



Education



**Cultivating Capability:
Explicating critical
psychosocial drivers of
educational outcomes
and wellbeing for high
ability Aboriginal
students**

**Ngara Wumara Steering Committee
Final Report**

Final Report: Cultivating Capability: Explicating critical psychosocial drivers of educational outcomes and wellbeing for high ability Aboriginal students project

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Executive Summary

This report provides an overview of the research activities, results and conclusions drawn from the *Cultivating Capability: Explicating critical psychosocial drivers of educational outcomes and wellbeing for high ability Aboriginal students* Australian Research Council (ARC) Linkage project jointly conducted by the Institute for Positive Psychology and Education (IPPE) at the Australian Catholic University (ACU) and the NSW Department of Education (DoE). The project comprises four main studies that provide valuable insights towards future practice and research directions for enhancing the wellbeing and academic achievement of high ability Aboriginal students. The key findings from each study are highlighted below.

Study 1

Utilising an existing longitudinal dataset to examine what facilitates success for Aboriginal and non-Aboriginal students.

Key Findings

- Students' perceptions of learning predict their future behaviour and thinking.

Findings showing similar patterns for Aboriginal and non-Aboriginal students

- Enjoyment of a school subject is the strongest predictor of aspirations.
 - ❖ When students enjoy learning a subject (i.e., enjoyment), it strongly predicts their aspiration to pursue careers in the subject domain.
- Self-efficacy is the strongest predictor of achievement.
 - ❖ When students believe in their ability to perform well in a subject (i.e., sense of efficacy), it strongly predicts their future achievement in the school subject, but not their aspiration in the school subject.
- Value is another predictor of achievement.
 - ❖ When students see the value of learning a subject, it predicts their future achievement, although not as strongly as their belief to perform well in the subject.

Findings showing differences between Aboriginal and non-Aboriginal students

- For non-Aboriginal students, enjoyment of a school subject is a weak predictor of their achievement in the subject. For Aboriginal students, enjoyment of a school subject was not linked to achievement in the subject.
- For non-Aboriginal students, valuing of school subjects weakly predicts their aspiration in the domain. For Aboriginal students, there was no association between valuing of school subjects and aspiration.

Study 2 (Quantitative)

Identify determinants of high ability Aboriginal and non-Aboriginal students' educational outcomes and wellbeing (Years 4 – 10) across three years.

Key Findings

- Overall, the hypothesised factor structure of the survey instrument (multi-dimensional wellbeing model) used in this study is sound.
 - ❖ The combination of item-factor loadings and model fit indices across three time points indicate that the instrument is appropriate for assessing Aboriginal and non-Aboriginal primary and high school students' perceptions of wellbeing.
- Using this validated instrument, the results show that high school students tend to report lower wellbeing scores than primary students.
 - ❖ This pattern indicates a potential decline in wellbeing as students develop.
- Aboriginal and non-Aboriginal students are similar across all six dimensions of wellbeing (academic, psychological, physical, social, cultural, and self), both being lower in high school than in primary school.
 - ❖ This implies that all students, irrespective of cultural background, may need effective interventions to maintain their wellbeing at a healthy level as they grow up.
- Aboriginal students were found to have lower achievement in literacy and numeracy than their non-Aboriginal peers. Similar results were found across all stages in primary and high school at each time point.
 - ❖ This implies that effective interventions must be in place to better support Aboriginal students in their literacy and numeracy learning throughout all the school years.

Study 2 (Qualitative)

Identify factors and strategies that optimise high ability Aboriginal and non-Aboriginal students' wellbeing and academic functioning, particularly during their transition from primary to high school.

Key Findings - Students

- Students identified school location, school reputation, program offerings, and family and friends as key reasons for selecting their high schools.
- Students from both rural and metropolitan areas reported that they received support throughout their transition to high school, noting that orientations (rural =17%, metro = 36%), transition programs (rural = 33%, metro = 18%), camps (rural = 17%, metro = 36%) and opportunities to meet people (rural 33%, metro = 36%) had been particularly helpful for their high school transition. The following statistics show what helped Aboriginal and non-Aboriginal students settle into high school:
 - ❖ 42% of non-Aboriginal students noted having someone to answer questions (17% Aboriginal students),

- ❖ 36% of non-Aboriginal students noted orientations (17% of Aboriginal students),
- ❖ 42% of non-Aboriginal students noted transition programs (9% Aboriginal students),
- ❖ 33% of non-Aboriginal students noted camps (18% Aboriginal students), and
- ❖ 58% of non-Aboriginal students stated that opportunities to meet people had been particularly helpful (9% Aboriginal students).
- Students suggested that greater time spent getting to know teachers, other students and the school environment would have aided their transition experience.
- Despite concerns about the social adjustments and increased workload involved in moving to high school, students reported they were doing well in their schoolwork and had learnt a lot about themselves throughout their transition to high school.
- Students largely felt that they handled the transition well:
 - ❖ 83% of Non-Aboriginal students and 64% of Aboriginal students felt that their teachers helped them do well at school
 - ❖ 42% of Non-Aboriginal students and 38% of Aboriginal students felt that their friends helped them do well at school
 - ❖ 42% of Non-Aboriginal students and 18% of Aboriginal students felt that their parents helped them do well at school

Key Findings – Parents

- Some differences were apparent in the factors influencing high school selection as listed by the parents of Aboriginal students (e.g., family connection 50% and location 25%) and parents of non-Aboriginal students (e.g., school reputation 33%).
- Parents of Aboriginal students appeared to be slightly less confident in their child’s level of preparation for high school than parents of non-Aboriginal students.
 - ❖ 25% of Aboriginal parents perceived that their children were well prepared for high school compared to more than 60% of non-Aboriginal parents
- Parents reported that schools provided support throughout the transition to high school in the form of transition programs such as orientation and activities.
- Suggestions for improvements by parents include greater parental involvement during the transition process and greater communication with parents, although 43% of the parents were satisfied with the level of communication with the school.
- 14% of parents interviewed requested for more positive feedback and 14% suggested that more time be spent on Personalised Learning Plans (PLPs).
- 50% of parents of Aboriginal students called for greater engagement with Aboriginal communities and indicated that cultural programs and the involvement of the Australian Education Consultative Group Inc (AECG), Aboriginal staff, Elders and Aboriginal role models was valuable for their children.

Key Findings – School Staff

- School staff indicated that during their transition to high school, students struggle with having multiple classes and teachers, adjusting to a new social and school environment, and adapting to increases in workload and responsibility.

- Most staff felt that these challenges were the same for all students, however some issues such as parental engagement, difficulties at home and academic skills were more pronounced for Aboriginal students.
- Staff noted that high ability Aboriginal students had settled into high school well and had shown initiative, taken on roles of responsibility, risen to high expectations and developed aspirations for their futures.
- Some staff highlighted the importance of PLPs and that some high ability Aboriginal students were hesitant to move into 'top classes' because they were reluctant to be separated from friends.
- Staff noted that Aboriginal students flourish when schools have high expectations of them, seek to build on their strengths, provide support for their academic and holistic development, and involve Aboriginal communities and cultures.
- At the end of Year 7, most staff indicated that high ability Aboriginal students had settled into high school well.
- When asked for strategies to support high school transition, 36% of staff suggested involving Aboriginal families in the programs.

Study 3

Implement and evaluate a teacher-driven intervention designed to improve educational outcomes for high ability students in Years 2 - 4.

Key Findings

- Both the quantitative and qualitative analyses have indicated that the teacher intervention has benefitted both teachers and their students.
- The quantitative analyses showed that students whose teachers stated that they implemented the strategies learned from the teacher training in their classrooms benefitted in the following ways over time:
 - ❖ Higher self-concept
 - ❖ Higher performance-related self-esteem
 - ❖ Higher literacy scores
 - ❖ Higher cultural wellbeing
- The qualitative analyses showed that teachers perceived that the intervention had impacted students in the following ways:
 - ❖ Higher confidence
 - ❖ More interest in cultural lessons
 - More pride in their culture
 - Being more willing to share about their culture with peers
 - Increased sense of belonging and acceptance at school

and impacted them (teachers) in the following ways:

- ❖ Higher confidence and understanding in teaching Aboriginal students and high ability students
- ❖ Higher wellbeing
- The qualitative analyses showed that teachers found the teacher training very useful, enjoyed the podcasts and mentioned a few modules that were particularly beneficial such as 'Gifted and Talented', 'Mindfulness', 'Self-Concept' and 'Physical Literacy'.
- Teachers mentioned that even though the online training was valuable, it was content-heavy, so they faced challenges to complete everything within a short time period. They suggested having the platform available to them indefinitely to be used as a reference resource for further training.
- Teachers also suggested an interactive learning platform with chat groups so that they can receive feedback about their pedagogical approaches and other ideas.

Study 4

Examine Aboriginal and non-Aboriginal students', parents', teachers', and principals' perceptions of the strengths and limitations of online learning for students engaging in distance education.

Key Findings

- The data showed that project-based learning through Google Classroom (GC) delivery is a great help to geographically disadvantaged students.
 - ❖ The approach fosters students' sense of connectedness and their ability to build personal and interpersonal capabilities.
 - ❖ Social presence and a sense of belonging strengthen their connection to people and the learning process and translate into better self-confidence and educational aspiration.
- The major barriers perceived to affect the success of the virtual hub environment (VHE) project-based learning include adaptability and infrastructure issues, both internal (e.g., student adaptability/readiness) and external (e.g., tutors, resources).
 - ❖ Profiling the digital readiness of the geographically disadvantaged students, including teachers and parents, is a gap that has not been seriously attended to, and is yet to be conducted in rural Australian settings.
- Overall, the study has achieved the aims of identifying the merits of the VHE and the strengths and limitations of the approach. It is important for us to understand and address potential barriers to optimise the success of digital education.



Overview of the Research Project

*"We owe it to ourselves and to future generations to help prepare the world of education for gifted students"
(National Association for Gifted Children; USA)*

*"As a nation we need a new intellectual mindset and a new and dynamic focus upon ensuring Australia flourishes....
Fundamental to achieving this goal is putting a stop to the wastage of Aboriginal talent by explicating what seeds
success" (Craven & Parbury, 2013, p. 375).*

*"We have to challenge the 'watered down' expectations of our children. Our kids have to see that they are stronger
and smarter than this society has so far given them credit for...There are plenty of examples of Indigenous success;
we just have to recognise it and replicate it" (Dodson, 2009, p. 3).*

Project Overview

This innovative Australian Research Council (ARC) linkage grant is co-led by the Institute for Positive Psychology and Education at the Australian Catholic University (IPPE, ACU) and the NSW Department of Education (DoE). This research sought to address the ongoing concern that despite a worldwide emphasis on enabling high ability students to realise their full potential, little is known about the drivers that seed success in educational outcomes and wellbeing for high ability Aboriginal students who currently underachieve, are under-identified, and are under-represented in selective settings. Additionally, the absence of evidence-based research means that there is limited knowledge of the underlying factors influencing the underrepresentation of Aboriginal students in selective settings.

The research aimed to harness the talent of high ability Aboriginal students by capitalising on interdisciplinary theory and research, utilising a powerful multi-method design, and state-of-the-art statistics, to identify the psychosocial determinants of high ability Aboriginal students' educational outcomes and wellbeing.

Project Aims

This project sought to capitalise on cutting-edge international interdisciplinary research in Aboriginal Education and positive psychology to:

- (1) Empirically explicate the psychosocial determinants of high ability Aboriginal students' educational outcomes and these determinants' cause-and-effect role on educational outcomes to identify life potential drivers that optimise high ability Aboriginal students' wellbeing and academic functioning (Studies 1 & 2);
- (2) Elucidate multiple stakeholders' perceptions (parents, students, teachers) of what works, and the value, access to, and impact of different types of high ability educational settings (selective, school-based high ability classes, comprehensive) and clarify how such perceptions influence high ability Aboriginal students' educational choices and responses to schooling in these contexts (Study 2);
- (3) Test the saliency and impact of the drivers of success identified in Study 1 and 2 on cultivating the capability of young Aboriginal students in Years 2-4 to provide them with the best start in life (Study 3);

- (4) Examine the saliency and impact of distance education for cultivating the capability of Aboriginal high ability students who would otherwise be unable to access education due to geographical location (Study 4); and
- (5) Test similarities and differences between Aboriginal and non-Aboriginal high ability students to elucidate factors that may be common or unique to high ability Aboriginal students. This will result in identifying appropriate strategies to seed success for high ability Aboriginal students in Australia (Studies 1, 2, 3, 4) that can also be replicated to seed success for other students more widely.

Research Studies

This grant included five key research studies outlined below:

Research Study	Description
Study 1	Utilising an existing longitudinal dataset to examine what facilitates success for Aboriginal and non-Aboriginal students.
Study 2 (quantitative)	Identify determinants of high ability Aboriginal and non-Aboriginal students' educational outcomes and wellbeing (Years 4 -10) across three years.
Study 2 (qualitative)	Identify factors and strategies that optimise high ability Aboriginal and non-Aboriginal students' wellbeing and academic functioning, particularly during their transition from primary to high school.
Study 3	Implement and evaluate a teacher-driven intervention designed to improve educational outcomes for high ability students in Years 2 - 4.
Study 4	Examine Aboriginal and non-Aboriginal students', parents', teachers', and principals' perceptions of the strengths and limitations of online learning for students engaging in distance education.

Study 1

Utilising an existing longitudinal dataset to examine what facilitates success for Aboriginal and non-Aboriginal students.

Background

Students are known to have the ability to differentiate their sense of competence in different school subjects, as they are for their liking for different school subjects. Further, certain beliefs and values (i.e., affect toward learning) relating to different school subject areas and education more generally are predictive of future behaviour and thinking. Studies relating to whether past findings are applicable to Aboriginal students are lacking. It is important to know the psychosocial factors which predict the success of Aboriginal students so that we can learn how best to support and help Aboriginal students gain further success in educational institutions.

Aims

To examine what facilitates success (i.e., aspirations and achievement) for Aboriginal and non-Aboriginal students using existing international databases.

Method

This study involves the analysis of data from existing datasets: Programme for International Student Assessment (PISA) and Longitudinal Surveys of Australian Youths (LSAY). Using a sample of Aboriginal students (N=1,065) and non-Aboriginal students (N=13,030) from the 2006 cohort of the LSAY data, the study examined the predictive paths from 3 predictors (sense of competence in, affect toward, and perceived value of science) to 2 outcome variables (science achievement and aspiration of future career in science) using structural equation modelling techniques. Table 1.1 below shows the description of all the variables (predictors and outcomes) in the study.

Table 1.1. Description of predictors and outcomes in the study

Predictors	Description
Efficacy	Efficacy describes the extent to which students find it easy to complete tasks in a certain subject domain.
Enjoyment	Enjoyment describes the extent to which students experience enjoyment when learning a certain subject domain.
Value	Value describes the extent to which students see value in the learning of a certain subject domain.
Outcomes	
Aspiration	Aspiration describes the extent to which students think about engaging in a certain subject domain in the future.
Achievement	Achievement scores are derived from the standardised tests (PISA).

