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Boarding schools: A longitudinal examination of Australian Indigenous and non-Indigenous boarders' and non-boarders' wellbeing

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Abstract

Improving educational outcomes for Indigenous Australian students is a key strategy to helping Indigenous people reach their full potential. This has resulted in well-intentioned efforts by Australian educators and governments to ensure Indigenous children have positive school experiences. However, Indigenous students still lag behind their non-Indigenous counterparts in educational outcomes. This is particularly so for Indigenous students living in rural and remote parts of Australia where educational opportunities are limited, especially in high school. One solution to this problem has been to enrol these students in boarding schools in urban and metropolitan centres. While research on the success of boarding schools for Indigenous students is scarce, what little that does exist is not encouraging. The focus of this research was to examine the effects of boarding for Indigenous ($n = 11$) and non-Indigenous students' ($n = 158$) wellbeing ($N = 1423$) in two large private boys' schools. Participating students aged 12–18 years old completed a survey measuring

wellbeing constructs on two occasions, 12 months apart. Non-Indigenous boys were generally higher in wellbeing compared with Indigenous boys. There was also evidence of improved social wellbeing beyond that of non-Indigenous boarders over time. Overall, while evidence of merit was weak, boarding schools may benefit their Indigenous students' development in social wellbeing.

Key insights

What is the main issue that the paper addresses?

Australian Indigenous students, particularly in remote areas, continue to lag behind their non-Indigenous counterparts. Boarding schools have been proposed as one solution. An important aspect of students' education experience is wellbeing. This research uses a newly developed instrument to measure students' wellbeing at two boarding schools.

What are the main insights that the paper provides?

We have developed a valid instrument for measuring wellbeing for Indigenous and non-Indigenous students of two boarding schools. While there is some evidence of benefit to Indigenous students' social wellbeing, our findings show that more research is needed in this under-researched area of boarding schools for Indigenous students.

INTRODUCTION

Education is key to advancing the wellbeing of Indigenous Australians. However, enduring school achievement gaps between Australian Indigenous students and non-Indigenous students show that there is much work to do (Commonwealth of Australia, 2020). For example, the Australian Curriculum, Assessment and Reporting Authority (ACARA, 2018) found the proportion of Indigenous students meeting national standards in reading to be approximately 20 percentage points lower than that for non-Indigenous students in 2018. Further, for numeracy, the gap is approximately 10 percentage points. School attendance rates follow a similar trend. In 2018, national attendance rates for Indigenous and non-Indigenous students were 81.5 and 92%, respectively (ACARA, 2018).

Differences in achievement and attendance rates are more pronounced for students living in those parts of Australia that are distant from major towns and cities (typically referred to as 'remote areas'), where the percentage of non-Indigenous Australian students at or above national minimum standard for numeracy and literacy skills is approximately 90% or higher, while for Indigenous students, the percentage is approximately 50% (ACARA,

2018). Such statistics are shameful, and need not be. Governments have not been fully successful in responding adequately either to the lived consequences of past injustices or to current entrenched problems with multiple causes that lie outside of Indigenous individuals. In recognising a way forward, Guthridge et al. (2016) in their study of the developmental vulnerabilities of 5-year-old children in Australia's Northern Territory, which has the highest proportion of Indigenous people, have shown that potentially modifiable health (e.g., childhood diseases, malnutrition, and hearing loss) and socio-economic factors (e.g., parents' education, income) account for almost all of the difference in developmental vulnerabilities between Indigenous and non-Indigenous children. From the same study, Silburn et al. (2018) concluded that early educational intervention (i.e., preschool attendance) is one of the best strategies for improving the Northern Territory's rates of Indigenous school attendance and achievement. In response, boarding schools in Australian urban settings have been established to enable Indigenous students from rural and remote communities to receive a high-quality secondary education (Franck et al., 2020). While some research has reported on the benefits of boarding schools for Australian Indigenous students (e.g., Macdonald et al., 2018), the general consensus in the literature has not been favourable. For example, the House of Representatives Standing Committee on Indigenous Affairs (2017) on Indigenous students attending boarding schools concluded that:

> A significant proportion of students who attend schools away from home drop out, and return to community shortly after commencing. This can have devastating impacts on the student's motivation to study and their self-esteem. It can also discourage others within the community and places financial and administrative strain on both boarding facilities and schools within the local community. This 'revolving door' within Indigenous boarding must be addressed if educational attainment is to be improved. (p. xix)

While pointing out the shortcomings of boarding schools for Indigenous students, Beneveniste et al. (2019), in applying critical race theory to one case study of an Indigenous boarding school in South Australia, offer sound advice that may lead to more positive outcomes for Indigenous students in boarding schools (e.g., prioritisation of Aboriginal epistemologies, ontologies and axiologies).

Guenther et al. (2020) have reported that there are many pros and cons to Australian Indigenous boarding, but ultimately boarding as an educational intervention is both complex, in that it involves the interaction of many stakeholders (e.g., community-based, school-based and policy actors) and multidimensional, having several mechanisms to consider (e.g., funding, institutional and policy).

