional (for example, the person’s involvement in the situation), corporeal (for example, the movement of the hand in writing), material (for example, a dictionary or a computer program), social (for example exchanges with a colleague), or cognitive (e.g. recalling a memorized procedure), etc. By using this approach, program writers come to realize that identifying program content in terms of all the resources that contribute to the development of competencies in situation actually reinforces the learning of disciplinary resources. In fact, in any situation, competent action is a function of the coordination of a range of diverse resources and not just of a single decontextualized resource. Thus, in writing a text for a school newspaper, a student uses a word processing program and thereby learns the arrangement of the keys on the keyboard, etc. Each resource used by the student reinforces the other resources. A situated approach to competencies does not reject disciplinary content; rather it reinforces the learning of such content when it constitutes resources pertinent to dealing with situations. By contrast, how much would that student learn if all he had to do was simply retain the decontextualized sequence of keys QWERTY or AZERTY on the keyboard?

The large majority of current programs of study refer to only one kind of resource: the content of the traditional disciplines. This persistent and one-track focus on traditional school subject matters constitutes a genuine epistemological impediment, in the Bachelardian sense, to the development of situated approaches to competencies. It takes quite some time before program writers begin to recognize the fruitfulness of this new approach. In fact, the notion of competent action highlights the wide variety of resources that a person mobilizes in action and in situation. Slowly but surely as a result of their analyses, program writers become increasingly aware of the irrelevance of isolating a single resource for the purpose of decontextualized learning. In other words, the situated approach reverses the typical methodology for developing programs of study. This involves a significant paradigm shift. Traditionally, the question that is addressed is, “In which situations can I illustrate or apply this item of knowledge identified in the program?” This perspective gives priority to disciplinary knowledge, and situations are merely pretexts for illustrating or applying it. In a situated perspective, on the other hand, the situation takes precedence and an item of knowledge may or may not constitute a resource for competent action. Thus the question becomes: “In order to act competently in this situation, what actions does a person have to undertake and on what resources do these actions depend?”

To act competently in a situation, a person bases her action on her own understanding of the goals she is pursuing by acting in this situation. She must be able to position herself in the situation with everything that she is and act on the basis of what she already knows. It is only by adapting herself and her own resources, that is, her personal knowledge, that she can construct new competencies. Curricular directives that are too prescriptive are paradoxically and by their very nature obstacles to learning, since they can interfere with a learner’s personal approach to a situation. Piaget repeatedly emphasizes in his writings that
“knowledge is action”. By this, he is referring not only to motor activity but also to cognitive activity, and to the process of adaptation that involves accommodation, assimilation and equilibration of knowledge. This takes place within a continually evolving dialectic between what a person already knows, that is, her existing knowledge and experience, and the situation in which she constructs new knowledge. It follows that, in order for knowledge to be constructed, the headings in the matrix for competent action described in the next section must be sufficiently open-ended to allow learners to fully engage in learning situations with everything that they are and all that they already know. Failing this, nothing can happen, since the person would not even be able to approach the situation. The notion of competent action is thus based on:

- the person’s understanding of the situation;
- her perception of the goals of her own action in the situation;
- what she thinks will be the effect of dealing with the situation;
- the possibility of becoming engaged in the situation with everything that she is and all that she already knows;
- the possibility of using a wide range of resources, of adapting the resources she already knows or of constructing new ones;
- the possibility of reflecting on her action, of validating and conceptualizing it;
- the possibility of adapting everything that she has constructed in this situation to other situations in either the same class or other classes of situations.

Competent action cannot be dissociated from situational intelligence, that is, the kind of discernment that people have of situations and the know-how to be effective in them, either by adapting themselves and their existing knowledge or by constructing new resources. Above and beyond action, conceptualization is also indispensable: “to reflect on one’s competent action, to verbalize it and to talk about it once removed from the situation itself.” Without this kind of conceptualization, learning remains strictly instrumental and what is learned cannot be adapted to other situations. It thus stagnates in this single situation and cannot be reused except in situations that are identical to the original situation in which it was learned. Research has shown, however, that this kind of congruence among situations is but a figment of the imagination (Jonnaert, 2004). Situational intelligence transcends competent action, which by itself could potentially reduce school learning to the merely instrumental aspect of handling situations.

Situations, competent action and situational intelligence constitute the threefold parameters of a situated approach to competencies. Outside of this framework, the matrix presented in the following section could appear to be simplistic. The matrix is simply a means for the development of competencies; it is not an end-in-itself.

