



# PhDs competencies/skills

*This presentation is based on the results of qualitative studies that make no claim of generalization. Note that there are **important interpersonal and interdisciplinary differences**.*

*Our goal is to raise some awareness and to help doctoral students and PhDs to valorize their skills.*

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Observatoire  
Parcours PhD



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# Sources



Bangali et al. (2017-2019)

***Étude panquébécoise sur les compétences des titulaires d'un doctorat***

- Projet financé par L'Association des Doyens et Doyennes des Études Supérieures au Québec (ADESAQ) et ses partenaires

Bangali, M. (2016-2018)

***Anticipations professionnelles de soi et compétences des titulaires de doctorat à s'orienter hors milieu universitaire : le cas des sciences humaines et sociales.***

- Projet financé par les Fonds de recherche du Québec – Société et culture (FRQSC)

Bangali, M. (2007-2011)

***Pratiques de conseil en orientation professionnelle et transformation des formes d'anticipation de soi face à une situation de transition : le cas des jeunes docteurs en reconversion vers le privé.***

- Thèse de doctorat : recherche-action à l'ABG



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***Thank you for your understanding.***





## Specific skills

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These are skills that could be considered as being specifically related to the core of doctoral training.

## Specific skills



- **Find solutions to complex problems**

Given the complexity of the research conducted, doctoral training would allow the doctoral student to develop a great capacity to deal with complex problems and develop strategies to solve them :

## Specific skills



*To write my thesis, I had to develop the ability to quickly understand what is important on a subject and to bring together the elements that are important to find a solution*

*In general, philosophy leads to the development of a great capacity to solve problems and adapt to different situations*

## Specific skills



- **Great capacity for analysis and understanding**

Very relevant to the needs of some organizations:

*I see the ability to analyze. The ability to read and understand what you read. Because we are often subject to plans, specifications or models. It's a lot of reading for technical men or women. They need to understand exactly what you are committing to. So I think this is a point that could be very good for doctoral students, especially if the practical aspect develops.*

## Specific skills



- **Ability to bring together the elements that are important to find a solution:**

- Such an ability is based on a "**fine understanding of things**";
- which would allow the PhD holder to have a **great capacity to analyze and manage a large amount of information.**
- The **ability to develop strategies for finding information and organizing it intelligently** in order to understand a subject.

## Specific skills



*They are people who have a global vision, too. ... who want to understand the meaning, who have a global vision of the organization. They understand where we're going, what the added value of each of the deliverables is basically.*

*They have a great capacity to understand phenomena in depth.*

## Transferables skills



## Transferables skills



Sometimes presented as *transferable* skills or *transversal* skills or *generic* skills, the idea of the transferability of skills is based on principles of cognitive psychology according to which "the approach that makes it possible to respond to a task or situation, once acquired by the subject, can be applied to all situations of the same structure, even if they differ in many characteristics." (Kahn et Rey, 2016, p. 9)

## Transferables skills



### ▪ Project Management

The implementation of the research project conducted as part of the doctoral program develops skills that are very useful for designing and implementing projects in other contexts with similar structures (Bangali et al., 2019).

For example:

- Thanks to the achievements of his doctoral training, a participant observes in his current work environment that he is able to "to set up a project from A to Z" with a certain insight which distinguishes him from other graduates.
- The experience of the doctoral research project provides a strong ability to "**understand a problem, identify it, and find the tools to solve it.** »



## Transferables skills



- **Autonomy**

According to some participants, this autonomy would come from the fact that in certain disciplines (e.g., humanities), the doctoral student has been used to conducting his or her thesis project alone. He has had the opportunity to design this project and has carried it through all its stages.

- **Thorough (Rigor)**

This refers to the discipline, the fact of carrying out activities in compliance with certain norms or regulations, the concern to do well and the sense of responsibility that is particularly demanding in a doctoral program.

- **Writing skills**

Argumentation of ideas, integration and analysis of written data.