Given the lack of research, particularly quantitative, into boarding experiences for Indigenous students (Guenther & Fogarty, 2018), more research is needed to evaluate the effectiveness of boarding schools in addressing the educational needs of Indigenous students. Given the small sample sizes and the difficulties in collecting data in schools, conducting quantitative research in boarding schools is difficult. Despite these known limitations, this current research attempts to address the deficit of research in this area. The purpose of this paper is to present the findings of the quantitative component of a mixed-methods research design that sought to investigate the psychosocial wellbeing of Indigenous and non-Indigenous boarding students from two large urban-based boarding schools for boys. A newly developed survey instrument was administered to both Indigenous and non-Indigenous students from these two schools. This instrument incorporates Indigenous worldviews and understandings of Indigenous wellbeing and has been validated on Indigenous samples (see further discussion in Method section).

Importance of wellbeing

The present study focuses on examining longitudinally the wellbeing of boarding and non-boarding Indigenous and non-Indigenous students. Wellbeing is the combination of functioning effectively and feeling good (King & Huppert, 2021). Evidence shows that people with high levels of wellbeing have better relationships and better health, and tend to be more productive and more creative (Huppert, 2014). The wellbeing of Indigenous students is of great importance.

Myriad reasons, such as small populations, inadequate investment by government, mobile Indigenous populations and difficulty in attracting quality school staff (also see Guenther & Osborne, 2020), have meant that Indigenous students often lack opportunities to gain a quality secondary education. While boarding schools may be one option, Rutherford et al. (2020) note that this option requires a need to prioritise wellbeing for Indigenous students given the stressors of relocating from their remote home communities to boarding schools that are often thousands of kilometres and 'culturally worlds away' (p. 44). There are other factors beyond relative affluence that impact on Indigenous students' wellbeing when attending boarding schools: unaddressed trauma, unpreparedness for new social and academic contexts and distractions with conflicting priorities such as cultural and community events (Osborne et al., 2018). Given that wellbeing is predictive of many desirable life outcomes, greater investigation into the wellbeing of Indigenous students in boarding schools is needed.

A proposed model for multidimensional wellbeing

Wellbeing is a multidimensional construct that can be measured across various domains. For example, Indigenous Australians experience lower wellbeing across almost all life domains, including socio-economic status, health, employment and academic self-concept (Craven et al., 2016; Mooney et al., 2016). Given that individuals with high levels of wellbeing learn more effectively (Huppert, 2014), enhancing the key dimensions of Indigenous students' wellbeing can contribute towards improving Indigenous students' educational outcomes.

In this study, we take a functional perspective in defining student wellbeing. That is, we go beyond happiness as a defining feature of wellbeing (see Fredrickson, 2009) and focus on factors that are likely to enable an individual to function effectively in schooling contexts. We propose an extension of the Craven et al. (2016) four-pillar model for promoting Indigenous thriving. The four pillars are: (1) educational thriving; (2) physical thriving; (3) psychological thriving; and (4) family and community thriving. The additional two dimensions are: (5) cultural thriving; and (6) self-thriving. These dimensions are important as research indicates that cultural pride, knowledge and identity, along with positive beliefs about ones' self, are key drivers in the wellbeing of Indigenous students (Bodkin-Andrews et al., 2017).

In order to evaluate the proposed model, we developed a survey instrument where each dimension represents multiple factors related to that domain. A psychometrically sound instrument from this perspective would require: (a) each domain (first-order construct) to be measured by multiple items; (b) all domains to be distinguishable from each other; and (c) each wellbeing dimension (higher-order construct) to clearly represent multiple domains (first-order) pertaining to that dimension.

The debate about boarding schools

For Indigenous Australian students living in rural and remote locations, boarding is presented as a potential way to provide better chances for education. A chance for an Indigenous child

to relocate (often sponsored), be cared for and nurtured by dedicated staff, be a source of pride for their families and have access to modern learning facilities sounds attractive. Accordingly, Guenther and Fogarty (2018) state that the offering of boarding schools as a solution has a strong rationale:

> Boarding has a strong rationale. It should create educational and career opportunities for young people. It should allow them to walk in 'two worlds' – one with western values and another with First Nations values. It should provide access to networks with benefits for individuals and communities. (p. 2)

Franck et al. (2020) also argue that boarding schools can provide Australian Indigenous students with quality secondary education. Whilst boarding schools are presented as a positive opportunity, consideration must be given to the challenges faced by Indigenous students. For example, McCalman et al. (2020) suggest that Indigenous students come with pre-existing social and emotional wellbeing issues that add challenges to their school life and learning. In their research, they provided the following quote from an assistant principal:

> Our clientele … have significant health and mental health concerns. Eighty per cent would be from significant trauma backgrounds. Grief and loss is a significant component in their lives, as is domestic violence, as is alcohol and substance abuse. So there's a whole host of things that these students present with. (p. 4)

Guenther and Fogarty (2018) posed the important question of whether boarding schools do what they purport to do. Leaving home and adjusting to an unfamiliar living environment can have a major impact on a young child's wellbeing. To some, the answer to Guenther and Fogarty's question is 'no'. Guenther et al. (2020) have suggested that while there has been considerable investment in boarding opportunities for Indigenous students, the outcomes of these investments are not well understood. Given that in 2017, there were 5200 Indigenous students who attended a boarding school away from home (Commonwealth of Australia, 2017), an understanding of how well boarding schools meet the needs of their students (and their families and communities) is warranted.

However, while we are exploring the potential of boarding schools for Indigenous students, we are not assuming that the boarding option alone guarantees employment. For example, Guenther (2021) has demonstrated that attaining a Year 12 certificate does not easily translate into a job for Indigenous people in remote parts of Australia (particularly those who speak an Indigenous language). The boarding option is seen as one potential piece of a complex problem.

