



Australian Government
Australian Research Council

EI
2018
ENGAGEMENT
AND IMPACT



Engagement and Impact 2018

The University of New England

UNE13 (SS) - Impact

Overview

Title

(Title of the impact study)

Addressing the needs of at-risk learners in Numeracy and Literacy: QuickSmart

Unit of Assessment

13 - Education

Additional FoR codes

(Identify up to two additional two-digit FoRs that relate to the overall content of the impact study.)

Socio-Economic Objective (SEO) Codes

(Choose from the list of two-digit SEO codes that are relevant to the impact study.)

93 - Education and Training

Australian and New Zealand Standard Industrial Classification (ANZSIC) Codes

(Choose from the list of two-digit ANZSIC codes that are relevant to the impact study.)

80 - Preschool and School Education

82 - Adult, Community and Other Education

Keywords

(List up to 10 keywords related to the impact described in Part A.)

Literacy

Numeracy

Intervention

At-risk learners

Indigenous

Fundamental skills

Workplace skills

Narrowing the achievement gap

Capacity building

Evidence-based

Sensitivities

Commercially sensitive

Culturally sensitive

Sensitivities description

(Please describe any sensitivities in relation to the impact study that need to be considered, including any particular instructions for ARC staff or assessors, or for the impact study to be made publicly available after EI 2018.)

Aboriginal and Torres Strait Islander research flag

*(Is this impact study associated with Aboriginal and Torres Strait Islander content?
NOTE - institutions may identify impact studies where the impact, associated research and/or approach to impact relates to Aboriginal and Torres Strait Islander peoples, nations, communities, language, place, culture and*

knowledges and/or is undertaken with Aboriginal and Torres Strait Islander peoples, nations, and/or communities.)

Yes

Science and Research Priorities

(Does this impact study fall within one or more of the Science and Research Priorities?)

No

Impact

Summary of the impact

(Briefly describe the specific impact in simple, clear English. This will enable the general community to understand the impact of the research.)

QuickSmart is an evidence-based program demonstrated to address the needs of middle school students with poor basic skills in literacy and numeracy. Consistent weaknesses in basic skills, especially for educationally disadvantaged students, generally go unchanged and contribute to a widening performance gap with peers, as well as to ongoing disadvantage post schooling. QuickSmart is an individually focused intervention designed to improve understanding and recall of basic academic facts and skills over a 30-week program during the crucial middle school years. Results from QuickSmart show that participants consistently achieve skill development equivalent to that normally achieved over 2-3 years of schooling for a peer, as well as increased self-confidence and self-esteem.

Beneficiaries

(List up to 10 beneficiaries related to the impact study)

Australian middle school students, including Indigenous students, in Year 4 to Year 9, identified as under-achieving in literacy and numeracy.

Countries in which the impact occurred

(Search the list of countries and add as many as relate to the location of the impact)

Australia

Details of the impact

(Provide a narrative that clearly outlines the research impact. The narrative should explain the relationship between the associated research and the impact. It should also identify the contribution the research has made beyond academia, including:

- who or what has benefitted from the results of the research (this should identify relevant research end-users, or beneficiaries from industry, the community, government, wider public etc.)*
- the nature or type of impact and how the research made a social, economic, cultural, and/or environmental impact*
- the extent of the impact (with specific references to appropriate evidence, such as cost-benefit-analysis, quantity of those affected, reported benefits etc.)*
- the dates and time period in which the impact occurred.*

NOTE - the narrative must describe only impact that has occurred within the reference period, and must not make aspirational claims.)

National documented evidence reports a gap in achievement in mathematics and science for vulnerable students in middle school. It is during the period of Year 3 to Year 5 and on to Year 7 and Year 9 that gaps in performance between educationally disadvantaged students and their peers widens. For students who, by Year 4, show consistent weaknesses in basic skills, achieving sustainable change within the usual classroom school environment is difficult, and this can lead to ongoing economic and social disadvantage (Graham and Pegg, 2012, EducatiON-LINE).

Data sets from NAPLAN, which aid comparison of schools with a similar student profile and with average performance at the state level, underpin a compelling case for the need to implement instructional programs that improve the numeracy and literacy outcomes for Australian students performing in the lowest 30% of the achievement spectrum – those vulnerable to performing at or below the national literacy/numeracy minimum standards. Many Indigenous and geographically isolated students, and students from families within the low socio-economic range, are particularly in need of support. Teachers, therefore, need to be equipped with reliable intervention programs that are easy to implement, provide quality resources and can benefit their work practices more broadly.

