PRODUCTIVE WAYS OF ORGANISING PRACTICUM – WHAT DO WE KNOW? A SYSTEMATIC REVIEW

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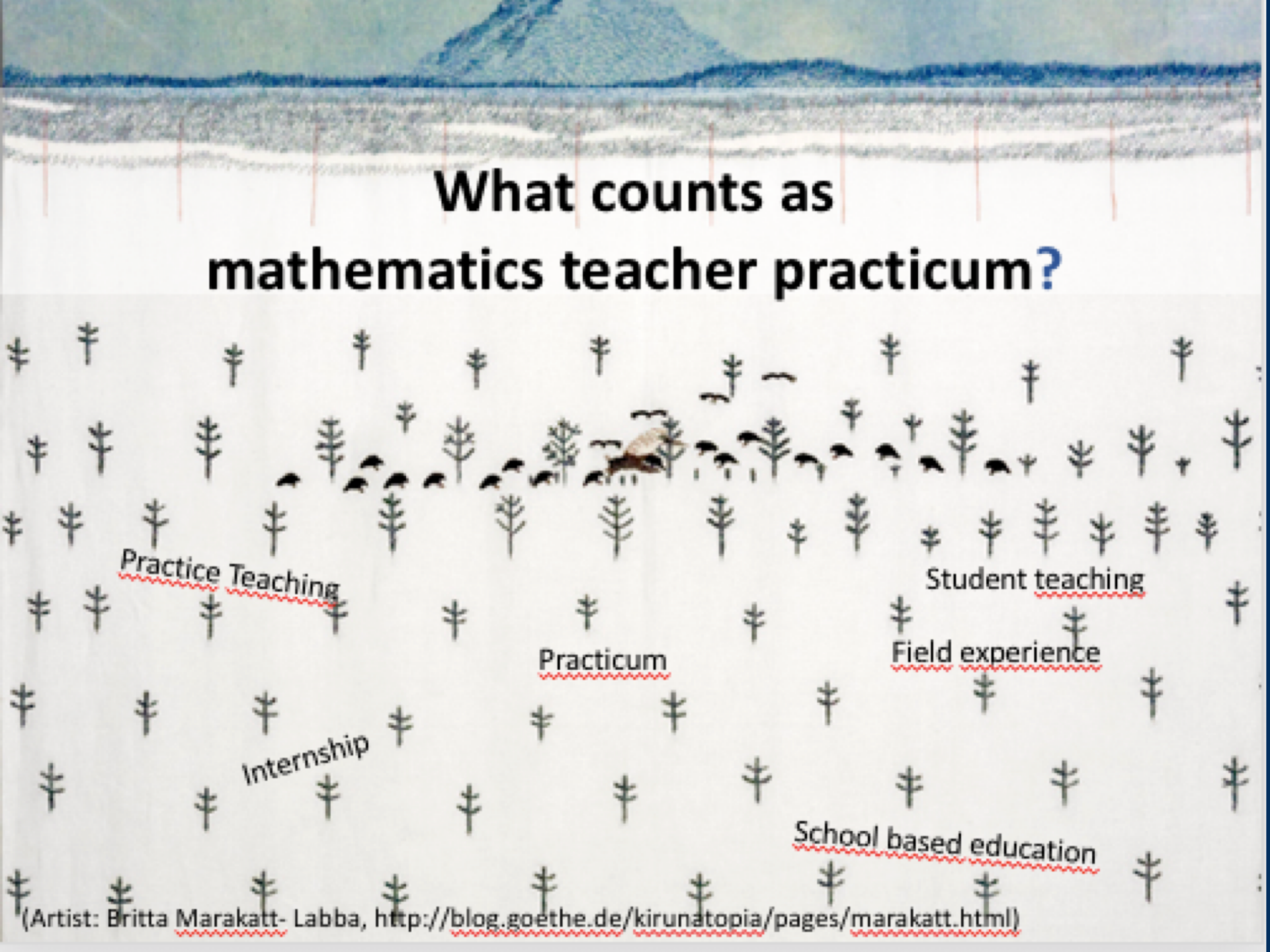
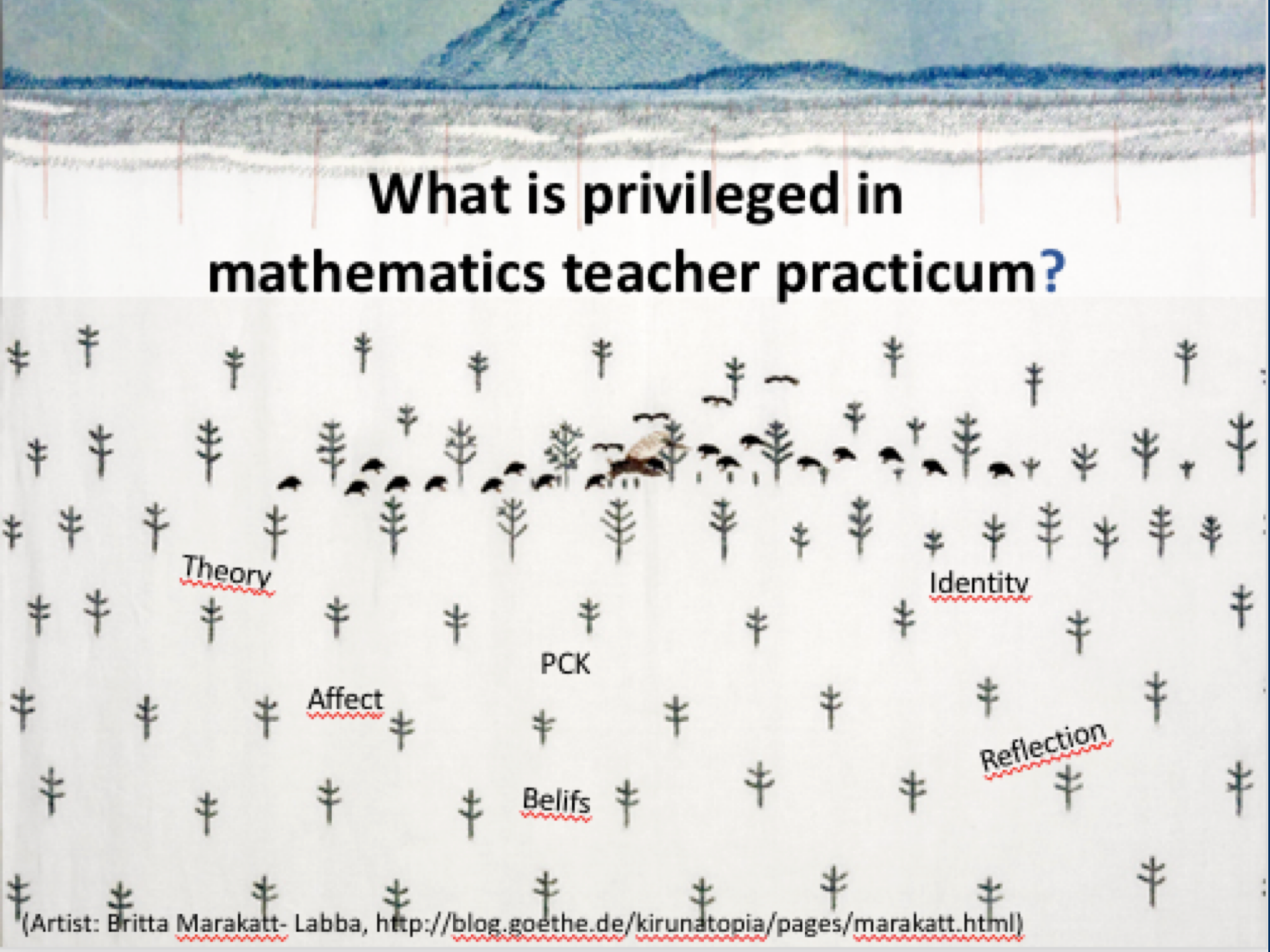
What counts as mathematics teacher practicum?