While there are some studies on boarding experiences for Indigenous students (e.g., Guenther et al., 2020) and emotional wellbeing of boarding students (e.g., Mander et al., 2015; Martin et al., 2014), there is a lack of research to answer Guenther and Fogarty's (2018) question. The focus of this research is on student wellbeing from the perspective of both Indigenous and boarding status, as well as grade-level similarities and differences in various aspects of wellbeing.

The present investigation

Using a newly developed survey instrument, the present study aims to examine Indigenous and non-Indigenous students' multidimensional wellbeing from two urban-based Australian schools, which have both boarders and day students. The following research questions (RQs) were investigated:

1. Does boarding experience predict wellbeing among secondary students?
2. What is the role of grade on student wellbeing?
3. Do Indigenous and non-Indigenous students differ in wellbeing?
4. Is there an interaction effect between boarding status and Indigeneity?

Survey data were collected at two time points, 12 months apart, enabling us to test the predictions of boarder status, Indigenous status and grade on multiple dimensions of wellbeing at an early stage of adjustment to boarding and any changes in wellbeing as students become accustomed to boarding.

METHOD

Participants

A total of 1423 secondary school students (Years 7–12, all male) took part in the study. They came from two boys' schools that offer boarding to students in need of accommodation.

Two boarding schools

The two boarding schools were chosen primarily based on their fine reputations for boarding and Indigenous education. One of the schools (School 1) is in the state of NSW, Australia, about 20 km from the central business district of a major city. This school recruits Indigenous boys mostly from remote communities that have limited opportunities for secondary schooling. The school has a dedicated Indigenous programme where staff meet with the boys' communities to determine if boarding is a good option for them. The other school (School 2) is in the state of Queensland, about 80 km from the central business district. This school has a long history of excellence in catering to boarding students (more than a century). The school is equipped with modern facilities and maintains Christian values.

Indigenous and non-indigenous boarders

Both schools enrol Indigenous and non-Indigenous students. Most students are day students, but some enrol as boarders. For the Indigenous boarders, the main reason for boarding is lack of access to high-quality schooling within or near their home community.

The sample

Of the 169 boarders, 11 were Indigenous students who were from urban or rural locations. Details of the participants' Indigenous status and boarding status are given in Table 1.

The survey instrument

A survey was used to collect responses from the participants. In addition to demographic questions, the survey comprised 58 items that formed 15 constructs within six wellbeing dimensions: academic, psychological, physical, social, cultural and self (see the Appendix for the dimensions, constructs and sample items). Academic wellbeing includes two constructs:

TABLE 1 Participants

	Non-boarder 0	Boarder 1
Non-Indigenous 0	1224	158
Indigenous 1	30	11

academic competence and academic affect. Psychological wellbeing includes two constructs: hope and positive emotions. Physical wellbeing includes two constructs: health and vitality. Social wellbeing includes four constructs of support from: family, community, teacher and peers. Cultural wellbeing includes two constructs: a positive sense of cultural identity and an understanding of one's culture. Self includes three constructs: resilience, self-worth and a sense of performance.

Procedure

University ethics procedures were followed. Consents were obtained from the schools and parents before data collection, which was conducted either in printed form or online as preferred by the school and class teachers. The survey was conducted at two time points, 12 months apart (across two grade levels).

Data analysis

Preliminary analysis included descriptive statistics and reliability analysis by Cronbach's alpha. Using the statistical package of Mplus (version 7.11, Muthén & Muthén, 2013), a series of confirmatory factor analyses (CFAs) and structural equation modellings (SEM) were conducted. We first tested a model to examine the factor structure of the hypothesised 15 wellbeing constructs (Model 1) and whether these 15 factors can be represented by the hypothesised six dimensions as higher-order factors (Model 2).

Model fit was accessed by Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). The chi-square test statistics are also reported. In general, for the TLI and CFI, values ≥0.90 are considered an acceptable fit (Byrne, 2012). Values of RMSEA ranging between 0.05 and 0.08 are generally accepted as representing a close fit to a fair fit (Bowen & Guo, 2012). Factor loadings and latent factor correlations will be examined to provide further support for the structural validity of the wellbeing model. Factor loadings show the relations of each underlying construct (i.e., each wellbeing construct here) with each of the observed variables (i.e., the survey items). The latent factor correlations show the associations of the latent constructs, which should be clearly smaller than 1 so as to be distinguishable from each other.

Once structural validity was established, the constructs and dimensions were examined by invariance tests (Models 3 and 4) on measurement equivalence across the two time points. The measurement invariance tests allow us to infer change in scores meaningfully. The baseline was a configural invariant model in which the structure of the six dimensions would be similar across the two time points (Model 3). Then the metric invariant model was tested, which constrained the factor loadings across time points to be equal (Model 4). The differences in fit statistics were assessed to evaluate the invariance tests. The change in CFI should be <0.01 and the change in RMSEA should be within 0.015 for evidence of invariance (Cheung & Rensvold, 2002).

To answer the RQs, we tested four structural equation models: Model 5 using T1 data to examine the effects of boarder status, Indigenous status and grade level on six wellbeing dimensions; Model 6 to examine these effects longitudinally (T1–T2); Model 7 to further explore boarder × Indigenous status interaction effects with T1 data; and finally Model 8 to test such interaction effects with longitudinal (T1–T2) data.

