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Improving Rural and Regional Student Experiences

John Guenther
Batchelor Institute of Indigenous Tertiary Education
john.guenther@batchelor.edu.au

Bronwyn Relf
University of Newcastle
bronwyn.relf@newcastle.edu.au

Abstract

In this editorial for the second issue of the *Australian and International Journal of Rural Education*, we explore the challenges and opportunities for researching and reporting student experience in rural and regional education. The articles in this issue illustrate how the voices of students can be and are represented through research. The articles from rural and regional contexts in China, Sweden and Australia offer insights into student experiences and what can be done to improve those experiences across a range of sectors. We also note that the influence of rurality on experiences is sometimes assumed but not explicitly discussed. In summary, the articles in this issue provide useful illustrations of how student voice and experiences can be used to powerfully reflect and improve the value of programs, pedagogical approaches, curriculum offerings and educational opportunities.

Keywords: *student experience, student voice, rurality*

Introduction

This issue brings together a somewhat eclectic mix of articles. However, as we read through the articles there is a thread of common themes about rural student experiences. We read about the experiences of Aboriginal boarding students, of school students in rural parts of China who are exposed to extended reality, of medical students who are engaged in a rural immersion program, of professionals who work with disengaged rural students, and of students and community members who are part of a regional study hub outreach program. The intent of each article varies, but the reason why these papers appear is because the researchers want to understand student experiences and how to respond to them.

While the dominant discourses in rural education research tend to be related to community and relationships, rurality and place, deficit discourses, and teacher preparation (Guenther et al., 2023), attention is seldom given to the voices of those for whom education is for: the students. In our Journal we regularly hear from researchers, teachers, school leaders, practitioners, policy bureaucrats, parents and community members, but we rarely hear from students themselves. In this issue we do hear from them in a variety of rural learning contexts.

Challenges for Student Experience Research

The dearth of research based on student voice, is related to a few issues. Partly, it is related to the challenges associated with engaging young people in authentic and ethical methodologies (Brasof et al., 2022), and possibly because they rarely have a say in how research about their

experiences is conducted (McCarthy et al., 2025; Oliver et al., 2024; Shay et al., 2023), which means there is considerable research *about* young people but not so much that is designed and conducted *by* them. Nevertheless, there are important findings in the 'about' category of youth research that shed light on the lived experiences of rural students: those that demonstrate positive effects of programs (Wolfe, 2023), and those that reflect the perceived deficits of 'being' or living in rural locations (Grant, 2022; Turega, 2023). Partly, it is related to a focus on younger students' experiences, ignoring those of mature-aged students engaged in higher education who navigate complex paths to fit study into their busy lives (Delahunty, 2022; Delahunty & Crawford, 2024), particularly the guilt associated with taking time away from family life to engage with higher education (Delahunty, 2022).

Hopkins (2024) notes that:

> *A great deal more research highlighting rural student voice is crucial to promote a more equitable future for all Australians and to advocate for rural students who are so often brushed aside by national quantitative studies focusing on achievement outcomes, and whose rural voices are most often lost in the neoliberal education policy landscape (p. 88).*

Much of the literature on rural and regional student experience is focused on the higher education sector. There is considerable research on the experiences of allied health and medical students in rural placements (Bradley et al., 2020; McNaught & Rhoding, 2022, 2023). Some is based on survey data, (Elliott et al., 2023). Other research in this field is qualitative, providing accounts of students in rural settings (Shepherd et al., 2025). There is also a growing body of research on the experiences of young people transitioning to urban universities, from their rural communities, describing the challenges they face and how they have overcome those challenges (Grant & Kniess, 2023; Stone, 2023) and what could be done to better support them (Ndofirepi & Maringe, 2020; Pollard et al., 2021). Very little of research focusses on mature-aged students' experiences (Delahunty, 2022; Delahunty & Crawford, 2024).

There is considerable research about remote Aboriginal and Torres Strait Islander experiences. A large body of research describes the experiences of remote students transitioning into boarding environments (O'Bryan, 2021; Redman-MacLaren et al., 2021; Stewart, 2021), and then transitioning out (Rutherford, 2024; Shay et al., 2023). Much of the research reports the challenges rural and remote students face adjusting to foreign environments, maintaining social connections and mental health, and adapting to the culture of non-rural institutions.

More research is needed into the role of Regional University Centres in providing access to universities and support for both young and mature-aged rural students who decide to remain in their rural area during their higher education studies. Delahunty (2022) finds for students who opted to 'Stay Regional', Regional University Centres created a feeling of belonginess and community missing from rural students' experiences at metropolitan universities. There is also research that shows the need for supporting workforce retention for those that migrate from cities to meet skills demand in health and education. What we do not see a lot of is research that shows how rural students use their strengths to succeed in education and career choices, and where rurality is seen as an asset rather than an obstacle (Phillips, 2015). However, Delahunty (2022) begins to address this question. In her report, regional and remote university students expressed how transferring coping mechanisms learnt during times of hardship at home enabled them to persist with their studies at university when they experienced hardships, such as being away from home.

Engaging Rurality: A Missing Piece

One of the missing pieces in the puzzle of student experience is the lack of engagement among many rural researchers, with the concept of 'rurality'. How does rurality influence student experience, if at all, and just what about 'the rural' makes any difference? It is one thing to

identify the experiences of rural students, but what is it about 'being' rural or metropolitan that shapes identity, belonging, socialisation, values and aspirations? Many of the studies we have referred to here—based on rural, regional or remote contexts—have no comparison (e.g. Stone et al., 2022) and make assumptions that align with "*metronormative discourses*" of deficit and disadvantage (Roberts & Guenther, 2021, p. 19). We are left to guess what the difference is. Studies that do have multiple sites (metropolitan, regional, rural and remote), often have no analysis of how the locations differ or why (e.g. Lowe & Weuffen, 2022; Shay et al., 2025). Roberts et al. (2024) argue that "*to really value rural people, places and communities, research needs to engage with the complexity of rurality*" (p. 141). This is one of the challenges that rural education researchers face. Delahunty (2022) and Delahunty and Crawford (2024) engage with the complexity of rurality by adopting a strengths-based approach of identifying what works for students, in their local context for their specific life factors. For example, Delahunty's (2022) analysis of geographical movement looks at how age and remoteness categories influence the decision to stay or leave for university studies and points out differences between students aged 25 years and under and those aged 26 years and over. Belonging has been identified as one of the psychosocial requirements for a positive student experience (Kahu & Nelson, 2018). Findings from both Delahunty (2022) and Delahunty and Crawford (2024) identified for regional and remote students a feeling of 'local' belonging (Crawford & McKenzie, 2022), whether that be facilitated by community, family or Regional University Centres support, was more important than a feeling of belonging to a specific institution, for persistence with their studies.

As you read through the articles in this issue, look out for references to rurality or related concepts (they are few and far between) and look for those mentions of how and why being rural makes a difference in the analysis of students' experiences. Then, as an additional challenge, consider how the researchers might have reframed their research to bring the complexity of rurality into focus.

The Articles

The articles in this issue take us to sites of teaching and learning in China, Sweden and Australia, and connect us with student experiences in primary, secondary and tertiary settings.

Xining Wang, Gareth Young, and Conor McGuckin's article on extended reality (XR) in rural China considers how this kind of technology can be used to enhance student learning experiences, compared to more traditional methods. The study shows, perhaps not surprisingly, that students in the XR classes benefited from their new learning experience. The authors suggest that the difference has more to do with teacher-centred and student-centred approaches. They conclude that "*utilising XR technologies in rural classrooms can be one way to bridge educational disparities*" (p. 14), while also noting that the perceived value of XR related approaches is dependent on an expectation that learning is meant to benefit students in the pursuit of better examination results than for the pleasure of learning. While here is a classic example of research of student experience, what we see in the findings is an enculturated view of educational quality determined not by the students, but by the education system. While it does point to the potential benefit for rural students—opening up learning opportunities that would normally only be available to metropolitan students—it also raises questions about perceptions of 'quality' in rural education.

The article from Josef Siljebo, Fanny Pettersson, and Björn Norlin tackles another technology related issue, providing an historical perspective on the adoption of online learning in northern Sweden. While Wang and colleagues' work involved teachers using technology in classrooms, what Siljebo and colleagues discuss is 'remote' teaching where the teacher is not in the classroom. The introduction of remote teaching to rural Swedish schools came about at least in part as a response to declining rural populations, which made offering quality education in rural communities more difficult. The affordances of online learning technologies in the 2000s

facilitated new ways of learning. While this article does not explore student experiences, the implications of 'remote learning' for students in rural areas are perhaps obvious. On the one hand there are opportunities for improved access to a broad range of curriculum offerings. But on the other, in a world where choice is valued, rural student learning experiences are still constrained by what is available to them—and it would seem in this case that face-to-face learning is less likely to be an option. Nevertheless, both articles from China and Sweden represent innovative learning approaches that ameliorate the effects of distance.

Michelle Gossner, Cassy Dittman, Lisa Lole, Lauren Miller-Lewis's article on community insights into disengagement offers important understandings about why young people in rural and remote communities are more likely to disengage and drop out from school compared to their metropolitan peers. Noting that again that while this study does not draw from the perceptions of young people, it does consider the perspectives of those who are close to them, such as youth community service representatives. The findings are discussed in a framework of *Process*, *Person*, and *Contextual* factors over time and while students were not interviewed the findings are similar to other studies that have sought the views of students (Howard et al., 2020) as they relate to peer, family and school factors. While dropout and disengagement are often discussed as an issue for schools and education systems (ACARA, 2025), this study takes a broader view where parents, community members and individual students themselves share in the multiplicity of causes for disengagement. Importantly, along with other studies in Australia (Allen et al., 2018; Guenther et al., 2024), the remedy for disengagement requires a whole of community approach—it cannot be 'fixed' by schools alone.

Wili Suluma and Greg Burnett, in their article on boarding school outcomes for remote Aboriginal students, explore student perspectives along with parent and staff views of boarding school outcomes. They find that the various perspectives of their participants, converged around expectations of year 12 completion, employment and a better future more generally. Students expressed their aspirations clearly in terms of pathways beyond school, consistent with other studies of remote students (Benveniste et al., 2022; Rutherford, 2024). A question could be raised here about the role that rurality or remoteness have on the experiences of young people at school. For Suluma and Burnett's respondents, this is probably tied up in the connection to (ancestral lands) that students had: "*Students' connection to family and Country was noted to have a great influence on their plans*" (p. 63), though from a systemic perspective, the influence of rurality is likely obscured by the demands of systems which, in the case of boarding schools, have long been associated with assimilatory practices and assumptions. O'Bryan (2021) concurs: "*However much boarding is wrapped in the language of opportunity and choice, any policy priority of sending children away from family and community inevitably resonates with assimilatory practices of the past*" (p. 26).

Scott Graham, Jim Pratley, David Randall, Lincoln Gill and Jeff McCormick shift our focus to secondary offerings of agricultural education subjects. The extraordinary finding of this paper is in its reporting of incredibly low completion rates in agriculture subjects. In part, this is due to the limited offerings at a senior secondary school level. The implications for agricultural industries will undoubtedly link to skills shortages in the not-too-distant future. The authors make the valid point that to increase completions, there need to be more agricultural courses available for students to be able to choose. Perhaps, just as important, in terms of implications is what students themselves think about agricultural education (Cosby et al., 2022; Manning et al., 2024). This may shed light on how to address the current skills shortages and workforce gaps in some sectors of Australia's agricultural industries (Job and Skills Australia, 2024). Like other skills shortage issues in rural areas, this has complexities associated with it that relate to school-industry collaboration, resourcing and political will.

The last two journal articles address a different workforce issue—attracting and retaining medical students in rural Western Australia. Keith McNaught and Gina Sjepcevich report on

perspectives of students in an immersion program linked to their future involvement in the Rural Clinical School of Western Australia. This study finds that "*a short-term program can have a significant impact on urban-origin students, with all students reporting a positive change in their thinking about rural practice*" (p 100). As noted earlier, a lot of studies focus on the perceptions of rural students moving to an urban context. This study turns this around. While the findings from the program were positive, it seems that students wanted more: "*A recurring theme in student feedback was the desire for even more interaction with the local community*" (p. 101). In effect, what the students are saying is 'our experience of the rural has been positive, but please can we have more'. The strengths and positives of rurality do count for something, and may well mitigate the downsides of rurality. Anett Nyaradi and Keith McNaught provide a complementary article that reports on the results of a separate but related study. Students in this article are in their second year of study and are required to participate in a four day rural immersion placement. The pre-post survey methodology demonstrates a positive shift in perceptions before and after the immersion program such that: "*Rural Immersion Week significantly influenced students' intentions to pursue future rural clinical placements and consider rural practice as a career path.*" (p. 117) Both of these studies demonstrate that ambivalence towards engagement in rural practice can be shifted positively, and potentially that rich learning experiences in rural contexts are valuable in showing immersion participants that there is much to be appreciated and enjoyed in rural communities.