7.3. A Matrix for Competent Action
Faced with each example of a situation belonging to the various classes of situations in the bank, program writers address the question of *competent action* formulated above: “In order to act competently in this situation, what actions does a person have to undertake and on what resources do these actions depend?” In order to answer the question and accomplish their task, writers make use of a matrix divided into three sections:

1. The section entitled *situational parameters* circumscribes the field of action for competent functioning: it specifies the class of situations selected from the bank and provides a list of examples of situations belonging to the class in question;
2. The section entitled *competent functioning* specifies what constitutes *competent action* in these situations, articulated in terms of categories of actions that may be undertaken in these situations along with examples of activities;
3. A set of *resources* that support the activities is also provided; these may include a range of material, corporeal and social resources, but also those related to traditional disciplinary fields.

Since the same situation can be handled competently in various ways by different people, the content specified in these *matrices of competent action* consists of numerous examples rather than prescriptive norms.
Figure 1: Matrix of Competent Action

<table>
<thead>
<tr>
<th>SITUATIONAL PARAMETERS, or field of action for competent functioning</th>
<th>COMPETENT FUNCTIONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Class of situations</td>
<td>Action</td>
</tr>
<tr>
<td>(2) Examples of situations</td>
<td>(3) Categories of actions</td>
</tr>
<tr>
<td>Class of situations X</td>
<td>Category A</td>
</tr>
<tr>
<td>Situation a</td>
<td>Action 1</td>
</tr>
<tr>
<td>Situation b</td>
<td>Action 2</td>
</tr>
<tr>
<td>Situation c</td>
<td>Action 3</td>
</tr>
<tr>
<td>Situation n</td>
<td>Action n</td>
</tr>
<tr>
<td>Category B</td>
<td>Action 1</td>
</tr>
<tr>
<td></td>
<td>Action 2</td>
</tr>
<tr>
<td></td>
<td>Action 3</td>
</tr>
<tr>
<td></td>
<td>Action n</td>
</tr>
</tbody>
</table>

Resources
- Resource 1
- Resource 2
- Resource 3
- Resource n

This matrix referred to as *the matrix of competent action*, constitutes a tool for program writers to progressively derive the content of their respective programs. Specific competencies are not identified, but *competent action* with respect to the classes of situations is illustrated by examples of actions and the resources that these actions can solicit. A matrix of competent action is not normative; it simply illustrates, through the examples it provides, how competent action can develop in situations belonging to the class in question. These matrices enable writers to identify program content. Each program thus contains classes of situations for which the targeted learners must develop competencies; it then provides examples of competent action and a list of resources that are useful to all the possible activities of such competent action in the class of situations concerned.

Several formats for programs can be developed on this basis, but in principle, taking situations as the point of entry does not require that programs be associated with a single discipline. To this day, the only programs that have been designed according to a situated perspective are those in adult general basic education in Quebec; they are presently in their trial phase. In Niger, the writers are still developing their matrices of competent action with a view to identifying the content of their programs.

This approach is considerably more productive than the typical methodology of program design. Researchers at ORÉ have noticed how much writers’ conception of learning and the
value they assign to it progressively evolves simply as a result of engaging in the process outlined above. They progress from an approach focused on teaching and disciplinary content to an approach focused on the activities of the learners in situation: their *competent action*. 
8 Conclusion

At the beginning of this article, the authors highlighted the theoretical inadequacy of the concept of competence as an organizing principle for programs of study. The rest of the article describes how the researchers at ORÉ gradually developed what we have referred to as a situated approach to the concept of competence. The text then indicates how, through the notion of competent action, this approach was coherently applied to identify the content of programs of study.

