

Chapter 3 The vision and impact of study programs centered on competencies

In many countries, recent and current educational reforms are centered on the implementation of competency-based programs. This is true for pre-school, primary and secondary levels as well as higher education. These reforms generally result from an educational paradigm that is shifting from systems centered on teaching to systems centered on learning. In turn, these changes impact evaluation practices whether they deal with the evaluation of learning and teaching, or the evaluation of a program and an institution.

In such a context, **the implementation of programs centered on the development of competencies calls for a change in the “evaluation culture”** and confirms the necessity to accord equal importance to the progress of learning and the final validation of the targeted competencies. To monitor the progress of learning we need “authentic” and/or “alternative” evaluation practices that identify and document progress and a demonstration of learning.

According to Philippe Perrenoud, in a context where it is necessary “to act urgently and decide in uncertainty”, it is essential to distinguish between competency-based programs and programs based on pedagogical objectives, then to accurately define the concept of competency and to analyze its impact on teaching activities and the evaluation of learning.

When referring to an evaluation based on competencies, we are talking about the mobilization by the student of integrated knowledge for the purpose of accomplishing a specific action (production or construction of knowledge) where effectiveness will depend on the judgment exercised by the student. A competency is evaluated via *complex and practical tasks* necessary to carry out a role or function. Evaluation of learning in a program centered on competencies focuses on the accomplishment of a variety of tasks to deduce the presence of a competency. The tools required for the competency assessment will relate to tasks that are as close as possible to those the students will encounter both inside their academic environment and outside. This involves the *authentic* evaluation described below. To give you an idea of “The vision behind study programs centered on competencies: their impact on planning and evaluation”, we cover, in this activity, the following aspects:

- The development of study programs:
 - study programs based on pedagogical objectives,
 - study programs centered on competencies;
- The concept of competency;
- The characteristics of competencies and their impact on planning;
- The characteristics of competencies and their impact on evaluation;
- Principles connected to the evaluation of a competency;
- The concept of authentic evaluation.

Chapter Synopsis:

Activity 3:

Characteristics of competencies and their impact on course planning and the evaluation of learning

Activity 3.1:	Study program and the concept of competency
Activity 3.2:	Characteristics of a competency and their impact
Activity 3.3:	Principles connected to the assessment of a competency and the contribution of the authentic assessment

Learning tools:

Learning tool 3.A:	Development of a study program
Learning tool 3.B:	Definition of a competency
Learning tool 3.C:	Characteristics of competencies and their impact on course planning and the evaluation of learning
Learning tool 3.D:	Characteristics of competencies and their impact on course planning
Learning tool 3.E:	Characteristics of competencies and their impact on the evaluation of learning
Learning tool 3.F:	Principles connected to the assessment of a competency
Learning tool 3.G:	The authentic evaluation
Learning tool 3.H:	Tensions between traditional and modern ways of thinking

Documents:

Document 3.A:	Development of a study program
Document 3.B:	Evaluation in authentic situations (the foundations)

Complementary documents:

Complementary document 3:	François LASNIER, Principles of evaluation in competency-based learning (CBL) in relation to principles of competency-based learning (CBL)
---------------------------	--

Activity 3

Characteristics of competencies and their impact on course planning and the evaluation of learning

Heading	Characteristics of competencies and their impact
Objectives	<p>A comparison between a study program based on pedagogical objectives and one centered on competencies.</p> <p>To validate one's concept of competency.</p> <p>To evaluate the impact of the characteristics of a competency on instructional planning and the evaluation of learning.</p>
Description	<p>The vision behind a study program centered on competencies is a replacement solution for programs based on objectives that are connected to a disciplinary content. In a competency-based approach, the focus is not on content that is external to the individual but rather on the integration by the individual of knowledge (theoretical and practical), skills and the attitudes necessary for the accomplishment of complex tasks that are meaningful to the students and necessary for their later adaptation to adult life.</p> <p>Once this vision is understood, the activity focuses on a definition of the concept of competency. Characteristics of the concept are evaluated relative to their impact on instructional planning and particularly on the evaluation of learning. Following this, we can identify principles connected to the evaluation of a competency and justify the use of authentic evaluations.</p>
Unfolding	<p>Activity 3.1: Study programs and the concept of competency</p> <p><i>Study programs</i></p> <p>A. Give each participant the synthesis reference card (Learning tool 3.A) "Development of a study program". After an initial reading, individuals complete the card while jotting down their thoughts on each of the statements.</p> <p>B. Using the synthesis reference card, information is pooled and subsequently discussed in small work groups.</p> <p>C. Recommended preliminary reading of the document: "Development of a study program" (Document 3.A) that introduces the foundations of a competency-based program.</p> <p><i>Concept of competency</i></p> <p>D. Participants take a few moments to write their own definition of competency.</p> <p>E. Pooling of the competency definitions drafted by participants.</p> <p>F. Discussion on the proposed definition of a competency (Learning tool 3.B).</p>

Activity 3.2: Characteristics of a competency and their impact

- G. Presentation, clarification and exchanges on the characteristics of a competency using learning tool 3.C: “Characteristics of competencies and their impact on course planning and the evaluation of learning.”
- H. Individually, each participant completes the second column of learning tool 3.C.
- I. In groups, validate the answers using learning tool 3.D: “Characteristics of a competency and their impact on instructional planning”.
- J. Individually, each participant completes the third column of learning tool 3.C
- K. In groups, validate the answers using learning tool 3.E: “Characteristics of a competency and their impact on the evaluation of learning”.
- L. Reserve some time at the end of the meeting to allow participants to individually assess the consequences of what they have observed as well as their own evaluation practices and to share this with other participants.

Activity 3.3: Principles connected to the assessment of a competency and the contribution of the authentic assessment

Principles connected to an evaluation

- M. Presentation, clarification and group exchanges on the principles connected to the assessment of a competency using learning tool 3.F.
- N. Evaluate the need, relevance and usefulness of the principles connected to the assessment of a competency.
- O. Make a global assessment by analyzing the impact on personal evaluation practices.

Authentic evaluation

- P. Presentation, clarification and group exchanges on the concept of “authentic evaluation” using learning tool 3.G “The authentic evaluation” and Document 3.B “Evaluation in authentic situations (the foundations)”.

We can also refer to learning tool 6.F for a description of an authentic situation.

- Q. Discussion on the contribution of this concept to the development of a competency.
- R. Make a global assessment by analyzing the consequences on personal evaluation practices.

Assessment relative to the changes

- S. Individual reading of learning tool 3.H: “Tensions between traditional and modern ways of thinking”.
- T. Group exchanges on the implications of change.