The Rural Connections article in this issue describes an evaluation of a program called EduVentures, developed through the Taree Universities Campus. Gemma Death and Evan Weller describe how the program was intended to build connections between the universities involved, local schools and community stakeholder, and potential students. The article reports on survey responses from students. In the findings, the voices of students are reflected in the quantitative data and the qualitative responses from students. While it could be argued that the findings are simplistic, as a starting point, to get a better understanding of perceptions, the results can give good advice to staff to better design and build the resources and activities that the Campus produces. Coming back again to the impact rurality (or in this case regionality) has on perception and program design, there is room to develop this program further—tailoring responses to better meet community needs and expectations, expanding the program to include mature-aged students, as well as the needs of universities and industry stakeholders.

Conclusion

Rounding out the discussion, the articles in this issue provide useful illustrations of how student voice and experiences can be used to powerfully reflect and improve the value of programs, pedagogical approaches, curriculum offerings and educational opportunities. Students are of course at the centre of education, and there would be no such thing as education if not for students. So how students think and respond to what educators offer is important. We have also seen how a study can be reinterpreted to ask the important questions about what the implications for students might be.

For the field of rural education research, the issue of rurality should also be central—what rurality brings to education and what the implications are for rurality. Thinking critically about each article, it is not too difficult to see that a definition of rurality depends on context. Rurality is viewed differently by insiders and outsiders (exemplified by McNaught and Sjepcevich's article). Rurality may be perceived differently by students and teachers (as is undoubtedly the boarding school research presented by Suluma and Burnett). Rurality can be viewed through an industry and workforce lens (Graham and colleagues) and through a career development lens (Death and Weller). In all the articles rurality is contextual and provides a site for learning and (dis)engagement (Gossner and colleagues), and rather than being a cause of problems, it can be a reason for innovation (Wang and colleagues, Siljebo and colleagues).

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Leveraging Extended Reality for Quality Education and Classroom Atmosphere in Rural Regions of China

Xining (Ning) Wang
University of St Andrews, Scotland
xw78@st-andrews.ac.uk

Gareth Young
Trinity College Dublin, Ireland
gareth.young@tcd.ie

Conor Mc Guckin
Trinity College Dublin, Ireland
conor.mcguckin@tcd.ie

Abstract

Despite access to quality education being essential for all, children and youth living in remote rural areas still struggle to gain the same opportunities as their urban counterparts. They face barriers that hinder their access to quality learning and classroom atmosphere. This study aimed to investigate the potential of leveraging extended reality to enhance quality education and classroom atmosphere in rural regions. A small-scale investigation was conducted to examine the existing urban-rural schools' educational quality (Stage 1), then mixed methods were employed to investigate a total of 70 rural students (aged 10–16) in rural China, to examine differences between extended reality-assisted education and traditional classroom education (Stage 2). The results showed that students believed their traditional class was useful, but they favoured extended reality-based education. It was concluded that extended reality-based education can be a creative approach to improve classroom atmosphere and increase educational quality in underdeveloped rural areas.

Keywords: *quality education, extended reality, classroom atmosphere, rural students, educational inequality*

Introduction

Quality education plays a pivotal role in advancing the United Nations' Sustainable Development Goals (United Nations Department of Economic and Social Affairs, 2015). It significantly contributes to individual and collective development by equipping individuals with essential competencies to explore and grow globally (Organisation for Economic Co-operation and Development [OECD], 2018; Willoughby, 2016). Even though access to quality education is essential, many countries, especially low-income countries (Asaju & Adagba, 2014; Diwakar, 2015), still struggle to offer quality education to their youth (Lewin, 2009; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022). Furthermore, access to quality education can differ within countries. Unlike low-income countries with low educational quality, in a middle-income country like China, access to quality education presents a complex situation where high-quality education and poor-quality education have long coexisted (Rao & Ye, 2016; Rozelle & Hell, 2020). This educational gap is especially noticeable in the divide between China's advanced urban

regions and remote rural regions. For example, in the 2018 OECD Programme for International Student Assessment test, China's four most advanced provinces—Beijing, Shanghai, Jiangsu, and Zhejiang—ranked first (Peña-López, 2019). Their scores exceeded their counterparts from the other 78 participating countries and regions by a large margin (Peña-López, 2019). However, students from lower income provinces with under-developed rural areas have performed amongst the lowest in China's student population. In China's north-west rural areas, the average two-year dropout rate in grades 7 and 8 ranges from 7.2% to 27.1% (Wang et al., 2015).

Literature Review

Research highlights several elements that shape quality education in the classroom: proficient teachers (UNESCO, 2016), well-designed learning materials, and pertinent instructional methods (Mok & Chan, 2001). Another critical factor that affects the quality of learning is the classroom atmosphere, which has been defined as everything that takes place in an educational department, such as classroom setting, faculty, school, or university (Ofoghi et al., 2016). Research indicates that students who value the classroom atmosphere more positively achieve better academic performance and form a stronger sense of belonging at school than those who evaluate it more negatively (Cerón et al., 2016; Hamid et al., 2013).

When used correctly, extended reality (XR) as part of the learning experience can lead to a positive classroom atmosphere (Utami et al., 2021). Previous studies have found that XR can assist teachers and students in building trust, understanding, and constructive interactions, improving multi-dimensional classroom climates (Santos Garduño et al., 2021). By learning through virtual reality and augmented reality, students can access various resources, be involved in the setting, and learn through touch, space and motion by physically interacting with the virtual system (Markowitz et al., 2018). This system can enhance experiences in the classroom by providing safety, interactivity, simulation, and multisensory engagement, which further create a learning-friendly atmosphere for classroom activities (Wang et al., 2021). Within a positive classroom atmosphere, students' self-regulation and motivation can be triggered by well-designed XR classes (Wang et al., 2021).

Classroom teaching and learning are vital components of quality education, as students acquire the knowledge and skills that they need to achieve future success (Kasem & Pathak, 2014; Shirani Bidabadi et al., 2016). Amid the digital transformation of classrooms, knowledge about immersive media, such as XR technologies, is critical, as this may play a key role in ensuring quality education and classroom atmosphere for future students (Pimentel et al., 2022). XR is a catch-all term that encompasses augmented reality, mixed reality, and virtual reality technologies, which can be placed on a continuum, moving from complete reality to complete virtuality (Milgram & Kishino, 1994). In essence, these technologies allow us to "*go beyond our physical reality*" (Pimentel et al., 2022, p. 2), with devices such as tablets, desktops and virtual reality headsets (Angelov et al., 2020). Because the cost of XR is decreasing, using technology-supported interventions is becoming a feasible option for rural education. One advantage of XR is that it offers a cost-effective way for rural students to access diverse educational experiences in their classrooms. However, there is limited research on using XR in non-WEIRD (Western, Educated, Industrialised, Rich, and Democratic) samples (Wang, Young, Plechatá, et al., 2023).

XR may help teachers provide opportunities for active participation and collaboration and personalised and adaptive learning experiences (Xie et al., 2019). It has the potential to meet students' needs, such as helping under-represented groups gain access to quality education that their peers from well-developed regions already possess (Wang, Young, Iqbal, et al., 2023). However, few studies have explored XR's potential for improving quality education and classroom atmosphere. Furthermore, to our knowledge, no studies have been conducted on this topic in socioeconomically disadvantaged populations, such as rural China. Research is needed to

investigate the feasibility of technology-supported educational interventions to improve educational quality and classroom atmosphere for these populations.

Efforts to address educational inequality have often involved the introduction of asynchronous learning platforms as supplements to education in disadvantaged areas (Gottschalk & Weise, 2023). In contrast, this article reports the results of a study that introduced XR-enhanced education directly into classrooms in remote rural areas in China, and investigated its potential to improve the quality of education offered there. To achieve this goal, four hypotheses were developed:

H1: There is a significant difference in students' perceived quality of education between urban and rural China, potentially influenced by access to educational resources and teacher support.
H2: XR-assisted education can improve rural students' perceived education quality in learning, enthusiasm, organisation, group interaction, individual rapport, breadth, examinations, and assignments.
H3: XR-enhanced education improves classroom atmosphere in terms of student cohesiveness, teacher support, involvement, investigation, task orientation, cooperation, and equity.
H4: Rural students are more likely to give positive feedback on their XR education experiences due to the novelty of the technology and its perceived usefulness in enhancing understanding.

The Current Study

This study set out to critically assess the feasibility and effectiveness of using XR technology to enhance students' educational well-being, specifically in underdeveloped regions of China. To achieve this goal, we selected China's (rural) education and students as our research object and sample population, given that rural areas in China have a high number of children (about 100 million), and the educational chasm between urban and rural China has been a long-standing topic of discussion among organisations (e.g., National Working Committee on Children and Women, National Bureau of Statistics, & United Nations Children's Fund, 2018; OECD, 2018) as well as experts (e.g., Rozelle & Hell, 2020). Thus, this study contributes to a broader conversation about the role of emerging technologies (i.e., XR) in advancing educational equity and access, by exploring the use of XR to augment learning experiences in rural China.

Before conducting this formal experiment, we addressed fundamental thinking as a prior question: Does China's urban-rural education inequality still exist today? This was informed by an increasing number of studies that have claimed that the educational gap between urban and rural China has been reduced (Cai & Wu, 2019; Qi & Melhuish, 2017). To answer this question, a pilot investigation was conducted to examine whether the chronic educational inequality between China's developed urban areas and underdeveloped rural areas still exists. Hypothetically, the pilot study confirmed this.

Next, a mixed methods research design was employed to examine the proposed four hypotheses. First, a quantitative study investigated the potential education quality gap between rural and urban China (H1). Second, the feasibility of XR education for rural schools' class quality (H2) and classroom atmosphere (H3) were examined. Thirdly, to test H4, a qualitative investigation was conducted with the same cohort to understand (a) students' perspectives on their XR learning experience, and (b) students' outlook on how XR education changed and impacted their learning in a specific rural context. This research design was approved by the university research ethics committee prior to the initiation of the data collection.

Stage 1 Study: A Small-Scale Pilot Investigation

To examine whether an educational gap was present between urban and rural China, potentially influenced by access to educational resources and teacher support (H1), 120 Chinese students aged 10–18 years were recruited: 60 from four provinces in South and West China, known for their massive rural areas, and another 60 from East China's three metropolitan municipalities which are known as China's most developed regions. Eight students dropped out from the questionnaire filling phase, which led to a final sample of 57 rural students (28 female; a mean age of 14.26) and 55 urban students (22 female; a mean age of 14.76) completing the pilot study.

All students and their guardians were provided with participation information and consent forms to join the experiment, which set out to identify rural and urban students' perceptions of educational quality in mainstream subjects. Therefore, participants were invited to fill out the *Student Evaluation of Educational Quality* questionnaire (SEEQ) to report their evaluation (Marsh, 1986) of learning Chinese Literature, Mathematics and English.

The SEEQ contains 29 items covering eight dimensions (see Table 1), and the students rated items as Very Poor, Poor, Average, Good or Very Good. Table 1 shows means and standard deviations for the urban and rural students' responses to the questionnaire, as well as statistical results when comparing the two groups.

Table 1: ***Urban-Rural Students' Differences on the SEEQ Questionnaire, with Statistical Results***

	Urban Students		Rural Students		Statistical Results			
Dimensions of the SEEQ	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Degrees of Freedom[a]**	**t-test[b]**	**Significance 2-sided[c]**	**Cohen's D[d]**
Learning	14.67	3.23	11.67	1.86	110	6.06	< .001	1.15
Enthusiasm	15.85	3.60	11.25	1.80	110	8.62	< .001	1.63
Organisation	16.09	3.18	10.78	1.68	110	11.14	< .001	2.11
Group interaction	15.95	3.69	9.86	1.88	110	11.06	< .001	2.09
Individual rapport	14.82	2.74	10.74	1.68	110	9.66	< .001	1.83
Breadth	15.62	3.22	12.48	1.70	110	6.50	< .001	1.23
Examinations	11.84	2.75	8.07	1.79	110	8.61	< .001	1.63
Assignments	8.03	1.73	5.30	1.38	110	9.28	< .001	1.76
SEEQ total	112.87	20.77	80.12	6.95	110	11.27	< .001	15.37

[a] The number of independent values in a dataset that can vary without violating any constraints. [b] Compares the means of the two groups to see if they differ significantly. [c] Indicates whether the difference between the two means is statistically significant in either direction. [d] Compares the difference between two means as standard deviations.

