THE BRIEF

Round 4 School Based Research Project Update

Three schools were successful in receiving funding and support from AISNSW at the end of 2017 to undertake a School Based Research Project. This issue of the Brief presents their progress at the half way mark of their two-year project.

School Based Research Projects

The AIS Education Research Council's School Based Research Project initiative, established in 2013, continues to attract a diverse range of high quality research project applications.

To date, sixteen projects have completed their AISNSW School Based Research projects, with five more currently in progress. The range of topics being investigated, and the variety of schools undertaking this work, reflect not only the diversity of interests within the independent sector but also the diversity of schools. At the heart of each project is the goal of improving educator practice and student outcomes.

Every project team is made up of practising educators and/or school leaders who are mentored by at least one specialist academic from around the globe. This approach to supporting the research process helps to ensure a rigorous investigation and enables professional learning on topics of focus and the fundamentals of undertaking quality research. This model supports practitioner researchers to produce high quality, rigorous research that reflects their experience, perspectives and contexts.

In 2016, three schools were successful in being selected for AISNSW funding and support to undertake research in their school contexts.

This Brief summarises the progress of this cohort of projects to the mid-point of their research, and outlines what their second year will hold.

Avondale School
Impact of faith development activities on school climate

Carinya Christian School
Music tuition and literacy achievement

Mater Dei School
Engineering for all

Engineering for All

Mater Dei School

Project overview

The Engineering for All (EfA) research project focuses on teachers' ability to build their knowledge and skills in engineering, applied research, as well as Universal Design for Learning (UDL). Specifically, the research team are investigating the effects of the research-based Museum of Science-Boston's Engineering is Elementary (EiE) program, paired with a UDL approach for programming. While EiE has extensive research to support its use in primary classrooms with a wide-range of students, no research has been conducted on its use with students with extensive support needs (i.e., students with intellectual disability and autism).

A unique aspect of this research is the focus on the 'engineering behaviours' of the students involved. Using a UDL lens the research team defines behaviours that capture engineering practices for diverse learners, demonstrates the effect of a universally designed curriculum, and the adaptations/modifications necessary for all students to engage in meaningful engineering curriculum.

The research team

The research team is led by Dr Bree Jimenez, Mater Dei's resident academic, who is also acting as the team's academic mentor. Dr. Heidi Carlone from the University of North Carolina at Greensboro acts as a critical friend to the project.

Progress to date

The first year of the research project saw the review of the team's initial research design, and the change to, and implementation of a quasi-experimental group research design. The EfA research team then taught two engineering units, across two terms, and gathered observational data via video from 20 students (2 classrooms) in the experimental groups and 20 students (2 classrooms) in the control groups. Data was then analysed and coded using an assessment tool developed to reflect both the UDL approach to program design, and the Habits of Mind that form the basis of the EiE program. Development of the assessment tool has been a challenging aspect of the project, but the process resulted in a rigorous tool designed to capture student science and engineering practices. The team are currently engaged in data coding and statistical analyses.

The research team have covered considerable ground during the first year including increased understanding of engineering education, identification of 'science and engineering practices', and the application of UDL principles. They also engaged in significant curriculum adaptation to ensure the EiE program was suitable to the Australian context and their cohort of students.

Where to next?

The second year of the project will see ongoing analysis of data gathered over the course of the year one. Results will provide direction for deeper investigation during the year, with a likely focus on the impact of engineering curriculum on student engineering behaviours. The team will engage in universally designing another unit of the curriculum, and professional learning also will be provided to additional teachers within the school.

"During 'Open Classrooms at Mater Dei', our two teachers participating in the EIE research project, demonstrated to visitors the 'EiE Engineering Design Process' in action. Students created boats to hold certain weight that needed to cross from one side of the water channel to the other. The visitors were most impressed with the students' diligence and aptitude towards their challenge."

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