Pharmacy Education, 2011; 11 (1): 111 - 115

Case Study of Generic Competencies Assessment

FRANÇOISE CREVIER, MARIE-CLAUDE BINETTE, DAPHNÉ GIRARDOT, CLAUDINE LAURIER, JOHANNE VINET, CLAUDE MAILHOT, CHANTAL PHARAND

Faculty of Pharmacy, Université de Montréal, Montréal, Canada

Abstract

Introduction: In 2007, the Faculty of Pharmacy of Université de Montréal replaced its bachelor's program with an all-new Doctor of Pharmacy Program, which uses a competency-based approach. In that setting, development of tools to monitor students' progress in regards to generic competency was of crucial importance.

Description of assessment method: Generic competencies and competency elements to be assessed were defined and assigned to each program course, and assessment tools were designed to create a generic competency profile for each student.

Evaluation: Results from the first two cohorts of 200 students show that the new process meets the Faculty's objectives. Strong agreement can already be seen on both exceptional and problem students, suggesting that our method is relatively reliable.

Future plans: The information technology platform will be improved to allow students to view their individual file, on demand. We believe that this project will contribute to promoting generic competencies development in our students and help them sincerely commit to this goal.

Keywords: *Generic competencies, monitoring, competency profile, university level, competency development.*

Introduction

In 2002, following a relevance and feasibility study, the Faculty of Pharmacy of the Université de Montréal decided to completely transform its first-degree program into a Doctor of Pharmacy (Pharm.D.) Program. Five guiding principles were then established.

- The new program had to be developed according to a competency-based approach.
- All disciplines had to be integrated in support of competency development.
- The program had to use learner-oriented pedagogical approaches.
- The program had to encourage the use of electronic communication tools, which involves using electronic didactic material. This requires every student to use a laptop computer.
- Focus had to be put on developing professionalism and closely monitoring students' progress in this area.

The choice of a competency-based program involves the formal assessment of competency development as part of the grading process. In addition, both profession-specific and generic competencies had to be looked upon. The following text describes the strategy that was developed to monitor each student's individual progress in generic competency development. The various stages are: defining the concept of competency, developing guiding principles, defining the generic competencies to be assessed, assigning competency elements to each program course, designing assessment tools, creating the competency profile and implementing the project.

Description of assessment method

Defining the Concept of Competency

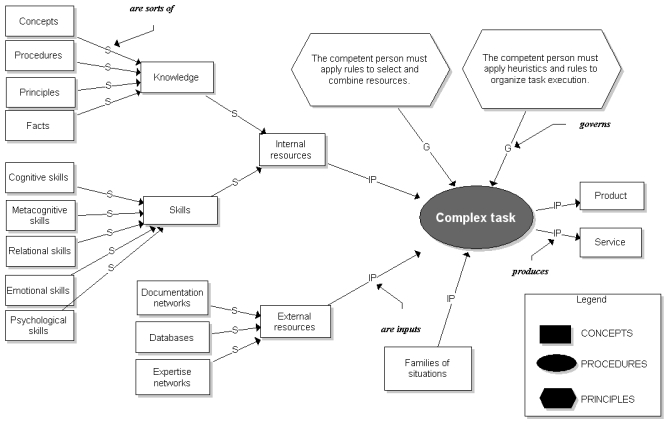
According to Le Boterf (2000), a competent person "*takes relevant action in a specific context by choosing from and leveraging two categories of resources: personal resources (knowledge, skills, qualities, culture, emotional resources) and network resources (databases, documentation networks, expertise networks, etc.).*" In addition, several researchers (Romiszowski 1988, Tardif 1992, Merrill 1994) identified four categories of knowledge: declarative knowledge (*concepts*), conditional (or strategic) knowledge (*principles*), procedural knowledge (*procedures*) and factual knowledge (*facts*).

Figure 1 depicts a mapping of the concept of competency that can serve as a definition. It shows that many inputs are necessary in order to achieve a complex task: internal resources can be knowledge or skills, both of which can be further divided into subcategories. External resources are also essential in carrying out complex tasks in given situations. The task is governed by at least two key strategic knowledge

***Correspondence:** Chantal Pharand, BPharm, PharmD, Vice-Dean Undergraduate Studies, *Faculty of Pharmacy, Université de Montréal, C.P. 6128, Succursale Centre-Ville, Montréal, Québec, Canada H3C 3J7, Phone: +1 514-343-2052; Fax: +1 514-343-5691; E-mail: chantal.pharand@umontreal.ca*

ISSN 1447-2701 online

Figure 1: Mapping of the concept of competency



The notation used here is based on the knowledge modeling approach of the MOTplus software application (Paquette,

elements (hexagons), and all these inputs allow for the delivery of a high-quality product or service.