Concerned by the gap that exists between what is typically prescribed in programs and what really happens in the classroom, a number of researchers (Keeves, 1992; Crahay, 1996; Crahay, 2000) describe in one way or another the incongruous position in which teachers are regularly placed: “the content of programs does not represent what students actually learn.” The results of most of the large international surveys confirm this gap between what is prescribed in a program and what is really learned in the classroom: “(...) it is important to bear in mind that the official recommendations pertaining to programs are implemented in different ways by teachers operating in different educational systems. This observation highlights the distinction between the official curriculum (...) and the curriculum actually implemented in the classroom (...). It is also traditionally accepted that the results on final tests reflect the attained curriculum.” (Crahay and Delhaxhe, 2004: p. 39) The current fad for competency-based approaches to program design only reinforces such disparities. This is due, for one thing, to the fact that the content of many of the new programs of study, with competencies described in the form of objectives, does not correspond to the definition of competence provided in the orientation documents accompanying these very same programs. For another thing, because they are aware of the discrepancy between competence as they define it and the competencies as they prescribe them in the programs, the designers of such programs tend to claim that what is inscribed in programs is virtual while what happens in the classroom is real and never the twain shall meet: “The virtual competence described in the program does not correspond to the competence that is constructed by the learner in the classroom.” The question remains, “Why develop such programs?” By turning the question of program content on its head, a situated approach seeks to uncover what competent action involves with respect to the situations identified for learning purposes. There is no doubt that a situated approach can reduce this hiatus. Moreover, in a situated perspective, the only elements that are prescribed in a program are the classes of situations, those that the learners should be able to handle competently by the end of their education. In addition, a program only provides examples of competent actions with respect to these classes of situation. In this case, programs that have been developed along the lines of a situated perspective only suggest possibilities of actions along with a group of resources that are pertinent to the classes of situations concerned, rather than prescribing items of knowledge to be memorized. It is thus the competent actions in these classes of situations, those that the learners actually
develop in the course of their education, that constitute the aims of education, not items of decontextualized knowledge.

Since the approach adopted is situated, it assigns considerable importance to action. From the description of the work undertaken by the ORÉ researchers with the program writers, the reader comes to realize the potential of this work on action in situation for establishing a dialogue between practice, what a person really does in situation, and the prescribed program content of the curriculum.

The authors offer their reflections on the state of curriculum development as it exists today. They dissociate themselves from the semantic shifts inherent in hybrid approaches that begin as competency-based and end up as objectives-based. In a search for coherence, they turn to approaches that exploit the full potential of the concept of ‘situated competence’ such as that adopted in the didactics of vocational training.

This work is part of an important research program that includes research on the analysis of competent action in situation, research on the endogenous knowledge used by practitioners in their everyday life situations, and research in the area of curriculum development. The present text brings together the results of all this shared research and reflection on the part of the various teams at ORÉ. But in the long run, the purpose of all this work is to contribute, if only in a small way, to improving the quality of education for all people by bringing real-life into the classroom and giving meaning to learning.
## Appendices

### Appendix I

Analytical grid of the conception of competence in different disciplinary fields.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>A. Epistemological Perspective</th>
<th>B. Focus</th>
<th>C. Scope</th>
<th>D. Dynamics</th>
<th>E. Multidimensionality</th>
<th>F. Aim</th>
</tr>
</thead>
<tbody>
<tr>
<td>The definition discloses the rationale underlying the author's approach.</td>
<td>The definition discloses the main object upon which attention is concentrated.</td>
<td>The definition discloses the scope of the field in which the concept of competence is applied.</td>
<td>The definition considers competence from a static perspective or from a developmental perspective. Competence is …</td>
<td>The definition reveals the type of resource to be mobilized.</td>
<td>The definition indicates what competence is useful for.</td>
<td></td>
</tr>
</tbody>
</table>

### Sub-Criteria

<table>
<thead>
<tr>
<th>A.1. Behaviorist rationale</th>
<th>B.1. The person (the epistemic subject)</th>
<th>C.1. Narrow application: to a single situation</th>
<th>D.1. A state</th>
<th>E.1. Limited internal resources (cognitive only)</th>
<th>F.1. To produce an expected result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.2. Cognitivist rational</td>
<td>B.2. Activity</td>
<td>C.2. Limited focus application: to a single situation or class of situations</td>
<td>D.2. A process</td>
<td>E.2. Extended range of internal resources (cognitive, dispositional and corporeal)</td>
<td>F.2. To deal with a situation successfully</td>
</tr>
<tr>
<td>A.3. Constructivist and socioconstructivist rationale</td>
<td>B.3. The situation</td>
<td>C.3. Wide application: to all situations and/or classes of situations</td>
<td></td>
<td>E.3. External resources (social, spatio-temporal, material)</td>
<td>F.3. To accomplish a task</td>
</tr>
<tr>
<td></td>
<td>B.4 Knowledge</td>
<td></td>
<td></td>
<td>E.4. Internal and external resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.5. Capacities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2
Description of the criteria and sub-criteria of the analytical grid

- Criterion A: Epistemological Perspective
  Function: this criterion refers to the extent to which the epistemological rationale underlying the approach to the notion of competence is transparent in the text.
  Question: “Does the definition inherent in the text disclose the epistemological rationale underlying the author’s approach?”
  Sub-criteria: A.1 Behaviorist rationale; A.2 Cognitivist rationale; A.3 Constructivist or socioconstructivist rationale.

