

Switching from knowledge - based to competency-based curriculum

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Abstract

This presentation represents the outcomes of our study about the draft curriculum framework (DCF) for pre-university education. Findings from the research, our comments and conclusions are set forth in four sections, interconnected.

The study summarizes the main features of the contemporary epistemological hypotheses. Although the new curriculum is not based on a particular theoretical approach, new ideas need to be drawn from it so far as the central idea of both is that students are architects and key actors in the process of building new knowledge and competencies. The accomplishment of this idea is related to the new meanings of “the curriculum” and “the competency”.

Key terms: Behaviourism; constructivism; curriculum; competency; content-based curriculum; competency-based approach.

The starting point – a conceptual framework

The conception of our curricular reform and the products (the DCF, gymnasium curricular documents, etc.) include new elements (cross-curricular skills, cross-cutting themes, etc.). Under these circumstances we can raise the question: “Does the proposed draft meet the requirements for the formation of the basic features of students? We based our response on the conceptual framework (Table 1). We analyzed the DCF, depending on the characteristics of the two approaches (inspired by distinct philosophical concepts) and conceptual networks of meanings “curriculum” and “competence”.

In this context, this information aims to promote a discussion about moving towards the competency-based curriculum which creates optimal conditions for people who want to know, do what is right and can also provide arguments why they do it. We should bear in mind that some of the features presented in columns of the conceptual framework are not simply alternatives to each other, but shifting poles. In practice, curriculum changes represent combinations of these characteristics or the balance between the poles. Thus, for example, the role of the teacher remains the key one, regardless of the type of approach applied in the educational process.

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Table 1: The conceptual framework of the study

THE LEARNING THEORY	THE BEHAVIORISM	THE CONSTRUCTIVISM
THE CURRICULAR ELEMENTS	<p>The goal</p> <p>“Our education system aims to form the students to be able to live and contribute actively in a democratic society that could afford to fit in a diverse world in constant change in all spheres of life, learning and work.</p> <p>(Institute of Education Development, 2012)</p> <p><u>Curriculum organizer</u></p> <p>The logic of learning objectives (De-contextualised subject matter)</p> <p>Preparation of the Subject Matter Program According to the Pedagogy by Objectives.</p> <ol style="list-style-type: none"> (1) Identify and specify the behaviour (2) Determine the conditions in which the behaviour should occur (3) Determine the performance criteria <p>Learning objective</p> <p>The results from the learning as the student’s specific behaviour</p>	<p>The goal</p> <p>“The purpose of the education system is that all students be formed with confident, cooperative with others active in society and lifelong learners, through the construction of new knowledge and core competencies”.</p> <p>(An illustration)</p> <p><u>Curriculum organizer</u></p> <p>The logic of competency (Authentic situation, action, resources, competency)</p> <p>Preparation of the study program: Interpretations and recommendations of the action’s theory (<i>the competencies build through action on the situations</i>), the curriculum theory (<i>the competency is the result of integrated education and sets programs studies</i>), and the learning theory (<i>learning strategies aim at building competencies by students</i>).</p> <p>Results</p> <p>The new knowledge and the competencies shown through effective actions in situations, based on the integration of knowledge, skills, habits, attitudes and values.</p>
THE LEARNING PROCES	<ul style="list-style-type: none"> - Involves aligning the three major components of instruction: learning objectives, instructional activities and assessments. - Involves articulating explicit expectations regarding learning objectives and policies. - Etc. <p>Teacher: The transmitter of the subject content</p>	<ul style="list-style-type: none"> - Making connections to prior learning and experience - Creating an environment which helps learning - Promoting the reflective thought and the actions - Facilitating learning in a group - Teaching as inquiry - Etc. <p>Learner: The architect & active actor of the learning</p>

The conceptual framework (Tab. 1) was used to study the DCF (Karameta, P. & Guri, M., 2012). Based on our research findings, we conclude that, although the educational law establishes the needs of students in the centre of the process; it helps personal choices; bases the curriculum on the competency; and pays attention to school curriculum, the DCF does not meet the requirements of a policy document that provides improved quality of the education system, in the context of the transition to a competency-based curriculum.