Hence, the following definition of competency was used: *the ability to select relevant elements from a body of resources (both internal and external) and combine them in order to carry out a complex task that corresponds to a given situation and produce quality deliverables (either products or services)*.

For learners to become competent, they must:

a) build their own internal resources (knowledge and skills);

b) be able to select, use and combine all the necessary resources (both internal and external);

c) carry out complex tasks in various contexts (families of situations) and receive adequate feedback that will help them correct or refine their execution of these tasks (Le Boterf 2000).

Le Boterf (2000) suggests assessing these three components in order to obtain a complete view of the learner's level of competency. However, supporting the task itself can be hard to assess, especially when it comes to abstract tasks (Scallon 2004). Several of the program's generic competencies refer to abstract tasks; therefore, direct observation is not always possible. Since selection of necessary resources can also be problematic, focus is put on the results while paying attention to observable behaviour.

Guiding Principles

In order to ensure that generic competencies would get the attention they deserve considering their importance in a competency-based program, the following guiding principles were established.

A Generic Competency Assessment Committee, composed of professors will be responsible for monitoring each student's progress throughout the program.

Competency elements will be assessed several times, in a variety of situations, of increasing difficulty as students move forward in the program; results will be forwarded to the Committee.

Each competency element will be assessed according to a criterion-based scale and marked as the following: surpasses expectations (SE), meets expectations (ME), does not meet expectations (DME), or reported event (RE).

All assessments make up the student's competency profile, which is developed throughout the first three years of the program.

All students must receive a copy of their competency profile at least once a year.

The Committee must meet with students who experience problems (DME or RE) in order to determine the cause and suggest appropriate remedial steps.

In order to enter the fourth and final year of the program (mostly experiential learning), the students must have developed all generic competencies to the Committee's satisfaction.

At any time, the Committee can recommend that students go through a probation year in order to fulfill the program requirements, if there are gaps to be addressed. The students who still do not meet the Committee's expectations could—as a last resort—be excluded from the program.

There must be a method for officially acknowledging exceptional behaviour and promoting the quest for excellence.

Even though the third year is the pivotal year for completing the competency profile, the profile will also be updated at the end of the fourth year to reflect observations made during experiential learning.

In order to apply these principles, the following actions were taken.

The generic competencies and their related competency elements to be assessed throughout the program were defined.

Competency elements were assigned to each program course according to the course contents, objectives and pedagogical approaches.

Generic competency assessment tools were designed.

A special assessment method was developed to allow professors and members of the Faculty to assess competency elements.

An instrument for recording the competency profile was created.

All members of the Faculty were informed about the new assessment methods.

Defining the Generic Competencies

The first step was to select the relevant themes, convert them into competencies and describe them in concrete terms. Taking into account the nature of the professional work carried out by graduates, six themes were selected: professionalism; communication; interdisciplinarity and teamwork; scientific reasoning and critical thinking; independent learning; and leadership. Each theme was then converted into a specific competency and broken down into competency elements.

For example, the first competency, *professionalism,* was

defined as "Altruism, excellence, honesty and integrity, sense of duty, and respect for others". Its competency elements include:

1.1 Respect for patients, taking into account their expectations and needs, and respect for others in general;

1.2 Sense of belonging, pride, and commitment to the profession;

1.3 Sense of professional responsibility;

1.4 Sense of ethics and integrity in one's work.

Finally, each competency element was broken down into more specific parts in an effort to come closer to observable criteria. Competency element 1.1, for example, was broken down into the following performance criteria

A. Subordination of personal interest to patients' interests;

B. Fairness and avoidance of prejudice and discrimination;

C. Respect for each person's fundamental rights and freedom;

D. Respect for and will to protect each person's right to confidentiality.

For the six generic competencies, we defined a total of twenty competency elements, each with its own performance criteria.

Assigning Competency Elements

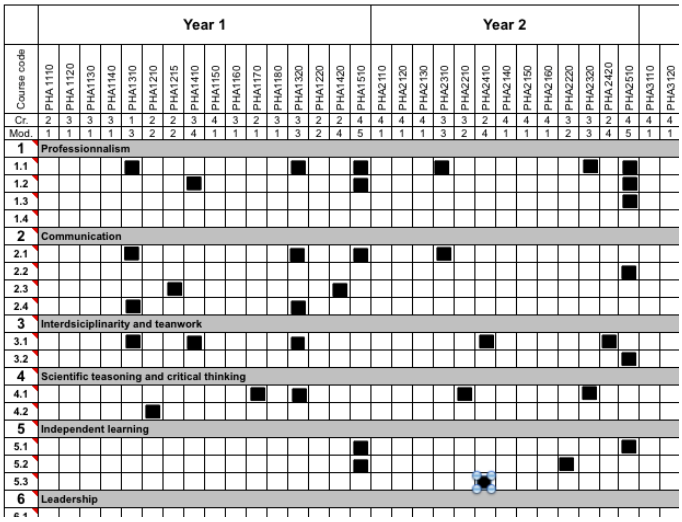
When assigning competency elements to be assessed in the various courses, specific expectations had to be defined for each course. For example, a communication course given to a large class allows students to acquire knowledge that will help them develop the *Communication* competency. The competency itself, however, cannot be applied in the context of the course; it will be developed and assessed during laboratory activities and experiential learning.

