

A Bilingual Teacher's Interaction with Curriculum Resources to Support Multilingual Students' Learning in Mathematics

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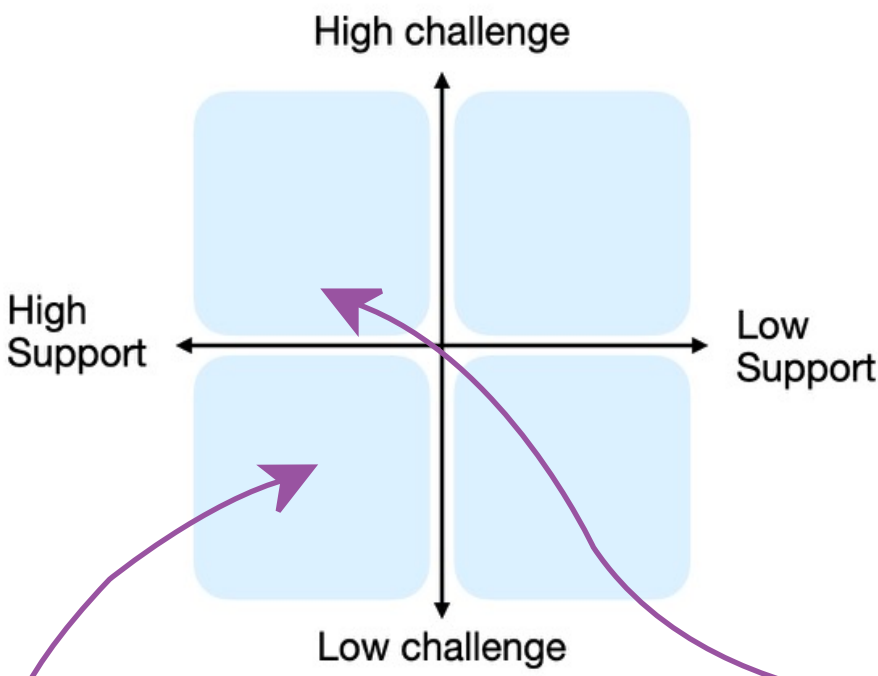
Introduction and research question:

- Increasing number of multilingual students in Norwegian schools.
- Research on bilingual teachers' work of teaching is sparse (Daugaard & Dewilde, 2017).
- Bilingual teachers use students' mother tongue and Norwegian to support these students' learning in mathematics, but what more?

How does a bilingual teacher interact with and adapt curriculum resources in mathematics?

Theoretical framework:

- **Teachers design capacity** (Brown, 2009): To explore teachers' ability to adapt and develop curriculum material. Experience and knowledge of students influence *how* (Davis et al., 2011).
- **The Mathematical Knowledge for Teaching** (Ball et al., 2008): Teachers' ability to anticipate student difficulties is one aspect of *Knowledge of Content and Students (KCS)*.
- **Marianis quadrant model** (Mariani, 1997): To understand scaffolding and task enabling support, how teachers balance support and challenge in teaching.



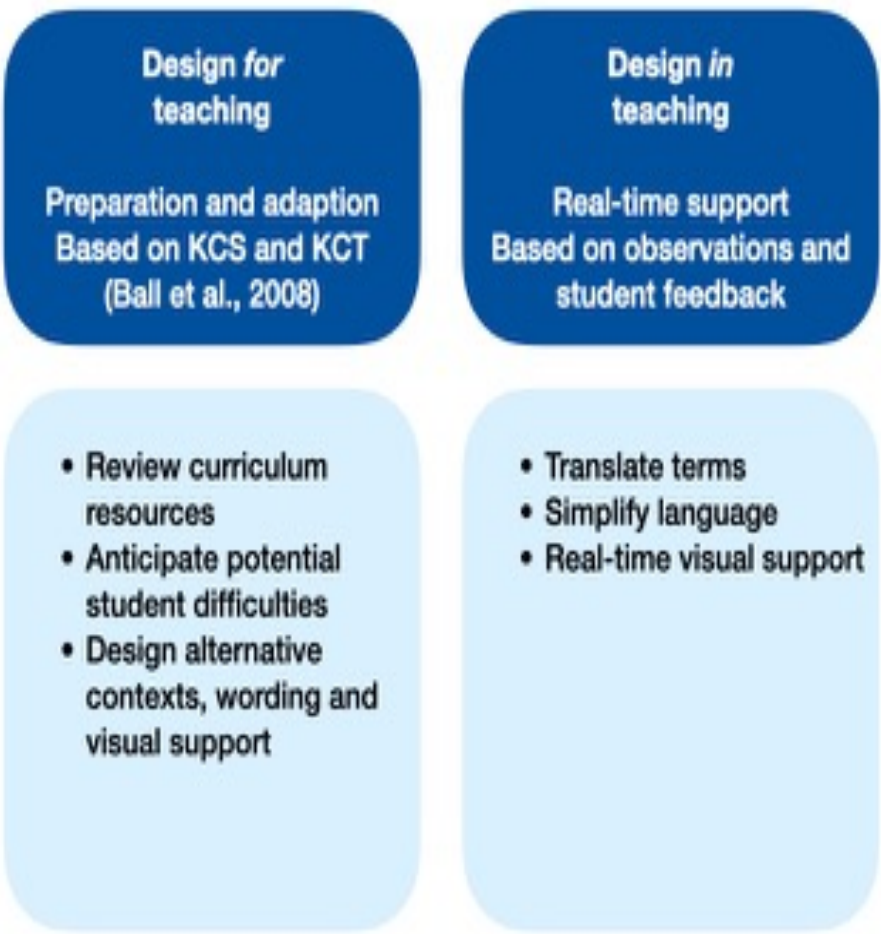
- **Previous research** (Justnes & Gätzschmann, 2023): Shows that a teacher's strategies may lead to lowering cognitive demands, relevant for understanding how support can be provided.

Methods:

- Qualitative case study of an experienced bilingual teacher.
- Observation and two interviews a year apart.
- Thematic analysis.
- Planned further research with 20 bilingual teachers spring 2025.

Preliminary findings:

Two phases of interaction with curriculum material:



The bilingual teacher uses strategies that focus on high support and high challenge, which increase participation and maintain cognitive demands.

Reflections and implications:

- Curriculum resources are often insufficient for multilingual students
- Bilingual teachers' invisible work of teaching is important for multilingual students' participation in mathematics and is linked to inclusion (Roos, 2019).
- Collaboration between teachers and bilingual educators can strengthen their pedagogical design capacity, enabling more productive adaptations of curriculum materials that are better aligned with the needs of bilingual students in mathematics (Brown, 2009).

References:

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