a) Selected curricular model, presents a new conception, unlike the previous one. It provides the cross-cutting themes, and the optional subjects, etc. The inclusion of these elements in the structure of the curriculum strengthens the position of students in the process. Undoubtedly this is a success.

b) Meanwhile, “the content objectives still remain in the first place in the hierarchy of the elements of the curriculum. They serve as a guide to plan the curriculum. The content, the methodology, and the curriculum evaluation based on learning objectives, are always determinative when taking these objectives into account” (IDE, 2011). When the model emphasizes the de-contextualised content of the discipline and the central role of the person, the behaviourism with the constructivism coexist in the curriculum. This weakens the univocity of the curricular orientations.

c) The DCF does not provide the connection of the educational philosophy with programs of study (subject or cross-curricular syllabi) and learning strategies that place the student in the centre, the connection that sees the formation of the basic features of students as the effect of the new knowledge and competences building (full and exact treatment of the situation based on knowledge, skills and habits, values and attitudes, etc.).

d) Although it is a requirement of the law no. 69/2012 (“the curriculum is developed and implemented based on the key competencies of students” - article 4/3), the DCF does not consider the pivotal role of the competence in the curriculum planning. This has created uncertainty about educational vision and the system of values and attitudes, which blurs the focus of the curriculum on the basic features of the formation of the students.

e) The traditional meaning of “curriculum” as a set of documents and learning activities is narrow and does not reflect the relationship between curriculum and programs of study, as the ratio between the whole and the parts. The curriculum includes the programmes, but it also characterizes and guides them. Traditional understanding of the curriculum risks reducing the curriculum reform into a mere rewriting of the curricular documentation.

f) Some of the principles of the curriculum planning are unnecessary or implied. They need to be redesigned to help the designers of the programs of study, and the schools to design, implement and review their curricula.

g) The arguments for the use of the term “key competency” instead of the term “cross-curricular skills” are sufficiently convincing. The emphasis on “skills” is mainly an emphasis on the components of the cognitive sphere of personality. Values and attitudes are constructed by students, integrating components of the cognitive, affective, conative and motor areas.

h) These limitations affect the educational revival attributes that aims the reform of the curriculum. Some guidelines for effective learning, presented in the DCF, are unnecessary, others are already exceeded.

i) The DCF has replaced the general description of the attributes of the evaluation

system, with a set of general considerations that moralize about the process, at a time when the new meanings about curriculum and competency have revolutionized the ingredients of the evaluation process.

j) Despite considering decentralizing trends in the education system and including the principle of decentralization to the principles that guide curriculum decisions, the DCF, does not provide necessary information about the school curriculum.

k) The DCF does not provide the operational guidelines for the implementation of the curriculum in the education system levels.

l) The lack of a unified curriculum theory, at the national level (including professional vocabulary), may be the reason why we encounter statements in the DCF that express unclear or ambiguous messages.

At the same time, these findings suggest that the development of the DCF should better take into account:

- The link between “the new epistemological framework” and “curricular elements”.
- The differences between theories and practices for the design and implementation of competency-based curriculum and the reconstruction of the curricular model, the development of new educational goals, the renovation of the content of learning.
- The contemporary understandings about the role of the students, the learning, the knowledge (subject content), and the learning situations.

Behaviourism vs. Constructivism

1. “For a long time human learning was explored and explained using positivist scientific models, especially experimental behaviourist psychology, as a deterministic and externally observable change” (Pinar et al., 1995). A behaviourist educator believes that there is a true and correct reality that can be known through scientific methods. From the study of the world, we can identify the structure and constituent units, their properties and relationships. These can be presented, then, with the help of theoretical models and abstract symbols inculcated in the minds of people (children, pupils, students) during the lesson. Therefore, learning should be planned, so that objective knowledge can be carried effectively in the minds of people. In the linear technical behaviourist model “learning is the process of acquisition of correct answers while studying is the process of repetition and reinforcement to help people learn and develop”. (Karameta, 2011)