Moderator's role	<p>To support personal reflection.</p> <p>To reach a consensus.</p> <p>To use strategies that assist in the structuring of knowledge.</p>
Participants' role	<p>To freely express personal concepts.</p> <p>To actively participate in group exchanges to compare and validate personal concepts.</p>
Required material	<p>Learning tools:</p> <ul style="list-style-type: none"> — Learning tool 3.A: Development of a study program — Learning tool 3.B: Definition of a competency — Learning tool 3.C: Characteristics of competencies and their impact on course planning and the evaluation of learning — Learning tool 3.D: Characteristics of competencies and their impact on course planning — Learning tool 3.E: Characteristics of competencies and their impact on the evaluation of learning — Learning tool 3.F: Principles connected to the assessment of a competency — Learning tool 3.G: The authentic evaluation — Learning tool 3.H: Tensions between traditional and modern ways of thinking <p>Documents:</p> <ul style="list-style-type: none"> — Document 3.A: Development of a study program — Document 3.B: Evaluation in authentic situations
Complementary documents	<ul style="list-style-type: none"> — Complementary document 3: François Lasnier, Principles of evaluation in competency-based learning (CBL) in relation to principles of competency-based learning (CBL)
Approximate duration	<p>Activity 3.1: 3 hours</p> <p>Activity 3.2: 4 hours</p> <p>Activity 3.3: 3 hours</p>

Study program based on pedagogical objectives	Study program centered on competency development
Characteristics	
<p>Dependent on an approach where disciplinary contents are <i>external to the individual</i>, objectives are <i>usually specific</i> to subject matter, and the acquisition of knowledge and skills occurs theoretically, in a sequential manner.</p> <p>This approach causes teachers to focus on covering the content of the discipline and to parcel out the learning to students.</p> <p>Moreover, the cognitive aspect (knowledge and skills) tends to become more important than the emotional aspect (personal conduct).</p> <p>Inspired by behaviorist theory, a teaching objective:</p> <ul style="list-style-type: none"> — is external to the learner in training; — is predetermined and fixed; — parcels out the contents of learning and argues that the sum of the parts is equal to the whole; — generally distinguishes learning according to cognitive (cognitive skills), emotional (attitudes) and psychomotor (psychomotor skills) fields; — generally considers that failure to achieve an objective is an indicator of the absence of learning in the individual. 	<p>From this standpoint, a competency displays the following characteristics:</p> <ul style="list-style-type: none"> — it is internal to the person; — it integrates knowledge, skills and attitudes; — it manifests itself in events and in problem situations occurring in a person's life; <p>When a person fails to demonstrate mastery of a competency this does not necessarily mean it is absent. It can mean that for various reasons, the context does not allow the competency to be called into use.</p> <p>The judgment that the student must exercise is based on three types of knowledge required to perform the action and evaluate its effectiveness within a specific context. As the definition of a competency suggests, the teacher does not view knowledge in an isolated way. Rather, it involves:</p> <ul style="list-style-type: none"> — the integration of three types of knowledge that allow the competency to be used; — transversal knowledge relative to various disciplines; — the exercise of student judgment in the effective accomplishment of the action.
<p><i>Personal comments on the subject.....</i></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	

The evaluation in a ...	
Study program based on pedagogical objectives	Study program centered on competency development
<p>When our attention is focused on the content of a discipline, we tend to emphasize what the student must know and do in order to fulfill the requirements for mastery. This is why the definition includes a set objectives referred to as pedagogical because they are centered on expected student learning.</p> <p>From this point of view, knowledge results from the accumulation of specific skills (objectives) prioritized according to the requirements of the discipline. The evaluative approach that results from this paradigm will focus on a quantitative analysis of the knowledge acquired by the person undergoing the training.</p> <p>Consequently, the evaluation will generally pay attention to objectives of a cognitive nature connected to the discipline. This is what we call an evaluation centered on disciplinary content.</p> <p>The evaluation of learning consists in validating the accomplishment of preset objectives that relate only to the content of the discipline that is being studied by the learner.</p>	<p>The logic that guides evaluations centered on preset behavioural objectives seems different from evaluations that take student judgment into account when mobilizing knowledge for the effective accomplishment of an action.</p> <p>Practices originating from the use of preset objectives lead to evaluations that separate declarative knowledge from procedural and conditional knowledge.</p> <p>For example, questions in one exam may measure declarative knowledge, procedural knowledge and sometimes conditional knowledge separately. The totality of correct answers is then considered an indicator of student integration of the three types of knowledge.</p> <p>When an evaluation centered on competencies is used, it is necessary to pay attention to the mobilization by the student of the <i>three types of integrated knowledge</i> used to carry out an action (production or construction of learning) and its effectiveness will depend on this judgment.</p> <p>There is another characteristic that distinguishes an objective from a competency. If the objective normally derives directly from theoretical knowledge and disciplinary content, the competency, on the other hand, is based on <i>complex and practical tasks</i> necessary for the accomplishment of a role or function. Disciplinary content is, of course, always present. However, this is only one category of the resources necessary for completion of the task.</p> <p>In other words, if the accomplishment of a task requires specific disciplinary knowledge, the mastery of this knowledge is not necessarily an indication of the ability to realize the task. The evaluation of learning in a program centered on competencies will focus on the accomplishment of a variety of tasks, which infer the presence of the competency. The tools necessary for an assessment of competency will relate as much as possible to tasks that are close to student's real life, in and away from school.</p>

Learning tool 3.B

The recommended definition of a competency in support of program development is as follows: “A training objective centered on the development of the student’s ability to identify and effectively solve, in an autonomous way, problems specific to a family of situations on the basis of integrated and pertinent resources”. The table below details this definition.

Competency is ...	
— <i>A training objective</i>	In a training context, it is the final referent in training (objective to be reached during the training period), its meaning reflects general training needs, the work function or the capacity for higher education in a given field, thus the entry level for a particular function.
— <i>centered on the development of student ability</i>	A competency is acquired through practice. It requires time and frequent use by the student.
— <i>to be autonomous</i>	<i>To be competent means that a person is able to identify and use necessary resources, in an autonomous manner.</i>
— <i>to identify and to resolve</i>	A competency requires a problem situation where a strategy or procedure must be used to reach a desired goal or outcome.
— <i>effectively</i>	<i>The implementation of a competency by the student must be effective and produce the desired results, in conformity with established standards.</i>
— <i>problems specific to a family of situations</i>	Competency is always contextualized; it is always linked to a given field of activity or knowledge.
— <i>on the basis of integrated and pertinent resources</i>	Competency is a structured unit that integrates diverse resources (knowledge, skills, attitudes and values) that constitute it, with each resource being called upon when required. <i>These resources are pertinent because they were selected on the basis of their usefulness and potential for action in real life or in a specific disciplinary field.</i>

Translated from Pôle de lest, (1996) and D. Raymond, (2001).

The characteristics of competencies

An analysis of the various definitions of “competency” enables us to identify its essential characteristics. The sum of these characteristics helps us understand its overall qualities. Some characteristics complete each other, others define and some are connected by cause and effect. These characteristics have an impact on the pedagogical development of programs, course planning and the evaluation of learning. These characteristics are outlined below.

Identified characteristics
A competency is a second generation objective, A TRAINING TARGET.
A competency is MULTIDIMENSIONAL.
A competency is A POTENTIAL FOR ACTION.
A competency is defined in relation to known benchmarks: STANDARDS.
A competency is AN ABILITY LINKED TO A REAL LIFE ACTIVITY.
A competency is AN INTEGRATED TOTALITY of skills.
A competency is a skill acquired as a result of EXPERIENCE.
A competency relies on PERTINENT knowledge.
A competency is ability TO DEFINE THE SCOPE OF PROBLEMS and RESOLVE THEM.
A competency is related to a SPECIFIC FIELD of action.
A competency is A CAPACITY FOR IMMEDIATE ACTION.
A competency is A CAPACITY FOR EFFECTIVE ACTION.
A competency is A CAPACITY FOR STABILITY OF ACTION.
A competency is A FINAL TRAINING OBJECTIVE.

These characteristics can be grouped in several ways. To group them helps improve retention and integration. Each grouping has a specific meaning. For example, see below:

A competency is a final training target that:

- is centered on the development of a capacity for autonomous action that is immediate, standardized and stable;
- relies on the identification and resolution of problems in a specific field of action;
- mobilizes multidimensional resources that are integrated and pertinent (knowledge, skills, attitudes and values).