- Criterion B: Focus
  Function: this criterion refers to the main object to which competency development is directed: the focus.
  Question: “Does the definition inherent in the text disclose the focus for competency development?”
  Sub-criteria: B1 The person; B2 Activity; B3 The situation; B4 Knowledge; B5 Capacities.

- Criterion C: Scope
  Function: this criterion refers to the scope of the field in which the concept of competence is applied. The range can be relatively narrow or wide, from a single situation to all situations.
  Question: “Does the definition inherent in the text disclose the scope of the field in which the concept of competence is applied?”
  Sub-criteria: C1 Narrow field of application: application restricted to a single situation; C2 Limited focus application: application to a single situation or class of situations; C3 Wide field of application: application to all situations.

- Criterion D: Dynamics
  Function: this criterion refers to the conception of competence as either a dynamic process or a fixed state.
  Question: “Does the definition inherent in the text indicate the dynamics of competence?”
  Sub-criteria: D1 State; D2 Process.

- Criterion E: Multidimensionality
  Function: this criterion refers to the type of resources required for the development of competence.
  Question: “Does the definition inherent in the text indicate the types of resources needed for competence to develop?”
  Sub-criteria: E1 Limited internal resources (cognitive only); E2 Extended range of internal resources (cognitive, dispositional, corporeal); E3 External resources (social, physical, spatio-temporal, material); E4 Internal and external resources.

- Criterion F: Aim
  Function: this criterion refers to the aim of competency development.
  Question: “Does the definition inherent in the text disclose the reason for the development of competence?”
  Sub-criteria: F1 To produce results; F2 To deal with situations successfully; F3 To accomplish tasks.
Appendix 3

List and distribution of texts analyzed: overview by category

<table>
<thead>
<tr>
<th>CATEGORY A: Didactics / Pedagogy / Curriculum Studies - 7 Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. BIE Thesaurus (2004)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CATEGORY B: Workplace Sociology / Workplace Psychology / Cognitive Psychology - 7 Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Canada-Saskatchewan Business Service Centre (CSBSC.) (2000) [adapted from DACUM]</td>
</tr>
<tr>
<td>11. Human Resources Development Canada (HRDC), (2000; 2006); Social Sciences and Humanities Research Council (SSHRC) (2001)</td>
</tr>
<tr>
<td>14. Le Boterf G. (1998, 1999); (and according to Foucher et al., 2003)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CATEGORY C: Ergonomics / Didactics of Vocational Training - 5 Authors</th>
</tr>
</thead>
</table>
Appendix 4
Net results of the analysis by category of authors

Category A: Didactics, pedagogy and curriculum studies
An examination of the epistemological perspectives of these authors show that they adopt varied epistemological positions with respect to the concept of competence. These can be easily classified into positivist (42.9%), cognitivist (71.4%) or constructivist (57.1%) positions. Their discourse often indicates (57.1%) two or even all three positions. With respect to focus, there is a tendency to favour either the person, the situation or knowledge as the principle object of attention. 42.9% of the authors adopt one of these three positions. With respect to scope, the authors are divided equally between two ranges of application: a narrow range restricted to a single situation (42.9%) and a wide range of application to all situations or classes of situations (42.9%). As concerns the dynamics of competence, 71.4% consider competence in developmental terms, as a process rather than as a state. As regards multidimensionality, that is, the type of resources that the development of competence depends on, the position adopted by the authors discloses two tendencies: (1) for 42.9%, competence mobilizes an extended range of internal resources (cognitive, dispositional and corporeal); (2) for another 42.9% competence mobilizes both internal and external resources (cognitive, dispositional and corporeal, and social, spatio-temporal and material). For several authors (28.6%), the only internal resources considered are internal, thereby excluding dispositional and corporeal resources. With respect to the question of what competence is useful for (the aim), the authors are again divided between two tendencies. For those who adopt a positivist or cognitivist stance, the aim of competence is to produce an expected result. For authors with constructivist orientations, the aim of competence is to handle a situation effectively in order to be able to successfully adapt to it.

