

The professional identity of teachers-researchers in mathematics

Stéphanie Bridoux¹, Martine
De Vleeschouwer², Nicolas Grenier-
Boley³, Rita-Khanfour-Armale⁴, Nathalie
Lebrun⁵, Zoé Mesnil⁶, Céline Nihoul¹

INDRUM2020

September 14, 2020

LDAR

LABORATOIRE DE DIDACTIQUE
ANDRÉ REVUZ



RECHERCHE
EN DIDACTIQUE
DES SCIENCES

- 1 - UMONS (LDAR, EA 4434), Belgium
- 2 - UNamur, IRDENa, Belgium
- 3 - Université Rouen Normandie (LDAR, EA 4434)
- 4 - CY Cergy Paris Université (LDAR, EA 4434), Inspé, France
- 5 - Université Lille 1 (LDAR, EA 4434), France
- 6 - Université de Paris (LDAR, EA 4434), France

Research context

- Many international research works on pedagogy of teaching practices of TRs (Annot & Fave-Bonnet, 2004 ; Berthiaume, 2007)

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Research context

- Many international research works on pedagogy of teaching practices of TRs (Annot & Fave-Bonnet, 2004 ; Berthiaume, 2007)
- Need to address this issue through an approach based on their discipline (Becher, 1994 ; Neumann, 2001, Poteaux, 2013)

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Our research. . .

- To study the ideal and declared practices of TRs in mathematics through a disciplinary-based approach

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Our research. . .

- To study the ideal and declared practices of TRs in mathematics through a disciplinary-based approach
- Part of a general research involving 4 disciplines : Chemistry, Geography, Mathematics, Physics

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Theoretical framework and research question

- Theoretical environment related to the profession of TR via the concept of *professional identity* of a teacher (Cattonar, 2001) :
“the characteristics that identify him or her as a teacher and that the teacher shares with other teachers, which he shares in common with other teachers because he belongs to the same professional group”

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- Several dimensions of the profession : *norms, qualities and values* + didactic dimension

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- Several dimensions of the profession : *norms, qualities* and *values* + didactic dimension
- TRs strongly identify with their research discipline (Becher, 1994 ; Henkel, 2004), are researchers before being teachers (Van Lankveld et al. 2017).

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Research question

What is the discipline's imprint on TRs' teaching practices at the beginning of university ?

Methodology

- 12 semi-directive individual interviews, lasting between 30 to 90 minutes, teaching experiences of various length.

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- 12 semi-directive individual interviews, lasting between 30 to 90 minutes, teaching experiences of various length.
- Interview protocol constructed in order to identify norms, qualities and values, and that takes into account the teaching discipline (declared practice and ideal practice), see Bridoux, de Hosson & Nihoul.

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- Empirical categorization via identification of verbatim excerpts that are denote an influence of research on teaching (chosen examples, creativity, adaptability, reflexivity, peer-review...)

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- In this contribution, we report on regularities concerning students' mathematical difficulties, assessment and teacher training.

Mathematical difficulties

- They point to gaps with specific contents : continuity, derivation, tangent to a curve, lack of logical knowledge...

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- They point to gaps with specific contents : continuity, derivation, tangent to a curve, lack of logical knowledge...
- High school practices that are seen as blocking factors at the university level : favoring “recipes” or local understanding, problems with formalization, intuition or production and understanding of a mathematical proof

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- Difficulty to enter into an abstraction process

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- Difficulty to enter into an abstraction process
- In general : difficulties to adapt to university mathematics, students “do not do math” in secondary school, TRs fail to highlight aspects related to research (tension between ideal courses and actual courses)

Assessment and teacher training

- Concerning assessment, our analyses reflect two tensions :

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 - A tension between what they value and what they practice

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- Two striking aspects concerning teacher training of high-education teachers :

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- Our general research : contrasts between disciplines, that might be interpreted as epistemological differences.

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- Study of TRs' teaching practices (Biza et al., 2016)

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- Need to deepen the relationship between teaching and research for TRs from a didactic point of view, in several theoretical frameworks (examples of the nexus, Madsen & Winsløw)
- Study of TRs' teaching practices (Biza et al., 2016)
- A book in progress involving several research disciplines : TRs' teacher training, university teaching and learning, TRs' teaching practices with disciplinary-based approaches.