## Transferables skills



*In my work, my doctoral training helps me to think about the current trends and challenges that arise in large numbers in the field. It has given me even more rigor and ability to analyze and synthesize the situations we face as an organization.*



## Points of convergence between the perceptions of PhDs and recruiters

	PhD <i>M</i>	ROPPA <i>M</i>	Effect size <i>d</i>
1. Analyze a complex phenomenon or context from different angles.	4,63	4,72	-0,13
2. Synthesize and organize efficiently a large amount of information.	4,54	4,63	-0,12
3. Take a critical look at the various resources consulted.	4,57	4,65	-0,10
4. Communicate ideas orally in a clear and structured manner.	4,45	4,48	-0,03
5. Communicate ideas in writing in a clear and structured manner.	4,58	4,57	0,01
6. Analyze various situations with a critical mind.	4,52	4,61	-0,12
7. Quickly integrate new knowledge.	4,40	4,45	-0,06
8. Work thoroughly.	4,61	4,66	-0,07
9. Perform complex tasks independently.	4,72	4,63	0,14
10. Demonstrate intellectual curiosity.	4,66	4,59	0,10

## Points of convergence



- **The capacity for analysis and synthesis**
- **Solving complex problems**
- **Written and oral communication**
- **Critical thinking and creativity**

(Bangali et al., 2019)

## Futur skills



- Doctoral training could be an **asset for the development of future skills**, particularly those that are **difficult to automate** "abstract and complex decision-making skills, with a strong emphasis on creativity, critical thinking, and interpersonal and social skills" (Johal and Urban, 2020, p. 14).
- The points of convergence in the perceptions of the competencies of PhD holders are related to some key aspects of these competencies of the future, namely: complexity management, creativity, critical thinking. (Bangali et al., 2019).

## Futur skills



- Analyze a complex phenomenon or context from different angles (d = -0.13).
- Perform complex tasks independently (d = -0.14).
- Quickly integrate new knowledge (d = -0.06).
- Demonstrate intellectual curiosity (d = -0.10).
- Take a critical look at the various resources consulted (d = -0.10).
- Analyze various situations with a critical mind (d = -0.12).

(Bangali et al., 2019)

## Inadequacy or rather intentionality?



### ▪ Competency implies intentionality

Intention which is specific to the person and which leads him to look at things differently than the one expected, a look at the world he has reasons to privilege.

(Bangali, 2021)

## Inadequacy or rather intentionality?



- A more complex problem than the simple transfer of skills:

*It depends on the person's expectations. Yes, she has a PhD. Does he or she expect to use all these skills in a job?*

*I think it's compatible with the industry, but it's a question of managing expectations.*

*PhD holders need to realize and accept that the needs of industry are different from what is experienced in university.*

## Benefits for organizations



## Why hire a PhD?



### To have a competitive advantage

Doctoral graduates may...

- bring **creativity** and **innovation** to all sectors
- helping organizations in **change management**: setting up change management processes in refractory contexts
- help organizations to **implement projects that would be more effective** in their progress

## Why hire a PhD?



### They have the ability to have situational awareness and to rise to the occasion

(Laurence Breton-Kueny, Director of Human Resources, AFNOR Group)

“Make connections, immediately think of something else that’s connected.”

“Intellectual gymnastics that opens up the field.”

### They have the ability of Building teams on new subjects: the basis of innovation

(Jean-François Minster, Scientific Director at Total)

“A PhD is someone who has learned to work in an unknown field. And working in the unknown is absolutely essential to be a manager... the basis of innovation...”

# Why hire a PhD?



## They have the ability to analyze situations from a systemic perspective

(Karine Berthonnet Chief of staff, EDF Research & Development)

“The strength of people with PhD in the Social Sciences is to take a systemic approach. In an R&D project, that means being able to gain perspective and consider all aspects of the problem (market, capacity for user acceptance, etc.)”

## PhD training provides a common base of skills very useful for companies

(Ivan Behaghel, Innovation Consultant, Novalice)

**Ability to understand**

**Enormous adaptability**

“There is no typical doctor’s profile. There is a common set of skills...”