Category B: Workplace sociology, workplace psychology, cognitive psychology
All the authors in this category adopt either a positivist (71.4%) or a cognitivist (57.1%) position. In 28.6% of these cases, both positions are adopted at once. None of the authors adopt an exclusively constructivist position. The majority conceives the aim of competence as the production of an expected result (57.1%) or the accomplishment of a task (42.9%). With respect to the dynamics of competence, several (42.9%) view competence as a state and 71.4% see it as a process. Regarding the criterion of focus, the authors tended to concentrate their attention on the person (57.1%) or the activity (57.1%). As for the resources to be mobilized, 42.9% identified internal and external resources, and 57.1% identified an extended range of internal resources. A majority of the authors in this category (57.1%) attributed a highly restricted range of application to competence (criterion of scope), namely that of a single situation.

Category C: Ergonomics, didactics of vocational training
The orientations of the authors in this category are almost always polarized into two distinct camps. With respect to epistemological position, 80% adopt a positivist paradigm and 60% a cognitivist paradigm. Only one author diverts from this tendency and adopts a constructivist paradigm. This polarization is also evident with respect to the focus, where 80% favour either the person or the activity. With respect to scope, 60% restrict it to a single situation and 40% to a situation or class of situations. Regarding the dynamics of
competence (Criterion D), a significant majority consider competence in terms of adaptivity, and thus as a process, while the other 40% view it as a state. With respect to the resources mobilized, a full 60% of the authors retain only an extended range of internal resources (cognitive, dispositional and corporeal). Finally, 80% consider that the aim of competence is to accomplish a task.
Appendix 5

General table of data compilation

<table>
<thead>
<tr>
<th>No., author, date</th>
<th>A. Epistemological Perspective</th>
<th>B. Focus</th>
<th>C. Scope</th>
<th>D. Dynamics</th>
<th>E. Multidimensionality</th>
<th>F. Aim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A.1</td>
<td>A.2</td>
<td>A.3</td>
<td>B.1</td>
<td>B.2</td>
<td>B.3</td>
</tr>
<tr>
<td>7 AUTHORS - CATEGORY A: DIDACTICS / PEDAGOGY / CURRICULUM STUDIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. BIE Thésaurus (2004)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Occurrences by sub-criteria, Category A:**
- A.1: 3
- A.2: 5
- A.3: 4
- B.1: 3
- B.2: 2
- B.3: 3
- B.4: 2
- B.5: 3
- C.1: 1
- C.2: 3
- C.3: 2
- D.1: 2
- D.2: 5
- E.1: 2
- E.2: 3
- E.3: 0
- E.4: 3
- F.1: 4
- F.2: 4
- F.3: 1

**% of use of each sub-criteria, Category A (prevalence, vs 7 authors):**
- A.1: 42.9%
- A.2: 71.4%
- A.3: 57.1%
- B.1: 42.9%
- B.2: 28.6%
- B.3: 42.9%
- B.4: 42.9%
- B.5: 28.6%
- C.1: 42.9%
- C.2: 14.3%
- C.3: 42.9%
- D.1: 28.6%
- D.2: 71.4%
- E.1: 28.6%
- E.2: 42.9%
- E.3: 0%
- E.4: 42.9%
- F.1: 57.1%
- F.2: 57.1%
- F.3: 14.3%

**Average for the most frequently used sub-criteria, Category A**
- (B1+B3+B4)/3 = 42.9%
- (C1+C3)/2 = 42.9%
- D2 = 71.4%
- (E1 + E4)/2 + 42.9%
- (F1 + F2)/2 = 57.1%

7 AUTHORS - CATEGORY B: WORKPLACE SOCIOLOGY / WORKPLACE PSYCHOLOGY / COGNITIVE PSYCHOLOGY

<table>
<thead>
<tr>
<th>No., author, date</th>
<th>A. Epistemological Perspective</th>
<th>B. Focus</th>
<th>C. Scope</th>
<th>D. Dynamics</th>
<th>E. Multidimensionality</th>
<th>F. Aim</th>
</tr>
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<td></td>
<td>A.1</td>
<td>A.2</td>
<td>A.3</td>
<td>B.1</td>
<td>B.2</td>
<td>B.3</td>
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<tr>
<td>8. CSBSC. (2000) (adapted from DACUM)</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</table>