RESULTS

Descriptive statistics and reliabilities

Table 2 summarises the means, standard deviations and reliabilities of the constructs. The Cronbach's alphas (ranging between 0.81 and 0.95 across two time points, T1 and T2) suggest a high internal consistency for each factor. The means are all above the mid-point of the scale, showing that the sample of participants had generally high levels of wellbeing. The highest mean was found in family support at both T1 (mean = 5.58, standard deviation, SD = 0.88) and T2 (mean = 5.58, SD = 0.79).

Confirmatory factor analysis

A series of CFA models were tested (see Table 3). Model 1, testing a 15-factor model at T1, showed an acceptable fit supporting the hypothesised multiple dimensions of wellbeing (Model 1: CFI = 0.961, TLI = 0.956, RMSEA = 0.028). Model 2, testing a higher-order structure, also showed an acceptable fit (Model 2: CFI = 0.951, TLI = 0.949, RMSEA = 0.030). The difference in fit indices between Models 1 and 2 were trivial (0.010 in CFI; 0.007 in TLI;

TABLE 2 Descriptive statistics and reliabilities

	T1			T2		
	Mean	SD	Alpha	Mean	SD	Alpha
Academic competence	4.64	1.01	0.92	4.49	0.96	0.88
Academic affect	4.51	0.95	0.88	4.37	0.91	0.81
Hope	4.81	0.93	0.88	4.70	0.99	0.88
Positive emotions	4.65	0.96	0.93	4.48	0.91	0.94
Health	4.88	0.99	0.92	4.62	0.89	0.93
Vitality	4.95	1.05	0.94	4.64	0.94	0.94
Family support	5.58	0.88	0.95	5.58	0.79	0.92
Community support	4.56	1.20	0.91	4.60	1.16	0.92
Teacher support	4.66	1.09	0.89	4.64	1.11	0.91
Peer support	4.48	1.02	0.88	4.36	0.94	0.87
Cultural identity	4.54	1.00	0.82	4.38	0.95	0.84
Cultural understanding	4.38	1.12	0.85	4.24	0.98	0.81
Resilience	4.42	0.98	0.86	4.28	0.93	0.86
Self-worth	4.89	0.93	0.92	4.58	0.89	0.93
Sense of performance performance	4.78	0.89	0.90	4.57	0.83	0.90

Note: N = 1423.

T A B L E 3 Models

	χ^2	d.f.	CFI	TLI	RMSEA
Model 1, first-order CFA T1	2970.82	1490	0.961	0.956	0.028
Model 2, second-order CFA T1	3389.77	1565	0.951	0.949	0.030
Model 3, second-order CFA configural model (T1–T2)	11,804.57	6458	0.946	0.944	0.024
Model 4, second-order CFA model with factor loading invariance (T1–T2)	11,838.80	6510	0.946	0.944	0.024
Model 5, boarder, Indigenous, grade effects (T1 only)	3200.83	1721	0.951	0.948	0.025
Model 6, boarder, Indigenous, grade effects (T1–T2)	12,493.36	6852	0.943	0.941	0.024
Model 7, Model 5 + boarder × Indigenous effects (T1 only)	3248.88	1773	0.951	0.948	0.024
Model 8, Model 6 + Boarder × Indigenous effects (T1–T2)	12,672.61	6956	0.942	0.941	0.024

Note: N = 1423.

Abbreviations: CFI, Comparative fit index; TLI, Tucker–Lewis index; RMSEA, root mean square error of approximation; CFA, confirmatory factor analysis.

0.002 in RMSEA), supporting the hypothesised structure of six wellbeing dimensions representing 15 specific wellbeing constructs (i.e. change in CFI < 0.01 and in RMSEA < 0.015), according to the criteria given by Cheung and Rensvold (2002). The factor loadings and latent factor correlations are summarised in Table 4.

Invariance across time points

Before examining potential change in the constructs across the two time points, we report the results on measurement and structural invariance tests to show that the instrument is appropriate for assessing change over time. Model 3 (second-order configural model with T1 and T2 data) had an acceptable fit (CFI = 0.946, TLI = 0.944, RMSEA = 0.024), whereas Model 4 testing structural invariance had similar fit indices (Table 3), thus providing support for invariance. This allowed us to assess the change in mean scores of the second-order factors meaningfully.

SEM

The effects of boarder status, Indigenous status and grade level were examined in four SEM models (Models 5–8). All four models had an acceptable fit (see Table 3). The first set of comparisons was conducted with the six wellbeing dimensions (i.e., the higher-order factors academic, psychological, physical, social, cultural and self wellbeing) using SEM with three predictors (boarder, Indigenous and grade) in Model 5, using T1 data. The results are presented in section (d) of Table 4. The paths from boarder as a predictor to academic, psychological, physical and self wellbeing dimensions are negative and statistically significant (−0.08, −0.05, −0.02 and −0.03, respectively, $p < 0.05$), indicating that boarding effects tend to be negative in general for these four wellbeing dimensions. The paths from Indigenous status as a predictor to Academic and Social wellbeing dimensions are negative and statistically significant (−0.09 and −0.13, respectively), indicating that Indigenous students in the sample did not do as well in these two wellbeing dimensions compared with non-Indigenous students. It is also important to note that the pattern of the paths consistently points to the fact that

Indigenous students were lower than non-Indigenous students in five of the six dimensions. For grade, all paths were negative, with four being statistically significant (−0.06, −0.10, −0.10 and −0.09 for academic, psychological, physical and self dimensions, respectively), indicating that younger students tend to report higher levels of wellbeing (see section (d) of Table 4).