Results

Using structural equation modelling (SEM) to test the relative predictions of the 3 predictors on the 2 outcomes for Aboriginal and non-Aboriginal students respectively indicated the following findings (see Figure 1.1):

- 'Sense of efficacy' was found to be a moderate predictor of achievement but not of 'Aspiration' for both Aboriginal and non-Aboriginal students;
- 'Enjoyment' was a strong predictor of aspiration for Aboriginal and non-Aboriginal students but a relatively weaker predictor of achievement for non-Aboriginal students;
- 'Value' was a weak predictor of aspiration for non-Aboriginal students but not a predictor of 'Aspiration' for Aboriginal students; and
- Whilst 'Enjoyment' was another predictor of achievement for non-Aboriginal students, it was not linked to achievement for Aboriginal students.

It is important to note the methodological considerations for the analyses. The model with the sampled data provided a good fit. However, when sample weights and clustering were taken into account, there was no known way of testing the fit of the model to the population. The standardised coefficients are statistically different for the two groups of students. Caution needs to be exercised in any claims made regarding the population data.

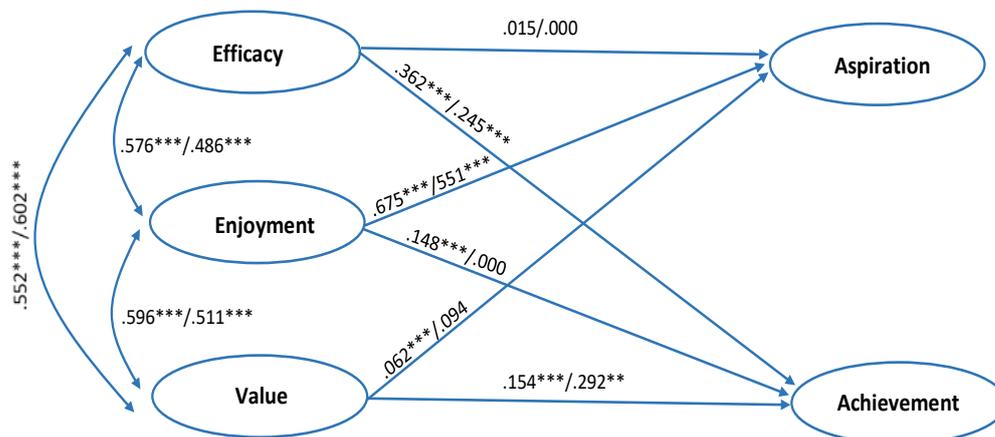


Figure 1.1. The differential predictions model.

Note. Parameter estimates with Non-Aboriginal above vs. Aboriginal students respectively.

Key Findings and Recommendations for Practice and Policy

Students are capable of differentiating their sense of competence in different school subjects, as they are for their liking of different school subjects. Further, certain beliefs and values (i.e., affect toward learning) relating to different school subject areas and education more generally are predictive of future behaviour and thinking. This study has shown how these relations are both similar and different for non-Aboriginal and Aboriginal students using a large robust dataset. Most importantly, they can be used to show how best to support and help Aboriginal students gain success in educational institutions, where for so long they have struggled. The findings are consistent with past research: namely, that valuing and enjoying learning are important prerequisites for academic success and career aspirations (a known predictor of success). However, it seems that this is not always true for Aboriginal students. Further research is needed to identify what factors may be hindering the benefits of liking and valuing school subjects for Aboriginal students and what drivers or supports are needed in order to maximise the chances whereby enjoying a school subject translates into high achievement.

Research Output

Dillon, A., Diallo, T., Craven, R. G. Mooney, J., Franklin, A., Yeung, A., & Brockman, R. (currently being drafted). In search of drivers of success for Indigenous and non-Indigenous Australian Students. *International Journal of Educational Research*.

Study 2 (Quantitative)

Identify determinants of high ability Aboriginal and non-Aboriginal students' educational outcomes and wellbeing (Years 4– 10) across three years.

Background

Research has shown that the numbers of successful Aboriginal students triumphing and succeeding are on the rise. Research has also shown that these high ability Aboriginal students do not achieve the same educational outcomes as their non-Aboriginal peers and continue to be under-identified and under-represented in opportunity classes and selective settings. Due to the limited research in this area, little is known about what facilitates positive educational outcomes for high ability Aboriginal students. There is also a lack of a validated wellbeing instrument to measure students' psychosocial factors.

Aims

The central aim of this research is to identify factors and strategies at the individual, classroom, school and community levels that optimise the wellbeing and academic functioning of high ability Aboriginal and non-Aboriginal students. More specifically, this large-scale study aims to (1) design and validate an instrument to measure students' psychosocial factors and (2) identify the psychosocial determinants of high ability Aboriginal and non-Aboriginal primary and high school students' wellbeing and academic functioning.

Method

Three phases of the study have been conducted (Phase One in 2016; Phase Two in 2017; and Phase Three in 2018) with high ability Aboriginal and non-Aboriginal primary and high school students in Years 4-11.

Participants

The graphs in Figure 2.1 below show the distribution of participants in the respective groups over the three phases of the study (i.e., Time points T1, T2, and T3).

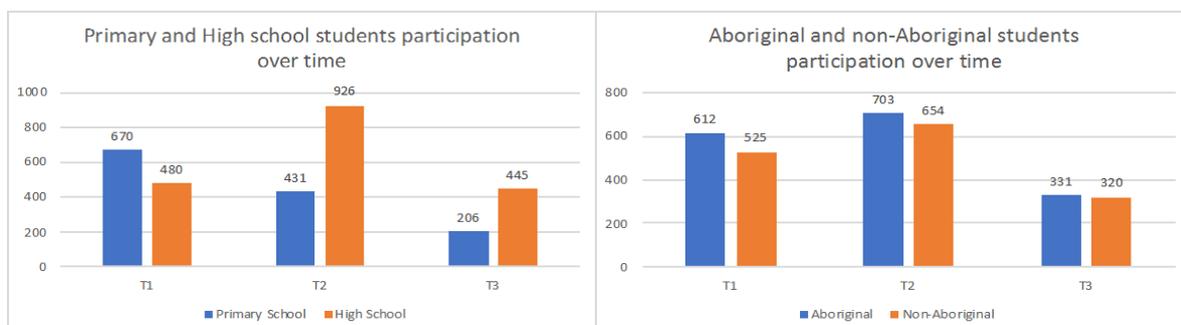


Figure 2.1. Sample sizes across all groups in the study.

Material

Students completed a 30-minute online wellbeing survey and two 20-minute tests in literacy and numeracy.

Analysis

Based on the preliminary analysis of the data of this study, the IPPE research team at ACU developed a multidimensional model of student wellbeing. This model suggests that there are 6 dimensions of wellbeing, as illustrated in Figure 2.2.

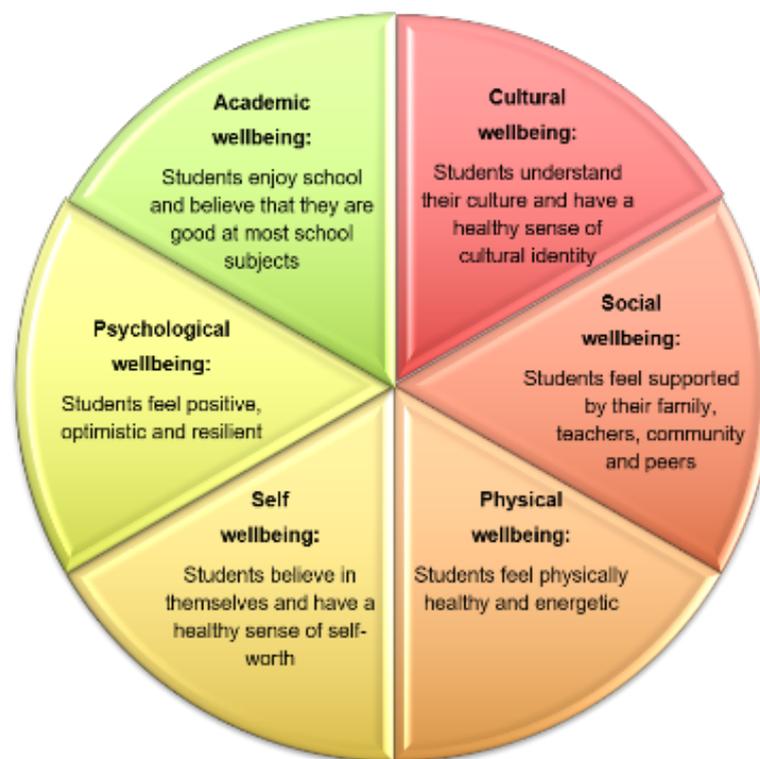
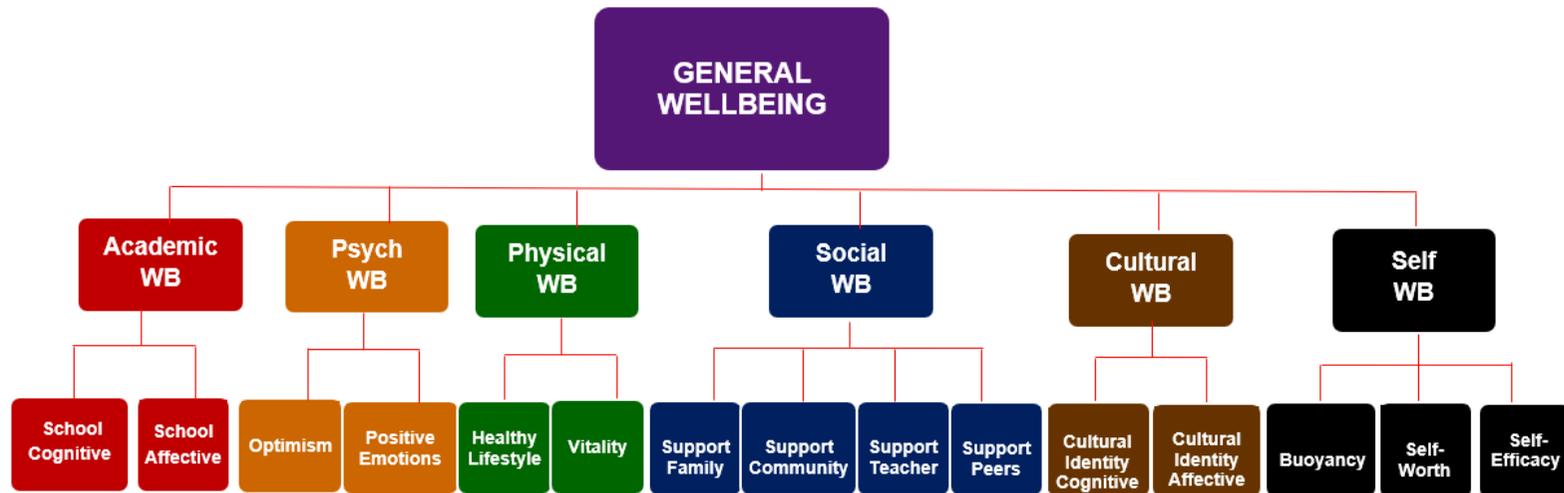


Figure 2.2. Description of the six dimensions of the multidimensional model of student wellbeing.

Further analyses suggested that the model could be further developed into a 15-factor multidimensional wellbeing measure which is hypothesised to be applicable for Aboriginal and non-Aboriginal students in both primary and high schools. Figure 2.3 on the following page illustrates the model.

15-Factor Multidimensional Model of Student Wellbeing

Aboriginal and non-Aboriginal primary and high school students



Correlates (potential drivers)



Figure 2.3. 15-factor multidimensional model of student wellbeing hypothesised to be applicable for Aboriginal and non-Aboriginal students in primary and high schools.

To examine the structure of the proposed 15-factor multidimensional model of student wellbeing over the three time points of the study, Confirmatory Factor Analysis (CFA) was employed at each time point. Hu and Bentler's (1999) cut-off criteria to test how the data fit the model (CFI and TLI \geq .95, RMSEA \leq .06) was followed. Example items for each of the six main factors can be seen in Table 2.1 below.

Table 2.1. Example items from each of the 15 factors in the student wellbeing survey instrument.

Dimension of wellbeing	Factor	Sample item
Academic wellbeing	School Cognitive	I am good at most school subjects
	School Affective	I like most school subjects
Psychological wellbeing	Optimism	I expect good things to happen to me
	Positive Emotions	I often feel joyful
Physical wellbeing	Health Lifestyle	I have a healthy lifestyle
	Vitality	I feel energised
Social wellbeing	Family Support	My family helps me feel close and connected
	Community Support	When I am with my community, I feel like I belong
	Teacher Support	My teachers really care about me, and I care about them
	Peer Support	My friends help me with my schoolwork
Cultural wellbeing	Cultural Identity (Cognitive)	I know a lot of things about my culture
	Cultural Identify (Affective)	I enjoy being a member of my culture
Self wellbeing	Resilience	I am good at dealing with setbacks (e.g., bad marks)
	Self-worth	Overall, I have a lot to be proud of
	Self-efficacy	If I really try, I can do almost anything I want to do

Results: Part 1 - Validity of Survey Instrument

Confirmatory Factor Analysis

As indicated in Table 2.2 below, the data showed satisfactory fit to the hypothesised model at all three time points. Overall, items demonstrated strong loadings ($>.30$), and the combination of fit and loadings suggest that the selected items were good indicators of the latent variables. The results imply that the wellbeing survey questionnaire is a reliable measure of student wellbeing.

Table 2.2. Model fit (Confirmatory Factor Analysis) for the whole sample (Aboriginal and non-Aboriginal students) over time.

Time point	Number of Parameters	Chi-square	Degrees of Freedom	Root Mean Square Error of Approx.	Comparative Fit Index (CFI)	Tucker-Lewis Index (TLI)
Time point 1 (N = 1,150)	205	2802	1070	.038	.96	.95
Time point 2 (N = 881)	205	4127	1070	.046	.95	.95
Time point 3 (N = 651)	205	2263	1070	.042	.96	.95

Discriminant Validity

Latent correlations were in the range and direction expected (factor correlation range = $.30$ to $.82$), with moderate to strong correlations found. Table 2.3 on the following page shows the latent correlations. Overall, the data largely supported discriminant validity in Study 2 as students perceived 15 related but distinct factors at all three time points. The results further supported the validity of the wellbeing survey questionnaire.

Table 2.3. Latent correlations among the 15 factors at T1 (N = 1,150).