This conception has made it possible that “in learning activities it is the subject that ‘reigns’, while programmes and the learning process illustrate pedagogies’ demands inspired by behaviourism and highlight the hierarchical organization of de-contextualised disciplinary contents (operations with fractions, geometric forms, rules of syntax, etc.), which fragmented, do not allow learners to understand the picture as a whole”. (Karameta, 2011)

For the pedagogies that refer to behaviourism:

- Baseline: There are disciplinary contents, divided into micro-topics and organized sequentially.
- Process: Students stay passive and reproduce the de-contextualised contents of special subjects, generally without any regard to previous experiences,

transmitted by individual teachers.

- Nature of contents: A single, de-contextualised content discipline
- Results: Contents transmitted by teachers and reproduced by students.
- Expected impact: Handling of content (knowledge) codified in programs by students at the end of schooling.
- Epistemological reference: behaviourism.

It is concluded that schools, in an effort to provide quality education for all, can not be separated yet from the “claws” of behaviourism and pedagogical models inspired by it.

2. “The world of education, in this last decade, is adapting the reference to constructivism in its official documents. According to these texts, constructivism should guide teachers’ pedagogical action and programmes of study that are expected to be compiled” (Jonnaert, Ph. (2006). “From the epistemological point of view, constructivism is [...] the filter through which it examines the world and selects the one that it is mostly interested in. Constructivism, more than a pedagogic current, is a general framework of reference. As such, it coordinates the concepts and categories that guide thought and action when the person is interested in issues related to the construction of knowledge”. (Jonnaert, Ph. & Masciotra, D. 2004) In this way, constructivism is interested in how knowledge is built by people. For a constructivist, knowledge can be found neither in the object of knowledge, nor in the person who knows. It is constructed from a person, through actions, experiences and projects undertaken to recognize. Knowledge implies the process of building (knowledge) from the person who acts in a certain situation. Constructivist hypothesis, therefore, distinguishes the codified knowledge in programs of study or textbooks from knowledge.

With “knowledge” we mean proven truths that are included in the programs of study, textbooks, or professional manuals encountered in the oral tradition of a community. Knowledge is the product of the activity of the community of scholars, which means that it is also a social product. Once confirmed - through defined criteria (empirical data, verification repetition, logical proof, etc...), knowledge is codified in texts that interested parties can recognize and share between them. Codification means that knowledge is qualified depending on the attributes of various codes that are used to store or spread it. These attributes, for instance, are the attributes of the syntax and semantic of the article, while the code used is that of writing. Codified knowledge responds to the logic of discipline or social practice (from which it generates) and logic language (syntax and semantics) as well. The programme makers codify disciplinary knowledge in order to help people build the knowledge. In any case, codified knowledge cannot be described with the help of qualitative knowledge.

For instance, it is misleading to speak of “procedural knowledge” in a curriculum text, when the reference is not knowledge, but the text of the programme or another document. The concept of “knowledge” is the syntax and semantics, while the qualitative “procedural” describes an attribute of the process of recognition. A codified knowledge in the text can be legible, clear, well- written, properly selected, easily pronounced, but nothing more than that, and of course, it is not “procedural” at all.

According to Castells (2000), “knowledge is a process, rather than a product; it is something changing, evolving, flowing and always regenerates itself in new forms.” Conceived in this way, knowledge acts as a process that allows the construction of new knowledge. It is determined by the characteristics of the recognition process, which makes it

personal. As people's experiences are different, it is rare that a person's knowledge is identical with that of another person, even when they both share the same experiences. Knowledge (concepts, etc...) do not always have the same meaning for all the people who use them.

Constructivism, as a general framework of reference, gives a vivid colour to all the decisions that a teacher gets during his school activities. But other choices can be made; other paradigms can be used as well. For example, the concept of competence is used in behaviourist-oriented approaches as well as in constructivist-inspired approaches.