QuickSmart is a research-based, practical and individual-focused literacy and numeracy intervention with theoretical underpinnings drawn from advances in educational neuroscience and cognition, and informed by relevant research associated with learning difficulties/disabilities and quality instruction. This program has been used to address an important current educational need in schools—support of at-risk, low-achieving, middle school students. Participating schools access the QuickSmart program by purchasing a program licence and, during the impact reference period, QuickSmart was used in close to 1,300 schools from all states and territories, and has involved approximately 55,000 students.

The QuickSmart program aims to improve the student's fluency in foundation skills (such as word recognition and number fact recall), as well as develop facility for higher-order processes such as comprehension and problem solving. Improving students' information retrieval times allows performance at an advanced level of functioning, thus allowing students to undertake the higher-order mental processing required to develop appropriate literacy and numeracy skills. When using their working-memory resources more efficiently, students are better able to engage with the more interesting aspects of learning—the novel concepts, complex content and rich tasks that require higher-order thinking and learning skills. This not only has the benefit of improving students' literacy and numeracy performance, but also contributes to the broader benefits of participating in QuickSmart: students demonstrate greater confidence, improved class behaviour, willingness to take risks in discussing learning, and willingness to see themselves as learners (Pegg and Graham, 2013).

QuickSmart provides individually designed lessons offered via three 30-minute sessions per week, over a period of 30 weeks, during which time pairs of students are withdrawn from their regular class. QuickSmart targets at-risk students in their middle school years; Years 4 to 9, aged between about 9 and 15 years. Generally, these students exhibit consistent weaknesses in basic skills. QuickSmart cohorts are comprised of both Indigenous (approximately 11% of all QuickSmart participants) and other students, from both primary and secondary schools, drawn from regional, remote and metropolitan Australia. QuickSmart is also taught in Indigenous communities in remote locations such as Weipa and Groote Eylandt. The program builds on the pre-existing knowledge and understandings of each student, which provides potent opportunities for students to build on what they know, and hence, encourage student self-belief through successful learning experiences.

Analyses that demonstrate the effectiveness of QuickSmart draw on the difference between the mean in achievement of the QuickSmart sample and the mean of the population. Data for students in QuickSmart show that achievement growth on standardised tests is more than double that of average-achieving students in the same class who have not accessed the program, i.e., equivalent to two-to-three years growth (Graham and Pegg, 2012 to 2016; QuickSmart Annual reports). The 2012 NSW State Government evaluation of the QuickSmart Numeracy program identified the results as "impressive" (Dione-Rodgers, Harriman and Laing, National Partnership on Literacy and Numeracy – Report of the Program Evaluation of QuickSmart Numeracy, 2012, p.4). Their qualitative evaluation data includes comments such as: "The students who were at the bottom of my class are now certainly, now heading towards the top because they have the strategies to be able to apply problem solving and things like that" (p.32). Key-findings of the report also include that teachers who participate in a QuickSmart training program have incorporated QuickSmart strategies into their general numeracy lessons (p.41). Strong results regarding academic and self-esteem outcomes for Indigenous students, presented in this evaluation, are noted in the 2016 Report, *Overcoming Indigenous Disadvantage: Key Indicators 2016* (Productivity Commission for the Steering Committee for the Review of Government Service Provision).

In improving literacy and numeracy skills, QuickSmart addresses core factors that can improve the life potential of students leading to enhancements in social inclusion and ameliorating systemic disadvantage. One student, when interviewed, identified his support for the program through an expression of greater hope for his own future; "it's helped me a lot and now when I grow up, I might be able to get a better job" (2012, p.33).

Associated research

(Briefly describe the research that led to the impact presented for the UoA. The research must meet the definition of research in Section 1.9 of the EI 2018 Submission Guidelines. The description should include details of:

- what was researched
- when the research occurred
- who conducted the research and what is the association with the institution)

Developed by UNE researchers, John Pegg and Lorraine Graham, QuickSmart is a responsive, small-group educational intervention that develops literacy and numeracy skills in persistently low-achieving learners through tasks designed to identify the exact nature of the issues students are experiencing.