	Academic WB		Psychological WB		Physical WB		Social WB				Cultural WB		Self WB		
	School Cognitive (SSC)	School Affective (SSA)	Optimism (Opt)	Positive Emotions (PoE)	Health Lifestyle (Heal)	Vitality (Vit)	Belong Support Family (FRS)	Belong Support Community (CRS)	Belong Support Teacher (TRS)	Peer Support School (Peer)	Cultural Identity Affective (CIA)	Cultural Identity Cognitive (CIC)	Buoyancy (BOU)	Self-Worth (SEW)	General Self-Efficacy (SEff)
SSC	1														
SSA	.81	1													
Opt	.59	.59	1												
PoE	.58	.55	.80	1											
Heal	.49	.49	.65	.59	1										
Vit	.53	.52	.75	.75	.81	1									
FRS	.39	.37	.64	.64	.51	.60	1								
CRS	.46	.38	.61	.62	.53	.59	.63	1							
TRS	.60	.49	.61	.60	.49	.56	.50	.62	1						
Peer	.41	.30	.45	.47	.41	.41	.37	.48	.50	1					
CIAI	.30	.25	.43	.40	.36	.40	.42	.47	.35	.35	1				
CICI	.31	.30	.39	.35	.36	.36	.36	.43	.35	.35	.78	1			
BOU	.48	.51	.61	.66	.49	.63	.43	.49	.49	.41	.39	.39	1		
SEW	.53	.56	.82	.83	.60	.72	.65	.60	.57	.42	.44	.38	.67	1	
SEff	.65	.77	.74	.72	.60	.64	.55	.55	.55	.43	.37	.37	.59	.82	1

Results: Part 2 – Student Wellbeing and Achievement

Results of Student Wellbeing

Aboriginal and non-Aboriginal students across primary school and high school responded to questions about their academic, psychological, physical, social, cultural, and self wellbeing using a 6-point scale (1 = strongly disagree to 6 = strongly agree). Results presented in the graphs (Figures 2.4 to 2.9) provide the average student rating for questions that relate to each dimension of wellbeing. Higher scores represent higher levels of wellbeing on each of the six dimensions.

Results of the study suggest that both Aboriginal and non-Aboriginal students in high school consistently reported lower levels of wellbeing across all six wellbeing dimensions (i.e., academic, psychological, physical, social, cultural, and self wellbeing), compared with their respective peers in primary school. Similar results were observed across all three time points, T1, T2, and T3. This general pattern may be indicative of a decline in these domains of wellbeing for students as they transition from primary school through to high school. The results did not indicate much difference between Aboriginal and non-Aboriginal students' wellbeing.

The following graphs (Figures 2.4 to 2.9) show the means of Aboriginal and non-Aboriginal primary and high school students in each of the six dimensions of wellbeing over the three time points (T1, T2, and T3).

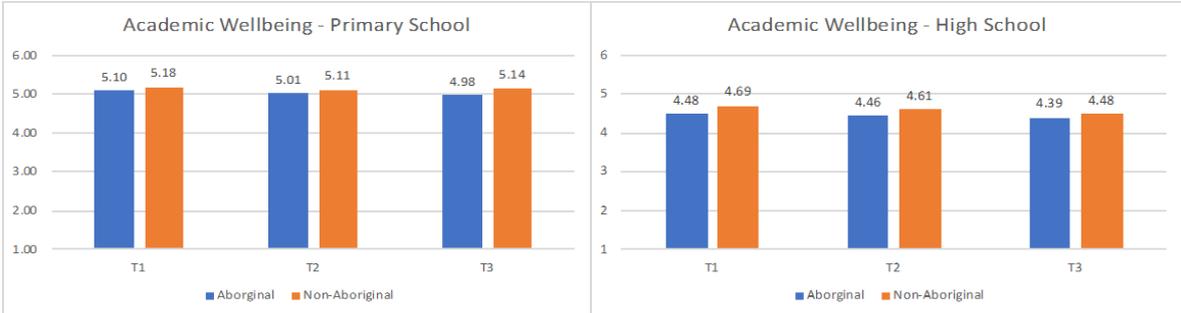


Figure 2.4. Means of Academic wellbeing over time for Aboriginal and non-Aboriginal students.



Figure 2.5. Means of Psychological wellbeing over time for Aboriginal and non-Aboriginal students.

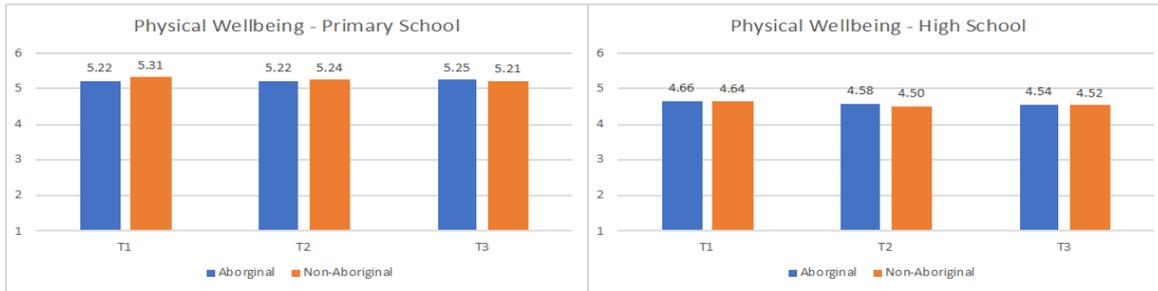


Figure 2.6. Means of Physical wellbeing over time for Aboriginal and non-Aboriginal students.

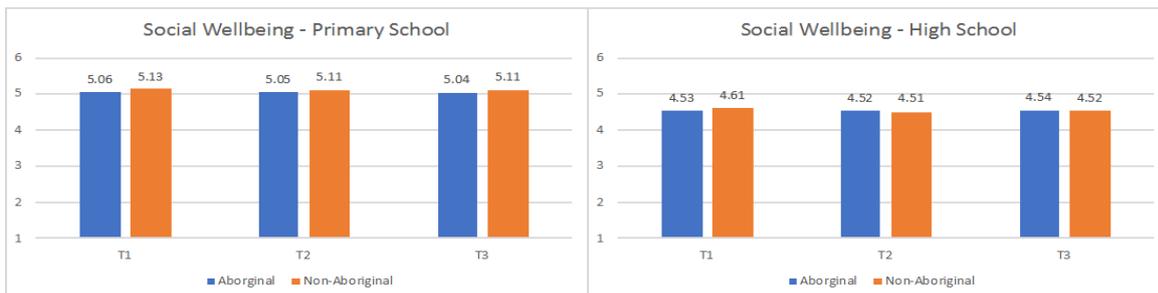


Figure 2.7. Means of Social wellbeing over time for Aboriginal and non-Aboriginal students.

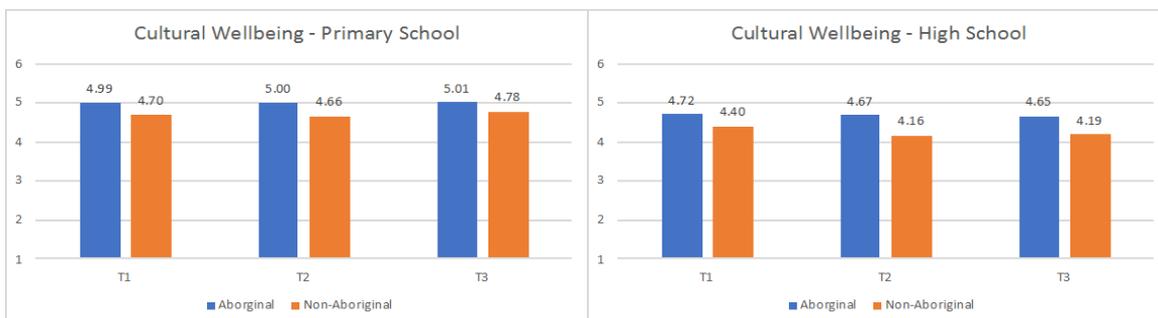


Figure 2.8. Means of Cultural wellbeing over time for Aboriginal and non-Aboriginal students.

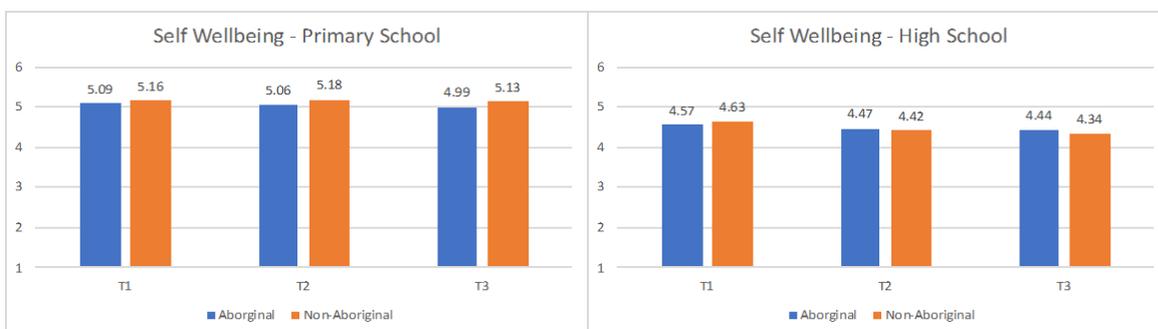


Figure 2.9. Means of Self wellbeing over time for Aboriginal and non-Aboriginal students.

Results of Student Achievement in Literacy and Numeracy

In addition to the wellbeing survey, Aboriginal and non-Aboriginal students across primary school and high school also responded to literacy and numeracy test questions at each time point (T1: Phase 1, T2: Phase 2, and T3: Phase 3). The graphs in Figure 2.10 below show the mean percentage achievement scores of Aboriginal and non-Aboriginal students in the literacy and numeracy tests over the three time points (T1, T2, and T3). As seen from the graphs, Aboriginal students had lower achievement than their non-Aboriginal peers in both literacy and numeracy at each time point. Similar results were observed in both primary and high school. In terms of academic achievement, Aboriginal students scored lower in both literacy and numeracy compared to their non-Aboriginal peers regardless of the school stage they were in.

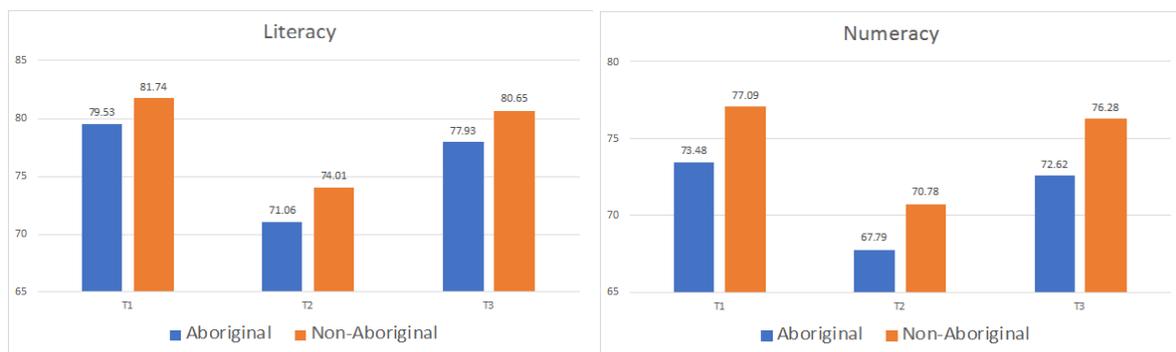


Figure 2.10. Means of Literacy and Numeracy percentage scores over time for Aboriginal and non-Aboriginal students.

Key Findings and Recommendations for Practice and Policy

- Overall, the hypothesised factor structure of the survey instrument (multi-dimensional wellbeing model) used in this study is sound.
 - ❖ The combination of item-factor loadings and model fit indices across three time points indicate that the instrument is appropriate for assessing Aboriginal and non-Aboriginal primary and high school students' perceptions of wellbeing.
- Using this validated instrument, the results showed that in general, high school students tend to display lower wellbeing scores than primary students.
 - ❖ This pattern indicates a potential decline in wellbeing as students develop.
- Aboriginal and non-Aboriginal students are similar across all six dimensions of wellbeing, both being lower in high school than in primary school.
 - ❖ This implies that all students, irrespective of cultural background, may need effective interventions to maintain their wellbeing at a healthy level as they grow up.
- Aboriginal students were found to have lower achievement in literacy and numeracy than their non-Aboriginal peers. Similar results were found across all stages in primary and high school at each time point.
 - ❖ This implies that effective interventions must be in place to better support Aboriginal students in their literacy and numeracy learning throughout all school years.

Research output

- Craven, R. G., M., Mooney, J., & Marder, K. (2018). A reciprocal research partnership model: Towards a positive psychology of Indigenous thriving. *Paper presented at the Australian Association for Research in Education, Sydney, Australia.*
- Craven, R., Yeung, A., Riley, P, Dillon, A., Mooney, J., & Franklin, A. (2018). The multidimensionality of Indigenous and non-Indigenous students' well-being. *Paper presented at the Australian Association for Research in Education, Sydney, Australia.*
- Craven, R., G., Marsh, H., W., Yeung, A., Mooney, J., & Franklin, A. (currently being drafted). Longitudinal drivers of Indigenous students' well-being. *Educational Researcher.*
- Craven, R. G., Marsh, H., & Yeung, A. (currently being drafted). multidimensional well-being of Indigenous students. *Educational Researcher.*
- Craven, R. G., Ryan, R. M., Mooney, J., Vallerand, R. J., Dillon, A., Blacklock, F., & Magson, N. (2016). Toward a positive psychology of indigenous thriving and reciprocal research partnership model. *Contemporary Educational Psychology, 47, 32-43.*
- Mooney, J., Seaton, M., Kaur, G., Marsh, H. W., & Yeung, A. S. (2016). Cultural perspectives on Indigenous and non-Indigenous Australian students' school motivation and engagement. *Contemporary Educational Psychology, 47, 11-23.*

Study 2 Qualitative

Identify factors and strategies that optimise high ability Aboriginal and non-Aboriginal students' wellbeing and academic functioning, particularly during their transition from primary to high school.

Background

Research has shown that high ability Aboriginal students do not achieve the same educational outcomes as their non-Aboriginal peers and continue to be under-represented and under-identified in selective contexts. Given the lack of research in this area, little is known about what facilitates positive educational outcomes for high ability Aboriginal students. The central aim of this research is to identify factors and strategies at the individual, classroom, school and community levels that optimise the wellbeing and academic functioning of high ability Aboriginal and non-Aboriginal students', particularly during their transition from primary to high school.

Aims

This study aimed to identify factors and strategies that optimise high ability Aboriginal and non-Aboriginal students' wellbeing and academic functioning, particularly during their transition from primary to high school. Specifically, the study sought to:

- ascertain Aboriginal and non-Aboriginal student perceptions of how the transition from primary to high school affects their educational outcomes and wellbeing (rural and metropolitan)
- elucidate multiple stakeholder perceptions (parents, teachers, principal, ACLOs and AEOs) of what works in promoting achievement for high ability students and why students do or do not apply for and accept selective high school placement
- clarify how such perceptions influence high ability Aboriginal students' educational choices.

Method

- Three phases of interviews were conducted with high ability Aboriginal (N = 11) and non-Aboriginal students (N = 12), their teachers and principals (N=29), parents Aboriginal (N=8) non-Aboriginal (N=5) and Aboriginal Education Officers (N=12) from metropolitan, regional and remote schools.
- These interviews were conducted across the transition from Year 6 to Year 7: in December prior to going to high school, and in March and November of the first year of high school.

Results

Students - School selection

Phase 1 – Why students selected their high schools

In Year 6, students were asked about the reasons that they had selected their high school. Overall students noted school location, school reputation, program offerings and family and friends as key reasons for selecting their high schools.

Aboriginal and non-Aboriginal students

Figure 2.11 illustrates the reasons for high school selection given by Aboriginal and non-Aboriginal students.