Figure 2 presents how the various competency elements are assessed in each course. As can be noticed, some courses are more useful than others for assessing competency elements. This is especially true of practical laboratory courses (PHA x3xx), integration courses (PHA x4xx) and experiential learning (PHA x5xx). By their very nature, these courses provide an ideal context for observing each student individually.

Designing Assessment Tools

Assessment criteria and required material were identified and prepared by professors with the help of an instructional designer according to the assessment context required for each course (types of competency elements to be assessed, pedagogical approach, professor/student ratio). For instance, Communication and Teamwork can be effectively assessed during practical laboratory courses and experiential learning. The professors developed observation checklists that help supervisors and partner clinicians assess these competencies. Some courses also provide an ideal context for assessing scientific reasoning and critical thinking.

Figure 2 *– Distribution of the various competency elements across courses*



Black squares show the targeted courses for the assessment of the different competency elements.

Developing a Specific Assessment Method for Professionalism and Leadership

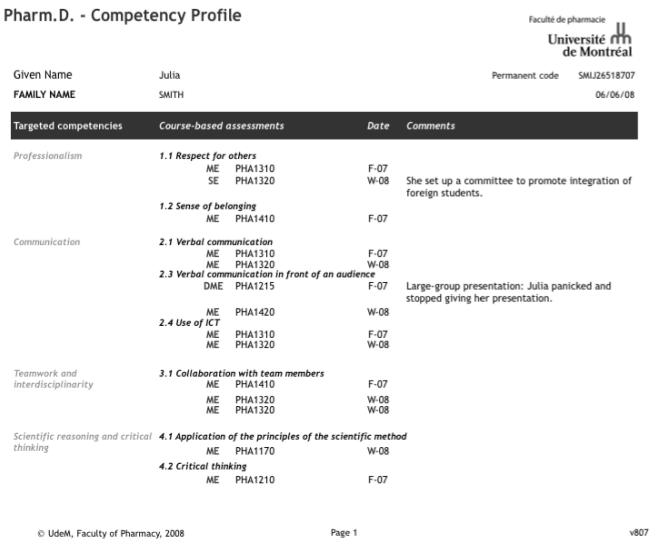
In addition to the assessment tools described above, a special assessment method was developed and implemented for assessment of professionalism and leadership outside the classroom. Any employee of the Faculty may at some point witness exceptional behaviour in regards to professionalism or leadership, or significant gaps to be addressed. When such events occur, the employee can produce an event assessment and forward it to the Committee for future inclusion in the student's competency profile. The Committee then takes the necessary follow-up actions.

Creating an Instrument for Recording the Competency Profile

It was important to develop a tool allowing the monitoring of each student's individual progress on competency development throughout the four-year program. Hence, a competency profile was created, made up of three sections. The first section (Figure 3) provides the assessments reported by the various professors responsible for assessing the development of specific competency elements as presented in Figure 2. In order to help professors assess 200 students individually, we established the following rule: each student is given a "default rating" (ME = meets expectations). The professors' role is to watch for behaviour that significantly differs from the average, either positively or negatively. Professors who change the default rating must write a note justifying their decision. This rule has considerably reduced the workload of professors. An information technology (IT) platform was also designed to greatly ease the process by allowing fast data entry and automated competency profile production.

Section 2 reports event assessments employees of the student's behaviour (Figure 4). In this example, a noteworthy behaviour is reported in relation to competency element 1.4.