(Artist: Britta Marakatt- Labba, http://blog.goethe.de/kirunatopia/pages/marakatt.html)

What is privileged in mathematics teacher practicum?



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Rationale for a systematic review

- Empirical studies
- Part of larger research project: TRACE
- Cumultative knowledge building
- The desired teachers in ME research

Research questions

- What are productive ways of organizing mathematics teacher education around practicum?
- Are there specific elements or characteristics of practicum in Mathematics, and if so, what are they?

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AJRMSTE

Asia-Pacific Journal of Teacher Education

Australian Journal of Teacher Education

ESM EuJTE JMTE JRME

Journal of Teacher Education

Mathematics Education Research Journal

NOMAD Pythagoras

South African Journal of Education

Teaching and Teacher Education

Theory into Practice

Analysis

- The different learning outcomes thematised
- Here: what explains the learning from practicum?

Example – a quantitative secondary-data-analysis:

”To what extent are the **focus, timing, and duration of field experience** in teacher preparation programs related to the mathematical content knowledge, the **beliefs** about the nature of mathematics, and the **beliefs** about mathematics learning of prospective teachers completing those programs?” (Jakobson, 2017, RQ)

What explains learning? Example:

the data do not support simple messages, such as that longer field experience is correlated with better outcomes or that programs with early instruction-focused field experience have better outcomes than programs without it. (p. 172) /.../ More specifically, the duration of **exploration-focused** field experience (unlike the early timing and duration of **instruction-focused** field experience) did not predict the teacher education outcomes in the models examined in this study.(p. 174)

(Jacobson, 2017)

What explains learning? Example:

This study shows that **instruction-focused field experience** and, in particular, early instruction-focused field experience have strong relationships with mathematical content knowledge, active-learning beliefs, and math-as-inquiry beliefs (p. 185) (Jacobson, 2017)

What works?

General level

- Prompting support in relation to own or observed teaching– not only lenght of practicum
- Specified techniques or knowledges with supporting guidance

When will what work?

Productive ways of organising practicum

- Mentoring – when focusing privileged knowledge
- Prompting support or interventions – lesson studies, video analysis
- Specified techniques – inquiry based mathematics, integration of litterature…: not always successful!
- Reflections as an outcome – mentoring, theoretical prompts

Blind spots

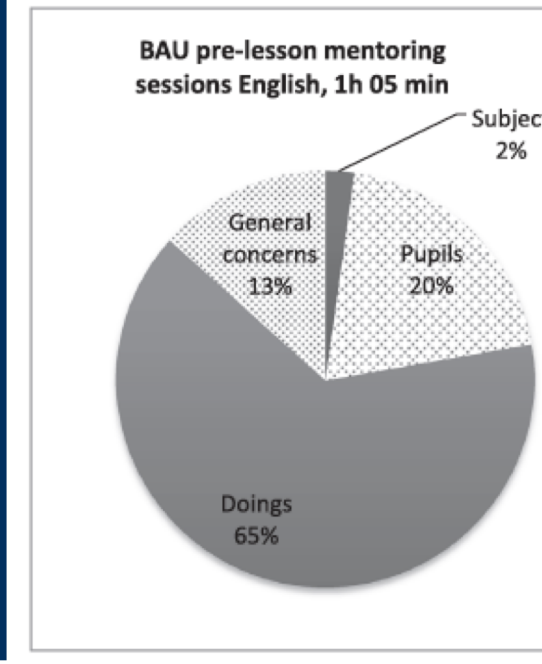
- Social/political perspectives, diversity, equity
- Aestetics…
- Language