- Aboriginal students mentioned the location of the school, sports specialisation and other programs most frequently.
- Non-Aboriginal students mentioned having an older sibling at the school, the location and reputation of the school and Gifted and Talented (GAT) programs more frequently than their Aboriginal peers.

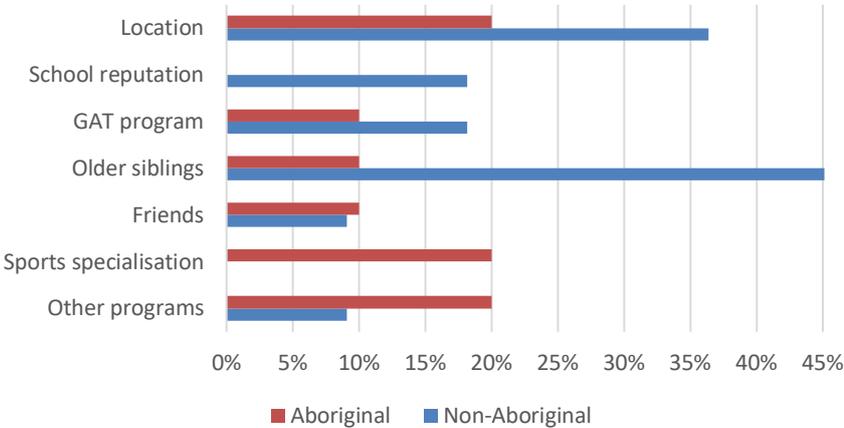


Figure 2.11. Reasons for high school selection given by Aboriginal and non-Aboriginal students.

Metropolitan and rural students (including Aboriginal and non-Aboriginal students from both regions)

Figure 2.12 illustrates the reasons for high school selection given by students located in the metropolitan and rural areas.

- Metropolitan students mentioned the location and reputation of the school, and GAT, sports and other programs more frequently than rural students. This may reflect a larger number or greater awareness of programs in metro areas.
- Rural students appeared to comment on the influence of their family connections (older siblings) and friends attending the school more frequently than metropolitan students.

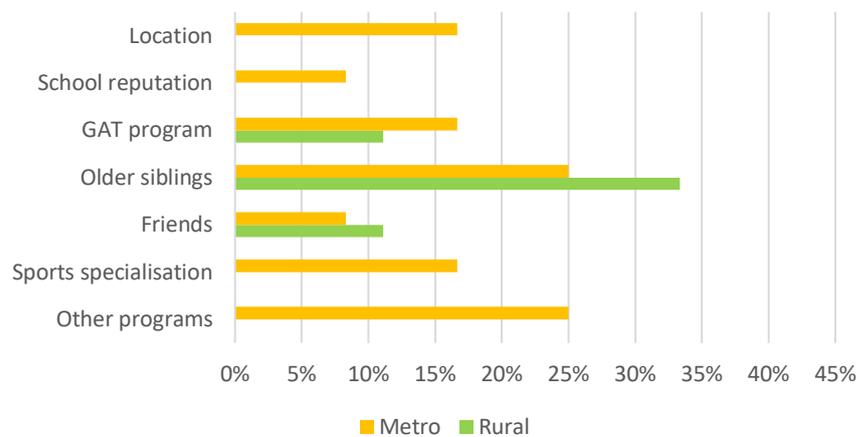


Figure 2.12. Reasons for high school selection given by metropolitan and rural students.

Students – School transitions

Phase 2 – What schools did to help students settle into high school

In Year 7 students were asked what their school had done to help them to settle into high school. Figure 2.13. illustrates the responses given by metropolitan and rural students.

- Metropolitan students reported that orientation days, Year 7 camps, having someone to answer questions and having opportunities to meet new people had helped them settle into high school.
- Rural students were more likely to comment that their school had implemented transition programs and created opportunities for them to meet new people. A number of students from rural schools also reported being unsure about what their school had done to assist them in settling in to high school.

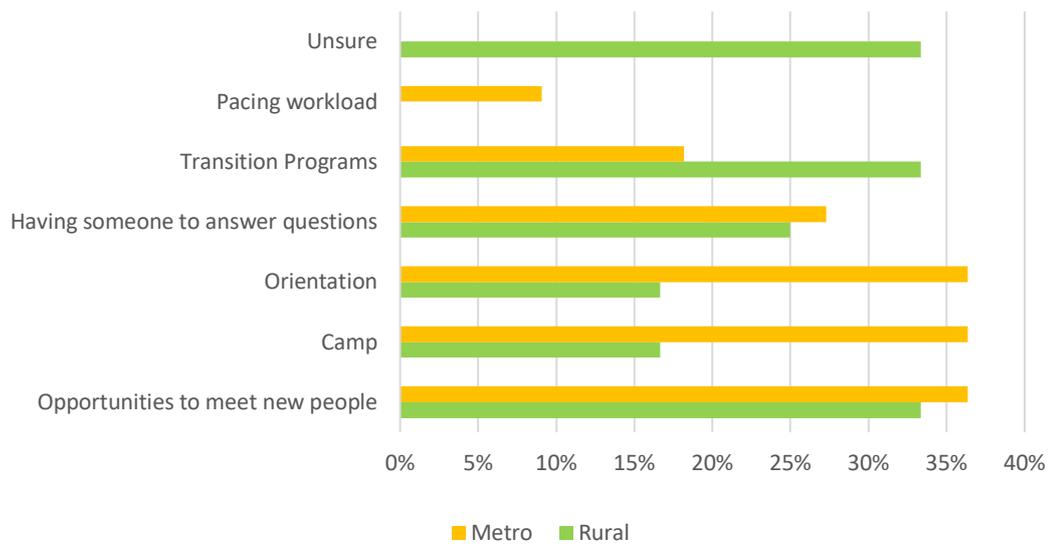


Figure 2.13. Support for high school transition as perceived by metropolitan and rural students.

Phase 2 – Suggested improvements about high school transitions

In Year 7, students were asked what their school could have done better to help them settle into high school. Table 2.4 shows their responses. The majority of students were happy with the support they had received during transition, however some students mentioned that they would have benefitted from having more time getting to know the school, the other students and the teachers, along with having greater academic support before and after the transition.

Table 2.4. Suggestions for improvements for support provided during high school transition.

Theme	Sample Quotes
Happy with preparation	<i>“Everyone was really nice, even all the older people when we got lost and stuff... and we got diaries with everything in it that we need to know, so it was pretty good”.</i>
More time on orientation	<i>“Maybe just showing us around a lot more, it was just a very small tour like we didn’t see everything”.</i>
Get to know other students	<i>“Maybe for the first day they should have like made us all sit in one room get to know each other”.</i>
Get to know the teachers	<i>“We didn’t really get to know the teachers much. And like I like getting to know my teachers”.</i>
Greater academic support	<i>“Sit and work along with me”;</i> <i>“Maybe like the last few weeks of school make us do stuff”.</i>

Students – Resilience starting high school

Phase 1 - Worries about going to high school

In Year 6, students were asked about whether they had any worries about starting high school.

Figure 2.14 illustrates their responses.

- A third of the Year 6 Aboriginal students said there was nothing worrying them about going to high school. Of the concerns mentioned, Aboriginal students most frequently expressed worries about bullying and a higher workload. However, the percentage of Aboriginal students expressing those concerns were lower than non-Aboriginal students.
- Non-Aboriginal students appeared to be most concerned about the higher workload, receiving more homework and finding their way around the high school.

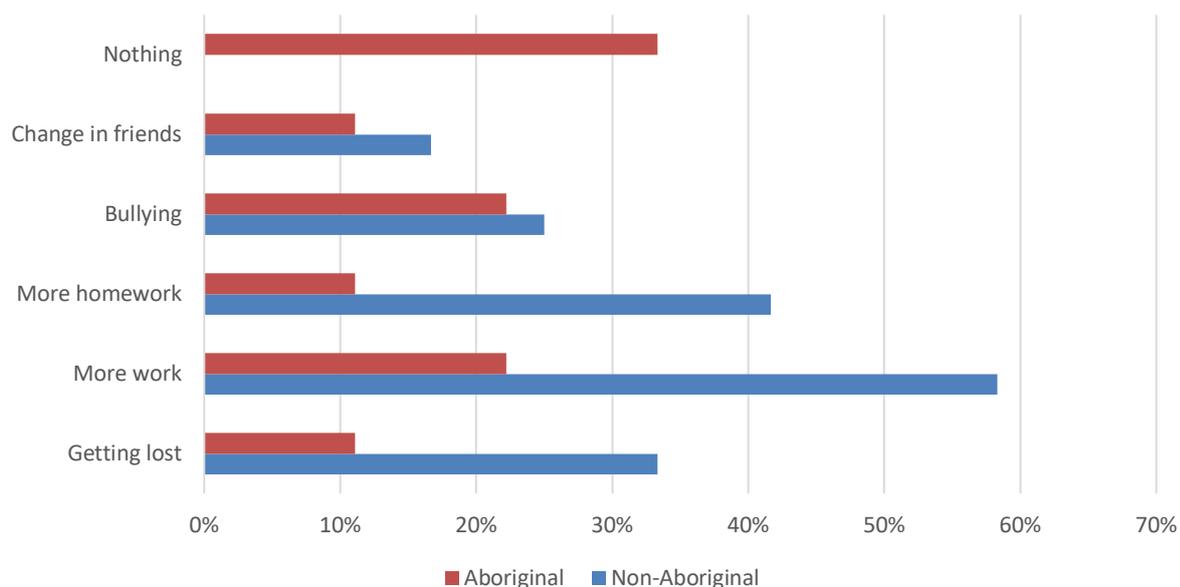


Figure 2.14. Worries about starting high school as described by Aboriginal and non-Aboriginal students.

Phase 2 – Coping with high school

Despite a significant proportion of students expressing concerns about starting high school the following two graphs in Figure 2.15 indicated that students were largely resilient to the transition. After starting Year 7, most Aboriginal and non-Aboriginal students felt that they were doing well at school and had handled the move to high school well.

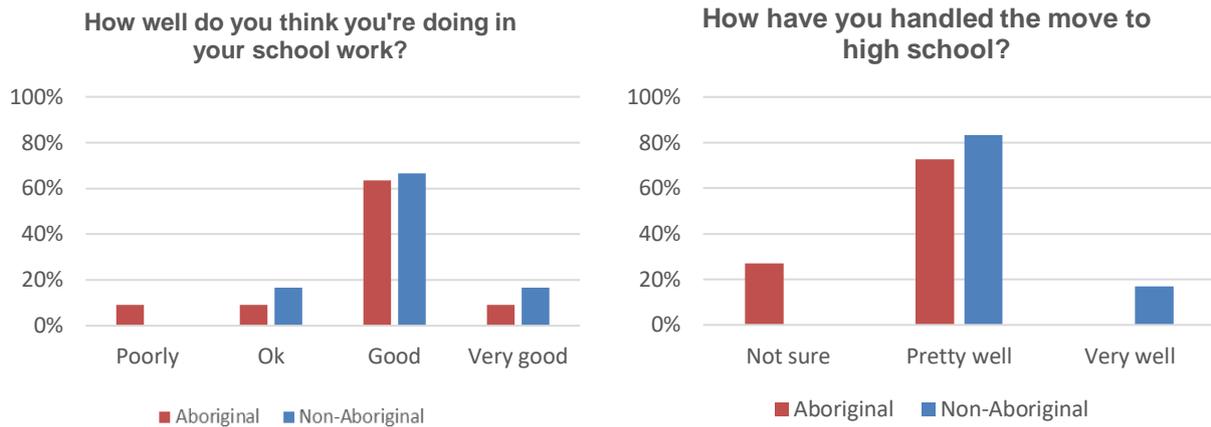


Figure 2.15. Coping with high school transition.

Phase 3 – What students learnt about themselves

School transition can be a stressful and challenging period. However, it also offers students an opportunity to grow and learn about themselves. At the end of Year 7, students were asked what they had learnt about themselves since starting high school. Figure 2.16 shows their responses.

- Non-Aboriginal students reflected that they had learnt that they could focus more and put more effort into school than they had originally thought, that they felt more confident since starting high school and that they needed to get organised.
- A number of Aboriginal students were unsure about what they had learnt about themselves. The most common reflection from Aboriginal students was that their confidence socially and at school had grown since starting high school.

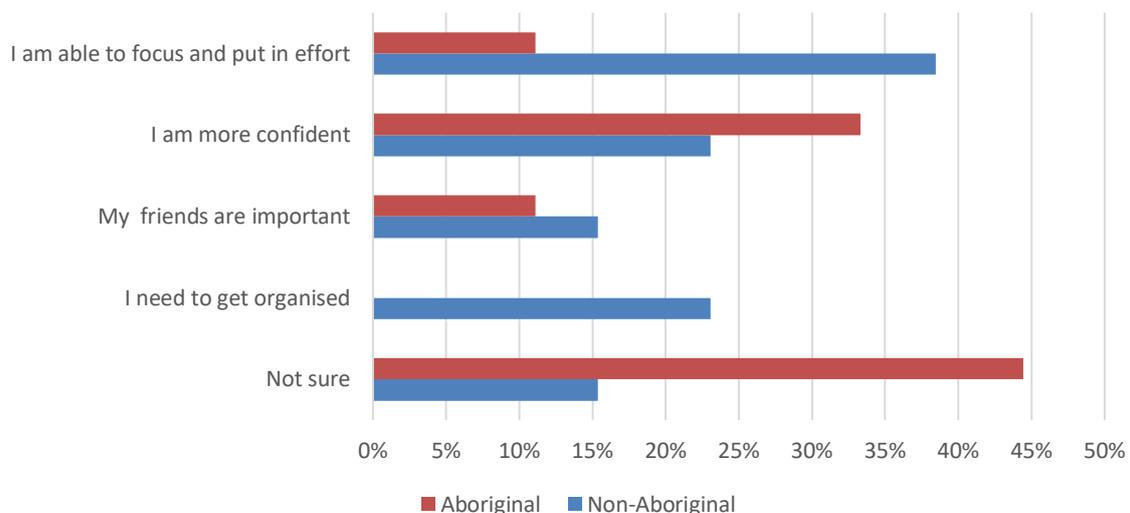


Figure 2.16. What Aboriginal and non-Aboriginal students learned about themselves.

Students – What leads to success in high school?

Phase 2 – Doing well at high school

After starting Year 7, students were asked what it is about some people that helps them to do well at high school. Figure 2.17 illustrates their responses.

- Aboriginal and non-Aboriginal students frequently reported that having friendships and a positive attitude helps students to do well in high school.
- Aboriginal students mentioned intelligence as one of the key reasons that students do well. This is an interesting point for reflection given that ‘Self-concept’ and ‘Growth-mindset’ research shows that students who believe that success is a result of effort (rather than ability or intelligence alone), are more likely to put in effort and do well at school.