Figure 3 *– Example of a Competency profile for a student completing her first year – Section 1*



Pharm.D. - Competency Profile

Faculté de pharmacie
Université de Montréal

Given Name: Julia — Permanent code: SMJ26518707
FAMILY NAME: SMITH — 06/06/08

Targeted competencies	Course-based assessments		Date	Comments
Professionalism	***1.1 Respect for others***			
	ME	PHA1310	F-07	
	SE	PHA1320	W-08	She set up a committee to promote integration of foreign students.
	1.2 Sense of belonging			
	ME	PHA1410	F-07	
Communication	***2.1 Verbal communication***			
	ME	PHA1310	F-07	
	ME	PHA1320	W-08	
	2.3 Verbal communication in front of an audience			
	DME	PHA1215	F-07	Large-group presentation: Julia panicked and stopped giving her presentation.
	ME	PHA1420	W-08	
	2.4 Use of ICT			
	ME	PHA1310	F-07	
	ME	PHA1320	W-08	
Teamwork and interdisciplinarity	***3.1 Collaboration with team members***			
	ME	PHA1410	F-07	
	ME	PHA1320	W-08	
	ME	PHA1320	W-08	
Scientific reasoning and critical thinking	***4.1 Application of the principles of the scientific method***			
	ME	PHA1170	W-08	
	4.2 Critical thinking			
	ME	PHA1210	F-07	

© UdeM, Faculty of Pharmacy, 2008 — Page 1 — v807

ME: meets expectations, SE: surpasses expectations, DME: does not meet expectations

The same method can be used to record unprofessional behaviour, and bring it to the Committee's attention, who suggests remedial steps.

The final section lists the follow-up actions required of the student by the Committee, along with notes to that effect (Figure 4).

All students receive their competency profile at the end of each academic year. However, if there are problems requiring immediate action, the Committee can meet with students anytime during the semester.

Implementing the project

The development and implementation of the assessment method was a multi-step process, and the professors were involved throughout. Their support and contribution have been an essential part of the project's success. Other employees were also informed of the project's objectives and encouraged to participate, especially when it comes to event assessments. The students were informed about the assessment method by means of a formal presentation during their first week into the program.

Evaluation

After three years of implementation, we believe that the process is realistic and relatively easy to implement. By the end of the third year, approximatively 75 out of 600 students had required help and remediation activities, while 11 students needed a more serious follow-up by the Committee. Before initiating the project, one of our concerns had to do with the coherence of the assessment results considering the large number of people involved in the process. At the end of the third year, we can already see strong agreement on both exceptional and problem students. The convergence of the results shows that our method is relatively reliable.

The students appreciate the focus on generic competencies and have already shown, in many instances, their commitment to this important aspect of our project. Once again, we can say that *assessment drives learning*.

Future plans

Next year, new functions will be added to our IT platform that will allow students to view their individual file, on demand.

In order to offer additional positive feedback and increase student motivation, it was also decided to provide formal recognition to students with exceptional competency profiles at the end of their fourth year.

We believe that this project will contribute to promoting generic competencies development in our students and help them sincerely commit to this goal. At the end of the third year, our partner clinicians (experiential learning supervisors) and professors report significant improvements in student behavior.

References

Crevier, F. (2003). Un modèle MOT vaut mille mots… Revue internationale d'ingénierie des systèmes de production mécanique, 7, 19-24.

Le Boterf, G. (2000). L'ingénierie des compétences. 2nd edition. Paris, France: Éditions d'organisation.

Le Boterf, G. (2003). Construire les compétences individuelles et collectives. 2nd edition. Paris, France: Éditions d'organisation.

Figure 4 – Example of a competency profile for a student completing her first year – Sections 2 and 3

Event assessments	Targeted Competencies	Date	Comments
SE	*1.4 Sense of ethics and integrity*	2008-02-03	She launched an awareness campaign on professional integrity.

Recommendations of the Generic Competencies Assessment Committee - GCAC	
2008-04-04	Meeting with Julia about SE 2.3. She wants to take a course in large-group communication. Must report on her experience in December 2008.
2008-12-12	Follow-up required.

SE: surpasses expectations

Harris, K.L., Krause, K., Gleeson, D., Peat, M., Taylor, C. & Garnett, R. (2007). Enhancing Assessment in the Biological Sciences: Ideas and resources for university educators. Retrieved February 16, 2010, from www.bioassess.edu.au

Kift, S. Harnessing Assessment and Feedback to Assure Quality Outcomes for Graduate Capability Development: A Legal Education Case Study. QUT Faculty of Law, Queensland University of Technology, AUSTRALIA. Retrieved February 16, 2010, from http://www.aare.edu.au/02pap/kif02151.htm

Merrill, D.M. (1994). Instructional Design Theory. Englewood Cliffs, New Jersey, Educational Technology Publications.

Paquette, G. (1996). La modélisation par objets typés : une méthode de représentation pour les systèmes d'apprentissage et d'aide à la tâche. Sciences et techniques éducatives, 3, 8-42.

Romiszowski, A.J. (1983). Designing Instructional Systems. New York, NY: Nichols Publishing.

Scallon, G. (2004). L'évaluation des apprentissages dans une approche par compétences. Montréal, Canada: Éditions du renouveau pédagogique.

Tardif, J. (1992). Pour un enseignement stratégique – L'apport de la psychologie cognitive. Montréal, Canada: Éditions logiques.