Learning tool 3.C

Characteristics of competencies and their impact on course planning and the evaluation of learning²

Characteristics of a competency	Consequently, in my <u>course planning</u> , I ...	Consequently, in my <u>evaluation</u> , I ...
1- A competency is a TRAINING OBJECTIVE. Which means:	List required actions	List required actions
2- A competency is MULTIDIMENSIONAL. Which means:	List required actions	List required actions
3- A competency is a POTENTIAL FOR ACTION. Which means:	List required actions	List required actions

² Translated from the characteristics of a competency by Pierre Deshaies, Hermann Guy and Michel Poirier, “La conception de la compétence”, *Recueil intégrateur, Section I : Une vision intégrée de la formation au collégial*, (soon to be published), Sherbrooke, regroupement des collèges Performa, 2003.

<p>4- A competency is defined in relation to a known threshold: A STANDARD.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>5- A competency is AN ABILITY LINKED TO A REAL LIFE ACTIVITY.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>6- A competency is AN INTEGRATED TOTALITY of skills.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>7- A competency is a skill acquired as a result of EXPERIENCE.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

<p>8- A competency relies on PERTINENT knowledge.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>9- A competency is the ability TO DEFINE THE SCOPE OF PROBLEMS and RESOLVE THEM.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>10- A competency is related to a SPECIFIC FIELD of action.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>11- A competency is a CAPACITY FOR IMMEDIATE ACTION.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

<p>12- A competency is a CAPACITY FOR EFFECTIVE ACTION.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>13- A competency is a CAPACITY FOR STABILITY OF ACTION.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>14- A competency is a <i>FINAL</i> TRAINING OBJECTIVE.</p> <p>Which means:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>List required actions</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Learning tool 3.D

Characteristics of competencies and their impact on course planning³		
Characteristics	Explanation	Impact on planning
1- A competency is a TRAINING OBJECTIVE .	A competency is first and foremost a <i>training objective</i> , i.e. a 2 nd generation objective achieved <i>during</i> the course of studies. It is dependent on a standard that has been adapted to a training level and not the level of competency of an expert in the field. (see characteristic 5)	<ul style="list-style-type: none"> — Make sure that the goal is adapted to the level of training — Ensure the goal is adapted to the role of the course within the program — Make sure that the goal is written in language understood by the students so they may position their learning relative to the targeted competency — Make sure that the summative evaluation deals as much as possible exclusively with the competency and its use by the student
2- A competency is MULTIDIMENSIONAL .	Once acquired, the competency becomes a capacity. This capacity to act relies on resources <i>concurrently</i> connected to cognitive, psychomotor and socioaffective fields. A competency is not one-dimensional. (see characteristic 6)	<ul style="list-style-type: none"> — Highlight essential components connected to each of the three resource fields — Create teaching and learning activities that incorporate each type of resource — Create teaching and learning activities that target the integration of resources connected to each field — Present the student with complete and global tasks connected to each field

³ Translated from Pierre Deshaies, Hermann Guy and Michel Poirier, “La conception de la compétence”, *Recueil intégrateur, Section I: Une vision intégrée de la formation au collégial*, (à paraître), Sherbrooke, regroupement des collèges Performa, 2003.

Characteristics of competencies and their impact on course planning

Characteristics	Explanation	Impact on planning
3- A competency is a POTENTIAL FOR ACTION .	A competency is an internal state, a potential linked to an action and not the action itself, which is its performance (the observable and measurable components of competencies); some authors use the expressions “virtual competency” and “effective competency”. The principal indicator of an <i>effective</i> competency is the successful resolution of the problem; other indicators are the <i>process</i> used, how the students <i>describe</i> their own process and the result <i>of their actions</i> .	<ul style="list-style-type: none"> — Plan teaching, learning and evaluation activities relative to the 3 following indicators: result of actions, the process used, how the students describe their own process and the result of their actions — Evaluate, or have the students self-evaluate frequently the use of a competency in all its complexity — Guide the students to describe and evaluate their own problem solving process
4- A competency is defined in relation to a known threshold, A STANDARD .	A competency is the ability to act effectively with a degree of mastery that varies according to the level of training. A competency thus implies a <i>consensus</i> on conditions of achievement, on criteria and on a minimal threshold of performance <i>adapted to the level of training</i> . Without this consensus, a definition of the targeted competency is not possible nor is a shared judgment validating the existence or non-existence of the competency.	<ul style="list-style-type: none"> — Develop a concerted approach to evaluation among teachers, in each of the program courses (conditions of achievement, criteria and common thresholds) — Provide students with evaluation grids that have precise performance thresholds
5- A competency is an ABILITY LINKED TO A REAL LIFE ACTIVITY .	A competency is a training objective that is pertinent due to its <i>real connection</i> to <i>post-education</i> , i.e. the labour world, university and everyday living. The selection of targeted competencies in a given program is based on an analysis of work-related situations, training-related situations, real life and social situations. (see characteristic 8)	<ul style="list-style-type: none"> — Ensure an understanding of the objective’s relevance — Highlight the objective’s relevance during the course presentation — Respect the objective’s relevance in the planning of learning activities — Present the student with complex tasks that are as real as possible (“authentic” situations)

Characteristics of competencies and their impact on course planning

Characteristics	Explanation	Impact on planning
6- A competency is an INTEGRATED TOTALITY of skills.	A competency is an ability that rests on a <i>structured whole</i> and <i>integrates</i> various types of resources: knowledge, skills, attitudes and values. (see characteristic 2)	<ul style="list-style-type: none"> — Highlight the structure of the resources linked to the competency — Create teaching and learning activities that target the development of this type competency within the student
7- A competency is a skill acquired as a result of EXPERIENCE .	A competency is an ability to resolve problems with adroitness subsequent to repeated use.	<ul style="list-style-type: none"> — Ask the student frequently to use the competency in all its complexity
8- A competency relies on PERTINENT knowledge.	A competency is an ability that rests on an <i>organized network of pertinent</i> resources (knowledge, skills, attitudes, and values), specific to the competency; it is not the discipline that decides the relevance of these resources, but their usefulness and potential ability to act within a given field. (see characteristic 5)	<ul style="list-style-type: none"> — Identify resources that are essential to the development of the competency — Highlight the relevance of these resources within the development of the competency — Create teaching, learning and evaluation activities that focus mainly on these essential resources
9- A competency is the ability TO DEFINE THE SCOPE OF PROBLEMS and RESOLVE THEM .	A competency is an ability to resolve problems: the student must construct a mental model of the problem and identify the process used to reach the goal. <i>Autonomously</i> , the student must know: what to do, how to do it, when and why, and to anticipate the consequences. Finally he must self-evaluate his actions based on specific criteria.	<ul style="list-style-type: none"> — Identify situations where the students must detect the problem, find a model and resolve it by themselves — Schedule frequent problem resolution activities for the students — Explicitly teach procedures required for action — Gradually guide the student to self-evaluate his performance