Although the sample size is relatively small, the SEEQ results (Cronbach's alpha, $\alpha = 0.97$) from the independent samples t-test showed the two groups of students' (rural and urban) perceived educational quality in the three mainstream subjects (Chinese Literature, Mathematics, English) as significantly different ($p < 0.001$). Following our rationale, this small-scale investigation result required a further study on the use of XR education in rural schools and its effectiveness in supporting quality education.

Stage 2 Study: Mixed Methods

In Stage 2 of this study, a total of 70 rural students (10–16 years old) were recruited from two different schools in Western China to participate in a mixed methods study. This cohort was different from the cohort in the Stage 1 study. All participants were randomly divided into two groups: the experimental group and the control group. The experimental group was assigned as the XR group (n = 34, 28 female, mean age = 13.35), and the control group was assigned as the traditional class group (n = 36, 22 female, mean age = 13.58), as shown in Table 2.

Table 2: ***Demographic Characteristics of Stage 2 Participants***

Participant Groups	Number of Participants	Number of Females (%)	Mean Age (SD)
XR (experimental)	34	28 (82.35)	13.35 (1.55)
Traditional class (control)	36	22 (61.11)	13.58 (1.52)
Total	70	50 (71.43)	13.47 (1.53)

Three questionnaires were used to collect quantitative data:

- *The Student Evaluation of Educational Quality Questionnaire* (SEEQ), described earlier.
- *The What Is Happening in This Class Questionnaire (WIHIC)* (MacLeod & Fraser, 2010), a widely applicable questionnaire for measuring students' perceptions of classroom atmosphere, with 56 items and seven sub-scales.
- *User Experience Questionnaire* (UEQ) (Schrepp et al., 2014), an internationally recognised post-task questionnaire measuring the user experience of interactive activities and products.

The experimental and control groups were asked to complete a pre-test and post-test on the SEEQ (Marsh, 1982) and *WIHIC* (MacLeod & Fraser, 2010). The XR (experimental) group was invited to also answer the UEQ, to investigate the human-computer interactivity between students. Two-way repeated measures ANOVAs and post hoc paired-sample t-tests were used to examine differences over time, while independent samples t-tests were used to investigate differences between groups.

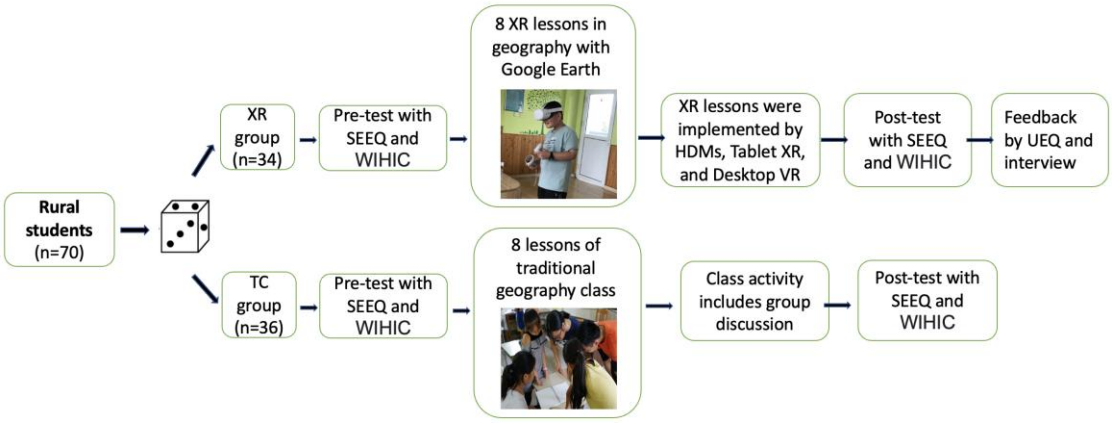
The XR group was also invited to participate in an individual semi-structured, qualitative interview, and a total of 34 students participated. The interviews were conducted in an empty classroom and ranged from 6 to 18 minutes in duration. The interviewees were informed that it was a two-way communication process, and their responses and opinions were highly valued. They were encouraged to answer the questions, but they were also told that it was not compulsory to respond to all questions and they could withdraw at any time. Figure 1 shows a visualisation of this experimental procedure. A thematic analysis was performed on the qualitative data, inspired by Braun and Clarke's (2006) guidelines.

The interviews gathered qualitative, open-ended data from all the students in the XR group, to obtain their feedback on XR education. A set of 10 interview questions was designed to explore their in-depth thoughts, feelings, and beliefs regarding XR-assisted teaching and learning in their rural context. The interview questions were:

1. What do you think about the XR lessons you took?
2. What do you think of the classroom atmosphere during the XR lessons?
3. How would you rate your overall XR experience: "liked it," "neutral," or "disliked it"?
4. Which lesson did you enjoy the most?
5. Have you learned something from the XR journey?
6. Do you enjoy interacting with the instructor when having XR lessons?
7. Do you think it helped your learning?

8. Would you be interested in more XR activities in the future?
9. Were there any limitations of your XR experiences?
10. Is there anything else you want to say that I didn't ask about?

Figure 1. Stage 2 *Experimental Procedure*



Abbreviations: TC: traditional classroom; HDMs: head-mounted displays; VR: virtual reality.

Implementation of the Stage 2 Experiments

Both the XR group and traditional class group received eight Geography lessons (Table 3). The specific learning content for each topic was developed by local rural teachers who followed the guidance of the national syllabus, as per the geography textbook for grades 6 and 7, thus ensuring that the students were taught the appropriate content for their age group. The class included teaching and group discussions. The design of the classes matched best practice guidelines, suggesting that immersive lessons are most effective when they are based on their affordances in combination with other instructional methods. In this case, the XR part of the lessons was presented at the beginning of each class, to spark situational interest before using other instructional approaches.

Table 3. *Course Plans for XR and Traditional Class Groups*

XR Group (Experimental Group)			Traditional Class Group (Control Group)		
Themes	**Main Platforms**	**Duration**	**Topics**	**Main Platforms**	**Duration**
Planetary exploration on the Moon	Google Earth by Meta Quest 2 and tablet	2 lessons x 35–40 mins	Introduction to Astronomy	Smart whiteboard and textbook	2 lessons x 35–40 mins
Planetary exploration on Mars	Google Earth by Meta Quest 2 and tablet	2 lessons x 35–40 mins	Moon and Mars trip	Smart whiteboard and textbook	2 lessons x 35–40 mins
A glimpse of foreign communities	Street View by XR with tablet and laptop	2 lessons x 35–40 mins	World geography	Smart whiteboard and textbook	2 lessons x 35–40 mins
Visiting famous attractions	Street view by XR with tablet and laptop	2 lessons x 35–40 mins	Life in Western communities	Smart whiteboard and textbook	2 lessons x 35–40 mins

XR Group Course Implementation

For the XR (experimental) group, the contents of the lessons were placed within four themes (see Table 3). Each lesson lasted 35–40 minutes, twice a week for four weeks. The XR group used Google Earth virtual reality and Street View. Google Earth virtual reality provides three-dimensional representations of the Earth using satellite imagery (Google Earth, 2022), and these can be accessed through desktop computers, smartphones and tablets. For instance, Street View allows students to see streets, cities and landscapes from various angles (Gartenberg, 2019).

Each XR lesson consisted of three segments implemented in virtual reality, as shown in Figure 2. The students:

1. watched a 5–10 minute virtual reality 360-degree immersive video via Meta Quest 2 (e.g., Spacewalk Experience);
2. went to the Moon and Mars through Google Earth by tablet or visited famous attractions (e.g., Angkor Wat, Eiffel Tower) using Street View by tablet for 20–25 minutes;
3. engaged in a question-and-answer time (5–10 minutes), and were encouraged to play the desktop XR and discuss the learned content and the lesson's teaching goals with their peers and instructors.

Figure 2: ***The Segments of XR Education***

Abbreviation: VR: virtual reality

Traditional Class Group Course Implementation

The traditional class course plan used a traditional teaching approach with learning content similar to the XR group (see Table 3). The lessons aimed to help children develop astronomical and geographical investigating. Lesson plans and classroom activities were designed as cross-subject learning in astronomy, culture and geography. Each topic was covered in two lessons of 35–40 minutes, with teaching and group discussions. In each lesson, the teacher gave a lecture for 25–30 minutes, covering the main topic of the lesson, then the students had a group discussion for 10–15 minutes, allowing them to share their thoughts and ideas on the topic. The primary media was the smart whiteboard, as shown in Figure 3.

Figure 3: ***The Traditional Classroom Using Smart Whiteboards***

Results of the Stage 2 Study

Quantitative Results

The Stage 2 study addressed three of the four hypotheses: H2, H3 and H4. H2 was examined by comparing the XR and traditional class groups' answers to the SEEQ (see Table 4). There was a significant main effect of time, $F = 256.94$, $p < .001$, $\eta 2 = .791$. Two post hoc dependent measures t-tests showed that both the scores of the XR group ($t = -14.172$, $p < .001$, $d = -2.431$) and the traditional class group ($t = -7.406$, $p < .001$, $d = -1.234$) increased over time. In summary, the results indicated that both the XR and the traditional class groups significantly increased their perception of educational quality from the pre- to the post-test and that the XR group increased significantly more over time than the traditional class group did.

Table 4: ***Two-Way Repeated Measures ANOVA Results for SEEQ and WIHIC, including WIHIC Sub-Scales***

	Time			Interaction		
Questionnaire or Sub-Scale	**F**	**P**	**η2**	**F**	**P**	**η2**
SEEQ total	256.945	< .001	0.791	142.940	< .001*	0.678
Cohesiveness	11.903	< .001*	0.149	2.843	.096	0.040
Teacher support	23.133	< .001*	0.254	11.803	.001*	0.148
Involvement	2.377	.128	0.034	9.186	.003	0.119
Investigation	12.044	< .001*	0.150	7.379	.008	0.098
Task orientation	11.122	.001*	0.141	5.793	.019	0.078
Cooperation	3.237	.076	0.045	0.249	.619	0.004
Equity	7.064	.010	0.094	0.597	.442	0.009
WIHIC total	23.214	< .001	0.254	8.966	.004*	0.116

* Significant at $\alpha = .05$, for the WIHIC sub-scales. A Bonferroni correction of $\alpha = .007$ was used.

To examine H3, we compared the scores of the XR and traditional class groups on the WIHIC questionnaire (see the final row of Table 4). There was a significant main effect of time, $F = 23.214$, $p < .001$, $\eta 2 = 0.254$. Two post hoc dependent measures t-test showed that the XR group increased over time, $t = -5.584$, $p < .001$, $d = -0.958$, while the traditional class group did not, $t = -1.279$, $p = .105$, $d = -0.213$. There was a significant interaction effect between group and time, $F = 8.966$, $p = .004$, $\eta 2 = 0.116$.

In further analysing the sub-scales to understand better the XR and traditional class interventions, the results indicated that the XR group significantly increased their general perception of the classroom atmosphere. However, the increase for the traditional class group was not significant. Furthermore, the sub-scales of teacher support and involvement were specifically where the XR group increased significantly more than the traditional class group.

The User Experience Questionnaire (UEQ) and the semi-structured interviews were used to answer H4. Students rated attractiveness as 1.961 (SD = 1.05), perspicuity as 1.588 (SD = 1.13), efficiency as 1.5 (SD = 0.9), dependability as 1.63 (SD = 1.07), stimulation as 1.74 (SD = 1.16), and novelty as 1.43 (SD = 1.15). This puts all the scales above the criteria of 0.8, which is defined as a positive evaluation on all sub-scales. This suggests that, overall, students found the employed XR technologies to be understandable and engaging.

Qualitative Results from the Semi-Structured Interviews

The analyses of the interview data identified three overarching themes, with sub-themes as shown in Table 5.

