



# Learning the Art of Research

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## Introduction



The Italian Doctoral Program, introduced in 1980, is the third educational level in the Italian university system.

The title "Dottore di Ricerca" (Ph.D.), is the highest degree of the Italian academic education.

Originally, it was designed exclusively for the academic career.

Currently, the doctoral training provides the opportunity to prepare young researchers for careers both in academia and in non-academic environments.

In particular, the Doctoral Program in Health Sciences not only should help the Ph.D. student to achieve the highest level of expertise in a specific field of Medicine, Biology or Psychosocial Sciences, but also requires the student to extend the current knowledge through original research for the preparation of Ph.D. thesis.

In this perspective, the doctoral education and research training should provide enhancement of experience, skills and employment prospect of the student.

In doing so, the Ph.D. should be able to plan basic and applied researches, develop innovative processes and products in the public and private sectors of the Health Sciences, manage human and economic resources.



## The Art of Research

Doing scientific research is an art. The educational process of the art of research is **learning by doing**. Hence, it is crucial:

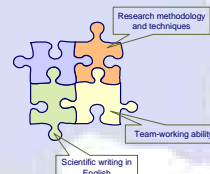
- ✓ to acquire knowledge and a critical thinking to transmit and to advance such knowledge,



(a large amount of information is currently available. It is, therefore, essential to allow training in "know how" for Ph.D. students);

- ✓ to allow the development of academic and cross-cutting skills, i.e.:

- ✓ Independence
- ✓ Flexibility
- ✓ Self-confidence
- ✓ Creativity
- ✓ Problem solving
- ✓ Time management
- ✓ ...



## Setting Standards



The organization and the structure of Ph.D. Programs in Europe show large differences:

- across E.U. member countries;
- across Universities;
- across Faculties.

In my opinion, the heterogeneity and autonomy of Doctoral Schools may result in imbalance and fragmentation between the Ph.D. Courses, and create confusion, tension and discontent among the Ph.D. students.

**For these reasons, I strongly support the notion of stringent requirements for completing Health Science Doctoral Programs throughout Europe.**

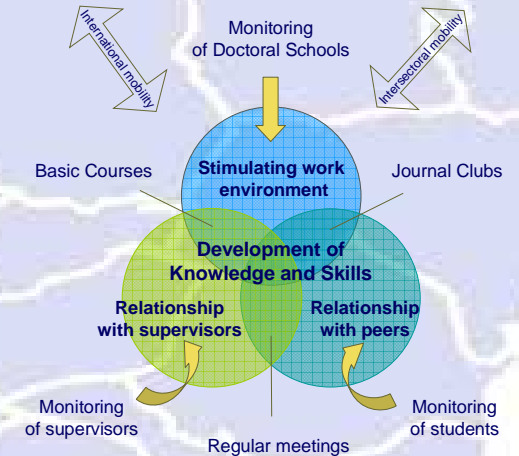
## Tools

**It is necessary to unify the criteria for finishing European Ph.D. Courses in Health Sciences by:**

- obtaining scientific results:**
  - at least two peer-reviewed scientific publications,
  - invited talks,
  - teaching experiences, etc.;
- international and inter-sectoral mobility;**
- developing psychosocial and academic skills.**

In particular I propose:

- basic courses (Statistics, Biology, etc);
- support for students (two or three-member supervisory teams);
- training supervisors in teaching the art of research;
- effective monitoring of the student's progress through regular meetings;
- good work environment: access to computers, library, laboratory equipment, support from staff, fun;
- establishing a climate of debate and discussion among peers (e.g. Journal Clubs);
- transparent criteria for the assessment of the defence of the thesis and *in itinere*;
- ensuring the continuity of work through research grants or contracts.



## Conclusion

Scientific research is an interactive process., thus, the training of young researchers should enable them:

- to receive not only traditional academic knowledge and competences, but also transferable and social skills;
- to face the challenges and changes of competitive labour market and multiethnic fast-changing society;
- to develop appropriate carrier path and opportunity within and outside academia.

**Ph.D. students should be trained in an environment which prepares them for being prepared and competitive for employment challenges in public and private sectors.**