Model 6 attempted to test longitudinal patterns (see section (f) of Table 4). The paths from boarder as a predictor to all six wellbeing dimensions (academic, psychological, physical, social, cultural and self) are positive and statistically significant (0.05, 0.07, 0.05, 0.08, 0.04, and 0.03, respectively, $p < 0.05$), indicating that the wellbeing of boarders improved over time from T1 to T2. The paths from Indigenous status as a predictor to the academic and self wellbeing dimensions are negative and statistically significant (−0.08 and −0.10, respectively), indicating that the Indigenous students in the sample did not improve as much as their non-Indigenous counterparts as they progressed from T1 to T2. Grade effects were mostly non-significant and close to zero, with only the self dimension being marginally significant (−0.01), indicating that change in wellbeing was essentially very similar for all grade levels (section (f) of Table 4).

Whereas Model 5 seems to indicate that either boarding or being Indigenous may suffer from lower levels of wellbeing in almost all aspects, Model 7 further tested whether an Indigenous student would have higher levels of wellbeing being a boarder. The results of Model 7 testing the boarder (B) × Indigenous (I) interaction effect is presented in Table 4 section (g). The results show that the B × I effects are mostly negative, with four of the six paths being statistically significant (−0.38, −0.15, −0.32 and −0.30, respectively for academic, physical, cultural and self). These findings indicate that Indigenous boarders are more likely to have lower wellbeing than other students. Further, Indigenous status has positive effects on physical and cultural wellbeing (0.09 and 0.27, respectively), indicating that Indigenous non-boarders have higher physical and cultural wellbeing, compared with students who are neither boarders nor Indigenous. Together, these patterns indicate that while boarding does not seem to benefit students' wellbeing in general (see Model 5), this is true for both Indigenous and non-Indigenous students (Model 7).

Model 8 further scrutinised the interpretation of Model 7 with longitudinal data (i.e. T1–T2 change). The results (Table 4 section (h)) show that the B × I effects are negative for five of the six paths, with three of them being statistically significant (−0.20, −0.17 and −0.18 for academic, psychological and physical, respectively). The negative paths seem to reinforce the finding in Model 7 suggesting that boarding does not benefit Indigenous students in these three dimensions of wellbeing. In contrast, the B × I interaction is significant for the change in the social dimension (0.10) indicating that, over time, Indigenous students who are boarders tend to improve in their social wellbeing.

DISCUSSION

This study confirmed the structural validity of the multidimensional wellbeing model comprising 15 wellbeing factors and six major wellbeing dimensions relevant to both Indigenous and non-Indigenous Australian students. The confirmation of this model enabled us to answer four key RQs.

Interpretations and implications

It is important to understand that boarders come from various backgrounds that require leaving their family. The Indigenous students mostly came from rural and remote locations, and were often from a background with multiple challenges. For some of these students, English

TABLE 4 Solution of models

	Comp	Affe	Hope	Posi	Heal	Vita	Fami	Comm	Teac	Peer	Iden	Cult	Resi	Wort	Perf
(a) Factor loadings of 15 first-order factors at T1 (Models 1, 2 and 5)															
Item 1	0.91	0.87	0.77	0.84	0.87	0.90	0.89	0.83	0.81	0.79	0.84	0.69	0.80	0.82	0.80
Item 2	0.87	0.80	0.88	0.84	0.90	0.93	0.89	0.85	0.85	0.80	0.84	0.86	0.78	0.87	0.83
Item 3	0.89	0.85	0.90	0.75	0.91	0.90	0.91	0.87	0.82	0.81	0.70	0.89	0.79	0.88	0.85
Item 4	—	—	—	0.83	0.80	0.84	0.93	0.85	0.79	0.82	—	—	0.75	0.88	0.86
Item 5	—	—	—	0.87	—	—	—	—	—	—	—	—	—	—	—
Item 6	—	—	—	0.78	—	—	—	—	—	—	—	—	—	—	—
Item 7	—	—	—	0.81	—	—	—	—	—	—	—	—	—	—	—
(b) Factor correlations															
Comp	—														
Affe	0.85	—													
Hope	0.51	0.53	—												
Posi	0.55	0.58	0.66	—											
Heal	0.51	0.53	0.58	0.55	—										
Vita	0.48	0.47	0.54	0.51	0.94	—									
Fami	0.23	0.22	0.30	0.33	0.26	0.21	—								
Comm	0.27	0.24	0.23	0.31	0.22	0.21	0.38	—							
Teac	0.40	0.31	0.26	0.34	0.27	0.22	0.48	0.62	—						
Peer	0.45	0.40	0.38	0.49	0.42	0.40	0.24	0.34	0.35	—					
Iden	0.45	0.41	0.39	0.43	0.40	0.39	0.27	0.24	0.33	0.51	—				
Cult	0.44	0.41	0.36	0.45	0.38	0.35	0.21	0.25	0.30	0.52	0.91	—			
Resi	0.53	0.59	0.56	0.71	0.56	0.51	0.22	0.23	0.30	0.43	0.41	0.42	—		
Wort	0.54	0.55	0.71	0.72	0.62	0.56	0.35	0.28	0.33	0.45	0.46	0.41	0.64	—	
Perf	0.64	0.70	0.68	0.70	0.65	0.60	0.29	0.28	0.32	0.45	0.47	0.44	0.63	0.87	—