Table 5: ***Themes and Sub-themes Identified in the Interview Data***

Themes	Sub-themes
Course content	1. Impression of XR-assisted education 2. XR technology in the eyes of rural students
Learning	3. Learning accessibility and comprehensibility 4. Classroom atmosphere and learning environment 5. Learning approach and practice
Conflicts between learning interest and goal	-

In the course content theme, students explored different parts of the world via XR to gain more knowledge of astronomy, geography and culture in a novel way. This gave them more chances to glimpse Western street views and communities in Google Earth XR. A prominent topic of discussion was the students' impression of the technology-enhanced class (sub-theme 1). For many of the students, this way of learning was unfamiliar, but novel. It opened up a whole new perspective on learning and how to interact in the classroom: "*It's all something we learned in geography class, but it's not the same feeling*" (Student 3). Many students praised the ability to delve into the material and explore it as a key reason for their positive experience with the XR class. They found it convenient to visit many distinct places in XR while still being in the classroom, and found the immersive experience both surprising and motivating.

However, some students were worried that this type of learning would not directly benefit their exams. While there were some disagreements among students in relation to the course content in learning, the majority reported that it was a more relaxed and engaging way to learn, compared with the traditional pedagogy.

Students' overall experiences in XR learning (sub-theme 2) were positive. For example:

> *Through this course, we can go where none of us can go. Not only foreign countries but also those planets, which are different from what we see in the textbooks. Textbooks are just photos, some in black and white, but what you see in XR is similar to real scenes and objects. (Student 1)*

This made some of the students wonder how this technology might help with accessing difficult-to-grasp knowledge. For instance, one student speculated that XR technology could make STEM subjects more intuitive by visualising complex and abstract models. At the same time, in some cases students who initially felt out of their comfort zones using the technology expressed that they grew more familiar with XR classes during the course. As a result, "*this kind of learning gradually became clear, and I learned more and more things*" (Student 12). As the use of XR technology in the classroom becomes increasingly common, it is critical to consider how to support students in navigating these new learning environments.

In the learning theme, some students found it challenging to interact with these new technologies; however, students' general sentiment was that this technology-enhanced course made learning easier. This could be attributed to the fact that XR education made the learning goals more comprehensible, by providing clear and illustrative concepts and examples (sub-theme 3). Students believed that they were imparted more flexible and multi-faceted knowledge, allowing them to have a deeper understanding of the context and background of what they were learning. For example, Student 7 mentioned that the XR experience enabled them to form a more vivid memory of the content, making it easier to recall their experience, because it was now represented as a visualised environment rather than just text in a book: *"I can feel I was inside of the venue, and I can remember many details of what I have seen and learned."*

However, some students also expressed that the learning goals of the technology-enhanced learning environments were not clearly aligned with their ordinary classes. This made them worry whether this kind of studying would be suited to preparing them for their exams.

Students valued XR education as a better way to enhance the atmosphere in the classroom since it fostered a more dynamic and collaborative classroom atmosphere (sub-theme 4). They experienced greater engagement with the learning environment, including the XR classroom environment that was different from the traditional teacher-centred method with rules and disciplines. The XR-enhanced classroom atmosphere was more inquiry-based, combined with games and adventures. This was different from the classroom atmosphere students were used to, where the focus was on studying and exams, often accompanied by limited interactions and teaching methods that generated tension in the classroom atmosphere.

However, some students felt the XR classroom was less disciplined than their usual classroom, since some of the students became too excited or were shouting during the class, which disrupted the peaceful atmosphere for them. This change of atmosphere might refer to different teaching styles between the XR class and the traditional class.

XR-enhanced teaching and learning were creative and led students to understand that they were given various learning experiences (sub-theme 5). Given that XR-enhanced education reduced the didactic teaching load in the classroom, students relied less on the teacher and enjoyed the classroom atmosphere more:

> *The atmosphere of this XR class was quite special because we have time to study with classmates, by ourselves, and to study and discuss with the teacher. These three forms all made the class very short, and you felt like time passed quickly. (Student 20)*

At the same time, some of the students preferred the gamified elements, which made the classes "*not boring at all*" (Student 7). However, there was no homework. Student 7 indicated that "*if we*

keep studying in without any homework and continue to do this in the future, we may not get good grades." Students valued that XR classes were closer to extracurricular activities: "*the content in the XR class cannot improve our academic performance too much because the design is based on interests*" (Student 31), while the content in the traditional class was mainly designed for competitions.

In relation to the theme regarding conflict between learning interest and goal, we found that students developed a mental divide between stress-free learning and structured learning; that is, they had conflicts between their traditional learning experiences and XR learning experiences. They appreciated the use of different teaching methods and multiple technologies, which enabled them to learn in different ways and rely less on traditional teaching styles. Student 20 noted that the XR classroom environment was unique, with diverse combinations for experiencing different XR formats with individual study, group study and teacher-led discussion. This varied approach made the class feel more dynamic and engaged than traditional classrooms.

However, some students felt that the technology-enhanced learning was too different from traditional classes. It had a perceived focus on games and fun rather than exam preparation, and it lacked homework and related practices. Students expressed concern that, without the structure of traditional classes, they might not perform well on future exams. They actively compared structured learning (rote learning) to learning for fun (exploration), and these comparisons might distract them from focusing on the value of the learning itself.

These perceptions reflected students' understandings of what real learning is in remote rural contexts. There appears to be a distinct understanding that relates to the international mainstream education advocacy for inclusive and quality education and lifelong learning for all (OECD, 2021; United Nations Department of Economic and Social Affairs, 2015). Education can provide people with the knowledge and skills they need to stay healthy, get jobs and foster tolerance (UNESCO, 2019).

Discussion

Implications of the Quantitative Studies

This study used mixed methods to investigate whether XR education could improve educational quality for students who live in remote rural areas. The results from our pilot study suggested that educational inequality might still exist between China's rural and urban areas, even though the government has given substantial financial support to all rural schools. Our study illustrated that leveraging XR technology could be an effective way to give teachers easily accessible classroom materials that may enhance the quality of teaching and learning (Utami et al., 2021).

Results from the SEEQ indicated that students perceived that both conditions (i.e., XR and traditional class) significantly enhanced educational quality. Overall, the XR group's scores increased more over time in regard to the quality of education and the dimensions of breadth and assignments than the traditional class group's scores. This could indicate that XR enabled rural students to access a wider range of resources that were not available to them in their usual classrooms (Pimentel et al., 2022), because of the disadvantaged conditions connected to rural teaching and learning, such as taking place in a remote location, using outdated educational facilities, and having a higher proportion of parents with low socioeconomic status and, connected to this, lower incomes.

The XR technology might have increased the breadth of the course by expanding the number of things it was possible for the students to experience, such as visiting Mars and the Moon, different countries, and famous sites, all without needing to leave their classrooms. Compared to following the script within traditional classrooms, XR classes integrated design features involving creativity and interactivity to kindle students' motivation in active learning.

Results from the WIHIC showed that students perceived that the general classroom atmosphere was significantly enhanced by both conditions (XR and traditional class). At the same time, evident enhancement was also perceived in teacher support for students, an essential component of promoting student learning and well-being, as well as involvement, referring to the engagement of students, teachers and other stakeholders in the learning process. The follow-up t-test findings showed that the XR group's impression of the general classroom atmosphere increased more over time than the traditional class cohort, specifically in teacher support and involvement. The results regarding teacher support could be attributed to a lower student-teacher ratio. However, it could also be connected to the technology-enhanced classroom having a more active classroom atmosphere, which might lead to increased learning and an increased feeling of engagement due to increased interactivity between all stakeholders, and therefore an increased feeling of involvement (Tegoan et al., 2021).

Within the XR classroom, due to the small teacher-student ratio (1:2 or 1:3), the instructor was able to recognise and respond to each student's needs and provide timely and tailored support for personalised learning. Given that the teacher-student classroom ratio in participating rural schools varies from 1:30 to 1:65, it is often challenging for teachers to provide individualised attention and support to students, and this can reduce the quality of education. Furthermore, XR supported classroom environments have been shown to provide multiple types of learning experiences, such as increased immersion, active participation and hands-on experience, as well as a sense of safety and manoeuvrability, which might all help teachers create an atmosphere of positivity with diverse educational experiences.

User Experience Reflections

The UEQ results showed that students evaluated XR education as holding a good level of perspicuity and efficiency. This might be partially explained by Google Earth's clear and intuitive user interface that makes it easy for rural students to navigate and access information. Additionally, clear, concise instructions were presented to the students before they were given access to the XR headsets. This might have helped the students more easily understand what they were expected to do and how to use the technology.

Students also reported that the virtual reality technology was attractive, stimulating, and novel to them. This is in line with prior research. Many studies have noted that immersive XR is more likely to provide students with a sense of novelty, recreational stimulation, and excitement (Wang, Hodgers, et al., 2022). However, we wonder if this can last only for a short period of time, rather than enhancing students' learning motivation and helping them maintain this momentum. In fact, the ideal situation would be that technology, including XR, is used strategically to support teaching and learning (Wang, Quirke, et al., 2022). Many rural schools even have access to some basic technological equipment already, such as whiteboards and computers. However, many teachers are not willing to adopt these new technologies and integrate them into their classes. Hence, even with the literature indicating that XR may be an effective educational technology (Wu et al., 2020), and the current study finding support for the technology having a positive effect in underdeveloped rural areas, this might not be enough for the technology to be accepted and used by school environments.

Rural Students' Perspectives on XR Education

In comparison to the traditional class group, the XR group mainly valued that they experienced extra intriguing learning and human-computer interaction through XR education. The ease of learning via XR increased the enjoyment of students' classroom time, which directly led to a livelier and more positive atmosphere in the rural classroom. The students highlighted how their learning in the technology-enhanced environment seemed to be more driven by interest, which might lead to increased learning, but also increased interest in school subjects outside of school,

according to interest theories such as the four-phase model of interest development (Hidi & Renninger, 2006).

Nevertheless, a key topic of discussion among students was whether their exam results, which were always prioritised in their studies, would be affected by the innovative XR learning, because, without an excellent test result, rural students are more likely to be eliminated by future entrance examinations (Rozelle & Hell, 2020). This makes us ponder whether educational freedom and reform can still be developed and improved under an exam-oriented system, because traditional education often infiltrates competition and compliance into students' minds, and this maintains power structures and hidden inequalities (Freire, 1970).

This also seems to reflect the two distinct pedagogies of student-centred and teacher-centred learning, where traditional education seems to be closer to teacher-centred pedagogy. When the students are presented with student-centred learning, they do not recognise it as learning, because it seems more akin to extracurricular activities. This also could be connected to the fact that the subjects in the XR class were chosen by the researchers and, as such, may have been less clearly connected to the students' learning goals in their traditional classroom. However, XR has been widely used in education and has the potential to improve average learning outcomes (Tai et al., 2022). The results in the current study suggest the need for further research in a wider rural educational context.

Even after the students had reflected on both the pros (e.g., learning materials, learning approach, virtual field trips) and cons (e.g., broad learning content, noisy classroom, over-entertaining) of the technology-enhanced classroom, the majority of them (75%) still stated that they would like to explore more in XR education. Some of them also showed signs of individual interests being developed, wanting to go in the future to the places they visited in XR.

The positionalities expressed by the students could thus be mirroring that these learners actively participated in the process of the technology-enhanced education and became agents of their own exploration. In this way, technology-enhanced education can be seen as a useful toolkit to improve educational quality and for increasing students' ability to engage in their learning not only during, but also outside, the school context. This also shows how technology-enhanced education could be an important step forward for education in underdeveloped countries and regions.

Limitations

While this article provides valuable insights into using XR-supported teaching in rural settings to enhance classroom atmosphere and quality education, it also has limitations that should be considered when interpreting the findings and considering future avenues for research. While efforts were made to align educational topics as much as possible, the traditional class condition utilised materials already developed to match schools' curriculum and learning objectives. In contrast, the XR applications consisted of pre-existing materials not tailored to schools' curriculum. Additionally, there was an imbalance in student-teacher ratios between the two conditions, with significantly fewer students per teacher in the XR condition, potentially enabling more individualised student support. This misalignment suggests the potential of exploring different forms of supervision (e.g., AI-based) to support teachers in the future.

It is worth noting that traditional class teachers were sourced from the school, while XR teachers were researchers from the project. This could have contributed to the differences in pedagogical approaches, as the rural teachers may have been trained differently from the researchers. Therefore, future research should aim for greater comparability and ecological validity by utilising more closely matched educational content, equalising student-teacher ratios across conditions, and training schoolteachers rather than relying on external researchers.

Conclusion

This study explored the potential of XR technology in improving educational quality for students in remote rural areas of China. Quantitative analysis revealed significant improvements in educational quality for students experiencing XR-enhanced teaching compared to those receiving traditional classroom teaching. The same was seen for the classroom atmosphere, where students in the XR group reported higher teacher support and involvement. These findings were supported by the qualitative data, which suggested that XR-enhanced teaching can ignite students' interests beyond the classroom, potentially fostering lifelong learning. Furthermore, the students generally evaluated the XR-enhanced course positively. However, students were also critical of the novel learning approach. They wondered whether this kind of learning would prepare them for their exams rather than just introducing fun and games into the classroom. This commentary could be a valid critique of the currently available educational content for XR technologies, which is not optimised for school curricula.