Characteristics of competencies and their impact on course planning

Characteristics	Explanation	Impact on planning
10- A competency is related to a <i>SPECIFIC FIELD</i> of action.	A competency is an ability linked to a diversity of actions in a family of situations. It is specific to a field of activities yet remains general, i.e., it remains the same for a whole range of actions within the field. The student must surpass the specificity of the action and be able to carry out other actions in similar but different contexts, i.e., to “transfer” the knowledge.	<ul style="list-style-type: none"> — Teach the student to reflect on the structure of resources linked to the competency — Teach the student to surpass the specificity of the problem by identifying the general character of the problem and the process used
11- A competency is a CAPACITY FOR IMMEDIATE ACTION .	A competency is an ability to identify and resolve problems <i>rapidly</i> yet <i>effectively</i> . It is not enough just to do well at the right time; the student must be able to act “immediately”. This means he has integrated the procedures for use and the competency has a certain <i>automatism</i> . This immediacy relies on procedural quality.	<ul style="list-style-type: none"> — Frequently ask the student to use the competency in all its complexity — Frequently evaluate or have the student self-evaluate the use of a competency in all its complexity
12- A competency is a CAPACITY FOR EFFECTIVE ACTION .	Effectiveness is the ability to autonomously and quickly resolve problems based on a set of standards and related to a family of situations. Effectiveness is based on characteristics of a competency such as the ability to define the scope of problems and resolve them, a capacity for immediate and stable action that is linked to preset standards.	<ul style="list-style-type: none"> — Recognize the impact of the following skills: to define the scope of problems and resolve them, a capacity for immediate action, stable and defined in relation to a given standard

Characteristics of competencies and their impact on course planning

Characteristics	Explanation	Impact on planning
13- A competency is a CAPACITY FOR STABILITY OF ACTION .	A competency is a <i>lasting capacity</i> for effective action; this capacity to act is not transitory, i.e. here today and gone tomorrow. All competencies require a stability of performance. Stability is the result of a procedural quality and rests on organized conceptual models.	— Frequently ask the student to use the competency in all its complexity
14- A competency is a FINAL TRAINING OBJECTIVE .	A competency is a training objective that expresses the desired result <i>at the end of</i> a training period; the length of time for training is based on the complexity of the competency, the program format and resulting “learning activities”.	— Evaluate mainly in a formative way during the learning process — Evaluate in a summative way, as much as possible, at the end of the cycle or learning process

Learning tool 3.E

Characteristics of competencies and their impact on the evaluation of learning⁴

Characteristics	Impact on the evaluation of learning
1. A competency is a LEARNING OBJECTIVE	Ensure that the summative evaluation deals mainly with the competency and its use by the student.
2. A competency is MULTIDIMENSIONAL	Present the student with complete and global tasks connected to each field.
3. A competency is a POTENTIAL FOR ACTION	Plan teaching, learning and evaluation activities relative to the three indicators: results of the action, the process used and how the students describe their process and the results of their action. Frequently evaluate, or have the students self-evaluate the use of the competency in all its complexity. Guide the students to describe and evaluate their problem resolution process.
4. A competency is defined in relation to a known threshold, A STANDARD	Provide students with evaluation grids that have precise standards of performance.
5. A competency is an ABILITY LINKED REAL LIFE ACTIVITY .	Present students with complex tasks as close to reality as possible (“authentic” situations).
6. A competency is an INTEGRATED TOTALITY of skills.	Create teaching and learning activities that target the <i>development</i> of such a structure within the student.
7. A competency is a skill acquired as a result of EXPERIENCE .	Frequently ask the student to use the competency in all its complexity.
8. A competency relies on PERTINENT knowledge.	Create teaching, learning and evaluation activities that focus mainly on these essential resources.
9. A competency is the ability TO DEFINE THE SCOPE OF and RESOLVE PROBLEMS	Gradually lead the students to <i>self-evaluate</i> their own performance.
10. A competency is related to a SPECIFIC FIELD of action.	Guide the student to reflect on and describe the structure of the resources that make up the competency.

⁴ Translated from Pierre Deshaies, Hermann Guy and Michel Poirier, “La conception de la compétence” *Recueil intégrateur, Section I: Une vision intégrée de la formation au collégial*, (à paraître), Sherbrooke, regroupement des collèges Performa, 2003.

11. A competency is a CAPACITY FOR IMMEDIATE ACTION.	Frequently evaluate, or have the students self-evaluate the use of a competency in all its complexity.
12. A competency is a CAPACITY FOR EFFECTIVE ACTION.	Recognize the impact of the following skills: to define the scope of problems and resolve them (7), a capacity for immediate (9) and stable (11) action, and a capacity defined according to a standard (12).
13. A competency is a CAPACITY FOR STABILITY OF ACTION.	Frequently ask the student to use the competency in all its complexity.
14. A competency is a FINAL LEARNING OBJECTIVE.	Evaluate mainly in a formative way during the learning process. Evaluate in a summative way, as much as possible, at the end of the cycle or learning process.

Learning tool 3.F

Principles connected to the evaluation of a competency ⁵	
<p>1- Ensure the student has access to formative evaluations.</p> <p>A quality formative evaluation must allow the student to position himself in relation to the targeted objective, to recognize his learning difficulties, to undertake remedial activities adapted to his learning difficulty(ies) and to receive feedback on these activities.</p> <p>The summative evaluation of learning must be preceded by one or more formative evaluations.</p>	<ul style="list-style-type: none"> — Since a competency develops gradually, it is necessary to allow for <i>the right to err</i> during the learning process. — Learning requires supervision and support to be of value. — The summative evaluation should only be used at the end of the learning process or at the latest possible moment.
<p>2- The evaluation of learning is an integral part of the pedagogical planning process for a course.</p> <p>In a coherent process, learning objectives (competencies and objectives) determine learning and teaching strategies; in turn, these elements influence evaluation methods (diagnostic, formative and summative) and the evaluation tools used.</p>	<ul style="list-style-type: none"> — The <i>evaluation process</i> includes three types of evaluations: <i>diagnostic</i>, formative and summative. Each must be used within a coherent whole as each has its own specific function; yet all three are nonetheless complementary and necessary for an evaluation to be complete. These three types of evaluations differ only in their objective, therefore evaluation tools should be of comparable value and evaluation grids should be equivalent or identical.
<p>3- The evaluation of learning must lie within the scope of programs at college level and respect pre-established objectives and <i>standards developed at the ministerial level</i> for each competency.</p> <p>(See principle 5)</p>	<ul style="list-style-type: none"> — The objects of evaluation and the criteria to gauge this evaluation do not depend on teachers' personal choices but rather on <i>ministerial regulations</i>. The objectives and standards are the same across the network and ensure a certain equivalence of training as well as <i>fairness</i> and <i>consistency</i> in evaluations. (See principle 8)

⁵ Translated from a table developed by Pierre Deshaies, educational advisor at Collège de Shawinigan within the framework of PIEA (Politique institutionnelle d'évaluation des apprentissages).

Principles connected to the evaluation of a competency ⁵

<p>4- Considering the <i>integrating, total</i> and <i>final</i> character of a competency as a learning objective, the final evaluation of learning within a course consists in a final examination on the statement of competency for the course (or final integrating objective if the course targets more than one competency, or if a competency is developed in more than one course).</p> <p>The final test must count for a large percentage of the weighting.</p>	<ul style="list-style-type: none"> — The tradition of <i>continuous evaluation</i> can give a student a passing grade in a course without having demonstrated mastery of the competency; the trend toward evaluations that test learning at the <i>end of the course</i> (final) is preferable. — Ideally, the final test should count for 100%. However, it is also necessary to recognize <i>the overall learning</i> within the course (global). To support and evaluate the <i>integration of learning</i> during the course (integration): mastery of a competency is more than the sum of cumulative knowledge. — A grade of 60% or more could be considered sufficient on the final test (requirement) for success in the course. — The minimal threshold must correspond to what is expected for an <i>entry-level</i> technician or student who is <i>entering</i> university. — The final test is an opportunity for learning.
<p>5- The final test relates to the terms of competency stated for the course, evaluated according to all the performance criteria of the ministerial edict (or criteria connected to the final integration goal when a course targets more than one competency or a competency is developed in more than one course).</p> <p>The summative evaluation must rely on exact and criteria-based measurements of learning. It is necessary to communicate these criteria to students before the evaluation, ideally at the start of the learning process.</p> <p>(See principle 3)</p>	<ul style="list-style-type: none"> — The evaluation of learning has evolved from a <i>normative</i> concept to one that is <i>criteria-based</i> in which the student's performance is compared to pre-established criteria rather than peer results. — Criteria should be classified in an evaluation grid and communicated to students in advance to allow them to better grasp what is expected of them during evaluations and <i>during</i> the learning process. Moreover, the use of a precise evaluation grid facilitates teaching, learning and the development of the capacity for self-evaluation.