(Continues)

TABLE 4 (Continued)

	Comp	Affe	Hope	Posi	Heal	Vita	Fami	Comm	Teac	Peer	Iden	Cult	Resi	Wort	Perf
(c) Factor loadings of six second-order factors at T1 (Model 2)															
Academic	0.91	0.93	–	–	–	–	–	–	–	–	–	–	–	–	–
Psychological	–	–	0.79	0.83	–	–	–	–	–	–	–	–	–	–	–
Physical	–	–	–	–	1.00	0.93	–	–	–	–	–	–	–	–	–
Social	–	–	–	–	–	–	0.56	0.71	0.79	0.56	–	–	–	–	–
Cultural	–	–	–	–	–	–	–	–	–	–	0.97	0.93	–	–	–
Self	–	–	–	–	–	–	–	–	–	–	–	–	0.74	0.91	0.93

	Academic	Psychological	Physical	Social	Cultural	Self
(d) Paths of Model 5, row variables as predictors						
Boarder	−0.08	−0.05	−0.02	−0.03	0.02	−0.03
Indigenous	−0.09	0.00	−0.04	−0.13	−0.02	−0.04
Grade	−0.06	−0.10	−0.10	−0.01	−0.03	−0.09
(e) Correlations of six second-order factors (Model 5)						
Academic	–					
Psychological	0.73	–				
Physical	0.54	0.71	–			
Social	0.47	0.57	0.38	–		
Cultural	0.53	0.61	0.45	0.52	–	
Self	0.72	0.93	0.72	0.51	0.62	–

T2 wellbeing	Academic	Psychological	Physical	Social	Cultural	Self
(f) Paths of Model 6, row variables as predictors						
Boarder	0.05	0.07	0.05	0.08	0.04	0.03
Indigenous	−0.08	−0.04	−0.09	−0.02	−0.01	−0.10
Grade	−0.01	−0.02	−0.00	0.01	−0.00	−0.01
(g) Paths of Model 7, row variables as predictors						
Boarder (B)	−0.10	−0.05	−0.03	−0.04	0.00	−0.05

TABLE 4 (Continued)

	Comp	Affe	Hope	Posi	Heal	Vita	Fami	Comm	Teac	Peer	Iden	Cult	Resi	Wort	Perf
Indigenous (I)	*0.25*	*0.02*	*0.09*	*−0.03*	*0.27*	*0.24*									
B × I	*−0.38*	*0.03*	*−0.15*	*−0.11*	*−0.32*	*−0.30*									
Grade	*−0.05*	*−0.10*	*−0.10*	*−0.01*	*−0.03*	*−0.08*									

(h) Paths of Model 8, row variables as predictors (controlling for T1 corresponding wellbeing)

T2 wellbeing	Academic	Psychological	Physical	Social	Cultural	Self
Boarder (B)	*0.04*	0.06	0.04	0.09	0.03	0.02
Indigenous (I)	*0.13*	0.12	0.08	−0.11	0.03	0.00
B × I	*−0.20*	−0.17	−0.18	0.10	−0.03	−0.09
Grade	*0.01*	−0.02	0.00	0.01	0.00	−0.01

Note: $N = 1423$. All correlation coefficients are significant at $p < 0.05$ except the ones in italics.

Abbreviations: Comp, academic competence; Affe, academic affect; Posi, positive emotions; Heal, health; Vita, vitality; Fami, family support; Comm, community support; Teac, teacher support; Peer, peer support; Iden, cultural identity; Cult, cultural understanding; Resi, resilience; Wort, self-worth; Perf, sense of performance. Boarder is coded as 0 = non-boarder; 1 = boarder. Indigenous is coded as 0 = non-Indigenous; 1 = Indigenous. Grade is coded from low to high (7th to 12th grades).

may be their second or even third language. Further, often they are entering an environment that can feel alien to them both educationally and culturally. Adding to the challenges, Indigenous youth, particularly those from rural and remote areas, often have different ontological, cosmological, epistemological and axiological orientations to their urban Indigenous peers (Guenther & Osborne, 2018). This background should be considered when drawing conclusions about what impact boarding may have on the wellbeing of Indigenous students.

RQ1. Does boarding experience predict wellbeing among secondary students?

Boarding status predicted lower wellbeing across four wellbeing dimensions (academic, psychological, physical, and self) at T1 (see section (d) of Table 4), however longitudinal analyses indicated that the wellbeing of boarding students improved over time across all six wellbeing dimensions (see section (f) of Table 4). These findings suggest that boarders in general have lower levels of wellbeing compared with non-boarding students, which may reflect the significant difficulties in being separated from family and adjusting to a new school environment (Bramston & Patrick, 2007). Encouragingly, findings indicate that as boarders settle in and adjust to boarding, at T2 their wellbeing may improve notably (see section (f) of Table 4). Indeed, as O'Bryan and Fogarty (2020) note, successful adjustment, particularly for Indigenous students, takes time and the collaborative efforts of school, family and community.

RQ2. What is the role of grade on student wellbeing?