For the pedagogies that refer to constructivism:

- Baseline: There are classes with suitable situations for the target formation (knowledge, etc...).
- Process: competent treatment of situations, based on the actions and experiences of students, which build knowledge and form powers.
- Nature of contents: contextualized cross-curricular sources meaningful to students.
- Results: Knowledge and competence, built by the students through experiences and activities in different situations;
- Expected impact: competent treatment of different situations at the end of the schooling process.
- Epistemological reference: constructivism.

In this sense, competency-based curriculum inspired by constructivism, is interdisciplinary and creates optimal conditions to achieve recognition by the action of a person in the situations.

Summary

To notice major differences between pedagogical approaches derived from two contrasting paradigms about recognition, does not mean to fully ignore the pedagogy based on objectives. Instead, it is necessary to exploit the strong points of the second one, but above and most of all, to avoid the absorption of the constructivist-based approaches from the behaviourist-based ones.

Curriculum and competencies - the ever-changing meanings

1. Different currents in the world of education convey different visions of the concept "curriculum" and the notion "competence". It is necessary, therefore, to bring these visions in our round tables of the discussions about the curriculum reform.

Regarding curriculum, the discrepancies are found in determining the essential characteristics that this concept encompasses. This affects the relationships between curriculum and programmes, between goals and means, etc. According to Crisan (2007), "The curriculum is understood as conceptual documents that describe the organization and implementation of activities related to the learning process and the processes through which learning occurs in the classrooms." Even in our Education Law (2012) "the curriculum is defined as a set of documents: curriculum framework, school plan, curricula, text and other materials of a subject or area of learning and as an overall organized activity in the learning environment, which serves to provide a specific training for those who learn".

On the other hand, for Demeuse & Strauven (2006), "The curriculum is the action plan which is inspired by the values that society wishes to promote, values that are expressed in the goals of the educational system. The curriculum provides the vision for

the planned, structured and logically related pedagogical ensemble, according to which the learning process is organized and managed in view of the expected results”. I recall here that, a decade ago, Braslavsky (2001) stated that “an expanded vision of curriculum that distinguishes it from programmes of study is advancing”, which means that “the curriculum includes simultaneously political and technical issues; it is a process and product, which includes a wide range of institutions and actors. The interconnection points are complex, dynamic, contradictory and non-linear in this vision of the curriculum as continuous development of the processes and the outcomes”. IBE / UNNESCO. (2006).

We have adapted the definition of Jonnaert, Ettayebi & Defise (2009), according to which “the curriculum is the set of elements with educational goals, which related between them, allow orientation and functioning of the education system through educational and administrative policies. Curriculum stems from the historical realities, social, linguistic, political, economic, religious, geographic and cultural life of a country, a region or a locality”. Curriculum is so different from the meaning that our law gives it as a set of educational programmes and learning activities, or the meaning that the draft of the DCF has adjusted, under which “curriculum [...] determines what students need to know and what they should be able to make, which values should be cultivated in them, those values that enable them to live in coexistence and tolerance, and teach them to actively contribute to their social and personal welfare” (IDE, 2012). We believe that our definition better expresses the relationship between the curriculum and programmes of study, as the ratio between the whole and the parts.

So, the curriculum appears through educational programmes, provides guide links and coordinates them with other components of the curriculum, for example, types of learning contents: the fields of learning, knowledge, competencies; organization and presentation school learning contents; status of teaching personnel and guidelines for teachers, tools and textbooks, etc. A traditional approach (non-systemic) can cause a reduced curriculum reform, simplified into a mere rewriting of the curriculum documentation.

Systemic conception considers education curriculum constitution and avoids fragmentation of the curriculum in many areas of learning (characteristic of the pedagogy based on objectives) and bases the process of building competencies on integrated resources (Karameta, 2012). Seen from this new point of view, we build the network of the concept of “curriculum” (tab. 2), which can help designers, implementers and evaluators.