Based on advances in educational neuroscience and cognition, QuickSmart's research goals are to investigate the nature of improved fluency on the acquisition of basic academic skills and how this might affect the performance of more demanding academic tasks. As ongoing applied research, QuickSmart involves longitudinal analysis of extensive datasets relevant to the performance and progress of learners. Participating institutions partner in this process by submitting qualitative and quantitative data for analysis via a purpose-built online platform pivotal to the program implementation and assessment cycle. The analysis develops detailed descriptions of cognitive obstacles and identifies ways that learning obstacles might be approached in a variety of learning contexts. These results inform the ongoing enhancements to the QuickSmart program and its capacity to develop individually designed instructional intervention for each student.

Institutional results give feedback on students' performance and are benchmarked against data derived from independent national standardised assessments (i.e., NAPLAN). Aggregated data are analysed from all institutions in the form of annual reviews.

FoR of associated research

(Up to three two-digit FoRs that best describe the associated research)

13 - Education

References (up to 10 references, 350 characters per reference)

(This section should include a list of up to 10 of the most relevant research outputs associated with the impact)

Pegg, J. & Graham, L. (2013). A three-level intervention pedagogy to enhance the academic achievement of Indigenous students: Evidence from QuickSmart Mathematics research relevant to Indigenous populations: Evidence-based practice (pp. 123-138). In R. Jorgenson, et al. (Eds.), Pedagogies to enhance learning for Indigenous students. Springer.

Graham, L. & Pegg, J. (2011). Evaluating the QuickSmart numeracy program: An effective Australian intervention that improves student achievement, responds to special education needs, and fosters teacher collaboration. The (Korean) Journal of Educational Administration, 29 (2), 87-102. (Revised conference paper)

Pegg, J. & Graham, L. (2010). A second chance for success. Education Review, October, APN Educational Media.

Graham, L. & Pegg, J. (2010). Hard data to support the effectiveness of QuickSmart numeracy. Learning Difficulties Australia Bulletin, 42 (1), 11-12.

Graham, L. (Ed.). (2009). Narrowing the gap: Addressing educational disadvantage, Conference proceedings, UNE: SiMERR, (137pp) ISBN 9781921597015.

Graham, L., Pegg, J., & Alder, L. (2007). Improving the reading achievement of middle-years students with learning difficulties, Australian Journal of Language and Literacy, 30 (3), 221-234. Invited article.

Graham, L. & Bellert, A. (2007). Effective reading comprehension instruction for students with learning disabilities. *Australian Journal of Dyslexia and Specific Learning Disabilities*, 2, 7-15.

Graham, L., Bellert, A. & Pegg, J. (2007). Supporting students in the middle school years with learning difficulties in mathematics: Research into classroom practice. *Australasian Journal of Special Education*, 31 (2), 171-182.

Graham, L., Bellert, A., Thomas, J., & Pegg, J. (2007). A basic skills intervention for middle school students with learning difficulties. *Journal of learning disabilities*, 40 (5), 410-419.

Bellert, A. & Graham, L. (2006). Caught in the middle: Reaching and teaching middle years students with learning difficulties. *Australian Journal of Middle Schooling*, 6 (1), 3- 10.

Additional impact indicator information

Additional impact indicator information

(Provide information about any indicators not captured above that are relevant to the impact study, for example return on investment, jobs created, improvements in quality of life years (QALYs). Additional indicators should be quantitative in nature and include:

- name of indicator (100 characters)*
- data for indicator (200 characters)*
- brief description of indicator and how it is calculated (300 characters).*

Name

South Australian Dept of Education and Child Development supported implementation of QuickSmart

Indicator Data

During the period 2011-2016 there were 331 schools in South Australia (9,055 QuickSmart participants) supported to run the QuickSmart program.

Indicator Description

The South Australian Dept of Education and Child Development supported the implementation of QuickSmart by paying the program licence cost, the salary for a full-time coordinator, and for training of associated personnel. Indicator is the number of schools where the program was supported.

Name

QuickSmart chosen as preferred literacy/numeracy program for Northern Territory correctional centres

Indicator Data

During the period 2012-2016, 1006 inmate-students undertook the QuickSmart program, working with 34 trained inmate QuickSmart Instructors in Correctional Centres at Darwin and Alice Springs.

Indicator Description

QuickSmart was chosen as a preferred literacy/numeracy program in Northern Territory correctional centres, with a realignment of learning priorities, as a direct response to the recognition of the success of QuickSmart in Northern Territory schools.