Technology-Enhanced Mathematics Retraining for Quality Teaching

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As part of the NSW Teacher Supply Strategy, the NSW Department of Education, in partnership with the University of Newcastle, launched the Mathematics Retraining Program in January 2023 to support experienced teachers to upskill in mathematics. The key objectives of the program are to provide teachers who originally trained in areas other than mathematics with subject content knowledge and pedagogical tools to be effective mathematics teachers; to deliver a learning experience that is flexible, relevant, and research-informed; create a community of practice through enhanced technologies to connect these teachers with leaders in mathematics education in NSW, Australia and globally and to maximise NESA accreditation outcomes in the minimum time possible. The program offers a fully funded master's program, graduate diploma and graduate certificate at the University of Newcastle. The NSW Department of Education and the University of Newcastle assist teachers in choosing the most suitable course based on their prior experience and career goals. To evaluate this program, the University of Newcastle is conducting a mixed-method research to support quality assurance and assess program efficacy for the core outcomes of interest. The specific research questions are:

- How do participants' professional identities develop as they participate in the program?
- How do participants' mathematics teaching practices develop as they participate in the program?

This research uses the six domains described by Hanna et al. (2019) to measure teacher identity formation along with the Quality Teaching Model (Gore et al., 2021) as a research lens for observations of practice. The six domains are 'motivation', 'self-image', 'self-efficacy', 'task perception', 'commitment', and 'job satisfaction'. The Quality Teaching Model is an evidence-based pedagogical framework that features teaching practices linked to improved student outcomes and can represent 3 dimensions and 18 elements of pedagogy. Three quantitative surveys and two semi-structured interviews (per year) with program participants, support officers and mentors will be conducted during the degree. In addition, each participant will have three lessons assessed via expert coding using the Quality Teaching Model. Statistical and qualitative data analyses will be conducted throughout as the data is collected to ensure the timely discovery of essential findings, which will be leveraged for the continuous improvement of the program.

References

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Hanna, F., Oostdam, R., Severiens, S. E., & Zijlstra, B. J. H. (2019). Domains of teacher identity: A review of quantitative measurement instruments. *Educational Research Review*, *27*, 15–27. https://doi.org/10.1016/j.edurev.2019.01.003