Principles connected to the evaluation of a competency ⁵

<p>6- The summative evaluation allows for the assigning of grades and/or the certification of learning.</p> <p>The summative evaluation can only refer to the outcome of learning. Therefore, there can be no summative evaluations for participation, involvement and effort. Nor can the teacher include course attendance in a summative evaluation.</p>	<ul style="list-style-type: none"> — <i>The summative evaluation is neither to punish nor to reward.</i> Its purpose is to validate what the student can do effectively and to certify mastery of a competency at the end of the learning cycle. — The summative evaluation exclusively measures the achievement of a targeted competency. Participation, involvement and effort can however be assessed in a formative evaluation. — In rare instances, should the learning context require it, course attendance can be considered a prerequisite for admittance to the exam.
<p>7- Moreover, a summative evaluation must be individual because it measures, <i>for each student</i>, the level of achievement of performance necessary for success in the course. Unless the <i>ability to work in teams</i> is part of the targeted competency(ies) for the course, it cannot be evaluated in a summative manner.</p>	<ul style="list-style-type: none"> — <i>The product of learning is individual.</i> Learning is defined within individuals and based on what they already know and new connections that they have <i>personally</i> constructed. — Teamwork and cooperative learning are excellent learning activities; they must allow for a fair and equitable evaluation of individual performance.
<p>8- In the case where a course is given to more than one group during the same session (or by more than one teacher), the objectives are common and the content conforms to the course framework.</p> <p>In the case of courses given to more than one group during the same session (or by more than one teacher), standards and rules governing evaluations are common and the same marking grid is used.</p>	<p>Conformity with the course framework and with common standards of evaluation ensures <i>equivalence</i> and <i>equity</i> of the training and evaluations for each course. Course framework plan: in conformity with local educational program specifications and the graduate profile, the overall course outline is approved by a team of teachers and used as a framework in course planning. “Unique marking grid”: marking grid prepared by all teachers giving the same course and used to evaluate all students taking this course in the same session (and from one session to another if possible).</p>

Learning tool 3.G

The authentic evaluation⁶

Do multiple-choice tests really evaluate student understanding? Many educators believe that there is a more effective evaluation alternative, with tests that do not focus entirely on memorization.

Instead, they ask students to demonstrate the skills and concepts they have learned. This strategy is called authentic evaluation.

What is authentic evaluation?

Authentic evaluation is designed to assess student abilities in 'real-world' contexts. In other words, students learn how to apply their skills in authentic tasks and projects.

Authentic evaluation focuses on the students':

- analytical skills;
- ability to integrate what they learn;
- ability to work in collaboration;
- written and oral communication skills.

The authentic evaluation places as much value on the learning process as on the finished product. In authentic evaluations, students:

- carry out science experiments;
- conduct research;
- write reports and texts;
- read and interpret literature;
- resolve problems that have applications in the real world.

Why use authentic evaluation methods in the classroom?

Many teachers are dissatisfied with using only traditional testing methods to administer tests and believe students should practice *higher-order thinking skills*. These educators assert that students must be prepared to do more than memorize information and use algorithms to solve simple problems in a mechanical fashion.

How to use authentic evaluation in the classroom

Authentic assessment utilizes performance sampling (learning activities that encourage students to use higher-order thinking skills).

There are five major types of performance sampling:

1- Performance Assessment

Performance assessments test students' ability to use skills in a variety of authentic contexts. They frequently require students to work collaboratively and to apply skills and concepts to solve complex problems.

Short- and long-term tasks include activities such as:

⁶ Translated from *Pearson Education Development Group*. [<http://www.teachervision.fen.com/page/4911.html>]

- writing, revising, and presenting a report to the class;
- conducting a week-long science experiment and analyzing the results;
- working within a team to prepare a classroom debate.

2- Short Investigations

Many teachers use short investigations to assess how well students have mastered basic concepts and skills. Most short investigations begin with a stimulus like a math problem, cartoon, map or a short excerpt from a story or text. The teacher may ask students to interpret, describe, calculate, explain and predict. These investigations may use multiple-choice questions. The goal is to assess how well the student establishes relationships between concepts.

3- Open-Response Questions

Open-response questions require that students answer with:

- a brief written or oral answer;
- a mathematical solution;
- a drawing;
- a diagram, chart or graph.

4- Portfolios

A portfolio documents learning over time. This long-term perspective accounts for student improvement and teaches students the value of self-evaluation, editing, and revision. A student portfolio can include:

- a personal journal;
- peer-evaluations;
- personal artwork, diagrams, charts and graphs;
- individual work or group reports;
- student notes and outlines;
- rough drafts and final copy.

5- Self-Evaluation

Self-evaluation requires that students evaluate their own participation, process and products. Students give written or oral responses to questions such as:

- What was the most difficult part of this project for you?
- What do you think you should do next? If you could do this task again, what would you do differently?
- What did you learn from this project?

Authentic evaluations succeed when students know what teachers expect. For this reason, teachers should always clearly define standards and expectations at the beginning of the project. Students must be given the evaluation grid before the start of the project.

Authentic assessment emphasizes process and performance; it encourages students to develop critical-thinking skills.

Learning tool 3.H

Tensions between traditional and modern ways of thinking

Our concept on the evaluation of learning is undergoing an in-depth renewal at college level, marked by changes to the objectives of learning, i.e. competencies. Various trends and approaches are impacting the Québec college network. Our main concerns include issues pertaining to the relevance and quality of education as well as to academic success: the complete development of the individual, a program perspective, support given to learning and a competency centered approach.

Whether the evaluation of learning is done at the course or program level, the context is always unique, one that is different from all other contexts, despite the fact that there may be many similarities between evaluation situations. Every case is particular to a certain extent.

Depending on the situation, the factors listed below contribute to this singularity (and the list is probably not exhaustive):

- the rules of the game relative to the evaluation of learning used within an institution, a program, a department;
- the nature of the program, course or discipline;
- the concepts, competency and experience of the teacher or the team that designs and carries out the evaluation.

We must not lose sight of this **singularity** when we review evaluation methods. Even though it may be pertinent and useful to have guiding principles and standard tools, it is an illusion to think that the concept of the evaluation of learning can be reduced to a simple application of these tools. We are always dealing with a **problem solving situation** where the best way to proceed does not depend on automatic functioning or algorithms.”⁷

“The adoption of a new perspective creates ambiguity and uncertainty. There are many factors that make bringing changes to evaluation practices a demanding and delicate issue. We can expect various tensions, mentioned by the Commission for UNESCO as being at the heart of 21st century angst (1995, p. 3 and 4), to also impact the world of education: tension between traditional and modern ways of thinking, between short-term and long-term, between the singular and the universal, between local and global, between inevitable competition and the desire for equity.