On the other hand, this critique could reflect students being situated in a cultural, educational context in which teacher-centred, examination-focused education is the expected norm, making it difficult for students to evaluate student-centred, interest-driven education as actual learning. Going back to the research questions, we found that XR-enhanced education improved the quality of education and the classroom atmosphere in rural Chinese classrooms, with the students generally evaluating the introduction of technology positively, but being unsure of its value in learning.

Limitations should be addressed in future research, such as aligning the content in the XR-enhanced and traditional classrooms and the student-teacher ratios. Similarly, not all the students were familiar with the technologies employed, meaning that they might not have benefitted optimally from the XR-enhanced teaching and might have had difficulties expressing their perceptions of the distinct technologies. Generally, however, utilising XR technologies in rural classrooms can be one way to bridge educational disparities, address the United Nations' Sustainable Development Goal 4 (UN Department of Economic and Social Affairs, 2015), and improve the classroom atmosphere and quality of education for students in disadvantaged regions.

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A Genesis of Remote Teaching in Swedish Rural Compulsory Schooling

Josef Siljebo
Umeå University, Department of Education.
josef.siljebo@umu.se

Fanny Pettersson
Umeå University, Department of Education.
fanny.pettersson@umu.se

Björn Norlin
Umeå University, Department of Education.
bjorn.norlin@umu.se

Abstract

Remote teaching in Sweden has emerged as a response to the persistent challenges of rural education, including sparse populations, urbanisation, declining birthrates, and long travel distances. This study investigates the historical genesis of remote teaching in northern Sweden, particularly in small rural schools, where digital technologies have been used in K-12 education. Through a microhistory approach, we examine early developments in digital education, drawing from interviews with key stakeholders involved in school development and governance from the 1980s to 2010. The findings suggest that the integration of digital technologies in rural Swedish education was driven by both necessity and innovation, as schools sought solutions to sustain education in sparsely populated areas. The study contributes a historically contextualised perspective on remote teaching, emphasising the long-term challenges of rural schooling and the role of digital technologies in addressing these issues. By analysing the early adoption of digital education in Swedish rural municipalities, we provide insights into the evolution of remote teaching and its implications for future educational practices.

Keywords: *remote teaching; rural education, digitalisation; microhistory; K-12 schooling; Sweden*

Introduction

Every educational practice has a history and to understand the present opportunities and challenges and develop them towards a future, history plays a key role. This study seeks to understand one genesis of the teaching and learning practice called remote teaching in Sweden. In essence, remote teaching is a form of teaching and learning in K-12 (kindergarten to upper secondary schools) schooling, using computers and where teacher and pupils are separated in space (i.e., teaching online) but not time (i.e., synchronously; Siljebo & Pettersson, 2022; Skog et al., 2024). We argue that one genesis of remote teaching is rooted in rural education in northern Sweden's inland, with its relatively extreme challenges of sparse population, urbanisation, decreasing birthrates, and large travel distances (Billmayer et al., 2020; Sundvall, 2024). In this text, we utilise the notion *persistent challenges* to encapsulate both the specific challenges of rural schooling and the fact that these challenges are long-term and, as such, 'historical'.

Remote teaching and learning in Sweden may be compared to international research concerning distance/online/virtual/blended schooling where digital technologies are used with the purpose

of facilitating teaching and learning across space and time (Caprara & Caprara, 2022; Zhang et al., 2023). Concerning rural schooling practices worldwide, schools have utilised digital technologies to bridge distance for a long time (e.g., Barbour, 2018; Broadley, 2012; Cavanaugh et al., 2009; Trindad & Broadley, 2008; Whalley & Barbour, 2020), and before that other media such as radio and television (Barbour, 2021; Clark, 2013). The approach of this study is to 'dig' deeper regarding Swedish remote teaching's history in rural educational practices, thereby contributing with historically contextualised knowledge concerning rural schooling (Zhang et al., 2023).

Our study's educational practices are in northern Sweden's rural inland. Schools in these areas are considered to be small and rural in terms of:

> *sparse population (less than 7 inhabitants per square kilometre and less than 20 000 inhabitants in the municipality), low number of students (up to 55), long distance to municipality centre (on average 45 minutes by car), financial constraints and few teachers (on average 3-7 teachers).* (Ström et al., 2024, p. 110; see also Pettersson, 2017)

We interviewed people that held central positions concerning school development and governing as early as in the 1980s, yet most of them worked during the period 1990 to 2010, in three rural municipalities. We also interviewed one development manager, active between 2000-2010, in a university-school collaboration centre for the county (a constellation of neighbouring municipalities) of the three rural municipalities. This rural county context is particularly relevant, we argue, since the schools in the municipalities may have 'pioneered' the use of digital technologies for teaching and learning because of the challenges of rural schooling (cf. Stevens, 1995).

The aim of this study is to contribute within an historically contextualised understanding of the genesis of remote teaching in Sweden, where we suggest that the challenges of rural schooling play a central role. We use an approach inspired by microhistory (e.g. Magnússon & Szijártó, 2013), where we search for the beginning of remote teaching through the small-scale historical accounts of people. The research questions guiding our work were:

> *(RQ1) what are the persistent challenges of rural schooling for the municipalities and how do they connect to broader technological and governing trends?*
>
> *(RQ2) how and when did schools in the municipality start using digital technologies for teaching and learning in K-12 schools?*

Approaching Previous Research

In a recent computational review of global research literature of what they name rural-digital relations, Zhang et al. (2023) discuss that much of the literature reviewed (459 articles between 2010-2021) share a common problematisation of 'the rural' in terms of deficiencies or a challenge to overcome via digital technologies. This is an important, stage-setting issue for our study that needs to be addressed explicitly. Our approach to persistent challenges is as contextual challenges of, for example, rural geographies that entail concrete issues for people organising schooling to resolve. However, our position is, first, that 'challenges' in rural contexts, as in urban contexts, hold potential for novel development by people. Second, education in rural contexts is as important for society as in other contexts. Lastly, studies on rural schooling seldom explicitly attempt an historical perspective at the intersection of such challenges and digital technologies.

In the computational review, the authors identify ten topics, where 'education and training' is one such topic (Zhang et al., 2023) and in their analysis suggest that key findings of research have been marginalisation and inequalities of rural schools compared to other contexts. In their subsequent qualitative analysis of the Nordic region, none of the articles are from educational research, and the authors say that the Nordic research they found positions the rural in terms of "*recipients*" of digital practice rather than being a shaper of digital relations (Zhang et al., 2023, p.

9). In another research review (Fargas-Malet & Bagley, 2022) of literature on 'small rural schools' in Europe between 2000-2020, the authors found three articles (one from Italy, two from Finland) that specifically focused on digital technology in rural schools. These studies investigated issues concerning the use of specific models and technologies for teaching and possibilities and challenges related to their use for the teachers.

At this initial stage of reviewing research, it seems clear that the aim of this study in the international context of research on rural education and digital technologies is (a) positioned in themes/topics where we know relatively little, and (b) through our approach of people in rural schools as possible innovators can contribute to research that does not necessarily construct people in rural schools as recipients of digitalisation and thus marginalising them. In the following review, we will focus specifically on what we can say that we already know about the history of 'educational technologies' in rural schooling.

An Historical Perspective

In an international context, early attempts of distance education date back to the early 1900s in the form of correspondence schools to serve rural students, especially in rural areas of the United States, New Zealand, Canada, and Australia (Barbour & Wenmonth, 2024; Cunningham, 1931; Saettler, 2004; Wagner & Jaquiery, 1995). During the 1920s, the radio was used, which was then replaced by telephone systems and educational television during the 1930s (Rumble, 1989). During the 1960s, distance education became more widespread and more advanced educational satellites were developed that could provide education to students in sparsely populated areas to a greater extent. The first online-based attempts at distance learning came in the early 1990s with the first virtual schools in Australia, New Zealand, and the United States (Barbour & Ferdig, 2011). In the early 2000s, video conferencing emerged as a key platform for facilitating connections between schools and educational clusters, enabling remote collaboration and communication (Barbour, 2018). In Europe, however, the number of virtual schools was comparatively small (Russell, 2006).

The first schools to offer students full-time online participation were the Virtual High School Global Consortium and the Florida Virtual School which started in the United States in 1997. In the United States, approximately 40,000 students were estimated to participate in distance education courses during the 2000–2001 school year, and between 2010–2011, these courses had increased to approximately four million and in the school year 2016–17 to approximately eight million students (Barbour, 2018). In the twenty-first century, the use and spread of distance education increased greatly also in Europe with examples from Austria, the Netherlands, and Finland (Russell, 2006). Similar developments are assumed to have taken place in Canada, Australia, and New Zealand (Clark, 2013).

A Swedish Perspective

Like many rural areas in Europe (see e.g., Fargas-Malet & Bagley, 2022), and particularly the other Nordic countries, the northern Swedish inland is characterised by a vast and sparsely populated geography; small municipalities with restricted economies; underdeveloped communications; and long distances between villages, houses, and schools. Historically seen, these geographic features have come to set the basic conditions for organising education, from early modern ecclesiastical work and up until very present-day school concerns (e.g., Norlin, 2025; Sjögren & Westberg, 2015; Westberg, 2022).

Due to these ground conditions and challenges a set of local practices has gradually evolved. These include routines for conducting ambulatory schooling (e.g. mobile schools and traveling teachers), housing children in boarding homes in school villages, the organisation of various means of transportation between schools and homes, and the adjustment of study periods in relation to family work-life (Pers et al., 2022; Sjögren & Westberg, 2015; Swedish Transport

Administration, 2003). One concrete example is the Swedish Sami School, which between 1913 and 1962 was a residential school for children of the reindeer-herding Sami population (Lindmark & Sundström, 2016; Svonni, 2023). Dealing with concerns relating to distance as well as learning how to be flexible have, in other words, become important traits in local school governing. It is also the case when it comes to utilising new technologies and adapting their use to fit local conditions.

Since the 1960s and the 1970s, urbanisation and school decline have been accelerating trends in the rural inlands. However, a parallel national development has been the extension of compulsory schooling and the introduction of new secondary school forms. Until the 1970s, access to teaching and learning for children and young people could be considered good in Sweden since schools were located where families lived. The accelerating urbanisation in the 1970s (Dahllöf, 1973) and the closure of 490 schools during 1990–2010 led to extensive discussions on the access to equal education for children, especially in rural areas (Pettersson, 2017). To enable rural-living children to attend secondary schooling and reduce the length of travel and school days, new practices for transport, temporary boarding, as well as teaching by letter and radio were developed (Sjögren & Westberg, 2015). Notably, Sweden, since the 1880s, has had relatively strong legal directives for mandatory schooling—1882 (six years), 1937 (seven years), 1950/1962 (nine years) and 2018 (10 years, if including the pre-school class) – compared to other nations, and even if exceptions have been and can be made, the main principle has always been a requirement on children's physical attendance in school buildings (see e.g., Berg, 2003).

The decades following World War II saw centralisation in the education sector, a trend that due to reforms in the 1980s and early 1990s would swing back towards a higher degree of local self-governing and, at the same time, an opening for marketisation and private school ownership (Lundahl et al., 2013; Román et al., 2015; Wennström, 2020). These reforms are today considered as having had a fundamental impact on the national school sector, and they also mark the start of the period of investigation of this study.

In the beginning of the 2000s, reports on small-scale interventions aimed to investigate the use of remote teaching started to spread (Häll et al., 2007; Hegerholm, 2007). The interventions were successful and in 2015 remote teaching was 'formalised' in the Education Act (i.e., synchronous teaching via digital technologies where the teacher is teaching remotely from one place to a brick-and-mortar classroom of students). As such, remote teaching became permitted and the teaching practice slowly started to spread on a national level (From et al., 2020; Hrastinski et al., 2023; Parfa Koskinen, 2020; Pettersson & Lindfors, 2024; Skog et al., 2024).

Considering the reviewed literature in this section, we hold that by following the historical development to the very present past, the microhistory approach of this study concerning one genesis of remote teaching can be seen as contributing to the field of rural schooling and its history in several ways. By using interviews, it exposes relations, arguments and voices that would otherwise be silent or very hard to grasp in historical archives. It links local school conditions and actors to global trends, traces continuities and disruptions in local school developments, and reveals translocal exchange in school governance. Overall, it is a study that points to the interrelation between the local and the global, i.e. how global trends (e.g. technological shifts) meet and alter rural localities *and* how the distinct conditions of rural life may alter global trends.