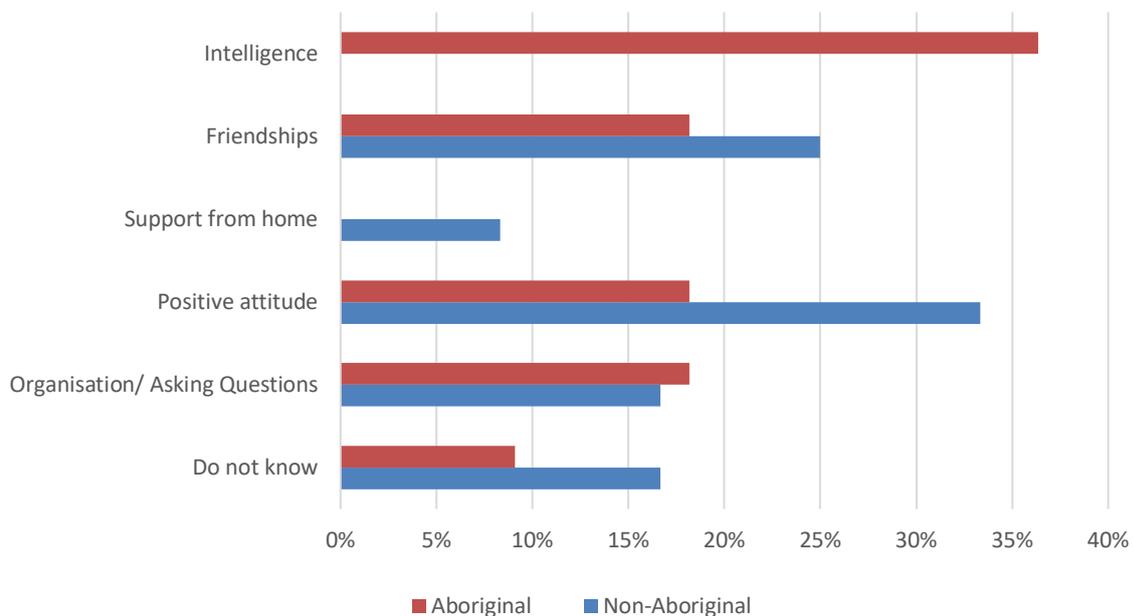


Figure 2.17. Factors that lead to high school success as perceived by Aboriginal and non-Aboriginal students.

Parents - School selection

Phase 1 – Selection of high school

Parents were asked how they had selected a high school for their child. Figure 2.18 illustrates their responses.

- Parents of Aboriginal students listed family connection to the school (i.e. whether the parents or other siblings had attended the school) and the location of school as reasons for selecting their child's high school.
- The reputation of the school, satisfaction with the public school system and successful GAT applications were listed by parents of non-Aboriginal students.

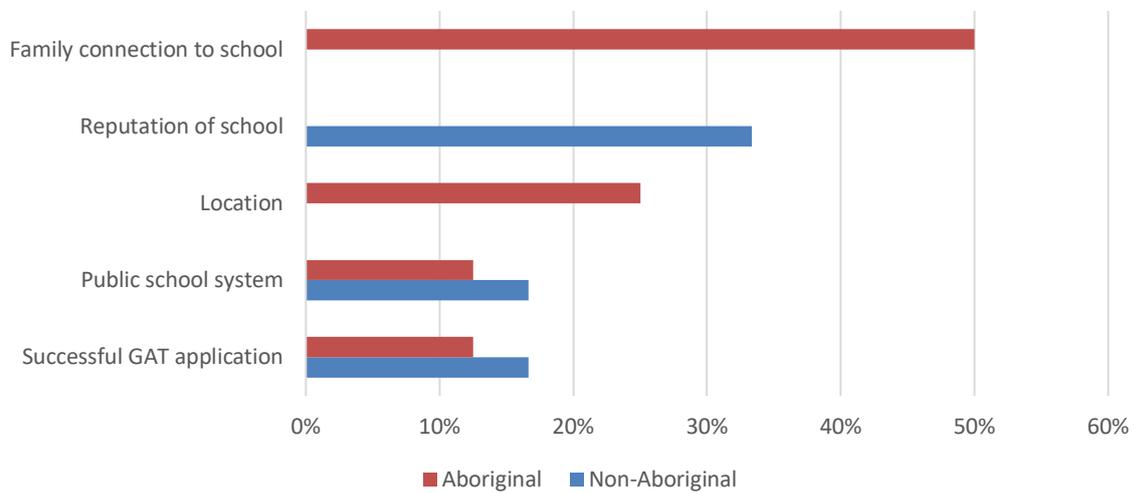


Figure 2.18. Factors influencing high school selection by parents.

Parents – Preparation for high school

Phase 1 – Preparation for high school

When their children were in Year 6, parents were asked how well prepared they thought their children were for high school. Figure 2.18 illustrates the responses of parents of Aboriginal and non-Aboriginal students.

A higher proportion of non-Aboriginal parents expressed confidence in how prepared they believed their child was for high school.

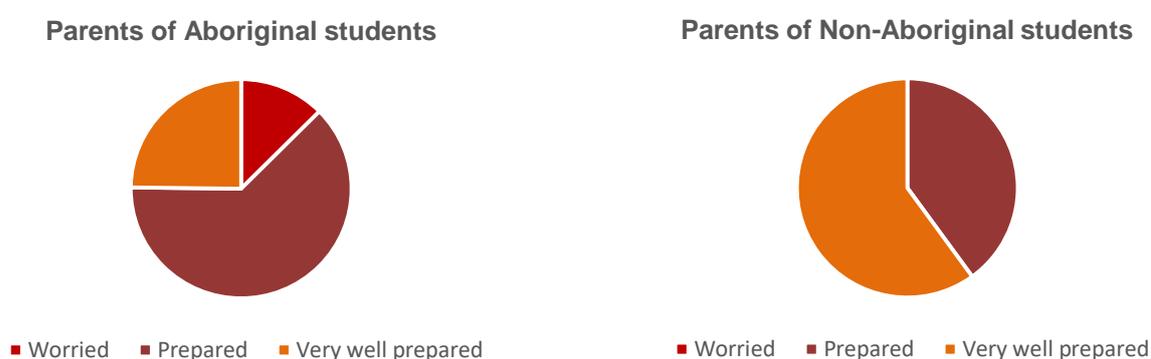


Figure 2.19. Perceptions Aboriginal and non-Aboriginal parents on how well prepared their children are for high school.

Parents – Support for transition to high school

Phase 1 - How did your child's school help to prepare them for the move to high school?

Parents were asked about ways in which their child's primary school had helped students prepare for transitioning to high school, and whether there were any areas for improvement. Table 2.5 below provides some sample responses.

Table 2.5. Support provided during high school transition as perceived by parents.

Theme	Sample Quotes
Transition Programs/Rotations	<i>"...all the children seem to love... the rotations program which...gets them out of their classroom into another classroom or the computer lab or out on the oval with another teacher, and creates a special bond with those teachers in knowing all the students in Year five/six is a bonus".</i>
Building academic and personal capacities	<i>"...they concentrate a lot on making sure that their literacy and numeracy standards are up to moving on to high school..."</i>

	<i>that jump to the work levels that's expected at Year seven, it is still going to be a bit of a shock.”; “The school also has given them a lot of leadership roles”.</i>
Orientation day	<i>“Between the school and the high school there's a fairly close connection there, where they're going up there for inspections and all that sort of stuff”; “He went to the orientation day... And that was at the school that he's attending”.</i>
Information about high school	<i>“There was a flyer passed on at the school that the local high school that our school tends to feed into mostly was having an open day for parents and students to come and walk through have a look”.</i>
Unsure/more preparation required	<i>“And more meetings and interviews with the parents or involving the parents in that more to prepare them a little bit better”. “I think, they've got an orientation day, like, one day next week and that's the first real day that they've had for high school. I just don't think that that's enough to prepare them to let them know exactly what high school life is all about”.</i>

Phase 3 – Improvements to transition

At the end of Year 7, parents were asked what schools could have done to improve the way they support students in the transition to high school. Parents had a number of suggestions as shown in Table 2.6 below.

Table 2.6. Parental suggestions for improvement of support provided during high school transition.

Theme	Sample Quotes
Happy with the transition	<i>“I think I was pretty happy with everything that they actually did. They did a lot of visits and come and try days and stuff like that. Yes, I think he was very well-prepared to go to high school”.</i>
Greater communication with parents	<i>“The limitation is the communication. The access and the availability of the communication”.</i>
Greater involvement of parents in the transition process	<i>“Some of the parents could come in and help. Like people like us, that care for children. And we could come in and talk to them and help them out, so they weren't frightened”.</i>
Having someone for their child to speak with	<i>“To have someone to talk to. That people will listen when he's got to speak”.</i>

Parents – Communication with school

Phase 1 - Communication with parents

Parents were asked what the communication with their child's school was like. Some parents felt that the level of communication was good, whilst others indicated that more communication would be helpful, including providing positive feedback, being available to answer parent questions, and

spending more time on PLPs. Table 2.7 below provides the percentage of overall responses by parents.

Table 2.7. Perceptions of school communications by parents.

43%	Satisfied with level of communication Parents described their child’s school as approachable and indicated that they were satisfied with regular contact via reports, notes and phone calls.
21%	Not available enough Parents indicated that there was not enough communication from their child’s school or that the school was not available enough when parents needed information.
14%	Pleased with positive feedback Parents were pleased to receive positive feedback about their child, rather than only hearing from the school when something was wrong.
14%	Not enough communication of the positives Parents felt that the school only contacted them when something was wrong and that there was a need for proactive and positive feedback about their children.
14%	PLPs need to be more effective Parents felt that more time and attention was needed in order to utilise PLPs effectively.

Parents – Engagement with Aboriginal communities

Phase 1 – School engagement with Aboriginal communities

In Phase 1 of the interviews, parents were asked about the ways their child’s school engaged with Aboriginal community members and how helpful or unhelpful this was for their child.

- Half of the parents of Aboriginal students indicated that there was not enough engagement with Aboriginal communities.
- Parents of non-Aboriginal students were more likely to indicate that they were unable to comment.
- Parents of Aboriginal and non-Aboriginal students highlighted the value of cultural programs and celebrations (e.g. National Aboriginal and Islanders Day Observance Committee (NAIDOC) week events, Aboriginal language programs, and integration of Aboriginal cultures across learning programs).
- Parents of Aboriginal students also indicated that the involvement of the Aboriginal Education Consultative Group (AECG), Aboriginal staff, Elders and Aboriginal role models in school activities was valuable for their children.

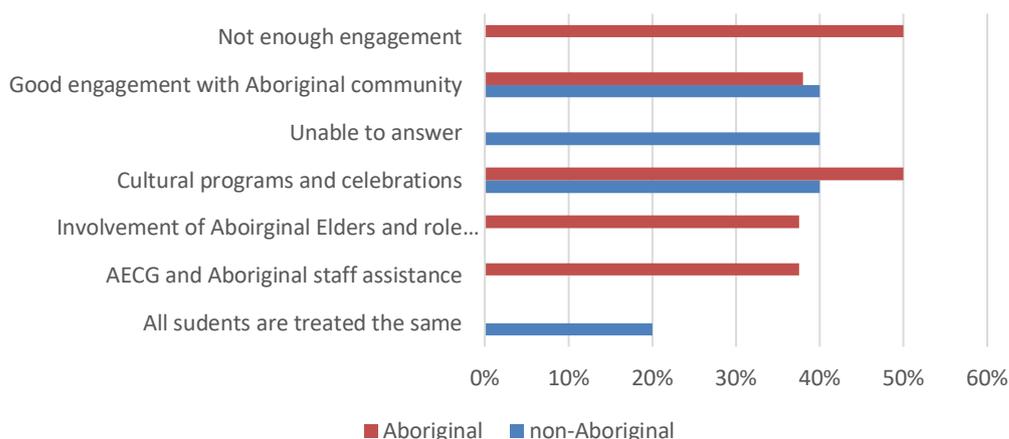


Figure 2.20. Parental perceptions of school engagement with Aboriginal communities.

School staff – Transition to high school

Phase 3 – Challenges in high school

At the end of Year 7, school stakeholders (i.e., teachers, principals and Aboriginal Education Officers) were asked what challenges Year 7 students experienced when starting high school. Staff indicated that having multiple classes and teachers, changes to their social environment and a lack of connection to their new teachers and school was difficult for students to adjust to. Staff also noted that academic challenges and increases in the responsibility placed on students was challenging for some students.

Table 2.8. Challenges of high school transition as perceived by school stakeholders.

Theme	Sample Quotes
Changes in teachers and classes	<i>“I guess it’s change of setting, classroom setting, different structure of the school”; “The changing of teachers is probably the biggest thing, not having a home teacher to organise them and find their way around”.</i>
Social challenges	<i>“Going from being the big fish to the small fish again”; “Bullying... online, verbal, physical... impacting every day on children”.</i>
Lack of connection in high school	<i>“The lack of connection with the school that they come into”; “It’s not the same as primary school they don’t really have someone to bond with emotionally. Yes, socially you do notice it more if they haven’t got that role model or person they can connect with”.</i>
Academic challenges	<i>“Well the demands of the work... formal assessment tasks... exams. They do some of that in primary school but not to the extent of what high school requires”; “The standard of writing... and even some of the basic maths... if they miss out on the</i>

	<i>basics in primary school, they're likely to struggle all the way through".</i>
Increase in responsibility	<i>"Their organisational skills and being mature and taking ownership of their education. In primary school they're pretty well looked after, when they get here it's sort of they have to take some responsibility".</i>

School staff – Transition for Aboriginal students

Phase 3 – Unique challenges for Aboriginal students

At the end of Year 7, school staff were asked whether they thought that there were any challenges that were unique for Aboriginal students. The majority of school staff indicated that there were no differences between Aboriginal and non-Aboriginal students, however staff indicated the following challenges as being more pronounced for Aboriginal students:

- Difficulties in transitioning from having one teacher in primary school to building relationships with high school teachers.
- Some Aboriginal parents having a fear of high school and in turn being less involved in their children's education.
- Disharmony and conflict at home and in their communities.
- Difficulties with numeracy and literacy skills when starting high school.
- Behavioural issues and lack of engagement with schooling.

School staff – High ability Aboriginal students

Phase 3 – High ability Aboriginal students settling into high school

At the end of Year 7, the majority of staff indicated that high ability Aboriginal students had settled into high school well, noting a range of interesting observations, including that these students had:

- shown initiative in opting for 'extension classes' and roles of responsibility (e.g. student representatives).
- started to develop into young adults with aspirations for their futures (e.g. going to university).
- risen to the high expectations placed on them in the 'top classes'.
- been assisted by the planning involved in PLPs.
- opted out of GAT classes in order to avoid being separated from friends.

School staff – Improving support for students during transition

Phase 1 and 3 – How to better support students through transition

In phase 1 and 3, school staff were asked what their school could do to better support students through transition. Table 2.9 provides a summary of their responses.