Each of these tensions impacts the two groups of participants – teachers and students – involved in the dynamics of implemented changes or within the evaluation of the learning process itself.

- *Tensions between traditional and modern ways of thinking*

The tradition of current practices, which teachers and students alike are familiar with, versus modern ways of thinking, is manifested as a paradigm shift in the evaluation of learning, through changes in the rules of the game at college level.

- *Tensions between short-term and long-term*

Short term, which tempts us to respond quickly to new requirements versus long term, which is required for major changes to take root.

⁷ Translated from Cécile D’Amour and Groupe de travail at Performa, *L’évaluation des apprentissages au collégial : des cours au programme, 1996, Fascicule I. La problématique*, p. 59.

Short term, where student motivation is called into play on a daily basis versus *long-term*, over which learning acquires its meaning.

— *Tensions between the singular and the universal*

The *singularity* of each evaluation versus the *universality* of general principles common to all situations.

A certain *singularity* in evaluation conditions and student's work, a singularity which can ensure a more accurate evaluation of competencies, versus *universality*, which ensures greater reliability of the tools used and judgments made.

— *Tensions between local and global*

Local rules of the game for a team of teachers versus the *global* membership in the same establishment, the same college network.

The *local* nature of specific, targeted learning versus the *global* nature of multidimensional and integrated learning.

— *Tensions between inevitable competition and equity*

Differences in teaching establishments — differences used for purposes of distinction and *competition* — and *concern for equity* in the treatment of students within the same program who attend different establishments.

Competition that prevails upon entry into the labour market and during student selection for admission to university programs; and the *concern for equity* that must overshadow the evaluation of learning.

The attitude to adopt vis-à-vis these tensions is one of mediation rather than favouring one side over the other, even though mediation can appear in certain circumstances to be preferential toward one approach over another, while still respecting both”.

Document 3.A

1. Study programs based on pedagogical objectives⁸

1.1 Definition

A study program generally targets a vast amount of knowledge, skills and components of social development that students must acquire to function in life. This goal is generally translated into “piecemeal disciplinary content described as pedagogical objectives i.e., teaching objectives that are statements of intent defining the lasting changes that must take place within the individual in a learning situation or subsequent to it.” (Legendre, 1993). Objectives are defined for the disciplinary content and identify the expected student learning [...]

Programs centered on objectives generally follow the same pattern: general objective — final objectives — intermediate objectives. The characteristics of these programs are provided below.

1.2 Characteristics

When an approach is centered on the contents of a discipline that are *external to the individual*, the objectives *are generally specific* to the subject matter; and, in principle, the acquisition of knowledge and the development of skills is sequential. Some authors such as Newman (1988) stress that this approach causes teachers concern with regard to covering the contents of the discipline and results in the fragmentation of student learning. The cognitive aspect (knowledge and skills) assumes greater importance than the emotional aspect (personal conduct).

A teaching objective inspired by behaviorism:

- is external to the learner;
- is predetermined and fixed;
- fragments the contents of learning and postulates that the sum of the parts is equal to the whole;
- generally distinguishes learning according to cognitive (intellectual skills), affective (attitudes) and psychomotor (psychomotor skills) areas;
- generally views the non-achievement of an objective as an indication of the absence in the student of the targeted learning.

The objective-based approach has had positive effects; it has undoubtedly brought greater coherence to the education system. It should be kept in mind that its implementation was marked by a behaviorist perspective.

1.3 Evaluation in an objective-based program

When we are predominantly focused on the contents of a discipline, we identify what the student must know and be able to do in order to master the contents. Therefore we often resort to the definition of a set of objectives said to be pedagogical because they are focused on the desired student learning to be achieved. From this point of view, knowledge results from an accumulation of specific skills (objectives) in a hierarchy dependent on the requirements of the disciplinary content. The evaluation approach resulting from this paradigm deals with the quantification of acquired knowledge by learners prioritized according to the requirements of the

⁸ Taken from: Roland Louis, *L'évaluation des apprentissages en classe : Théorie et pratique*, Éditions Études Vivantes, Montréal, 1999, p. 19-26.

discipline. Consequently, the evaluation will generally be centered on objectives of a cognitive nature connected to the discipline. It is what we call an evaluation centered on the contents of a discipline. The evaluation of learning consists in validating the achievement of predefined learning objectives that relate exclusively to disciplinary content.

Popham (1974), with his concept of expanded objectives, and Hively (1974), with his concept of measurement dependent on the discipline, recommended these approaches in answer to criticism of study programs based on operational objectives over thirty years ago. In Québec in the 1980's, a new trend emerged with objectives that were more global and therefore circumvented the limitations of operational objectives. Despite these efforts, objectives whether specific or global, remain tied to the content of a discipline. We have also seen pedagogical movements that recommend an integration of subject matter, where the focus is on "transversal" skills such as critical judgment and reasoning in order to break from a model linked exclusively to a teaching discipline.

2. Competency-based programs

2.1 A definition

A study program based on competencies is also a replacement solution for programs based on objectives tied to disciplinary content. In a competency-based approach, the emphasis is not placed on competencies that are external to the individual but rather on the *integration by the individual of knowledge (theoretical and practical), skills and attitudes necessary for the satisfactory accomplishment of complex tasks that are meaningful for the student and needed in his later adaptation to adult life*. Several authors have clearly underlined the need to have these new study programs rest on a cognitivist vision of competencies and have proposed definitions that evoke complex skills (Barbès, 1990; Désilets and Brassard, 1994; Goulet, 1995c; Perrenoud, 1995).

According to the cognitivist perspective, competency is a state, an ability to act and not a particular action. This state is linked to a structure of conceptual and methodological knowledge as well as attitudes and values that allow a person to make assessments and to adapt his actions to complex and varied situations. For Woditsch (1977), a competency is a set of generic skills that recur with frequency as a component in the successful accomplishment of a series of varied tasks involving knowledge, skills and attitudes. Wiggins (1994, p. 219) goes a little further by defining competency as a judgment that allows the student to adapt effectively to specific roles and situations encountered in the adult world.

We define competency as a judgment in the choice and use of knowledge necessary to effectively accomplish an action, by taking into account the given problem and the context in *which the action takes place*. For us, competency is the result of a mobilization of declarative, procedural and conditional knowledge used by students to effectively accomplish an action that impacts their environment and their adaptation to adult life. For example, we can observe the demonstration of a competency in a student who, when faced with a problem in real life (school, family, etc), is able to call upon the necessary knowledge (particular to the discipline, mathematics, French, etc.) to find a solution and communicate it. He can also effectively implement and defend his choice. Of course, competencies differ for students in primary and secondary school and students in training for a profession (teacher, doctor, etc.). In the latter case, we speak of professional competency relative to the reality of professional practices.

We believe that our vision of competency harmonizes with the socioconstructivist movement where knowledge is constructed through interaction by the individual with his environment. Moreover, for certain authors who also share this position:

- learning is an active, constructive and gradual process during which the students integrate material that was not part of their prior knowledge and create new ideas and new representations. (Gerlach, 1994; Smith and McGregor, 1992; Tardif, 1992);
- learning takes place within a social framework (communication and interaction) characterized by the diversity of experience and knowledge of the various participants. (Gerlach, 1994).