©ORÉ/UQÀM/Montréal/IBE/September, 2006.
<table>
<thead>
<tr>
<th>No., author, date</th>
<th>A. <strong>Epistemological Perspective</strong></th>
<th>B. <strong>Focus</strong></th>
<th>C. <strong>Scope</strong></th>
<th>D. <strong>Dynamics</strong></th>
<th>E. <strong>Multidimensionality</strong></th>
<th>F. <strong>Aim</strong></th>
</tr>
</thead>
<tbody>
<tr>
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<td>A.2</td>
<td>A.3</td>
<td>B.1</td>
<td>B.2</td>
<td>B.3</td>
</tr>
<tr>
<td>14. Le Boterf (1998, 1999); (and de Foucher et al., 2003)</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>% of use of each sub-criteria, Category B (prevalence, vs 7 authors):</td>
<td>71,4%</td>
<td>57,1%</td>
<td>14,3%</td>
<td>57,1%</td>
<td>57,1%</td>
<td>0%</td>
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<tr>
<td>Average for the most frequently used sub-criteria, Category B</td>
<td>(A1 + A2)/2 = 64,3%</td>
<td>(B1 + B2 + B5)/3 = 52,4%</td>
<td>C1 = 57,1%</td>
<td>D2 = 71,4%</td>
<td>(E2 + E4)/2 = 50%</td>
<td>(F1 + F3)/2 = 50%</td>
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</tbody>
</table>

**5 AUTHORS - CATEGORY C: ERGONOMICS / DIDACTICS OF VOCATIONAL TRAINING**

<table>
<thead>
<tr>
<th>No., author, date</th>
<th>A. <strong>Epistemological Perspective</strong></th>
<th>B. <strong>Focus</strong></th>
<th>C. <strong>Scope</strong></th>
<th>D. <strong>Dynamics</strong></th>
<th>E. <strong>Multidimensionality</strong></th>
<th>F. <strong>Aim</strong></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A.1</td>
<td>A.2</td>
<td>A.3</td>
<td>B.1</td>
<td>B.2</td>
<td>B.3</td>
</tr>
<tr>
<td>Occurrences by sub-criteria, Category C:</td>
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<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>% of use of each sub-criteria, Category C (prevalence, vs 7 authors):</td>
<td>80%</td>
<td>60%</td>
<td>20%</td>
<td>60%</td>
<td>80%</td>
<td>0%</td>
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<tr>
<td>Average for the most frequently used sub-criteria, Category C</td>
<td>(A1 + A2)/2 = 70%</td>
<td>(B1 + B2)/2 = 70%</td>
<td>C1 = 60%</td>
<td>D2 = 60%</td>
<td>E2 = 60%</td>
<td>F3 = 80%</td>
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<tr>
<td>% of use for all authors by sub-criteria</td>
<td>64,8%</td>
<td>62,8%</td>
<td>30,5%</td>
<td>53,3%</td>
<td>55,2%</td>
<td>14,3%</td>
</tr>
<tr>
<td>No., author, date</td>
<td>A. Epistemological Perspective</td>
<td>B. Focus</td>
<td>C. Scope</td>
<td>D. Dynamics</td>
<td>E. Multidimensionality</td>
<td>F. Aim</td>
</tr>
<tr>
<td>-------------------</td>
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<td>----------</td>
<td>----------</td>
<td>-------------</td>
<td>------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Sub-criteria ➔</td>
<td>A.1 ▶ A.2 ▶ A.3</td>
<td>B.1 ▶ B.2 ▶ B.3 ▶ B.4 ▶ B.5</td>
<td>C.1 ▶ C.2 ▶ C.3</td>
<td>D.1 ▶ D.2</td>
<td>E.1 ▶ E.2 ▶ E.3 ▶ E.4</td>
<td>F.1 ▶ F.2 ▶ F.3</td>
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<tr>
<td>Total occurrences by sub-criteria (all authors = 19):</td>
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<td>12</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Total occurrences by criterion (all authors = x) :</td>
<td>30</td>
<td>33</td>
<td>18</td>
<td>20</td>
<td>20</td>
<td>8</td>
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<tr>
<td>Total standardized occurrences by criterion (no. of occurrences of criterion (x) * 3.33 ave. sub-criteria + (y) no. of actual sub-criteria) = discrimination capacity:</td>
<td>33,3</td>
<td>22</td>
<td>20</td>
<td>33,3</td>
<td>16,7</td>
<td>24,4</td>
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</tbody>
</table>
### Appendix 6

