

## Development of a Theoretical Framework: Designing Online Challenging Mathematics Tasks for Pre-Service Teacher Education

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The purpose of this project is to strengthen Australian and German pre-service teachers' mathematical knowledge, particularly their higher order thinking capabilities such as mathematical problem solving – a significant issue in Australian and German education (e.g., Finkel, 2018; Kunter et al., 2011). The project brings together different theoretical aspects of mathematics education that have not been connected in previous research: the notion of challenge (Sullivan, 2011); the perspective of task design in digital environments (Geiger, 2017); frames for technology rich pedagogy (Pierce & Stacey, 2010); and, quality of online learning environments (Collet, Bruder & Ströbele, 2008). In this presentation, we will outline our preliminary work in developing a framework for designing challenging online mathematical tasks. This will include, illustrative examples of tasks designed in alignment with the framework for both Australian and German preservice teacher education.

### References

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