Methodology

As mentioned, the present article took inspiration from a microhistory and oral history-approach (Magnússon & Szijártó, 2013; Shopes, 2011). By interviewing a set of local actors involved in school planning and governance, it generated knowledge about how a small-scale rural context responded to, and interacted with, overarching national and global developments. This

approach, focusing on the everyday, its social relations, as well as the role of human agency, can be seen as important to create a bottom-up understanding of the area in question (i.e. a trademark of microhistory). The focus on oral history was, in turn, natural, as there were few other sources at hand to understand the processes this research was interested in. In this way the study also adds an important dimension to more traditional archival or policy studies.

Data for the study was collected in one inland region in northern Sweden consisting of three neighbouring municipalities. The area was 62,600 km^2 in size and had a population of approximately 47,772 people. The region was also characterised by small school units, long distances between schools, and lack of certified teachers. The municipalities we selected ranged from about 5,500 to 13,000 citizens and all of them have for many years been challenged by decreased birthrate due to increased urbanisation. The municipalities are referred to as M1-3, where M1 and M2 are smallest in terms of population and border Norway in the west, and M3 the 'largest' (13,000 citizens).

Sampling and Data Collection

Together with the dearth of knowledge concerning the genesis of remote teaching, the purpose of our study prompted us to collect data that provided insights into historical challenges and development in this area. Following our purpose, we were particularly interested in the work of people that held central positions concerning school governing and development. Consequently, we collected data from six people who have been active in schools from the 1980s and forward – more specifically, five informants from the three municipalities who held school leadership and governing positions and one informant from the University-county development collaborative unit at the time. This person had first-hand insight into development projects concerning remote teaching during the early 2000s. Before the interviews, historical documents from the development unit's projects were also read and visits to schools in the municipalities were made to get some familiarity with the contexts.

The interviews were held during the spring of 2024. The method used was in-depth interviews (Johnsson, 2001; Kvale & Brinkmann, 2009). This approach of asking questions was used to encourage deeper and more comprehensive answers during the interviews (Johnson, 2001; Kvale & Brinkmann, 2009). Respondents were for example asked to "*tell the story about how you experienced the time of leading development in times of…"* (cf. Shopes, 2011) and "*discuss challenges you have experienced in terms of equal access to education*". Respondents were also given examples from historical events during that time to help them recall.

Although data in this project were not considered to be sensitive in a strict legal sense, it directly or indirectly effected actors working in or with schools in local communities, where other people may be aware of the project. The research project was, therefore, strictly informed by the recommendations of the Swedish Research Council (2024). This meant that ethical research standards and guidelines were considered throughout the research process. Respondents were informed about the aim of the project, methods, and how data would be used and presented in the project.

Analysis

All interviews were recorded and transcribed, followed by a thematic analysis (Braun & Clarke, 2022). To organise and make sense of the data, the overall strategy of coding and categorising was used. This process was conducted collectively by the researchers of this article. Each interview was analysed separately and then combined to display and understand persistent challenges of rural schooling and why, how, and when schools in the municipality started to use digital technologies for teaching and learning. After listening to the data sources to produce an overall picture and potential patterns in the data material, the analysis proceeded in three steps. During the first step, segments, descriptions, and quotations of relevance to the aim of the study

were initially marked and discussed. During the second step, description and segments were further analysed and placed into themes of challenges and aspects of why how and when. These themes were also placed and related to each other on a historical timeline. In the third step, the analysis from all interviews were combined and compared to each other. During this step alternative themes were elaborated on, and others were merged.

Results

This section relates to the two research questions directly. First, the persistent challenges of schooling in the municipalities are reported, which brings forward the contextual conditions of schooling. Also, these contextualisations are elaborated on with examples from the informants. Second, the persistent challenges are related to why and how the schools started using digital technologies for teaching and learning. The section persistent challenges concerns conditions that have existed during the informants' time of work in the schools, and before that time.

Persistent Challenges

As mentioned earlier, we utilised the notion persistent challenges to encapsulate both the specific challenges of rural schooling and the fact that these challenges were long-term and as such 'historical'. In the interviews, informants were asked to reflect and give examples concerning challenges that had been relatively stable over time (i.e., population and small schools), and also challenges that were caused by possible 'significant events' whatever that may be (i.e., school governing).

Population. The challenges concerning population were (at least) twofold. The geographic areas are considered sparsely populated and have always been so. However, since the 1970s, particularly in the municipalities investigated, people have increasingly moved from these and their neighbouring inland municipalities to the coastal municipalities and principally to cities. This resulted in (1) low numbers of pupils enrolled in the schools, and (2) that school enrolments and local birthrates were in a decreasing trend. However, with the small number of students there could also be relatively large 'fluctuations', specifically in the extremely small schools described below. One informant, for example, said that "*in that village, where I have my cabin, there is a house that used to be a school. That school was one family; they had thirteen kids.*" As such, when pupils graduated small schools then this was a considerable change in student enrolment for the school, or an even more considerable change if the family moved.

Remote and (Extremely) Small Schools. Two of the municipalities are what can be called 'mountain municipalities'. They border Norway in the northwest and have a mountainous terrain appreciated by tourists yet have one central urban area to the southeast where most of the population was situated. Also, these two municipalities had schools both in the southeast and in the northwest. M1 had one school about 90 kilometres from the population centre, and one school about 100 kilometres from the population centre. M2 had one school about 200 kilometres from the population centre. In addition, some of these schools were extremely small, both in terms of pupil groups (e.g. around 10 pupils in total for the school for grades one - six) and in terms of teachers (one - two). These schools have remained through time because of the principle that schools ought to be where communities are even though they are small communities. Moreover, if they were closed, the distance that pupils would have to travel to the central area was simply too far and they would spend a good part of their day on the bus. This should be understood in relation to the regulations in Sweden where students in compulsory schools must be in the school buildings, not learning from home, during the school day.

However, although these extremely small schools were situated closer to the mountainous regions of the northwest of the municipalities, the pupils had to travel tens of kilometres to these schools. In other words, the remote and small schools were spread out with large distances within the municipality, and the pupils attending these schools were spread out with large

distances to these extremely small schools. Extremely small schools have existed throughout history to varying degrees in all three municipalities. Concerning these schools, what one informant expressed in terms of the fact that the "*timeframe of the school day is determined by the bus schedule*" did not seem like an over-exaggeration, rather a very concrete principle for organising schooling in these contexts. This may be the case generally concerning schooling, however, because of the sparse population the buses for some of the schools in this study had very few daily trips (e.g., one to school in the morning and one back home in the afternoon).

School Governing

While school governing as a persistent challenge may sound counterintuitive, here are two aspects considered. One, that although school governing may change over time, it will always be necessary in some way and controlled by the Swedish Government. Two, that in Sweden since 1991 municipalities (there are 292 municipalities in total today) are the principal providers of schooling, with *economic and school development responsibility*, which informants contextualised in detail, presented below. Municipalities are also judicially responsible for schools. Before 1992, these responsibilities were centralised, for example into county school boards and national agencies, and as such more directly governed by the Swedish Government.

Economic Responsibility. The economic responsibility for schooling arose via municipalisation which provided that schools be primarily funded through local tax revenue from the local population. There were also general state grants, yet these were, compared to the municipal financing, small (around sixteen percent). As such, while this gave municipalities the freedom to prioritise which schools they wanted to run, these municipalities with their sparse population and large distances had both little tax revenue and higher costs per pupil (e.g., bus transfers). As such, common for all the interviews was talk about school closure because of the few economic opportunities of the municipalities, and especially the near-traumatic effects that such closures were said to have on the small communities.

However, an interesting aspect of school closures was the experience from one of the informants concerning their work as a school leader, specifically concerning communication with parents from a small community threatened by school closure. This informant said that parents from small communities they interacted with, for example in town meetings during school closure processes, on the one hand expressed a shared outrage and worry concerning what closing the school would mean for the village. Yet, on the other hand, in private conversations with individual parents, some could express that they, in fact, were glad that the school was closing, which meant that their children could go to another, larger school. This, the informant said, was because some parents perceived that the small school was not a positive experience for their children, and such beliefs could not be expressed during town meetings for fear of sanctions from the community. Setting the issue of if the schools were 'positive' or not aside, such sanctions, according to the informant would be "*excluded from the village sewing group and the moose hunting team*". This exposed the many different and contradictory views that may exist simultaneously concerning a school within a small community, and particularly the pressures within the communities to say the 'right thing' rather than have an open debate to address different concerns. The same informant also said that considering small remote schools are never economically sound, in extreme cases economic reasons could be used to justify closures even if there were other causes behind it.

While much talk about economical responsibility via municipalisation concerned school closures of small remote schools, there were also, albeit few, opportunities. One example was the possibility to allocate resources between school forms freely. In M2 this meant that the upper secondary school (grades 10-12, after compulsory schooling) could be financed through compulsory school resources. This possibility related directly to the challenges concerning population: if young adults stayed in the municipality for their secondary school education (often

vocational education) the hope was that they would, to a larger degree, stay, settle, and have children in the municipality. Otherwise, the young adults would go to secondary school in neighbouring municipalities such as M3, or to the coastal cities and settle there instead. In other words, upper secondary schools in these municipalities can be seen as an important instrument to prevent 'youth drain' and improve the long-term survival of the municipality itself.

School Development Responsibility. Before the municipalisation, school development responsibility rested on the county boards and was governed by a national school development agency. However, with the municipalisation, this responsibility was transferred to the role of school principal. The informants that worked as principals during this time expressed that this was a substantial change in the role of a school leader.

One informant worked as a principal for extremely remote and small schools from the 1990s up to the 2010s and talked about the challenge of leading small teacher teams, as small as two. One example was what they described in terms of the risk of development stagnation because there were only two teachers and could for various reasons not work well together. Another informant, also working as a principal, expressed that the municipalisation entailed that the principal role became 'wedged' between municipal school board, teachers, and parents. The informant gave an example that "*when school closures have been discussed and there have been strong emotions, politicians are not sent out to the villages, we [school leaders] are sent out to take the hit*". This entails that the individual accountability of school leaders towards the communities increased considerably when school development is not possible.

Another aspect of school development that the municipalisation entailed, not least for school leaders, was those decisions for organising schools 'came closer'. In other words, the organisation of schools and schooling in the municipalities came to rest more on the individual principals to achieve. While this certainly meant a host of difficulties, it also enabled the possibilities (or perhaps need) to craft local solutions depending on the conditions and resources of each individual school. School politics also came closer, with the election of local municipal politicians and policy directed municipal – rather than county – school boards.

How and When?

This section concerns the second research question, when and how schools in the municipalities started using digital technologies for teaching in learning in K-12 schools. Two examples will be given.

The first is in M1 in the early 2000s. In one of the extremely small and remote schools, the surrounding mountainous terrain was appreciated by Italian tourists, which resulted in different jobs made available through tourism. This meant that older pupils in the school that could work after school hours had such jobs with Italian tourists. This also meant that these pupils wanted to learn Italian as a so-called 'free choice' school subject, a possibility from grade seven at the time, which would enable them to communicate with the tourists in their native language. As such, the school leader found a teacher of Italian and made it possible for the teaching to take place via computers, internet, and Skype (a computer program for video synchronous communication).

The second example was a joint development project between M1 and two neighbouring municipalities during 2004-2006. The participants from the municipalities were the principals and teachers of the extremely small and remote compulsory schools (two schools from M1 and one each for the other two municipalities). In this project, financed through the university-school collaboration centre for the county, a common problem description of the municipalities' schools was how to ensure teaching quality despite decreasing financing and pupil enrolment. Here digital technology was hoped to act as a lever to enable shared teaching resources and as a facilitator for collaboration between the municipalities.

The primary activity of the project where digital technologies were used for teaching was that the four schools were responsible for one class session where pupils and teachers from all four schools participated. The theme for the classes was 'local history' of each school's local community, and subjects covered were, for example, local Sami languages and traditional practices for extracting tar through burning pine trees. The evaluations of these classes were both positive in terms of pupils' engagement, and negative in terms of various issues related to digital technologies not working as intended (e.g., disconnections and poor sound quality).

These examples relate to the persistent challenges, specifically in extremely small and remote schools. While these schools are extreme in many regards concerning organising schooling, they can also be responsive to the local needs of the community and its pupils. The crafting of local solutions was made possible through the smallness and the responsibility of school development that rests on individual school leaders. The steady decline in population and consequently economic resources were not simply persistent challenges, they were also kernels of 'necessary innovations', as seems evident in the early use of digital technologies in compulsory schooling.

