University teachers’ *in situ* practices and comparison with students’ experiences: a case study

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Plan

1. Research questions and theoretical framework
2. First results
3. Conclusion
University teachers’ teaching practices (UT).
Research context

- University teachers’ teaching practices (UT).
- A lot of research on this topic (Berthiaume, 2007; Trede, Macklin, & Bridges, 2012) but few of them have taken into account a disciplinary approach.
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In line with research on UT’s professional identity (Bridoux et al., 2019; de Hosson et al., 2015).
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In line with research on UT’s professional identity (Bridoux et al., 2019; de Hosson et al., 2015).

Focus on the consequences of UT’s practices on students’ experiences.
Theoretical framework

Theoretical environment : professional identity (Dubar, 1996; Tickle, 2000).
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The professional identity specified in didactics

- Considering UT’s relationship to the discipline (epistemological relationship).
- Considering how UT relate to the way the discipline has to be taught (pedagogical relationship).
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The study of these two relationships highlights norms, qualities and values that the UT assigns to his profession.

→ Better understanding of UT’s choices when they teach.
Hypothesis

Student’s success depends especially on the match between UT’s intentions and how students perceive them.
Research questions

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Student’s success depends especially on the match between UT’s intentions and how students perceive them.

Research questions
- Which dimensions of UT’s professional identity are reflected in their practices?
- What are the consequences of these dimensions on students’ experiences?
Methodology

- 2 UT from UMONS (Belgium): one in mathematics, one in physics.
- 17 students participating both courses.
- 3 steps:
  1. Interviews (30') with each UT: identify norms, qualities, values assigned to his teaching practices. → characterize the epistemological and pedagogical relationships UT has with his discipline.
  2. In situ observation (lecture): supports, examples, drawings, questions, ... → confront the dimensions identified in the interviews and the effective lecture.
  3. Questionnaires for students. → confront the dimensions identified in the interviews and students' experiences.
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## Sample questions

<table>
<thead>
<tr>
<th>UTs</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Norms</strong></td>
<td>What was easy/difficult?</td>
</tr>
<tr>
<td>What do students have to learn/understand?</td>
<td>What is easy/difficult?</td>
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<tr>
<td><strong>Qualities</strong></td>
<td>Did you enjoy the course?</td>
</tr>
<tr>
<td>What is a good math/physics course?</td>
<td>Why?</td>
</tr>
<tr>
<td><strong>Values</strong></td>
<td>Did the examples help you to understand the course?</td>
</tr>
<tr>
<td>What is your approach?</td>
<td></td>
</tr>
<tr>
<td>Which supports?</td>
<td></td>
</tr>
<tr>
<td>Which examples?</td>
<td></td>
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</tbody>
</table>
Main aspects

- In **Mathematics (epistemological profile)**:
  - UT starts the course with examples of differential equations describing physical movements.
  - **Goals**: UT does all the mathematical details rigorously (value), aims for an in depth understanding (norm).
Interviews of UT before courses

Main aspects

- **In Mathematics (epistemological profile):**
  - UT starts the course with examples of differential equations describing physical movements.
  - **Goals:** UT does all the mathematical details rigorously (value), aims for an in depth understanding (norm).

- **In Physics (methodological profile):**
  - UT starts the course with examples on electric flow and Gauss theorem.
  - **Goals:** UT prepares students for evaluations (quality), introduces different methods that students need to remember for evaluations (value).
In situ observation

- There is consistency between UT’s goals and classroom implementations.
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- In both courses, mathematics and physics are used in the examples.
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  - In Mathematics: UT considers that students have the necessary physics basis to understand it.
    → The examples are too different from what students have learnt in physics.

In Physics: UT structures his course in methods to be remembered.

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  - In Physics: UT structures his course in methods to be remembered.
    → The course is close to what students have learnt and how they work.
### Analysis of the questionnaires

#### Did you enjoy the course? Why?

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Did the examples help you to understand the course? Why?

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<td><strong>87% said no</strong> because the links between math and physics were difficult to identify.</td>
<td><strong>70% said yes</strong> because it was easier to prepare for evaluations.</td>
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Research question 1

Which dimensions of UT’s professional identity are reflected in their practices?

- UTs’ practices are organized according to specific dimensions of professional identity: targeted understanding, selected examples, examples process, ...
- Teaching practices are influenced by the UT’s goals and understanding of the topic.
  ← epistemological profile vs methodological profile
Research question 2

What are the consequences of these dimensions on students’ experiences?

- In **Mathematics**: UT’s epistemological anchoring leads to gaps between his goals and the students’ experiences. It can even make it more difficult for the students.

- In **Physics**: the practices of the UT stems from a methodological profile and is constrained by pedagogical concerns. Students are more likely to embrace these practices.
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Perspective: Focus on the effects of UTs’ practices on students’ intended learning.