2.2 Characteristics

Competency, as we understand it, has the following characteristics:

- comes from within;
- integrates knowledge, skills and attitudes;
- appears in situations or problems originating in real-life situations;
- the non-demonstration of a competency does not necessarily signal its absence, but rather may be a sign that, for whatever reason, the context does not allow its manifestation.

Competency calls upon three types of knowledge. They are:

Declarative knowledge (what?) is theoretical knowledge that refers to facts, principles and laws. For example, knowledge of grammatical rules, chemical laws, mathematical formulas and the physical resources of a region is declarative knowledge.

Procedural knowledge (how to?) is knowledge relating to how to carry out an action, the stages and procedures that allow us to do so. Examples of procedural knowledge are implementing the necessary stages for drafting an opinion paper, conducting a valid laboratory experiment and writing a report using historical context to better understand an event.

Conditional knowledge (what to do? and how to proceed if...?) is knowledge referring to the *when*, *why* and *conditions under which* to carry out an action or implement a strategy. For example, when there is a problem to resolve, the student reads the stated problem then chooses one strategy among several that seems to offer the best solution. Further on, we will see that conditional knowledge is called upon when the evaluation of learning deals with a task in a complex context or situation.

2.3 The integration of the three types of knowledge

Student judgment will therefore rely on the three types of knowledge needed to accomplish the action and do so effectively based on the context of application. As our definition of competency suggests, the teacher will not isolate the different types of knowledge, but will simultaneously pay attention to:

- the integration of the three types of knowledge that allow the demonstration of the competency;
- the transversal quality of this knowledge relative to the teaching disciplines;
- the exercise of student judgment in the effective accomplishment of a task.

Take for example the following competency: the ability to effectively communicate a proposed problem solution to an audience.

This competency includes declarative knowledge (knowledge of the rules / stages of problem resolution and communication, knowledge of audience characteristics, etc.), procedural knowledge (implementation of stages, procedures for problem resolution and communication) and conditional knowledge (selecting the best strategy to resolve a problem based on the available information, the best communication strategy to use for this audience, etc.).

This example enables us to observe the transversal nature of a competency, since it utilizes knowledge and processes that are not specific to a given teaching discipline. Lastly, the students must involve the use of their judgment for the effective accomplishment of the task.

2.4 Evaluation in a competency-based program

Accordingly, the logic that seems to guide an evaluation based on preset behavioural objectives appears to differ from an evaluation that takes into account student judgment in the mobilization of knowledge for the effective accomplishment of a task. Practices resulting from the use of pre-determined objectives have familiarized us with evaluations that separate declarative knowledge from procedural and conditional knowledge. For example, in a single exam we frequently encounter questions that measure declarative knowledge, procedural knowledge and sometimes conditional knowledge in an isolated fashion. The number of correct answers is then seen as an indication of the student's level of integration of the three types of knowledge.

When we consider an evaluation based on competencies, it is necessary to be attentive to the student's mobilization of the *three integrated types of knowledge* in the realization of a task (production or construction of knowledge). The effective accomplishment of the task will also depend on the student's use of judgment.

2.4.1 Complex tasks enabling the resolution of a concrete problem

There is another characteristic that distinguishes objectives from competencies. Although an objective generally arises directly from theoretical knowledge linked to disciplinary content, competency for its part, originates in *complex and practical tasks* necessary for the accomplishment of a role or function. The concepts contained in the discipline are still present; however, they represent only one type of resource among others needed to accomplish the task. In other words, if the accomplishment of a task requires a given disciplinary knowledge, the mastery of the latter is not necessarily indicative of the capacity to accomplish the task. The evaluation of learning in a competency-based program will therefore focus on the accomplishment of a variety of tasks that allow for an assessment of competency. As much as possible, the tools necessary for competency assessment should relate to tasks that mimic real life situations that students are likely to encounter in the school environment and beyond.

Since a competency is complex, evaluation tasks will have to identify the dimensions where this complexity manifests itself, i.e., the multidimensional aspect of the competency. Recognizing this complexity and multidimensionality guides our judgment on the development of competencies in the learner. For example, certain dimensions of a competency may be present in the person being evaluated, whereas other more complex ones may not yet be present.

2.4.2 Definition of the field of performance

Another important area of a competency-based evaluation is the definition of the field of performance required to deduce the targeted competencies. Until now, the field to be measured incorporated disciplinary content as well as components of taxonomy relating to the cognitive field, such as Bloom's taxonomy. Because the interest is now on complex performances that reflect the integration of knowledge and the ability to perform tasks as effectively as possible, such as resolving a meaningful problem, a definition must take all these components into consideration. Schaefer and others (1992) stress that we must be careful in the conceptualization and definition of performance fields to ensure the validity and usefulness of the evaluation. Insofar as we believe that performance is complex to evaluate, that it involves student judgment and that it can vary from one situation to another, responses should also vary from one individual to another. In other words, there can be no predetermined response. The evaluators must use their judgment to analyze and interpret the variety of responses given. At this point, it becomes necessary to define, in the context of the field of performances and in preparation for the

evaluation, the dimensions of the critical attributes relating to the effectiveness of performances to be observed (criteria, performance standards, rating grids, etc.).

One of the challenges in competency assessment is the development of criteria that clearly represent meaningful and useful performance levels; levels that reflect the competency and student development in acquiring that competency. This requires descriptive and precise criteria for all levels of performance. In current practices, criteria are often defined outside the evaluated task and are not shared with students. The criteria are often expressed as a percentage of a grade or rating scale using terminology such as: mastery — masters to some degree — masters with assistance — no mastery. In a competency-based evaluation, criteria must clearly establish performance levels but must also be shared with students so the latter may position themselves with regard to the task to be achieved. If this information is missing, students will probably not be able to exercise the sound judgment required for the effective accomplishment of the task.

A final yet equally important area of concern relates to the energy and resources linked to the development and implementation of a competency-based evaluation. Factors to take into consideration include: the many tools (written tests, observation grids, portfolio, etc.) used to measure the complexity of performance, the variety of support available for these tools (audio-visual equipment, examiners, markers, etc.), and the time needed to collect data and compile it. In the following chapters, we will outline in greater detail, the evaluation model best suited for evaluating competency development.

Document 3.B

The authentic evaluation⁹

1. Basis

- 1.1 Context
- 1.2 Definition and goals of the evaluation in authentic situations
- 1.3 Measurement based on complex performances
 - 1.3.1 Components of an evaluation in an authentic situation

Please note: this excerpt uses the original classification of Chapter 7 by Louis (1999), although only Section 1 is shown here. The remainder of Chapter 7 includes:

2. Tools for authentic evaluations

- 2.1 Measurement based on specific tasks
- 2.2 The portfolio

3. Authentic evaluations: problems and solutions

- 3.1 The problem of reliable decisions
- 3.2 The problem related to extracurricular situations

We categorized evaluation practices according to three approaches: psycho-educative approach, objective-based approach and “ecological” approach. The authentic evaluation can be considered as a means to implement the ecological approach that focuses on developing individual competencies allowing a person to function more adequately in his immediate environment. This chapter outlines in greater detail the basis of authentic evaluations and the tools that accompany this evaluation model.

1. Foundations

1.1 Context

The tests and exams currently in use have been the object of much criticism. On the one hand, they were criticized for putting students in situations that generally demanded a single answer (multiple choice, true or false, sentences to complete) or a known and acceptable answer. According to the teacher or examiner, that does not necessarily reflect the extracurricular reality for which the student is being prepared. On the other hand these tests and exams have serious limitations when it comes to identifying strategies and procedures the student used to arrive at the answer. For example, giving a correct answer does not necessarily mean the student possesses the ability being measured by the question: a correct answer may conceal poor understanding of the subject and an incorrect answer does not provide information on the process used by the students or on their level of learning because it does not explain how they arrived at their answer.