Concerning the 'when' question, the examples above suggest that a pivotal moment in time was during the early 2000s. The participants also talked about free formal adult education provided in the municipalities and the use of digital technology in these practices. Here, also, the early 2000s were indicated as a pivotal moment in time.

Discussion and Concluding Remarks

The aim of this study has been to contribute with an historically contextualised understanding of one genesis of remote teaching in Sweden. Considering the results, we believe that the contexts investigated via informants have been productive. The contextualisations have made visible the persistent challenges and related these to specific examples of why, how, and when schools in the municipalities started using digital technologies for teaching and learning. A reflection on the design of the study, and particularly concerning the selection of informants, is that asking people to remember several decades back in time is a considerable challenge. For example, we may ask what makes the informants remember the particular examples that they shared. In our view, considering that the people working in schools before the decentralisation of schools (i.e., during the 1980s in Sweden) had a high average age, it is timely to conduct further studies with them. This is also becoming the case for people active during the early years of computers in schools in general (i.e., during the late 1990s and early 2000s).

While many parts of the persistent challenges are relatable to the local contexts' geographic and demographic conditions, which have impacted schooling for as long as formal schooling has been organised (Pers et al., 2022; Sjögren & Westberg, 2015), the contextualised school governing that our respondents talked about relates to larger governing movements. Specifically, the decentralisation (municipalisation) of school governing, following neo-liberal ideals of marketisation via private school ownership and students' 'free school choice' (Lundahl et al., 2013; Wennström, 2020), are interesting. While municipalisation introduced economic constraints on schools via the local municipal taxation on the small populations, our informants who were school leaders also talked about the changes to the role of principal and the ability/necessity to craft innovative solutions. Such solutions included using digital technologies for remote teaching based on the local resources and needs. Another solution was to create the upper secondary school in M2 to counteract youth drain to M3. Such youth drain is at least partly fuelled through the market of schools that the free school choice entails.

We have found *one* genesis of remote teaching in Sweden, rather than *the* genesis. To the best of our knowledge, the other possible geneses have only been made public in project reports (Häll et al., 2007; Hegerholm, 2007). In the study's regional context today, remote teaching is (still) utilised to provide several different subjects in most inland municipalities, as well as in coastal

municipalities. To us, it is humbling to consider that remote teaching as a part of the larger social process of digitalisation in Swedish schools (From et al., 2020) had a beginning in the very concrete request of a few pupils to learn Italian to be able to communicate more personally with Italian tourists. However, reasonably, an important element here is also the general technological development of digital technologies during this time, specifically concerning (a) internet infrastructure and (b) accessibility/affordability of laptop computers/mobile technology. These two coincided during the early 2000s in Sweden. In the Introduction, we suggested that rural schools have pioneered the development of remote teaching and as such digitalisation as a larger process of change in society. Through our study, we can say that the school leaders and teachers working in these schools indeed had been early in their use of digital technology for teaching and learning in schools, actually aiming to teach subjects rather than more 'fragmented' teaching concerning how to use word processing programs which was common at the time. As such, through technological development and the hard-working people in schools, the persistent challenges in these contexts have been the kernel of development that dialectically 'works' as both the foundation for the development and the problem to develop past or at least alleviate (Broadley, 2012; Pettersson, 2017; Stevens, 1995; Trindad & Broadley, 2008). Also, we may say that when 'digitalisation' in schools is shaped through these contexts, it takes on a relatively concrete and 'unhyped' meaning (From et al., 2020).

Another interesting contextualisation to make is to place remote teaching in a broader context of educational technology, and to consider the context of educational technology beyond what is used in classrooms. For a long time different technologies (in a broad meaning of technology) such as bussing students and ambulatory schooling, boarding homes, instructional films and television, and telephones have been utilised (Pers et al., 2022; Rumble, 1989; Saettler, 2004; Sjögren & Westberg, 2015; Swedish Transport Administration, 2003). On this timescale, we can see that technological development and school governance interact. In our study, the municipalisation, while imposing severe challenges for schooling particularly for rural municipalities, also enabled certain developments to be made with, in some respects, greater freedom for school leaders to 'innovate' with digital technologies.

The contributions of this study to the international research on rural education are to the intersection of digital-rural relations generally, where contextualised understanding of schooling issues and educational research seems underrepresented and where much research approaches 'the rural' as a problem to be solved (Guenther et al., 2023; Zhang et al., 2023). In addition, this study contributes to international research of small rural schools where historical contextualisation of digitalisation in schools seem missing entirely (Fargas-Malet & Bagley, 2022). Considering the scarceness of similar studies, and given our results, it would be very interesting and important with future studies that take a larger scope and investigate and compare remote teaching geneses nationally and internationally while still maintaining contextualised persistent challenges in connection with general trends.

Through this study, conclusions can be drawn for policy makers. First, given that the persistent challenges will likely worsen (e.g., the national and international trend of decreasing birthrates), it is reasonable to assume that several of this study's persistent challenges will have to be engaged with by more schools in the future. As such, policy makers can certainly draw upon the experience and knowledge of people in these practices that have engaged with persistent challenges with novelty. Second, given the challenges of the study's municipalities and particularly the extremely small schools, it seems clear that the distribution of resources for schools cannot operate on the same principles for all schools. Pupils 'cost more' in sparsely populated areas given the persistent challenges and a specific distribution of resources to small schools in rural areas could ensure that the ingenuity of people in rural schools can contribute even more to schooling. Finally, as regards to the fields of rural history and history of education, the study contributes by bridging existing knowledge of historical conditions to contemporary

ongoing processes. With its microhistory and oral history approach it also gives important insights into local school governing from an individual perspective, i.e. the role of the individual in decision making and in negotiating policy into practice. Such knowledge is very hard to attain in traditional historical sources and requires interviews as the method.

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Community Insights into School Disengagement: Perspectives from a Regional-Rural Australian Context

Michelle Gossner
Central Queensland University
m.gossner@cqu.edu.au

Lisa Lole
Central Queensland University
l.lole@cqu.edu.au

Cassandra K. Dittman
Central Queensland University
c.dittman@cqu.edu.au

Lauren Miller-Lewis
Central Queensland University
l.miller-lewis@cqu.edu.au

Abstract

School disengagement is a significant issue in regional and rural Australian communities. Addressing this issue requires a comprehensive understanding of the relational, individual, and environmental factors that influence disengagement. This study aimed to explore the perspectives of community members who have experience working with disengaged school-aged children. The research applied the bioecological model of development to examine how *Process*, *Person*, *Context*, and *Time* factors contribute to school disengagement. Data were collected through five focus groups with 24 participants from diverse professional backgrounds and sectors within a socioeconomically disadvantaged regional and rural area in Australia. A thematic analysis identified ten key themes within the *Process*, *Person*, *Context*, and *Time* framework. *Process* factors included parent-child and teacher-student interactions. *Person* factors encompassed mental health challenges, diverse learning needs, antisocial behaviours, and personal and interpersonal skills. *Context* factors involved the home environment, parental disengagement, school systems and structures, and broader regional and community challenges. *Time* revealed disengagement to be a cumulative and dynamic process. This study highlights the importance of incorporating local perspectives to better understand school disengagement and calls for tailored interventions that address its complex nature alongside context-specific policies and practices to promote long-term educational engagement. Furthermore, the study emphasises the importance of prioritising teacher professional development and encouraging policymakers to implement reformsa in higher education teacher training. These measures should help to equip teachers with the skills needed to support student wellbeing and foster greater engagement in learning.

***Keywords*:** *school disengagement, dropout, children, students, qualitative, regional, rural*

Introduction

School children in regional and rural Australia are at a higher risk of school disengagement compared to those in urban areas. National data highlights a significant geographic disparity in Year 12 attainment rates, with 79.4% of students in urban areas completing Year 12, compared to 67.6% in regional areas and 69.2% in rural areas (Australian Curriculum Assessment and Reporting Authority, 2022). Maintaining the engagement of regional and rural students is critical, as it increases the likelihood of completing Year 12 (Lovelace et al., 2017), which in turn is associated with better employment, financial, and health outcomes in adulthood (Lansford et al., 2016). In contrast, the long-term consequences of school disengagement are profound, including school

dropout (Henry et al., 2012), which can lead to poorer physical (Vaughn et al., 2014) and mental health (Hetlevik et al., 2018), higher unemployment rates, increased reliance on welfare (Ramsdal et al., 2013), and a heightened risk of substance abuse and criminal behaviour (Lansford et al., 2016). Additionally, school dropout may perpetuate intergenerational cycles of disadvantage, exacerbating socioeconomic inequalities over time (Vauhkonen et al., 2017).

In the Australian context, students in regional and rural contexts face several educational challenges, including disparities in resources, teacher retention, and inclusion support, compared to their urban peers (Halsey, 2018). Despite various political and policy initiatives aimed at addressing these inequities – such as targeted funding for specific programs and community support efforts – the effectiveness of these interventions has been inconsistent (Halsey, 2018). Smyth and Hattam (2004) argue that these educational challenges are deeply intertwined with the broader social and economic conditions prevalent in regional and rural communities, complicating efforts to reduce educational disparities. Therefore, a more comprehensive understanding of the interplay between the factors in regional and rural contexts impeding educational engagement is needed.

Understanding School Disengagement

School disengagement is a multidimensional phenomenon, which can be exhibited by children behaviourally (e.g., problematic absenteeism, antisocial behaviour), cognitively (e.g., lack of persistence), emotionally (e.g., anxiety, frustration, anger) and socially (e.g., poor relationships with teachers, peers; Fredricks et al., 2019; Wang et al., 2019). Disengagement is not an isolated event but rather a gradual process that unfolds over time, varying in terms of pattern (continuous or intermittent) and manifestation (overt or subtle; Fredricks et al., 2019; Wang et al., 2019). For many children experiencing school disengagement, the final stage is school dropout, although some children may alternate between disengagement from formal schooling and periods of re-engagement (Broadhurst et al., 2005; Janosz et al., 2008).

An extensive evidence base has identified the range of factors associated with disengagement outcomes, including school absenteeism and dropout. In one meta-analysis of 75 quantitative studies, Gubbels et al. (2019) identified individual, family, and social risk factors for school disengagement, including child mental health problems (e.g., depression, anxiety), antisocial behaviours (e.g., delinquency, association with truant peers), problems at or with school (e.g., poor teacher-student relationship), parenting challenges (e.g., low parental educational support), and family difficulties (e.g., low parental education, non-nuclear family structures). Further, De Witte et al. (2013) emphasised that disengagement occurs due to a complex interplay of various determinants across multiple contexts over time, including those related to the student, family, school, and community contexts. However, they noted that the reliance on quantitative studies to examine influences on disengagement has produced limited insights into the ways these factors interact. They argued that qualitative research provides a deeper understanding of disengagement by gaining personal accounts of how psychological, social, and contextual influences identified in the quantitative research are experienced. By considering the lived experiences of students, parents, educators, and other stakeholders within their specific social and cultural contexts, qualitative research has the potential to challenge the primarily deficit approach used in quantitative research, which focuses on the identification of '*risk factors*'. Qualitative research should help to elucidate the impact of broader systemic and structural factors on educational outcomes, rather than attributing disengagement solely to individual or family shortcomings (Valencia, 2010).

Although still limited, there is a growing body of qualitative research exploring school disengagement in regional and rural Australia. Qualitative studies with students (Robinson & Smyth, 2015), educators (Allen et al., 2018), and community stakeholders (Watson et al., 2015) have highlighted the impact of complex family environments (e.g., long-term parental

unemployment, domestic violence, housing instability) alongside schooling challenges (e.g., poor teacher-student relationships, ineffective pedagogy) as contributors to disengagement. These challenges were reported to be further compounded by child mental health issues (Robinson & Smyth, 2015) and systemic barriers, such as transportation difficulties to access schools (Allen et al., 2018; Watson et al., 2015). These findings are supported by Guenther et al. (2024), who explored disengagement among Indigenous students through interviews with Indigenous Elders, community members, school staff, and students in remote Australia. The study highlighted that individual factors were likely interwoven with relational and institutional factors, including child wellbeing issues, dysfunctional home environments, school bullying, irrelevant curricula, and cultural obligations.