Table 2.9. Strategies for supporting high school transition as suggested by school staff

36%	Involving Aboriginal families and parents Some staff mentioned difficulties in getting Aboriginal families to visit their child’s school and highlighted the importance of taking extra measures to engage parents and families in their children’s education.
24%	Having Aboriginal staff to support transition Staff indicated that having Aboriginal staff members involved in the transition process, contacting families and working across primary and high schools was valuable in supporting Aboriginal students.
19%	Programs that allow for planning Staff noted the importance of having information about students in order to track progress and foster their development. Staff mentioned the value of specific programs and systems including Advancement via Individual Determination and the use of PLPs.
17%	More time and funding for transition Staff noted that having more time and funding for students to visit and participate in high school activities prior to their transition would help them to adapt to high school.
14%	More Aboriginal activities and engagement School staff noted that having more cultural activities and community engagement would help students to feel connected to the school. Staff also highlighted the role of linking Aboriginal primary students with Aboriginal student mentors from their high school to help guide them through transition.
14%	Doing everything we can School staff, particularly from primary schools, felt that they were doing everything they could to support students through transition.
14%	Improving relationships between primary and high schools Staff noted the importance of building relationships, sharing information and greater involvement between primary and high schools.

School staff – Supporting the flourishing of Aboriginal students

Phase 3 – Factors that support the growth and wellbeing of Aboriginal students

At the end of Year 7, school staff were asked what factors helped Aboriginal students to flourish.

Table 2.10 provides details of their responses.

Table 2.10. Factors helping Aboriginal students to flourish as perceived by school staff.

Theme	Sample Quotes
Cultural programs and content to build pride	<p><i>“Each faculty had to do a short presentation on how they embed Aboriginal perspectives in the curriculum, as an Aboriginal person I was blown away”.</i></p> <p><i>“We run a NAIDOC day, where the Indigenous students run the day... and students talk about what it’s like to grow up being an Aboriginal person in the city”.</i></p> <p><i>“We had a big smoking ceremony to tell the children that it’s okay that we know what’s happened in the past but we as a school want to move forward”.</i></p>
Holding high expectations	<p><i>“The one thing that strikes me is higher expectations and if we don’t have higher expectations of our children then they cruise”.</i></p>
Encouraging students and building on strengths	<p><i>“I think definitely building on their strengths has been something that’s really important, and recognising their potential, recognising it both intellectually and personally, the strengths that they have”.</i></p>
Aboriginal teachers, role models and community members	<p><i>“It should be great for them and their parents knowing that they’ve got that much Indigenous help in the school... Aboriginal aids and teachers, qualified teachers, in the school”.</i></p>
Encouraging holistic development (not just academic)	<p><i>“Not only academic, I think it’ll help them develop holistically. So not just their academia but everything else about them. And that’s what we hope to develop in that program, having... children who can mix in with anyone in the world”.</i></p>
Academic support programs	<p><i>“So, every Aboriginal student in Year 7 went through QuickSmart, a 30-week program, and their results have soared”.</i></p> <p><i>“There’s the Sydney University summer program in January. They stay on campus and choose what they’d like to study”.</i></p>

Key Findings and Recommendations for Practice and Policy

- Despite some initial concerns by parents and students prior to transition, students showed resilience to the challenges involved in moving to high school and settled in well.
- Parents, students and staff were largely satisfied with the support provided by schools during their transition to high school.

Key areas for focus and improvement include:

- Communicating with and involving families more throughout the transition process, with a greater focus on providing positive feedback about their children's development.
- Involving Aboriginal families more with the school and their child's schooling via PLPs and non-academic cultural events.
- Having Aboriginal staff members engage with Aboriginal families and students throughout the transition
- Creating more time for students to get to know their high school teachers (e.g. teacher 'exchanges'), nominating a key central support person or having regular student-teacher 'check-ins'.
- Extend high school orientation in order for students to familiarise themselves with the high school environment.
- Creating opportunities for students to get to know other students (e.g. buddy programs and camps).
- Engaging more with Aboriginal communities, celebrating local Aboriginal cultures and integrating into the syllabus.
- Improving relationships and information sharing between primary and high schools.
- Holding high expectations of Aboriginal students and focusing and building on their strengths.

Research output

Tikoft, C. J., Craven, R. G., Mooney, J., Yeung, A., Barclay, L., vanWestenbrugge, A., & Franklin, A. (2018). The transition of high-ability Aboriginal and non-Aboriginal students into secondary school. *Paper presented at the Australian Association for Research in Education, Sydney, Australia.*

Tikoft, C.J., Craven, R. G., Mooney, J., & Yeung, A. S. (submitted May 2019). Reasoning about source of effort by Aboriginal Australian students in high-ability classes. *American Educational Research Journal.*

Study 3

Implement and evaluate a teacher-driven intervention designed to improve educational outcomes for high ability students in Years 2 - 4.

Background

While there is insufficient research explicating the reasons as to why gifted and talented Aboriginal students are under-represented in opportunity classes (OC) and selective high schools (SHS), there are many possible contributing factors that have been identified. One contributing factor is the reported lack of teacher knowledge regarding the cultural diversity of gifted and talented Aboriginal students. There are also insufficient resources and training to support teachers in terms of delivering strategies to optimise the potential of high ability Aboriginal students. This study examines the implementation of a teacher-driven intervention designed to enhance students' sense of identity, motivation, self-concept, and resilience using effective strategies such as mindfulness training and attribution feedback techniques, as well as enhancing teacher knowledge regarding Opportunity Class (OC) and Selective High School (SHS) for gifted and talented students.

Aims

The aim of this study is to implement and evaluate the impact of a professional development program (teacher-driven whole classroom intervention) on the academic achievement and wellbeing of high ability Aboriginal and non-Aboriginal students in Years 2-4.

Method

This study employs both quantitative and qualitative research methods.

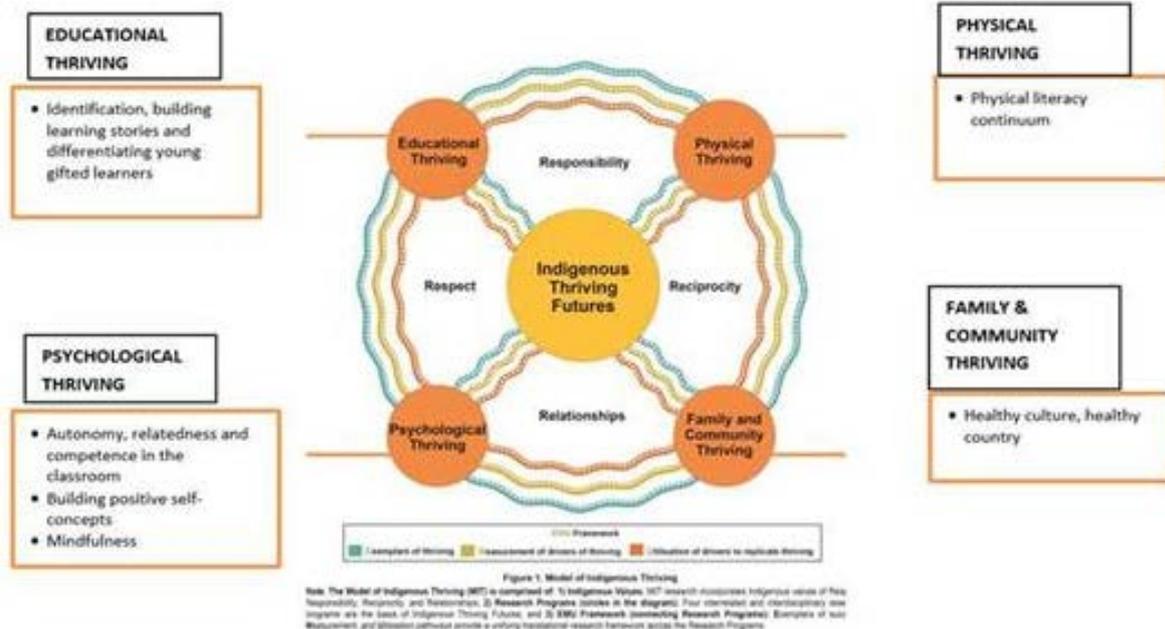
A two-day conference was held on 27th and 28th March 2018.

Conference

The professional learning strategy was based on increasing skills and knowledge around four pillars that accentuate Indigenous thriving:

1. Educational thriving
2. Physical thriving
3. Psychological thriving
4. Family and community thriving

The workshop aligned to these four pillars as outlined in the boxes of the Reciprocal Research Partnership Model (RRPM) of Indigenous Thriving Futures below:



Healthy Culture, Healthy Country training

The Healthy Culture, Healthy Country training, conducted by AECG on Day 1, was of great importance to the Conference as it laid the foundation for all the other modules.

Participants (n=40) gave a rating of approximately 4.5 out of 5 for the usefulness and value of the Healthy Culture, Healthy Country training session with reference to the ‘country learning’ and reported specific learning strategies that they intend to implement including ‘working with local community and organisations’.

95% of participants found the Healthy Culture, Healthy Country module broadened their cultural knowledge, with the cultural awareness beneficial to their teaching practices and impacting on the way they assess.

Similarly, participants also found the other modules on Day 2: self-determination, wellbeing framework, physical literacy continuum, and the module on understanding the identification of high ability students, useful and reported they would try to incorporate the suggested strategies learnt.

Quantitative

- High ability Aboriginal and non-Aboriginal students in Years 2-4 participated in the longitudinal study over three time points.

A total of 1,318 Years 2-4 students completed a 30-minute online survey and two 20-minute literacy and numeracy achievement tests at Time 1; 1,044 students at Time 2; and 940 students at Time 3. The bar graphs in Figure 3.1 illustrate the sample size of each group.

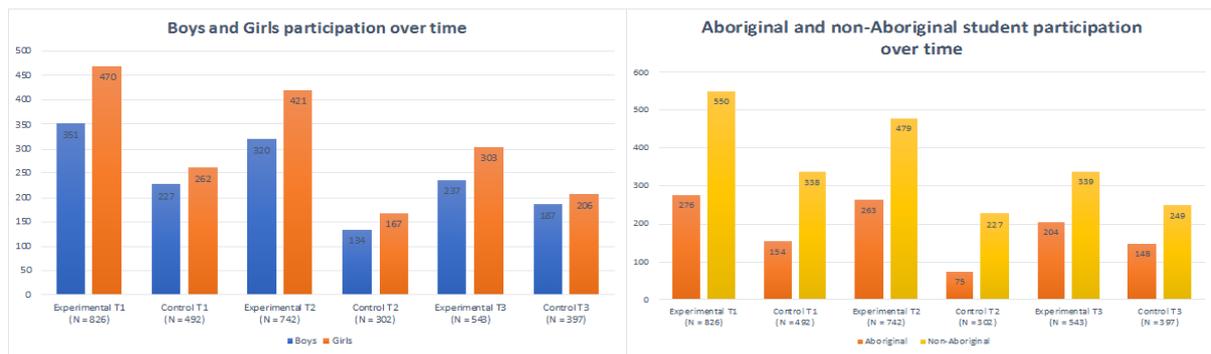


Figure 3.1. Sample sizes across all groups in the study over three time points.

Teachers in the intervention group received a two-day conference and 8 online webinar sessions, after which they completed an online survey. The chart in Figure 3.2 illustrates the sample sizes of each group.

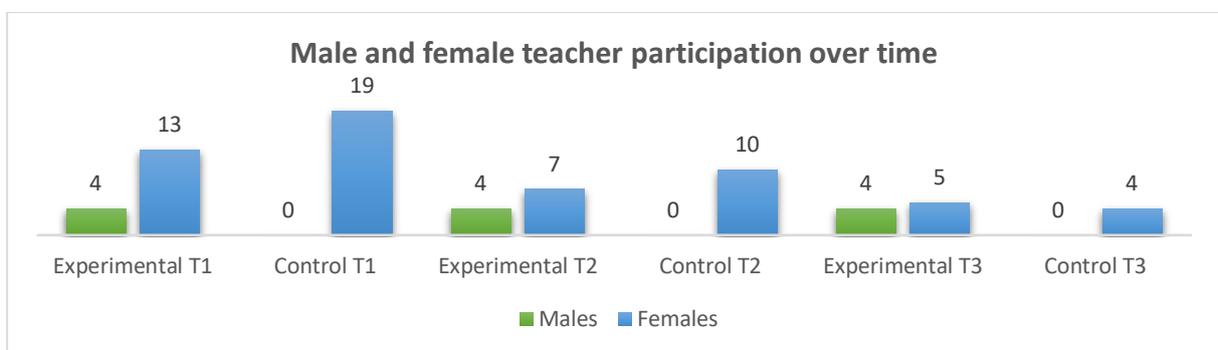


Figure 3.2. Male and female teacher participation in the study over three time points.

Qualitative

- Interviews (N = 4) were conducted with teachers involved in the program to investigate the effectiveness of the intervention in Year 3 of the research via Skype.
- Open-ended responses to the interviews were analysed to ascertain the efficacy of the intervention for high ability Aboriginal students.
- Thematic analyses were completed independently by two researchers and had an inter-coder reliability of 0.90.

Results

Quantitative

The following highlights the significant results of the quantitative component of the study.

On average, teachers in the experimental group

- rated the extent to which they implemented what they had learnt in the online modules at 6.52 on a 10-point scale; and
- completed 51.16% of the online training modules.

The graph in Figure 3.3 below showed that the online training experienced by teachers improved their students' cognitive self-concept over time.

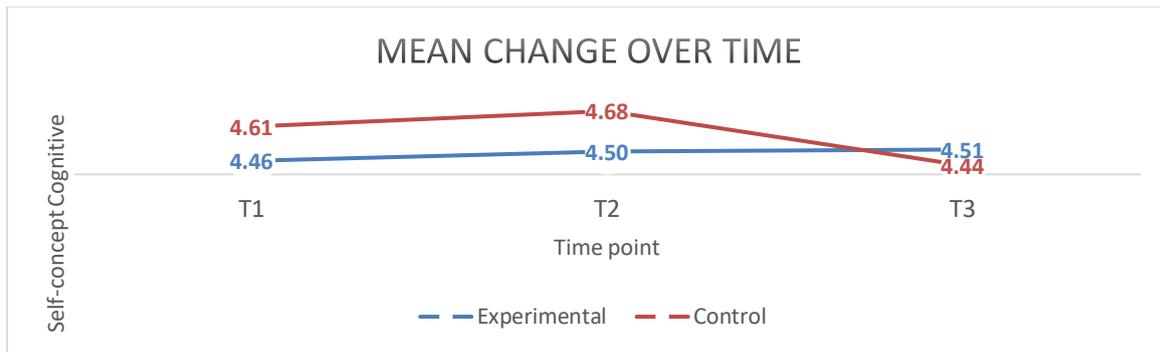


Figure 3.3. Mean change of students' cognitive self-concept over time.

The graph in Figure 3.4 below indicates that the online training received by the teachers improved their students' performance-related self-esteem over time.