Findings indicate that students in higher grades tend to report lower wellbeing on four of the wellbeing dimensions (academic, psychological, physical, and self; see section (d) of Table 4). It is not surprising that younger students tended to have higher levels of wellbeing. As students mature, they may experience more hardships and become less optimistic about life. However, the lower wellbeing for older students calls for attention by designing interventions to bolster resilience and wellbeing. Early intervention also seems to be particularly important because findings suggest that once a healthy level of wellbeing is established, students' wellbeing tends to be quite stable. That is, if we can promote a healthy level of wellbeing early enough, students' wellbeing may not drop significantly as they progress to higher grades. Based on their work with eight Queensland boarding schools and looking at the wellbeing of Indigenous students, McCalman et al. (2020) have suggested that core processes to improving students' wellbeing include building rapport with students, developing relationships with families, strengthening intra-school teamwork, and linking across sectors (e.g., healthcare, local community councils, and police).

RQ3. Do indigenous and non-indigenous students differ in wellbeing?

Indigenous students reported lower academic and social wellbeing than their non-Indigenous peers (see section (d) of Table 4), and longitudinal analyses indicate that Indigenous students did not improve on these two dimensions over time to the same extent as non-Indigenous students (see section (f) of Table 4). These findings are consistent with previous research indicating that Indigenous students tend to have lower self-belief in their academic competency than non-Indigenous students (Yeung et al., 2013). Further, these findings suggest that Indigenous students perceive less support from family, teachers, peers and their community. Partially this may reflect the experience of being physically separated from their

families and communities, and that many Indigenous students are the first in their families to navigate the experience of private boarding school (see Whettingsteel et al., 2020).

RQ4. Is there an interaction effect between boarding status and indigeneity?

Interaction effects indicated that Indigenous boarding students reported lower wellbeing across four dimensions (academic, physical, cultural and self) compared with non-Indigenous boarding students at T1 (see section (g) of Table 4). Further, longitudinal analyses indicated that even after settling in, the Indigenous students' wellbeing in the academic, psychological and physical dimensions did not improve to the same degree as their non-Indigenous peers (see section (h) of Table 4). Given the known challenges associated with living away from home in a new environment, the effects of which do not necessarily subside when placed in a boarding school with specialised support programmes, this is not surprising. However, the B × I interaction effect (Model 8) showed a significant improvement for the social wellbeing of Indigenous boarding students over time (See Table 4 section (h)). This finding of improved social wellbeing is an encouraging finding and suggests that there may be something uniquely beneficial for Indigenous students in the boarding programmes of these schools that helps to cultivate a greater sense of support and connection. However, the interaction effects for the other dimensions do not support the merit of boarding for their wellbeing other than the social dimension.

Understanding the boarding experience for indigenous boys

For this sample using two timewaves of data 12 months apart, our analysis did not reveal any discernible overall benefit of boarding on students' wellbeing for both Indigenous and non-Indigenous students, although some aspects of wellbeing showed improvement over time. However, these results should not be interpreted as meaning that boarding is necessarily detrimental to wellbeing. A meaningful interpretation of the results requires an understanding of the broader context of Indigenous students' experience. Failure to do so can result in not recognising their strengths and not appreciating the potential advantages of boarding schools for this student population. For many of these students, it will be the first time that they are away from their home environments for extended periods. Mander et al. (2015) note:

> Not only do they have to negotiate new teachers, academic expectations and social contexts, but boarding students have to also adjust to new living conditions and duty of care arrangements that underpin the operational and organisational structure of boarding schools. However, for the boarding student, perhaps the most challenging aspect of the primary to secondary school transition is the necessity to operate autonomously while dislocated from the support and familiarity of the family with which they previously had unlimited access. The boarding student forms a unique subgroup of adolescents given they spend the formative years of their adolescence intermittently living away from their parents. (pp. 131–132)

There are additional considerations for Indigenous students who frequently come from backgrounds where they may have had very minimal experience with non-Indigenous people and westernised culture. Very often, not only are they leaving their home communities, but they are entering an environment that can be very different culturally and contain challenges such as racism and lateral violence (Benveniste et al., 2019). The impact of this change in cultural landscape in educational settings must be considered in interpreting findings.

While recognising these challenges, it is also important to recognise the positives. Although the sample size for Indigenous students in this research is small and perhaps selective in terms of academic achievement, data suggest that Indigenous boarders improved over time in their level of social wellbeing. This is an important achievement, particularly given that Indigenous boarders are a minority group in the schools and can sometimes feel alienated. Findings of this study also offer useful insights into pathways by which schools may seek to bolster the wellbeing of Indigenous boarders. For instance, interventions which seek to promote greater academic self-concept, a dimension of wellbeing on which Indigenous students appear to be lagging, may offer a useful avenue for increasing important educational outcomes such as attendance, engagement, aspirations and school enjoyment (Craven & Marsh, 2005). Further research into how schools may creatively enhance the multilayered support for both boarding and non-boarding Indigenous students may further function to enhance their engagement and overall wellbeing (Dillon et al., 2020).

Strengths, limitations and future directions

This research has gone beyond previous studies by examining both a snapshot of data collected within a timeframe (T1) and longitudinal data from two time points (T1–T2), allowing us to answer our RQs from two perspectives: prediction of wellbeing outcomes and of change in these outcomes across time points. In this way, the analysis has avoided an overly simplistic conclusion of whether boarding is good or bad for Indigenous and non-Indigenous Australian students. This has been achieved by developing and using a new psychometrically sound survey instrument for measuring wellbeing that is applicable for both Indigenous and non-Indigenous students, and for both boarders and day students.