2. Numerous definitions of competence, often different between them, indicate that this sense, more than a concept accepted by the community of researchers in the field, is a concept in progress. I think the understanding about competency deepens through recognizing different experiences that come from different countries that have, or are implementing competency-based approaches. Thus, for example, for IEB/UNESCO (2007), “competence is the demonstrated individual capacity to treat, for example, the possession of knowledge, skills and personal characteristics necessary to meet the requirements or special needs in a particular situation. Education Ministers of OECD (2005), from their side, “agreed that the competency covers knowledge, skills, values and attitudes.” Meanwhile, EC (2007), “competencies are defined as a combination of knowledge, skills and attitudes appropriate to the context.” Thus, the “competency” turns out to be the most controversial concept in education in these recent years. The role of the person, the meaning and the role of the situation, the actions in the situation, the nature of

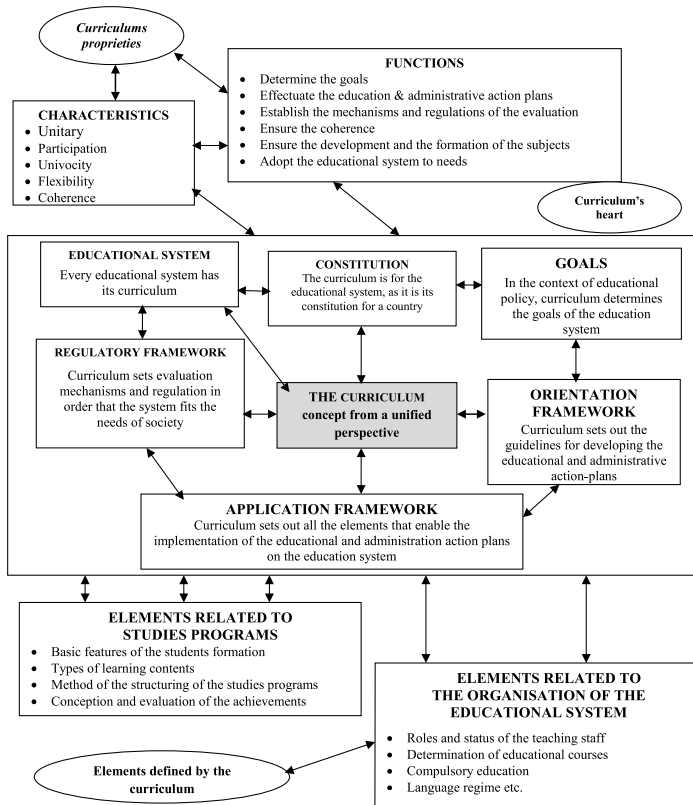
competence and strategies used for its construction are at the heart of the debate.

Such elements - organized in the conceptual framework of the study (Table 1) - allow us to judge on the characteristics of competency-based curriculum.

a) The competence-based curriculum. Models were being implemented at the beginning of the decade. We found the first experiences in the curriculum reform in Romania (Singer, M. 2006) and in the systemic curricular reform that Quebec / Canada realized.

Romanian curriculum defined competencies as “structured sets of knowledge and skills acquired during learning; they allow the identification and resolution, in diverse contexts, of the problems that are peculiar to a particular field of knowledge or a field of activity.” In this context, there were general competencies defined for each subject, which took place during the years of schooling and special powers that took place in certain cases, at shorter intervals. The model was combined with several operational categories (such as perception, initial processing, verbal expression, etc.) based on epistemological and pedagogical requirements. The statements that constitute the competencies for a discipline were derived through interviews with experts for each domain covered by the National Curriculum. Competence groups were organized around some fundamental action verbs. To develop competencies (mainly as cognitive orientation of a person, but without neglecting the values and attitudes) were used de-contextualized disciplinary contents. The demonstration of competence meant mobilizing mental resources (knowledge, skills, etc.) and the action schemes exercised and tested before.

