



Round 3 School Based Research Project Update

Four schools were successful in receiving funding and support from AISNSW at the end of 2016 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

Now in its fourth year, the AIS Education Research Council's School Based Research Project Initiative continues to attract a diverse range of high quality research project applications.

Twelve projects have completed to date, with seven currently underway. Together they illustrate the broad range of timely topics of interest to independent schools across New South Wales. Common to all projects is a focus on improving educator practice and student outcomes.

Selected school research teams consist 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 ensures a robust investigation, and affords professional learning on topics and the fundamentals of undertaking quality research. As a result of this model, practitioner researchers are able to produce high quality, rigorous research that reflects their experience, perspectives and contexts.

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

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

Kincoppal-Rose Bay School
Growing minds

Kinross Woleroi School
Collaborative approaches to programming and teaching primary science: Opportunities and impacts

MUSEC School
Schema-based instruction and maths problem solving

RIDBC Thomas Pattison School
The development of an online assessment tool for Auslan

Schema-based instruction and maths problem solving

MUSEC School

Project overview

This project investigates the effectiveness of schema-based instruction in improving maths problem solving performance for primary aged children with a diagnosis of autism and language delay or intellectual disability. The research builds on a small but important knowledge base specifically examining word problem solving. This is considered a valuable alternative approach to supporting student learning in the special education context and beyond.

This two-stage research project consists of the development of 1) an intervention combining schema-based instruction to teach word problem solving, and 2) professional learning content and materials focusing on schema-based instruction for educators. The intervention has been tested over two studies – Study A focused on intervention effectiveness with a single subject at a time, whilst Study B examined intervention implementation with a small group. This project uses a rigorous, small study experimental design approach.

The research team

The research team comprises Dr Sally Howell, School Principal and Dr Sara Mills, classroom teacher. The team is further supported by academic mentor Professor Alicia Saunders from the University of North Carolina.

Progress to date

The research team completed stage one of their investigation during the first year of the project. Both Study A and B investigated if:

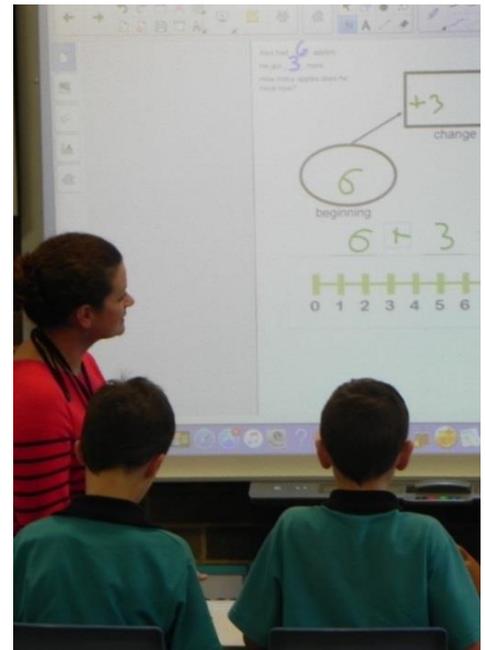
- schema-based instruction would be an effective strategy for students
- students could use schema-based instruction independently once taught
- students found the learning approach useful and enjoyable.

Teaching scripts were developed to teach the method to students and ensure that instructors were consistent in their approach. Initial data indicated a need for adjustments to be made to the intervention and data analysis criteria. Subsequent results of Study A and B indicated positive impacts for the intervention, with all students in the studies showing notable learning gains in problem solving involving addition and subtraction.

Academic mentor Professor Alicia Saunders travelled to MUSEC School during 2017. She presented to students and educators, gave classroom demonstrations of schema-based instruction, and provided whole school information sessions on an early numeracy program. Insights gained will inform future intervention implementation, and professional learning for Stage two.

Where to next?

Stage two of the project will focus on the development of teaching materials based on the intervention, Professor Saunders' research, and professional learning provided to MUSEC staff. Data collection, analysis and procedural checks to evaluate the fidelity of implementation and confirm the rigour of the intervention will continue throughout 2018. Students from 2017 will continue to progress their learning using the schema-based intervention.



"It is generally accepted that students with MD [mathematics difficulties] have difficulty solving word problems.... These difficulties have an impact on both students' ability to apply mathematical knowledge in everyday situations and on their performance on mathematics assessments.... [Schema Based Instruction] that incorporates explicit instruction has been demonstrated to be an effective intervention for high school and senior primary school students identified with MD"

Contact details

Project lead: Sally Howell

School website:
<https://bit.ly/2JmKAlj>

Contact number: (02) 9850 9697

Email: musec.reception@mq.edu.au

 @Macquarie_Uni

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