⁹ Translated from Roland Louis, *L'évaluation des apprentissages en classe : Théorie et pratique*, Éditions Études Vivantes, Montréal, 1999, p. 77-82.

In spite of the educational and pedagogical limitations of these tools, teachers seem inclined to teach based on the content of the tests, and students seem inclined to only learn what is evaluated on these tests (Doyle, 1983). In Québec secondary schools, we observe that most of the month of May is devoted to reviewing the MEQ's and/or the school board's previous exams to help prepare students for final exams. This only serves to confirm to students that teaching has one goal: to successfully pass MEQ and/or school board exams.

The concept of authentic evaluation was coined in 1989 by Grant Wiggins (1989), and suggests a new way of evaluating learning.

1.2 Definition and goals of the authentic evaluation

For Wiggins (1993) and Hart (1993), an evaluation is authentic when it provides students with tasks that:

- are taken from real life situations;
- are meaningful and motivating for the student;
- allow for the understanding or resolution of problems frequently encountered in extracurricular life.

This evaluation relies in part on introducing students to tasks that call for the integration of acquired knowledge. These tasks are considered complex. Contrary to the examination model composed of independent questions that are unrelated to each other or questions that measure bits and pieces of knowledge only, the authentic evaluation measures all dimensions, both cognitive and affective, that allow for effective action. Remember that an objective-based evaluation uses measurements linked to criteria, *criterion-referenced-measurement* (the criteria are the targeted objectives) or linked to a domain, *domain-referenced-measurement* (the domain being the various situations that questions measuring a specific objective must refer to). The authentic evaluation uses complex performance measurement tools.

Since both student and teacher recognize the importance of success in exams, one way of modifying the situation is to *use an evaluation that conforms to known principles of learning and teaching*. This is the first goal of an authentic evaluation.

We are aware that the use of tests and formal exams creates an artificial situation in the classroom: the instructional relationship between teacher and student takes on a different dimension the day of the exam. The teacher becomes the judge who sanctions the student success or failure rather than one who helps students with their comprehension. Often, the test or exam deals with factual learning without validating the transfer of this learning to concrete situations. Moreover, answers given by a student to a set of questions like those found in standard tests and exams do not reflect the depth of learning achieved. The *evaluation should take into account actual concerns that make the student active in his own learning process and that focus on the process as well as on the product of learning*. The evaluation should not impede the instructional relationship between teacher and student. This is the second goal of an authentic evaluation.

Today, thanks to the influence of cognitive psychology, evaluations seem to focus on the way in which the learner processes information received from a complex environment that is varied and changeable, in order to improve his functioning. According to Glaser (1994), the design of evaluation tests and concepts based on the traditional psychometric approach will be replaced by concepts of cognition, learning

and competency linked to cognitive psychology. Authors such as Wiggins (1993) Beck (1991) and Shepard (1989) speak of authentic evaluations, i.e. an evaluation that should take into consideration the context and environment in which the person will use the skills. Moreover, the evaluation of learning does not rely solely on one type of learning tool but rather on a variety of tools to better grasp the multiple facets of learning. We can then speak of *performance-based assessment*, an evaluation that requires students to demonstrate their ability to implement the knowledge, skills and necessary attitudes in a real life context, (Linn, 1994; Millman, 1991; Quellmaz, 1991; Stiggins, 1994). The term *performance* is used here to mean *effective accomplishment of a task or an operation using multidimensional integrated knowledge* (declarative, procedural and conditional).

1.3 Measurement based on complex performances

The authentic evaluation calls for different tools than those currently used for tests and exams. The authentic evaluation relies on the *measurement of complex performances*. It is based on the student's competency in implementing cognitive and metacognitive strategies in varied contexts and situations that are required for the successful accomplishment of a task or a set of tasks.

To the term "performance" we add the qualifier "complex" to indicate that the measurement of the performance should involve declarative, procedural and conditional knowledge *at the same time*. Traditional knowledge introduces the exercise of student *judgment* in relation to the relevance and effectiveness of the action or strategy being considered.

In fact, instead of having a whole set of exam questions relating to piecemeal knowledge, a measurement based on complex performances requires that the student integrate all three types of knowledge to effectively accomplish the task.

The accomplishment of the task can occur during class hours or outside the classroom. When measuring complex performances, the task, requires that the student develop or construct his own response and consequently, there is no single answer expected by the teacher or designer of the task.

In theory, experts are the ones who evaluate the level of accomplishment for a given task. So, there is a need to clearly identify the evaluation criteria for the performances being observed.

Even though an authentic evaluation calls for measurements based on performance, it is important to emphasize that a measurement of a complex performance does not automatically constitute an authentic evaluation.

For example: When the school board or the ministère de l'Éducation du Québec administers a written exam to students, allows two hours for completion, and requires a concrete production on the part of the student (written text) that will be corrected by experts (expert judgment) who rate the work on specific criteria, we can consider this exam to be a measurement of performance. However, it does not necessarily meet the requirements for authenticity: the duration may or may not respect realistic time frames for the drafting of such a text, the students cannot take advantage of advice from their teacher and cannot consult books such as a dictionary; the students may draft the text without having any real recipient in mind; or they may not be aware of the marking criteria used by those grading the exams, etc.

Thus, Wiggins (1993) suggests a set of criteria that would allow us to determine if an evaluation task is truly authentic. Among these criteria are the ones we defined earlier and others we have summarized below:

- The tasks require the student to construct or produce new knowledge and new work.
- The tasks lead to interactions between students and peers (collaboration), between students and examiners. Since the students must justify certain answers and obtain additional information to effectively complete the task, the examiner is a source of information and external feedback allowing the students to adjust the quality of their work.
- The tasks allow the students a certain amount of control over actions leading to their accomplishment. For example, in the case of a written production, the students will be able to choose the subject and the way in which they want to approach it.
- The tasks must contain the components necessary to motivate the student to go beyond the goal of just getting a good grade.

Obviously, an authentic evaluation cannot keep track simultaneously of all the criteria listed here. It is thus essential that the teacher or person evaluating, be specific with regard to authentic criteria that are considered important for the evaluation situation.

1.3.1 Elements of an evaluation task in an authentic situation

Popham (1998) reports that specialists in performance measurement list three components that characterize this measurement: multiplicity of performance dimensions, predefined performance evaluation criteria and the use of expert judgment.

- Multiplicity of performance dimensions

The measurement refers to the multiple dimensions of a given competency.

For example, the *student competency in communicating* can be measured using the following dimensions: clarity of ideas, speech adapted to the audience, the varied use of communication means, etc.

- Predefined performance evaluation criteria

For each dimension, a performance rating scale is produced for the students and shared with them.

For example, for the dimension *clarity of ideas* (see above), the rating scale could be defined as:

The student communicates the key idea of the message clearly and effectively and establishes a link between main and secondary ideas.	4
The student communicates the key idea of the message and some secondary ideas.	3
The student provides important information, but the ideas are not well structured.	2

The student provides some information without emphasizing the key idea.

1

And the secondary concepts of the message.

— The judgment of experts

Unlike situations where a computer can be used to correct student answers or grids that do not require the judgment of experts, a measurement based on complex performances relies on the judgment of experts. The teacher is thus considered as a possible expert. From this perspective, the measurement can be compared to a sporting event where experts in the field judge the performance of an athlete.