**French-English Lexicon**

<table>
<thead>
<tr>
<th>French original</th>
<th>English equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agir compétent</td>
<td>Competent action</td>
</tr>
<tr>
<td>Agir en situation</td>
<td>Action in situation</td>
</tr>
<tr>
<td>Analyse mathématique</td>
<td>Mathetic analysis</td>
</tr>
<tr>
<td>Apprentissage scolaire</td>
<td>School learning</td>
</tr>
<tr>
<td>Approche techniciste et planificatrice</td>
<td>Rational planning approach</td>
</tr>
<tr>
<td>Artefact cognitif</td>
<td>Cognitive artifact</td>
</tr>
<tr>
<td>Cadre situationnel</td>
<td>Situational parameters</td>
</tr>
<tr>
<td>Champ disciplinaire</td>
<td>Disciplinary field</td>
</tr>
<tr>
<td>Clôture sémantique</td>
<td>Semantic closure</td>
</tr>
<tr>
<td>Compétence, compétences</td>
<td>Competence, competencies</td>
</tr>
<tr>
<td>Compétence située</td>
<td>Situated competence</td>
</tr>
<tr>
<td>Compétences clés</td>
<td>Key competencies</td>
</tr>
<tr>
<td>Concepteurs des programmes d’études</td>
<td>Program designers</td>
</tr>
<tr>
<td>Contenu(s)/savoir(s) disciplinaire(s)</td>
<td>Disciplinary content/knowledge</td>
</tr>
<tr>
<td>Curriculum officiel</td>
<td>Official curriculum</td>
</tr>
<tr>
<td>Curriculum implanté</td>
<td>Implemented curriculum</td>
</tr>
<tr>
<td>Curriculum maîtrisé</td>
<td>Attained curriculum</td>
</tr>
<tr>
<td>‘Déjà-là’</td>
<td>Existing knowledge</td>
</tr>
<tr>
<td>Domaine</td>
<td>Domain/area</td>
</tr>
<tr>
<td>Entrée par les situations</td>
<td>Situations as the point of entry (program development)</td>
</tr>
<tr>
<td></td>
<td>situations as the entranceway to learning (pedagogy)</td>
</tr>
<tr>
<td>Intellligence/cognition distribuée</td>
<td>Distributed intelligence/cognition</td>
</tr>
<tr>
<td>Intelligence des situations</td>
<td>Situational intelligence</td>
</tr>
<tr>
<td>Logique de compétences</td>
<td>Logic of competencies</td>
</tr>
<tr>
<td>Matière (scolaire) / discipline</td>
<td>(School) subject matter / discipline</td>
</tr>
<tr>
<td>Numéracie</td>
<td>Numeracy</td>
</tr>
<tr>
<td>French original</td>
<td>English equivalent</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Perspective/approche située</td>
<td>Situated perspective/approach</td>
</tr>
<tr>
<td>Piliers</td>
<td>Cornerstones</td>
</tr>
<tr>
<td>PPO (programmes/pédagogie par objectifs)</td>
<td>Objectives-based programs/pedagogy</td>
</tr>
<tr>
<td>Principe organisateur</td>
<td>Organizing principle / principle of organization</td>
</tr>
<tr>
<td>Programme d’études</td>
<td>Program (of study)</td>
</tr>
<tr>
<td>Rédacteurs des programmes d’études</td>
<td>Program writers</td>
</tr>
<tr>
<td>Référentiel (de compétences)</td>
<td>Repository (of competencies)</td>
</tr>
<tr>
<td>Refondation des programmes</td>
<td>(Radical) reform of programs</td>
</tr>
<tr>
<td>Révolution numérique</td>
<td>Digital revolution</td>
</tr>
<tr>
<td>Savoirs endogènes</td>
<td>Endogenous knowledge</td>
</tr>
<tr>
<td>Situé</td>
<td>Situated</td>
</tr>
<tr>
<td>Société des savoirs</td>
<td>Knowledge society</td>
</tr>
<tr>
<td>Structure organisatrice de l’activité</td>
<td>Organizing structure of activity</td>
</tr>
<tr>
<td>‘Tout cognitif’</td>
<td>‘Cognitive whole’</td>
</tr>
<tr>
<td>Traitement compétent (d’une situation)</td>
<td>Competent functioning (in a situation) / dealing competently with a situation / handling a situation competently</td>
</tr>
</tbody>
</table>
Bibliography