Table 2: Conceptual Network of the Curriculum Concept (Jonnaert & Ettayebi & Defise, 2009)



But, even though the new model included in the curriculum new elements and shifted its focus to competency, it seems that he had as a weak point the virtual nature of competencies. The latter are presented as a list in the curriculum frameworks or programs of study and are associated with situations with de-contextualised content. Faced with such programs, teachers have faced numerous difficulties. They can read the competencies set out in programs, but do not have the necessary instruments to appropriate educational interventions that promote the building of competencies by students. Lack of contextualized situations in educational programs makes them impractical in the context of competency-based curriculum, and therefore necessarily tends toward pedagogy programs by objectives, expressing thus a quite different nature.

This difficulty is perhaps one of the reasons why programs neglect situations and actions of the person in the situation, to notify promptly, generalized competence lists (out of context). This is nonsense, because any competency by nature is a function of the action of a person in the situation. Action and situation are essential to a competency-based approach; however, new programs lack both these elements. This paradox shows how entering a vicious circle programs: they start by defining what is the competency applied to the situation, not argue the competencies described in the program, but return automatically, stating only disciplinary content; but not situations, resources and actions to build knowledge and development of competencies. The circle closes with an absurdity that users of these programs can spend just referring pedagogy objectives. Such quality makes these programs difficult to adapt classroom practices.

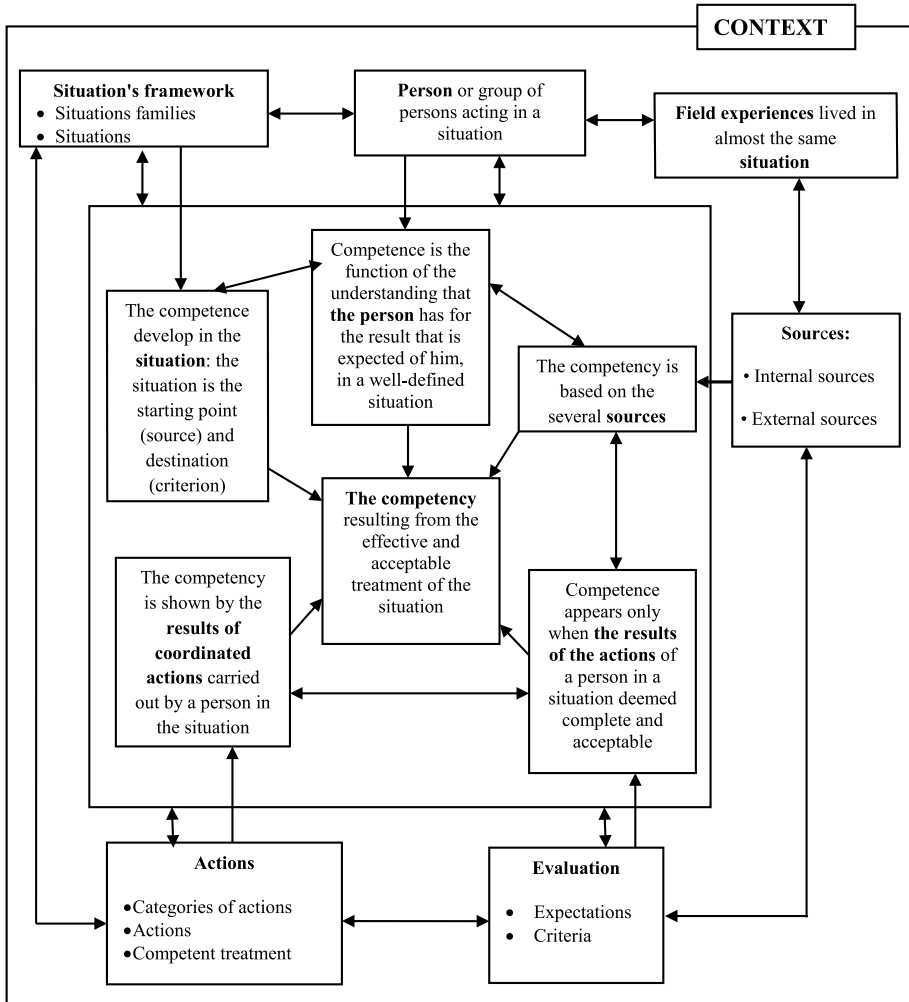
These approaches do not seem to meet the required targets, which explains why are not thrilled with the decision makers and the actors in education