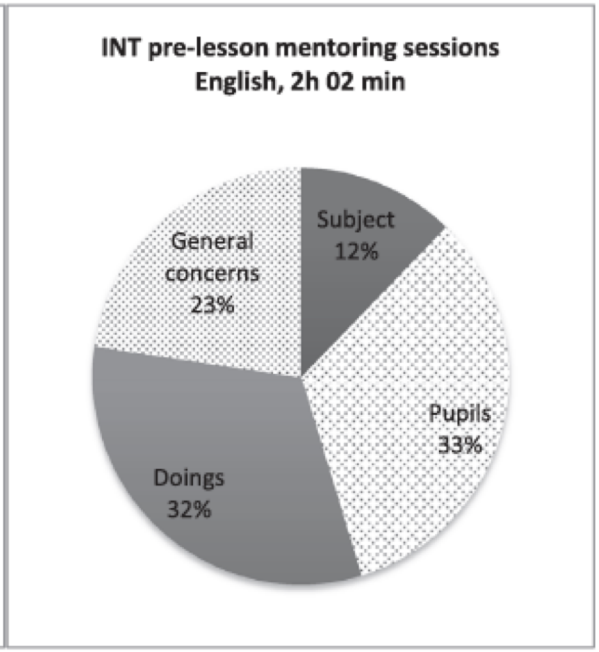
Mathematics focused

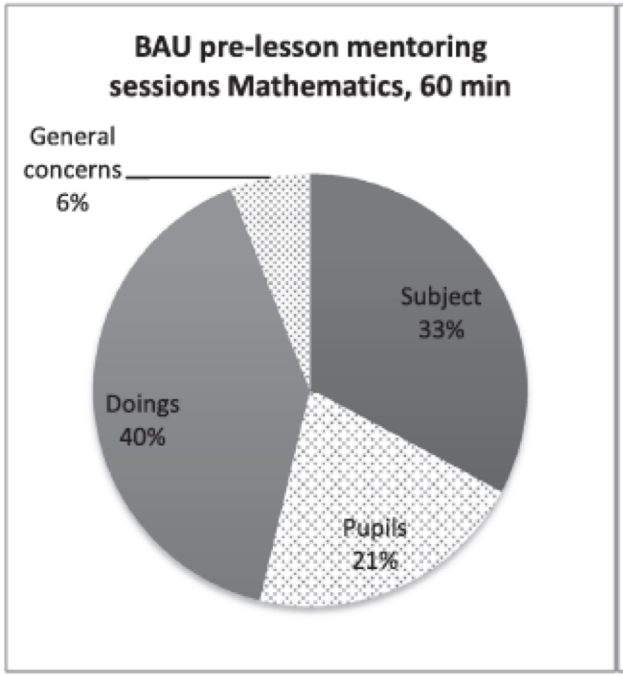
- Mathematics as different
- Attitudes & Beliefs
- Impact of practicum on PCK (or MKT) (van den Kieboom, 2013)

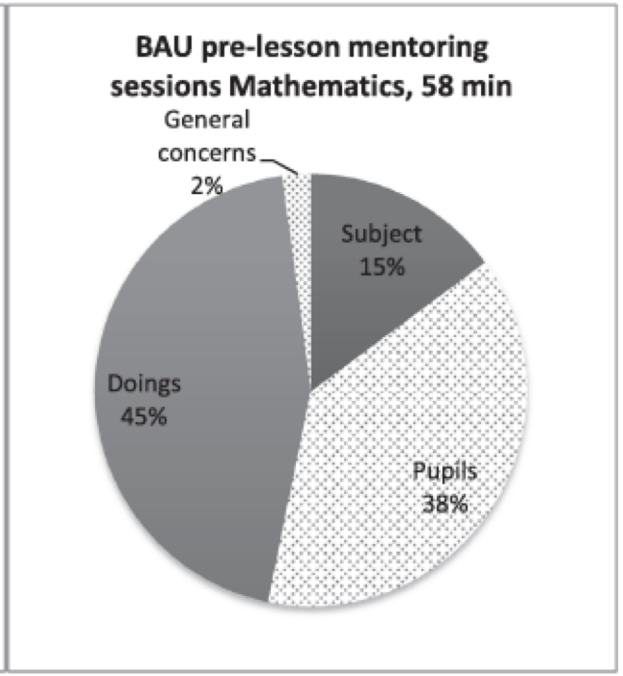
Is mathematics different?

(Helgevold, Næsheim-Bjørkvik, Østrem, 2015, p. 134-135)









Contradictive results?

"Using the terminology proposed by Ball et al. (2008), we may say that the prospective teachers whom we observed possessed **insufficient knowledge of content and students**, as seen, for example, by their difficulties with understanding students' understanding. " (Karp, 2009, p. 135)

Mixed data, 25 PST

MKT related to completion of courses, exposure to certain topics and learning experiences in mathematics courses and general pedagogy courses, **instructional resposibility during student teaching**. NOT affected by number of courses in mathematics at university level or the overall lenght of student teaching. (Youngs, Quilian, 2013)

MKT-survey, 115 PTS

Discussion & conclusions

For teacher education

- The relations to privileged knowledge:
  - Guidance from mentors
  - Supportive course work, f ex video analysis
  - Explicit theory, f ex list of concepts
- The learning path for PST:s
  - What is the progression?

Discussions

For research

- Many positive results!
- Students self-reported learning (reflections, questionnaires, interviews)
- Development of the own practice or cumultative knowledge building?
- **Challenge taken for granted assumptions** Research each others practicum & developing coherent research programs