**« How to start a thesis work, build its problematic and write its introduction »**

**What doctoral students say:** *« It is very interesting to question oneself on precise aspects, it allows you to think differently and to see that there is a need to deepen certain points.. » ; « Practical and perhaps easier to present (the progress of one's work) to his or her thesis supervisor for a common working time. » (French translation)*

**When:** This document must accompany you from the beginning to the end of your thesis. At the beginning of your thesis: it allows you to frame the problem and build its problematic. During the work: it allows refine the problematic..

**Why:** It allows you to ask the right questions at the beginning of the thesis and throughout the work. So as not to forget anything during the construction of the problem and to write the thesis introduction. It is a document of framing of your thesis work. It is important to share it with your thesis supervisors to facilitate the understanding of the problem to be treated.

**Input for thesis writing:** It allow you to write the thesis introduction and/or the problematic.

Foreword: At the beginning of your thesis you probably won't be able to answer all these questions. But it is advisable to come back regularly to this document to refine the problem and thus write the introduction of the thesis.

**Problematic**

* What questions or problems would you like to answer with your research?
* Could you describe this problem in a few words to a non-specialist?
* Can you describe in which contexts and situations this problem arises?
* Why is it important to solve this problem?
* Can you illustrate this problem or these questions with an example?

**Previous works**

* Which authors or bibliographical references have been provided to you by your thesis supervisors?

* What other authors and bibliographical references should be used? (list the main ones)

* From reading the literature, what has been done in the scientific field to solve the problem?

**Technical work related to the problem**

* Have tools been developed to answer this problem *(robot, numerical platform, method, molecule, etc.)*? If so, which ones?

* What are the advances made by companies in this field?

* To consult what has been done in companies on this problem, have you consulted the INPI's patent database? (https://bases-brevets.inpi.fr/fr/accueil.html)

**Method of construction and evaluation of works**

* What are the methods of design research suggested in the publications? Who are the authors?
* How were the scientific contribution and tools constructed and evaluated?

* What are the methods of data production and analysis suggested in the publications? Who are the authors?

* What are the measurement tools described in the literature that you could use? *(trace capture, questionnaires, measurements, etc.)*

**Your contribution**

* After reviewing the literature provided, what perspectives do the authors indicate?

* From your point of view, what are the perspectives for solving the problem you are working on during your thesis ?
* On which perspectives will you focus your work ?
* What will these results be used for? And for whom?
* What contributions do you plan to make? In other words, what added value will you bring?

**Your indicators of activities and objectives**

**In order to monitor your activity and set objectives, it is advisable to define some activity and objective indicators. Objective indicators are difficult to set but they guide the experimental work to be carried out during the thesis.**

* What indicators will you put in place to report on your work (example: literature reading, number of articles read, number of articles kept for the thesis, writing of an experimental protocol, ...)?
* What indicators can you set to know if you are going to achieve your goals? *(example: number of tests > 1000, usability score > 8, publication of a scientific article, ...)*

**Societal and ethical impacts**

* What is the value of responding to this problem in relation to society's expectations?

* What are the ethical issues that this problem may raise?
* Are there any ministerial, regional guidelines that address the issue? *(e.g., the importance of numeracy in the classroom?)*