b) Approach by situation. This model is being tested by researchers ORE (Curriculum Reform Observatory – Quebec; today UNESCO Chair in Curriculum Development). Based on the obtained data, researchers have formulated the hypothesis that knowledge constructed in situations that are understood by students, can be adapted and reused in de-contextualized learning activities, unrelated to specific meanings, similar to the requirements of the tests, in the end of primary school (Jonnaert, Ph., 2009). This sample curricular promises to overcome the weaknesses of the above models, harmonizing three vectors, seemingly distinct, but which, in fact, complement and feed each other: a) understand situations where operates; b) the meaning of what a person realizes; c) strategies that support the development of competencies. Harmonization of these vectors bases learning strategies in situations understood by students, unlike the examples and real world problems. Strategies that are based on such situations (Enhanced Context Strategies), compared with other strategies have positive impact on student achievement, which is affirmed by contemporary research in the field (e.g., Meta-analysis of Schroeder & Colleagues, 2007). The above model elaborates on the meaning of competency through which integrated network situations, the person's actions, disciplinary knowledge, personal resources (knowledge, motives, emotions, etc.), outsourcing (which offers the situation) and the efficient handling of the situation by the person. Intelligent integration of these elements allows developing the content of study programs and handling situations competently understood by students (tab. 3).

One such network, which skilfully integrates these elements, presents a curricular logic that orients the programme designers, as well as competent handling of situations in learning. Only by acting in obvious situations, the person develops his competencies,

which makes the situation authentic source and criterion of competence. In a comparative context, the competence is related to the situation, as is the knowledge with the physical and social context. Meanwhile, content subject conceived not as an end in itself, but a tool for shaping situations.

Table 3: Conceptual Network of the Competency Concept (Jonnaert, Ph. 2011)



Several examples demonstrate the advantages of the approach that enables students to build knowledge and develop competencies, using contextualized situations comprehensible to students. The students of Quebec / Canada, who were trained with a curriculum based on the situation with contextualized situations, showed that their achievements are of the highest in the world, in the PISA assessment. On the contrary, Belgian-Francophone students who were trained with programs in line with the approach that considers situations with no contextualized content are among the least efficient in the

world. Consult for this: <www.oecd.org/edu/pisa/2009>

Similarly, since 1960, universities like Harvard (USA), train the students with situation-based approach. For example, at the Faculty of Law at Harvard University, there is a reconstruction of the court and the students simulate trials, with files from real cases. Worldwide, this approach, proposed in the early 30s by John Dewey, gave her evidence. His complete works was published in thirty-seven volumes under the heading ““Collected works of John Dewey” Carbondale, Southern Illinois University Press, 1967-1992.

Summary

- Comprehensive understanding of the curriculum can ensure the implementation of educational policy and actions to be carried out, as well as to adapt the education system to the economic and political project that the society aims to satisfy. The notion of competence, in turn, can find true meaning, if placed in the systemic vision of the curriculum and in conjunction with many other elements.
- Moving from knowledge-based curriculum to competency-based curriculum shows specific features that are affected by the time of implementation and the national contexts.
- Competency-based curriculum, although it includes new elements (competency, cross-cutting themes and optional subjects) and shifts the focus from development of the cognitive components of persons, to the action in the situation, appears has as a weak point the virtual nature of group of the competence, presented as a list in curricular framework.
- Situation-based approach organizes educational programs as an ensemble events in situations where resources are described and integrated (disciplinary knowledge, knowledge, skills, attitudes, etc., etc.), so that students build the desired features; learning process emphasizes building the knowledge and the competencies through actions in situations in meaningful contexts, or nearly so.
- Relocation the focus from non-contextualized content to the action in contextualized situations does not mean the conflict between knowledge and competence, because the latter does not build / exercised in a vacuum; competence “rooted” in diverse situations that provide scientific disciplines (but not only).

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