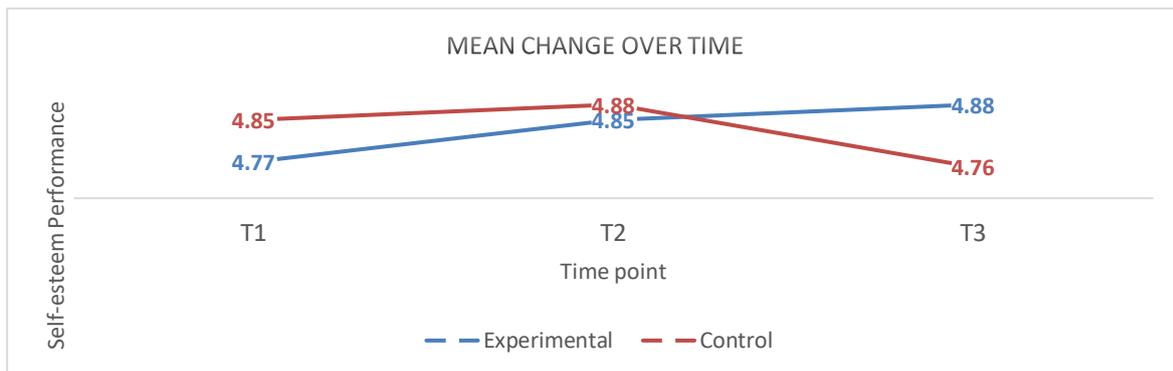


Figure 3.4. Mean change of students' performance-related self-esteem over time.

The results also showed that teachers who stated in the survey that they implemented what they learnt in the online training courses in their classrooms benefitted their students in several domains. This group of teachers who stated that they conscientiously implemented strategies they learned in the online training courses are referred to as 'high implementing teachers' and those who stated that they did not apply much of what they learned in the online training courses in their classrooms as 'low implementing teachers'. The following graphs illustrate the domains which students have benefitted from their 'high implementing teachers'.

The graph in Figure 3.5 below shows that students of high implementing teachers scored higher on literacy, when compared to those of low implementing teachers.

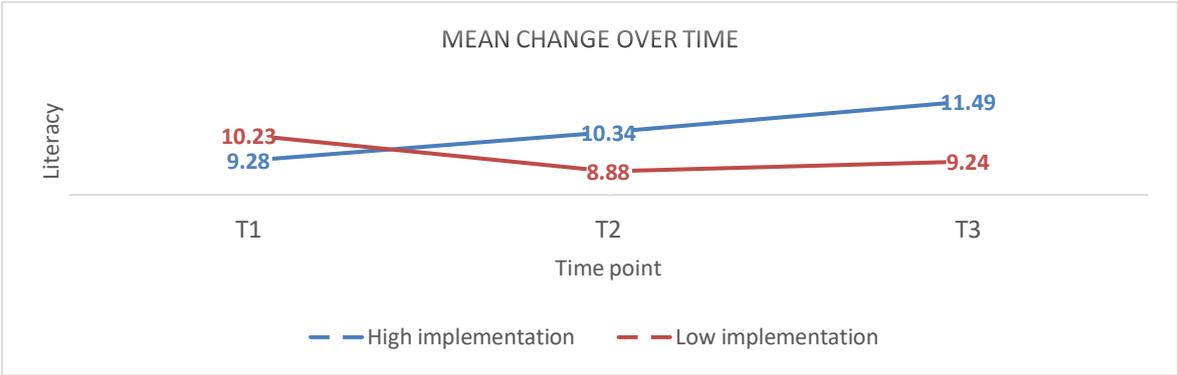


Figure 3.5. Mean change of experimental students' literacy scores based upon teachers' implementation rates.

The graph in Figure 3.6 indicates that students of high implementing teachers scored higher on cognitive self-concept, when compared to those of low implementing teachers.

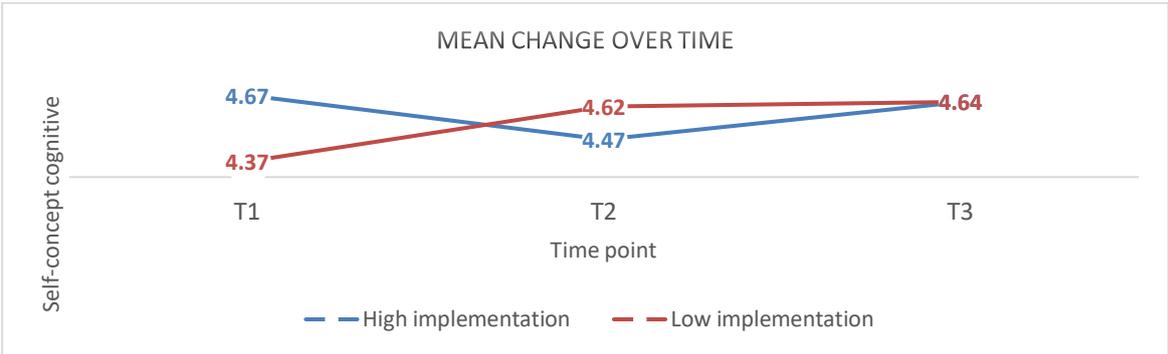


Figure 3.6. Mean change of experimental students' self-concept cognitive scores based upon teachers' implementation rates.

Students of high implementing teachers scored higher on cultural wellbeing (overall), when compared to those of low implementing teachers.

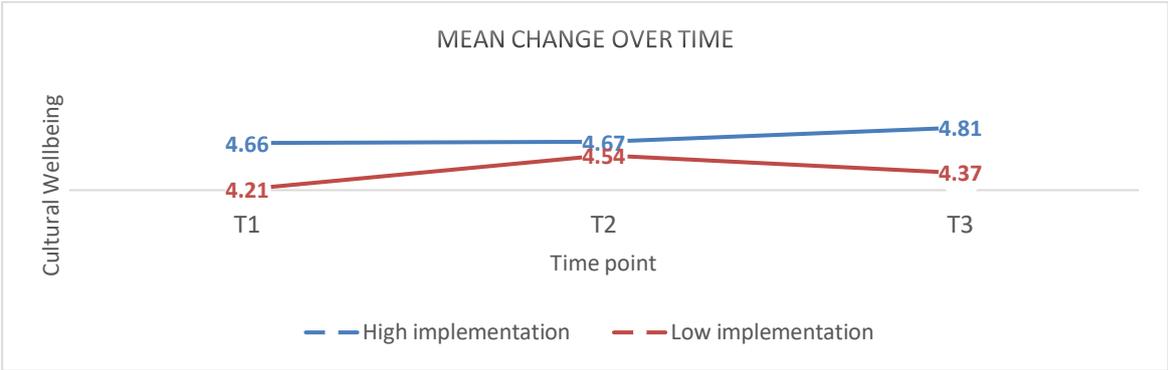


Figure 3.7. Mean change of experimental students’ cultural wellbeing scores based upon teachers’ implementation rates.

Students of high implementing teachers scored higher on cultural wellbeing (identity-affective), when compared to those of low implementing teachers.



Figure 3.8. Mean change of experimental students’ self-concept cognitive scores based upon teachers’ implementation rates.

Students of high implementing teachers scored higher on cultural wellbeing (identity-cognitive), when compared to those of low implementing teachers.

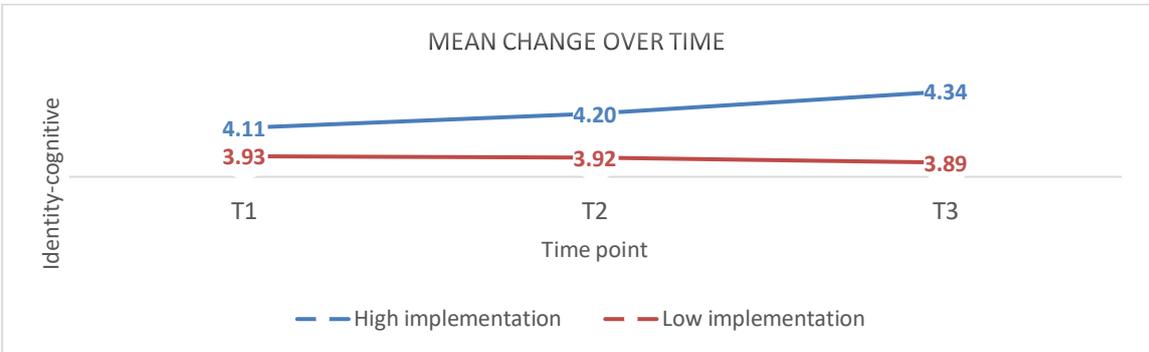


Figure 3.9. Mean change of experimental students’ cultural identity-cognitive scores based upon teachers’ implementation rates.

Qualitative

This section includes direct quotations from respondents to enable a deeper understanding of teacher's perception of the efficacy of the intervention. The quotations should be read as the opinions of the individuals.

1. Experience of the teacher training program

Teachers were asked to share their experience of the teacher training program. The below quote is an example of a teacher's overall experience of the teacher training program.

"I thought most of the content was good. Some of it was really heavy going with the reading... there was a lot of reading but at the same time it was interesting"

Teachers reported that they found the content to be heavy and the amount of time required was notable.

"I guess, like they pre-empted a lot, but it was a lot of information."

a. What worked well in the teacher training program

An example of what worked well included the face-to-face session as part of the conference.

"Well I'm better face-to-face. That's how I learn..."

There was an acknowledgment that the Mindfulness module and Indigenous perspective module was well received.

"So that's been great to help our teachers incorporate Indigenous or Aboriginal perspectives into what we're doing... The other one that has really been mind-blowing in actual fact is the mindfulness."

b. Suggestions for improvement of the teacher training program

A suggestion to reduce the reading and deliverable tasks were examples given of what could be improved.

“Maybe I think a little less reading would have been good...”

c. Training program that was most valuable

In addition to the Mindfulness Indigenous perspective modules mentioned, teachers also found the inclusion of the modules listed below to be beneficial.

- Gifted and Talented
- Self-concept
- Physical literacy

“...it was good to hear about the gifted and talented generally, as well as in relation to Indigenous... Then I’m very interested in self-concept... I was just fascinated”

2. Participation extent in the teacher training program

Majority of respondents reported that they completed all the modules in the training program.

“Yes I did all the modules and did them all”

3. Experience of using the iLearn online teaching platform

A few teachers reported technical difficulties using the iLearn, including difficulty with the drop and drag function.

“Like it sounded like it was really well organized, but then when it doesn’t work you think it’s you...I think I’d be doing something stupid...Because I’m not technology au fait”

Teachers reported that the podcast was useful as it gave them an opportunity to re-watch and the quiz/assessments helpful to their learning.

“I loved all the podcasts. That was great.”

“...the useful bits were like the quiz or the assessment ones. Those ones were just simple, easy to get through.”

b. Drawback/Improvement on iLearn

Some teachers found the aspect of online modules to be disengaging and suggested more feedback and more interaction.

“...that would be a really useful thing to give feedback on”

“...would prefer to share ideas within the forum during the online sessions.”

4. Impact on students in the classroom

In understanding the impact on students in the classroom from the teacher’s involvement in the training, three components were analysed:

a. In terms of student wellbeing

Teachers reported an increase in student wellbeing, resulting from an increase in confidence and an awareness of culture.

“Yes, and probably to the Aboriginal students, because of the interest in cultural lessons...”

b. In terms of Academic performance

Teachers reported that the impact on students’ academic performance was not easy to quantify.

“To be honest, I would have to have a look at that. I’d say some, yes, but not all”

c. Impact on high ability students

Teachers reported a positive impact on the high ability students.

“Yes...I think it gives them a sense of belonging; that they’re part of the classroom and that they’re accepted”

5. Impact on teachers

Two main themes were derived from analysing the impact of the teacher training on teachers’ psychosocial factors.

a. Confidence

The teacher training made a difference to teacher confidence and their understating of teaching Aboriginal students.

“I certainly think it helps me because I don’t know what they (Aboriginal students) were being taught, so I just felt I know more about it (Aboriginal culture) now and could encourage them (Aboriginal students) further.”

b. Wellbeing

Teachers reported that the teacher training content had a positive impact on their own wellbeing as a result of being exposed to mindfulness and physical literacy. The information learnt also help increase their understanding of students especially those who are of high ability.

“It certainly did a lot for me, personally, the mindfulness. That’s probably the best thing that’s ever happened to me.”

Key Findings and Recommendations for Practice and Policy

Both the quantitative and qualitative analyses have indicated that the teacher intervention has benefitted both teachers and their students.

- The quantitative analyses showed that for teachers who stated that they implemented the strategies learned from the teacher training in their classrooms, their students benefitted in the following ways over time:
 - ❖ Higher self-concept;
 - ❖ Higher performance-related self-esteem;
 - ❖ Higher literacy scores; and
 - ❖ Higher cultural wellbeing.

- The qualitative analyses showed that teachers perceived that the intervention has impacted students in the following ways:
 - ❖ Higher confidence;
 - ❖ More interest in cultural lessons;
 - More pride in their culture;
 - More willing to share about their culture with peers;
 - Increased sense of belonging in the school and acceptance by peers and staff;

and impacted them (teachers) in the following ways:

- ❖ Higher confidence and understanding in teaching Aboriginal students and those who are of high ability; and
 - ❖ Higher wellbeing.
-
- The qualitative analyses showed that teachers found the teacher training very useful and mentioned a few modules that were particularly beneficial such as 'Gifted and Talented', 'Mindfulness', 'Self-Concept' and 'Physical Literacy' and enjoyed the podcasts.

 - Teachers mentioned that even though the online training was valuable, it was content-heavy, so they faced challenges completing everything within a short time period. They suggested having the online training modules available to them indefinitely, so that they can continually refer to them as and when they need the resources and further training.

 - Teachers found the online training platform difficult to navigate and suggested a more user-friendly platform.

 - Teachers also suggested an interactive learning platform with chat groups so that they can receive feedback about their pedagogical approaches and exchange ideas with practitioners and researchers.

Study 4

Examine Aboriginal and non-Aboriginal students', parents', teachers', and principals' perceptions of the strengths and limitations of online learning for students engaging in distance education.

Cultivating learning experience using Information and Communication Technology (ICT)

Background

Despite numerous technological innovations, there are children in the modern world who continue to have limited access to educational resources. In Australia, because of its vast landscape, students in rural and remote locations continue to face a variety of disadvantages. Limited access to educational resources and opportunities undermines the ability of remote students, including those gifted and talented, to achieve their full potential. This tends to undermine their performance compared to their counterparts in urban locations where resources are abundant. This locational disadvantage has particular impact on Aboriginal students, who continue to suffer from a broad range of disadvantages including historical traumas during British rule over the last two centuries (Mooney, Seaton, Kaur, Marsh, & Yeung, 2016). To address the locational disadvantage, the use of information and ICT in a virtual hub environment (VHE) may provide these students with opportunities to work with other high ability students in challenging educational activities such as project-based learning, which is unlikely to be possible in a rural setting. Further complicating this issue is the situation of some of these students who are frequently on the move from one location to another. This study examines the benefit of GC for students whose living circumstances have prevented them from attending school on a regular basis.

Aims

The purpose of the study was to identify how applications of ICT and delivery of pedagogies through VHE can effectively address the needs of learners who are disadvantaged in certain ways so as to make recommendations to assist educators, researchers, and administrators to meet the diverse needs of learners from disadvantaged backgrounds and environments. Specifically, the aims of this study include:

1. Examining whether participating in a high ability VHE enhances educational outcomes of Aboriginal and non-Aboriginal high ability students who would otherwise be unable to access high ability education.
2. Ascertaining stakeholder perspectives on the VHE's efficacy, strengths, limitations, and suggestions for the future.

