

## INTRODUCTION AND BACKGROUND

The early detection of pedagogical difficulties of osteopathic students is wishful. These difficulties can be various, and may lead to serious issues hindering the student's pedagogical progression, especially shortcomings in the clinical reasoning processes. Biases of clinical reasoning processes, which are numerous, has been well studied (1, 2).

### BACKGROUND

- Teaching staff often struggle to conciliate the requirements related to clinical training with the requirements related to the learning processes. Therefore, appreciation of pedagogical difficulties is more arduous and often based on intuition rather than formal knowledge (3).
- To provide suitable tools to adequately achieve this, a formal remediation process of pedagogical difficulties can be created (4, 5, 6, 7).
- The general comprehension of the learning process is supported by the concept of self-regulation learning (SRL) (8), what many consider essential, especially in health sciences.

## OBJECTIVES AND METHODOLOGY

### OBJECTIVE 1

**Describe the development and the implantation of a formal process for the remediation of pedagogical difficulties in an osteopathic teaching facility**

- A remediation process of pedagogical difficulties has been developed at the *Centre ostéopathique du Québec* since 2013. Up to now, 4 providers have received a specific training from the author of this process to support the students in their difficulties.

### OBJECTIVE 2

**Describe the main difficulties met by osteopathic students and the educational interventions needed to overcome them**

- Descriptive study from the student's files of all the remediation processes done since 2013
- Self-administrated questionnaire survey to students (18 questions on a 5 Likert scale and 5 open questions).

### OBJECTIVE 1

- Our remediation process is based on the appreciation of all aspects of the pedagogical path of the students.**
- It is defined according to 4 axis:**
  - Factors related to the student:** Personal factors (cognitives, affectives, relationals, organizationals) and capacities of self-regulation learning that have great influence in the three others axis.
  - Factors related to the development of palpation:** Palpation is of primary importance in osteopathy because it provides the information needed for the osteopathic diagnosis and treatment.
  - Factors related to the formation of the knowledge network:** A knowledge network, built with a sufficient number of knowledge is essential to allow the development of the clinical reasoning processes. It supposes, at first, the acquisition of knowledge, and then, their categorization. Flawed models must also be detected as soon as possible.
  - Factors related to the clinical reasoning processes, including bias:**
    - Difficulties in generating an hypothesis and/or collecting clinical data,
    - Difficulties in the refining and processing of the hypothesis (can lead to premature closing of the diagnosis and/or prioritizing difficulties),
    - Difficulties in establishing a final diagnosis and elaborating a relevant treatment plan (can be linked to the difficulty of getting a good representation of the case).

- A remediation process requires very precise information (based on the Bloom taxonomy, fig.1) of the pedagogical path, witch must be provided by results from:**
  - Theoretical exams
  - Practical exams
  - Clinical problem solving exams
  - Supervised clinical performances
  - Formative assessments throughout the year
  - Repeated observations by teaching staff

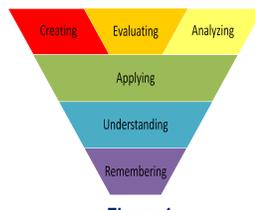


Figure 1

### OBJECTIVE 2

- 61 files, for 47 students, were analysed (some students have benefited from more than one intervention)**
- 21 out of 47 students (45%) responded to the questionnaire**

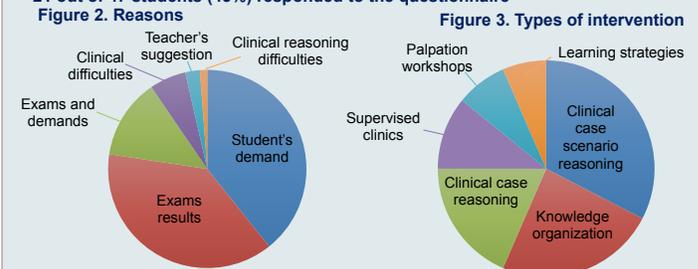


Table 1. Conclusive and non-conclusive outcomes (n=60)

Conclusive outcomes	Total: 42
Succeed at the terminal exam	18
Succeed at the clinical reasoning exam	10
Continued the program (adjustment of expectations)	10
Increased confidence	4
Non-conclusive outcomes	Total: 18
Ongoing process	5
Very little student investment	5
Partial resolution of difficulties	4
Stopped the program	3
Failed the terminal exam	1

**85% of students were completely and 15% were generally satisfied with the supervision availability, the thorough understanding of their difficulties, self-set objectives, the proposed tools, the quality of retroaction, and the global help received during the process.**

**According to the students, the remediation process:**

- Is mainly helpful to understand what is expected, and improve the identified difficulties: "individual follow-ups offer precise advices and clear guidelines", Student 21.
- Is relatively inefficient for managing study time or stimulate motivation.

## DISCUSSION

- In the light of the results obtained, establishing a process of remediation of pedagogical difficulties appears to be an efficient tool to foster the development of the necessary skills for the clinical osteopathic practice and to take account of the specific challenges linked to the clinical reasoning process learning.
- To ensure that such a program is efficient, multiple organizational, human and financial resources must be deployed and the teaching staff must work in close collaboration.
- Optimal ways to intervene with the students, according to the pedagogical difficulties encountered, still need to be studied to define the best pedagogical practices.