Our analyses suggest that while boarding may not benefit students' wellbeing at the initial stages, once established, wellbeing may become more stable. Hence, if an effective intervention is in place at the transition period to help students adjust in their new role as a boarder, stability in wellbeing may be achieved earlier. This may help the students (and their families) acquire the 'requisite capitals' required to navigate the boarding school system (Guenther et al., 2020, p. 46). In research conducted by Redman-MacLaren et al. (2021, p. 101) on the transition of remote-dwelling Indigenous students to boarding schools, they state:

> Boarding providers should consider how they can work with families and communities prior to and during students' enrolment to ensure that just as the students and families are prepared and learn about the boarding context, they as boarding providers should equally prepare for and learn about the context from which students and families come from. There is also a move towards increasing the responsibility of remote and very remote primary schools in preparing students for boarding, particularly in regards to a proposed transition curriculum.

There are some limitations in the present investigation which need to be considered in interpreting current findings and providing direction for future research. First, while Indigenous school-aged children comprise only 6% of Australia's population for that cohort (Australian Bureau of Statistics, 2018), and make up just under 3% of the sample for the present study, Mooney et al. (2016) suggest that small sample sizes often mean that quantitative data may lack the sensitivity to capture salient features that can be used to answer some research questions. Hence, there is value in exploring insights into Indigenous students' experiences with boarding school using qualitative methods (Dillon et al., 2020). Qualitative methods are more consistent with Indigenous worldviews and have shown to be useful in eliciting greater insight into Indigenous knowledges and culture (Mooney et al., 2016).

Second, as discussed, some students' lower wellbeing scores may reflect what they have brought from their background to their school, and may not be a real reflection of boarding effects. Knowing that boarders join a boarding school because of circumstances that do not allow them to attend day school as other students, the reason for their lower levels of wellbeing is unknown and needs to be explored further.

Finally, the sample came from two boarding schools with boarders and day students, all male. Owing to time and resources limitations we could only include two schools, thus limiting the generalisability of our findings. Whereas our current analysis has attempted to answer our RQs relevant to these two schools, with the hope that it may have some value in understanding other boarding schools, a better understanding of how boarding for Indigenous students has worked is warranted by obtaining more longitudinal data, quantitatively and qualitatively, from other schools. In this study, we used two timewaves of data. There is value in collecting more timewaves of data (both quantitative and qualitative), particularly given that current data showed that Indigenous students improved in their social wellbeing within one year.

Although boarding school seems to be a plausible solution to remote Indigenous students' restricted access to quality education (Franck et al., 2020), the full merit of boarding school is yet to be explored from a standpoint acknowledging the complexity of the issue. Arguments for the benefits of boarding schools (e.g., Macdonald et al., 2018) or against boarding as a solution (e.g., O'Bryan & Fogarty, 2020) may be too simplistic, as existing evidence-based investigations are insufficient to give us a clear direction to address the issue. Even for an evidence-based investigation with qualitative and quantitative evidence (e.g., O'Bryan & Fogarty, 2020), conclusions may be drawn based on a special sample within a particular community. Our analysis, exploring predictions of boarding and Indigeneity from cross-sectional and longitudinal perspectives have added value to existing research on this important topic.

CONCLUSION

Improving Indigenous Australian students' wellbeing and educational outcomes is important for helping Indigenous people reach their full potential. For Indigenous students who live in remote locations, enrolment in a boarding school in an urban and metropolitan location may, or may not, provide a valuable opportunity for them to succeed in life. Examining six dimensions of wellbeing (academic, psychological, physical, social, cultural, self) at two time points (T1–T2), survey data found that the sample of Indigenous boys were generally lower in all the dimensions compared to non-Indigenous boys, with two dimensions being significantly lower (academic and self). Boarding did not seem to benefit Indigenous students' wellbeing initially, and improvement in wellbeing within 12 months was less pronounced for Indigenous students. However, Indigenous boarders did improve in social wellbeing over time, although there was no evidence of improvement in other wellbeing dimensions. Evidence shows that it is premature, and perhaps too simplistic, to conclude the success or failure of boarding for Indigenous Australian students. In terms of whether the two schools in this study were successful in terms of improving the wellbeing of their Indigenous boarders, the results are equivocal, thus indicating the need for further research. Further investigation combining quantitative and qualitative data to achieve a thorough understanding of how boarding may work best for Indigenous students is warranted.

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ETHICAL GUIDELINES

Ethics approval was approved by the university ethics committee (number 2016-245HI, project title 'Transforming Lives and Communities: Impact of Quality Indigenous Education Risk Level: Low Risk'). All participants were fully informed with consent given, and all ethical requirements were adhered to throughout the life of the project.

CONFLICT OF INTEREST

There are no conflicts of interest.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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APPENDIX

WELLBEING DIMENSIONS, RELATED CONSTRUCTS AND SAMPLE ITEMS

Dimensions	Construct	Sample item
Academic	Competence	I am good at most school subjects
	Affect	I like most school subjects
Psychological	Hope	I expect good things to happen to me
	Positive emotions	I often feel joyful
Physical	Health	I have a healthy lifestyle
	Vitality	I have energy
Social	Family	My family help me feel close and connected
	Community	When I am with my community, I feel like I belong
	Teacher	My teacher really cares about me and I care about them
	Peer	My friends help me with my schoolwork
Cultural	Identity	I am proud of my cultural background
	Cultural understanding	I understand my culture
Self	Resilience	I don't let study stress get on top of me
	Self-worth	Overall, I have a lot to be proud of
	Sense of performance	Most things I do, I do well