Method

Qualitative data were collected through interviews with students, parents, and teachers involved in the VHE project based learning activities to answer the following research questions (RQs):

RQ1: What are the impacts of project-based learning through Google Classroom (GC) delivery?

RQ2: What are the barriers perceived to affect the success of the VHE project-based learning?

The students, their parents, teachers, and tutor were interviewed in separate sessions.

Participants

While school education is compulsory for children from the age of 6 until they are at least 17 (NSW Department of Education, 2018), there are geographically disadvantaged children who are unable to

stay in a regular school setting. A way to provide quality education to students who are unable to attend regular school for at least 1 term (i.e., 50 school days or more) is to capitalise on virtual classroom technology that expands educational access and provides specialised learning opportunities for these students. Such an approach is believed to enable students' academic and non-academic outcomes, and to essentially provide viable educational choices (Barbour & Reeves, 2009; Natale & Cook, 2012; Rice, 2006).

Material

The interviews consisted of guiding questions on the participants' perceptions, on the impact of using GC in project-based learning and challenges involved in the implementation. The participants were also asked to comment on ways to improve the learning experience.

Analysis

The interviews were transcribed. The transcripts were coded separately by two coders. Thematic analysis was conducted using Braun and Clarke's (2006) guiding framework, which includes: (1) getting familiar with the data, (2) generating initial codes, (3) identifying themes, (4) reviewing themes, (5) defining themes, and (6) writing up. Qualitative data analysis software NVivo was used in the detailed analysis. The analysis first considered the impact of GC on the students' learning experiences. Second, the participants' perceptions of the challenges in the uptake of the digital education process. By synthesising the information obtained from these two steps, we attempted to answer the two RQs. That is, we would be able to tell what the impacts of project-based learning through GC delivery are (RQ1), and whether participating in the high ability VHE enhances the educational outcomes of Aboriginal high ability students (RQ2).

During the collaborative data analysis process, meaningful units were extracted from the participants' responses. Themes that emerged across the different interviews were identified. These themes and interpretations were discussed, and broader themes were recorded, further discussed and grouped. Then repeated revisions were carried out to refine the themes and the grouping of them, and to ensure they were logically related to each other. To ensure reliability of the result, the themes and sub-themes were regularly discussed among the research team members. Finally, a thematic map was constructed to illustrate the structural association between themes and subthemes.

Results

Six themes emerged from the analysis. Figure 1 shows the themes derived from the interviews and their related sub-themes. The six themes are:

(1) **Learning diversity.** The GC was perceived as flexible, providing an alternative learning platform that suits the user's adaptability to the new technology and institutional support.

(2) **Personal development.** Using GC to complete online projects could foster ethos of teamwork and help overcome learning barriers. The virtual classroom also enhances self-confidence and aspiration.

(3) **Connectedness.** Students value relationships and thrive in a collaborative learning environment. Student engagement in the VHE enabled greater connectivity and belonging amongst students.

(4) **Adaptability.** The students were able to accept the new learning platform. Despite parents' positive feedback on GC, adaptability issues kept emerging in the analysis. While GC helped to connect geographically disadvantaged learners and teachers, activities in project-based learning could be challenging in a VHE.

(5) **Institutional support.** Technology per se may not solve all problems. Human support may also be crucial. Those students who were not confident in virtual project-based learning and not comfortable with online learning may require more technological assistance.

(6) **Interaction.** VHE activities enabled students to communicate and collaborate with others from any device with an Internet connection. The VHE simplifies the tasks of receiving and returning the students' assignments.

Of these themes, personal development, connectedness, and interaction are directly related to the impact of GC in the intervention (see Table 1). The adult participants' responses were more articulate whereas the students' responses were less well organised. They are presented in Table 1.

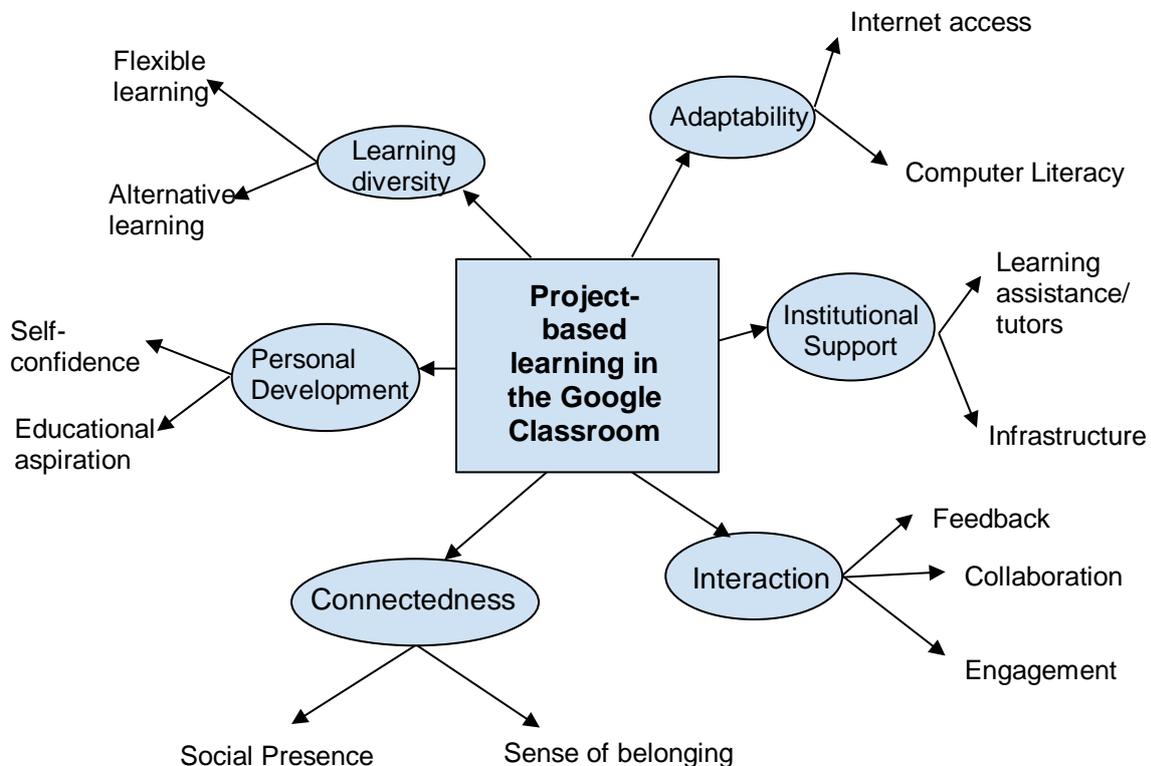


Figure 1. Themes summary from the experience of students, teachers, and parents with project-based learning via GC.

Table 1. Themes, Sub-Themes, and Supporting Evidence/Quotes

Theme	Sub-theme	Interviewee	Evidence/Quote
1. Learning diversity	1.1 Learning flexibility	Parent	<i>"Well so I was born into (place withheld) and my husband has been with (place withheld) for about 20 years. (Name removed) is our eldest child ... she also works in (place withheld). So, when she's not doing school, she's practicing (activities withheld)"</i>
		Student	GC gives flexibility in terms of location and schedule. It allows them to remain in remote settings and stay with their family.
		Student	GC allows them to engage in learning activities with other students from elsewhere.
	1.2 Alternative learning	Parent	<i>"I think it's the way of the future, that's why you - I can see it, this is the future of learning in schools and I'm surprised we haven't done it earlier actually, to be honest with you. So, it's been good, and the kids are preparing for the future, I see."</i>
		Parent	<i>"I think generally with education we're moving away from just learning information, to learning how to get information..."</i>

Table 1. Themes, Sub-Themes, and Supporting Evidence/Quotes (Continued)

Theme	Sub-theme	Interviewee	Evidence/Quote
2. Personal development	2.1 Self-confidence	Teacher	<i>"...because we have constructed our GCs from a project-based learning format, as in we've challenged the kids with a problem to be solved, it's almost levelled the playing field between our high ability and lower ability students, because the high ability students just can't answer the kind of questions. So, they've really got to think about it."</i>
		Teacher	<i>"Regarding the kids who identify as Indigenous, I have found they're a little bit more reserved at commenting and stuff like that. I'm not exactly sure why with some of my kids they're a bit nervous about probably being judged by their comments. So, they're a little bit hesitant to kind of put their comments out there and yeah just with the (place withheld) kids it's kind of like taking them a little while to warm up to it."</i>
		Parent	<i>"Actually, she's - probably the last 12 months, she's really come out of her shell." "I think she likes doing work on the computer and just it's a bit of a change from the pen and paper I think."</i>
		Student	Virtual classroom activities make students feel good about themselves because they can easily relate the activities to their personal experiences in the (place withheld).
	2.2 Educational aspiration	Parent	<i>"He seems to be trying harder at school I know that from, we talk to him at home you know about to try going to go to school and learning and trying harder and he seems to be like, a bit more, he seems to be more interested. Before he would be like, ooh."</i>

Note: Shaded themes and sub-themes (personal development, connectedness, and interaction) are directly related to the impact of GC in the intervention.

Table 1. Themes, Sub-Themes, and Supporting Evidence/Quotes (Continued)

Theme	Sub-theme	Interviewee	Evidence/Quote
3. Connectedness	3.1 Social presence	Teacher	<i>"...to know that they are part of a class. A lot of the time I think they just think they're doing it on their own".</i>
		Teacher	<i>"They can ask for help off each other as well as the teachers and then we use that in the satellite room as well and you can put up everybody's work on the screen at the same time and we can talk about it. So, I think it's another dimension in assisting these children feel less isolated and more like they've got a classroom."</i>
	3.2 Sense of belonging	Teacher	<i>"He is putting effort and he's more motivated to what he has been." Positive effect was also observed by another teacher: "...this has had a fairly substantial impact on him in the sense that he's getting more involved in things. He's feeling more comfortable as time goes on and having a bit of an input and he's learning."</i>
		Student	There is a sense of belonging. Students feel connected to a group of learners engaging with the same learning focus. They work together to achieve their common goals.
4. Adaptability	4.1 Internet access	Parent	<i>"travel around a lot and sometimes we go out into the smaller town [where internet connections are poor]."</i>
		Student	Students accept and like the virtual classroom learning but find the project learning hard.
	4.2 Computer literacy	Parent	<i>"... they're not used to doing it, that's all. I keep saying they should do it, but they seem to find a way of not doing it (online project)."</i>
		Parent	<i>"Well I don't know, she seems to know a lot more on computers now than before she was doing it."</i>

Note: Shaded themes and sub-themes (personal development, connectedness, and interaction) are directly related to the impact of GC in the intervention.

Table 1. Themes, Sub-Themes, and Supporting Evidence/Quotes (Continued)

Theme	Sub-theme	Interviewee	Evidence/Quote
5. Institutional support	5.1 Learning assistance tutors	Tutor	<i>"You know, I can't be with them all the time, that's the trouble. I'm not just their tutor, I'm also the tutor of a girl in Year nine and a girl in Year 10, who have their own sets of problems. So, I've got to be with them sometime too as well. They don't have my full attention."</i>
		Student	Some students need an adult to help them with the technology so they can focus on the learning.
	5.2 Infrastructure	Tutor	<i>"We don't have a lot of room in our classroom [need infrastructure support for the intervention to bring optimal benefits]."</i>
		Student	Project work is done in a portable classroom caravan. It can be better than this.
6. Interaction	6.1 Feedback	Teacher	<i>"communicate with students and provide assignment feedback instantly." through the platform. Students can also access other G Suite apps such as Slides, Forms and Gmail to collaborate in a project.</i>
		Student	Teachers give a lot of support, not only in academic work, but also in terms of technology such as various apps. Feedback from teachers is quick and in real time. The project can be completed online with other kids also helping to provide feedback.
	6.2 Collaboration	Teacher	<i>"I guess working collaboratively as well with their peers. So, they get to see what - they get to see how their peers are working and the kind of answers that they're giving and that may influence them in a positive way."</i>
		Teacher	<i>"So, it was kind of brought it back to the fact like if you're a teacher in the classroom you are moving around the class seeing how kids are going, checking where they're up to, and yeah GC combined with Google Doc allows us to do that for these kids who are miles away or overseas."</i>
	6.3 Engagement	Student	<i>Students actively engaged in learning, collaboratively and independently in a virtual classroom environment. A student feels it like many aspects of training so the development of skills is "...like a (place withheld) tent sometimes".</i>

Note: Shaded themes and sub-themes (personal development, connectedness, and interaction) are directly related to the impact of GC in the intervention.

Key Findings and Recommendations for Practice and Policy

This study aims to: (1) examine whether participating in a high ability VHE enhances educational outcomes of Aboriginal and non-Aboriginal high ability students who would otherwise be unable to access high ability education, and (2) ascertain stakeholder perspectives on the VHE's efficacy, strengths, limitations, and suggestions for the future. It attempts to answer two specific RQs.

In answering RQ1: the impacts of project-based learning through GC delivery, the data show that it is a great help to geographically disadvantaged students. The approach fosters students' sense of connectedness and their ability to build personal and interpersonal capabilities. Social presence and a sense of belonging strengthen the connection to people and the learning process and translate into better self-confidence and educational aspiration.

In answering RQ2: The major barriers perceived to affect the success of the VHE project-based learning include adaptability and infrastructure issues, both internal (e.g., student adaptability/readiness) and external (e.g., tutors, resources). Profiling the digital readiness of geographically disadvantaged students, including teachers and parents, is a gap that has not been seriously attended to, and is yet to be conducted in rural Australian settings.

Overall, the study has achieved the aims of identifying the merits of the VHE and identifying the strengths and limitations of the approach. It is important for us to understand and address potential barriers to optimise the success of digital education.

Recommendations

Based on our findings, we recommend:

1. In the context of geographically disadvantaged students, a virtual classroom environment is a possible solution.
2. Project-based learning that require interactions among learners is viable in a virtual classroom setting.
3. Virtual classroom activities would benefit students in remote locations by designing projects that focus on helping students develop real-world skills and connect to their daily life.
4. The implementation of virtual classrooms should be supported with adequate technical and infrastructure support.
5. A blend of online and on-site provisions will be useful for best program effects. However, having a tutor travel with a small group of students all the time may not be cost-effective. Therefore, further research should investigate more cost-effective ways to provide support to remote students who need help.
6. Basic to the success of any ICT application, stable and reliable internet access and quality should be a prioritised consideration for policy makers. For ICT to be successfully used to educate geographical disadvantaged students, advanced technological support should be the Government's first priority.

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Research output

Sazali, S., Craven, R. G., Dillon, A., Franklin, A., & Yeung, A. S. (in revision). Cultivating rural learners' experiences: Applying information technology to counter locational disadvantage. In C. Koh (Ed.), *Diversifying learner experiences: a kaleidoscope of instructional approaches and strategies*. New York: Springer.

Sazali, S., Craven, R. G., Dillon, A., Franklin, A., & Yeung, A. S. (currently being drafted). Cultivating rural learners' experiences: Applying information technology to counter locational disadvantage. *Educational Researcher*.

RESEARCH REPORT

Cultivating Capability: Explicating critical psychosocial drivers of educational outcomes and wellbeing for high ability Aboriginal students

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