Supporting teachers to foster mathematical reasoning discourse in the classroom

PhD student: Farran Mackay
Promotor: Prof. dr. B.E.U.(Birgit) Pepin
Co-promotor(s): Dr. M.C.G. (Marieke) Thurlings and Dr. A. (Alexander) Schueler-Meyer
Duration: 2018 - 2022

Summary

Mathematical reasoning is recognised as an essential means for promoting learners’ mathematical understanding. However, the teaching and learning of mathematical reasoning remain challenging. A recent mathematics curriculum renewal in the Netherlands included a shift away from synthetic “Euclidean” geometry to analytic geometry. This context of mathematical reasoning is unfamiliar to Dutch school teachers, resulting in uncertainty in their pedagogical practices. This research aims to investigate how secondary school teachers in the Netherlands can be supported in the development of mathematical reasoning practices based on a communication approach. The research will be carried out through the design and evaluation of a teacher professional development module, which aims to foster analytic geometry mathematical reasoning skills using a communication approach. This research seeks to contribute towards knowledge to improve the teaching and learning of mathematical reasoning, with a focus on analytic geometry within the Dutch mathematics curriculum.