While these studies provide a strong foundation for understanding school disengagement in regional and rural Australia, there remains a need for further research to deepen insights into the complex interplay of factors and how these may change over time. Expanding this body of knowledge can inform the development of more effective, contextually relevant interventions to support students in these communities. Research suggests that regional and rural areas are characterised by stronger community ties, including higher levels of participation in community networks, neighbourhood connections, and relationships with family and friends, as well as a greater sense of trust and safety (Crommelin et al., 2022; Onyx & Bullen, 2000). These community strengths could offer a valuable foundation for developing tailored interventions that leverage local resources to support student engagement in these regions.

Theoretical Framework

Bronfenbrenner's Process-Person-Context-Time (Bronfenbrenner & Morris, 2006) model served as the theoretical framework for this study. This model highlights the importance of proximal processes, personal characteristics, contextual factors, and the dimension of time in shaping school disengagement. Proximal processes, which take place in the microsystem, refer to the interactions that occur between individuals and the various elements within their immediate environments, which include family members, teachers, and friends, as well as objects and symbols. These interactions are important as they influence how individuals perceive and respond to their environment (Bronfenbrenner & Morris, 2006). Person factors are individual characteristics, including personality traits and emotional states, which interact with proximal processes to influence how individuals engage with their surroundings (Ashiabi & O'Neal, 2015; Rosa & Tudge, 2013). Context factors refer to different environments in which individuals live and interact, including home, school, and community settings. These environments are categorised into four systems: microsystem, mesosystem, exosystem, and macrosystem. Each system presents unique challenges and opportunities that can significantly impact individual experiences and levels of school engagement (Hasselhorn et al., 2015). The time dimension of the *Process*, *Person*, *Context*, and *Time* model highlights that development is influenced by historical and situational contexts that evolve over time (Bronfenbrenner & Morris, 2006). Understanding the role of time is important for examining disengagement, as children may experience shifts in their engagement levels due to changes in life circumstances, societal trends, developmental stages or an accumulation of factors over time.

The Current Study

The study aimed to build upon existing qualitative research by exploring community experiences and perceptions of school disengagement within a regional and rural context. Five focus groups were conducted with community members who had experience working with disengaged children from a regional town in Queensland, Australia and its surrounding rural areas. Based on the Modified Monash (MM) Model, an Australian classification system that measures remoteness and population size, the research setting included a central regional hub (classified as MM2) and

several smaller rural towns (classified as MM5; Department of Health and Aged Care, 2019). Further, the study community is one of the most disadvantaged local government areas in Australia (classified in quintile 1 on the Socio-Economic Indexes for Areas (SEIFA); Australian Bureau of Statistics, 2021b). In this community, educational attainment is lower than the state and national averages, with 29.5% having Year 10 or lower as their highest level of education, compared to 19.2% in Queensland and 18.1% nationally (Australian Bureau of Statistics, 2021a).

Method

Participants

The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong et al., 2007). Participants were professionals who had experience working with disengaged children in the study community. Participants were recruited using purposive sampling (Reed et al., 1996) by identifying potential participants through the researchers' network of community contacts. Email invitations containing an overview of the study, its objectives, and expected time commitment were sent to 35 community members, 24 (16 women, 8 men) of whom accepted and participated in the study. Participants were from a diverse range of sectors (see Table 1) including youth community services (*n* = 8), youth justice (*n* = 2), Indigenous services (*n* = 2), education (*n* = 5), health/medical (*n* = 2), local business (*n* = 2), and local government (*n* = 3). This diversity was important to ensure varied perspectives on school disengagement.

Table 1: ***Breakdown of Focus Groups: Participant Numbers and Professions***

Focus Group	Number of Participants	Profession
Focus Group 1 (FG1)	5	1 x youth community services
		2 x youth justice
		1 x Indigenous services
		1 x health/medical
Focus Group 2 (FG2)	6	5 x youth community services
		1 x education
Focus Group 3 (FG3)	3	1 x youth community services
		1 x education
		1 x health/medical
Focus Group 4 (FG4)	6	1 x education
		2 x local business
		3 x local government
Focus Group 5 (FG5)	4	1 x youth community services
		1 x Indigenous services
		2 x education

Procedure

Ethics approval was obtained from the authors' university Human Research Ethics Committee, and all participants provided written informed consent. A semi-structured interview protocol was developed for the focus groups based on existing school disengagement literature and the aims of the study. The sessions were conducted at a local community facility between October and

December 2022, with three to six participants in each group. The first and second authors, both females with backgrounds in education and psychology, respectively, co-facilitated the sessions. Each focus group lasted approximately 90 minutes and was audio-recorded for transcription.

Focus groups began with an overview of the session agenda and expectations, emphasising the importance of equal participation and mutual respect among group members (Krueger & Casey, 2000). Participants were then invited to introduce themselves and share their professional backgrounds with the group. A PowerPoint presentation was used to guide the discussion, with prompts delivered both verbally and visually. The prompts included open-ended questions designed to elicit in-depth responses from the participants. Examples of these questions were: "*What are your experiences with young people in the region who are not engaged in school, education or further training?*", "*What do you think are some of the differences between young people in the region who stick with their education versus those who drop out of school or struggle to stay engaged?*", and "*What current opportunities do we have in the region that might help address this issue?*" Throughout the discussions, the researchers were mindful of group dynamics, using follow-up questions to encourage participants to expand on their ideas and clarify their points. Open-ended prompts were used to invite quieter participants to share their thoughts, ensuring that all perspectives were heard and valued (Greenbaum, 2000).

Data Analysis

The first author transcribed the audio recordings of the focus groups verbatim. The first and second authors then analysed the transcripts per the reflective thematic analysis procedure outlined by Braun and Clark (2022). They started by reading the full transcripts multiple times to become familiar with the data. Next, they independently reviewed the transcripts, identifying key elements that were of analytical value and compiled meaningful codes. They then discussed the findings to develop initial themes based on common patterns in the data. These themes were checked and refined to ensure they made sense in relation to the coded extracts and the entire dataset. This process was iterative, where themes, codes, and extracts were moved back and forth until a coherent thematic structure represented the insights expressed by the participants in the focus groups. The *Process*, *Person*, *Context*, and *Time* model (Bronfenbrenner & Morris, 2006) was used as an organising framework for the themes.

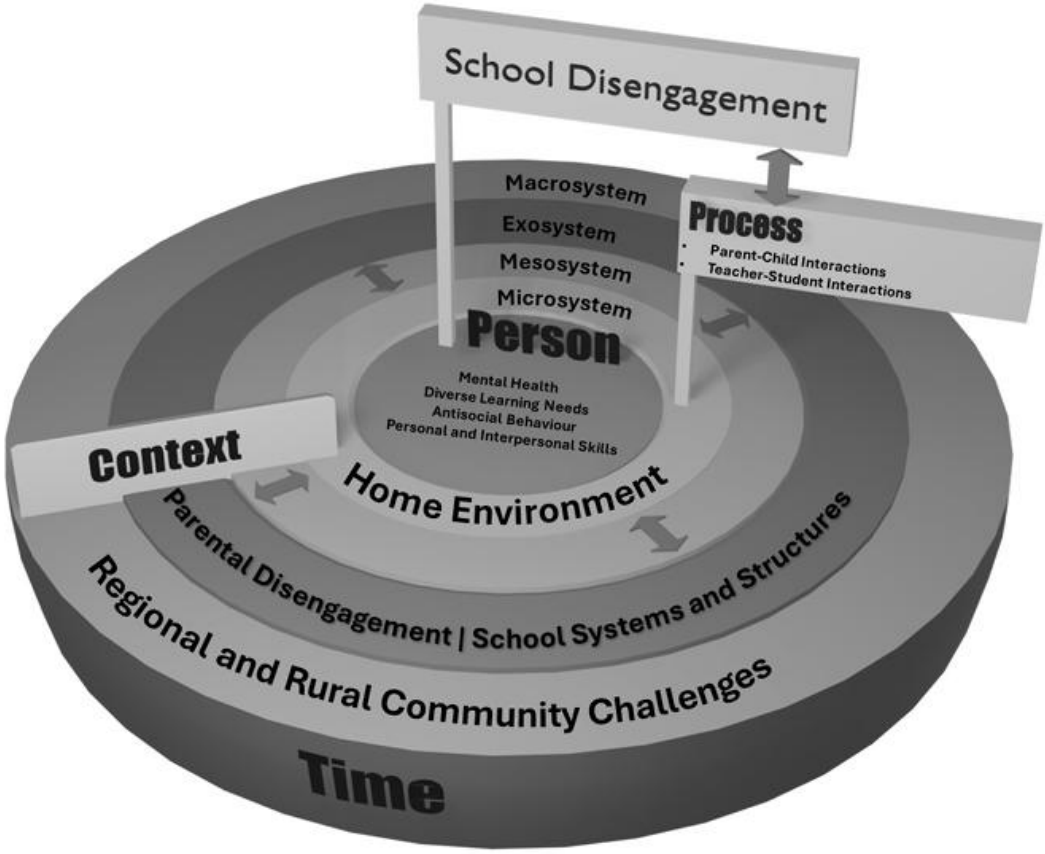
Quality Techniques

Measures of quality assurance were implemented to mitigate potential biases. The first and second authors engaged in discussions to consolidate codes into coherent and meaningful themes. Further, they discussed the coding and themes with the third and fourth authors, who were not directly involved in the data collection or analysis, to verify that the codes accurately captured the perspectives of the participants.

Results

Ten themes were collated under the four defining properties of the *Process*, *Person*, *Context*, and *Time* model (Bronfenbrenner & Morris, 2006). The themes reflected participants' insights into the immediate environmental factors contributing to school disengagement (*Process*), traits of disengaged students (*Person*), broader social settings influencing disengagement (*Context*), and their experiences with the pathways to disengagement (*Time*). See Figure 1.

Figure 1. School Disengagement (Process-Person-Context-Time)



Process

The Process dimension refers to the enduring, reciprocal interactions between children and their immediate environments. Participants described student school disengagement as being influenced by two primary interactive processes: parent-child interactions and teacher-student interactions.

Parent-child Interactions. Participants focused on two main aspects of parent-child interactions: *parenting practices* and *the quality of parent-child relationships*.

Across all focus groups, participants noted *parenting practices* they perceived as contributing to disengagement, namely inconsistent home routines, poor supervision, and inconsistent discipline. Several participants reported that children often interpreted inadequate parental supervision as a lack of parental care or interest, with one participant sharing that those children with excessive freedoms often expressed, "*Mum and dad don't care*" (FG4). In all five focus groups, ineffective parenting often involved perceptions of inadequate supervision and lax boundaries on children's technology use ("*They go home and spend hours and hours on PlayStation and Fortnite*"; FG5). Some participants reflected that excessive screen time led to children being sleep-deprived, which participants believed hindered classroom engagement. Participants also suggested poor monitoring of screen time meant children were more vulnerable to exposure to negative online behaviours, including bullying and sexting, which in turn negatively impacted school engagement.

The second aspect of parent-child interactions was *parent-child relationships*. Participants perceived that ineffective parenting practices reflected low parental involvement in their children's lives. Professionals in youth services and youth justice emphasised the negative impact of parental drug and alcohol use on these relationships from an early age. Participants also noted

that excessive parental use of technology disrupted the parent-child relationship. One participant shared, "*kids will come and say, 'oh mum's on her phone all the time'*" (FG3). A lack of meaningful conversations about children's aspirations was another concern, with one participant reporting, "*They don't have parents or good influences to ask all of these important questions*" (FG1). In several focus groups, participants indicated that low parental involvement and poor-quality parent-child interactions eventually left children feeling disconnected and lacking a sense of belonging and connection with their parents. This was described as having an adverse effect on children, leading to behavioural problems and difficulties in forming positive relationships with teachers and peers, ultimately affecting their capacity to engage effectively in school. According to one participant working with community children: *"...when they lose basic trust with their mum and dad. If they can't even trust the mum and dad, we've lost trust with authority. They don't trust anyone."* (FG4)

Teacher-Student Interactions. The second proximal process noted was the role of *teacher-student interactions* in school disengagement. Participants focused on the quality of the teacher-student relationship, particularly around relationship building and managing disruptive behaviour. However, perspectives regarding the dynamics of these interactions varied depending on the professional context of the participants.

Participants from non-education sectors generally agreed that teachers often lack an understanding of how trauma and complex home environments influence student behaviour in the classroom. This perceived lack of awareness was seen as limiting teachers' ability to effectively support students facing such challenges ("*[students] have these needs that teachers just don't understand*"; FG1). It was noted that this gap in understanding could lead students to feel misunderstood, isolated, and unsupported, which negatively affects teacher-student relationships and contributes to disengagement.

Participants from the education sector offered a different perspective, highlighting the challenges of building relationships with students due to large class sizes and diverse needs, describing schools as "*understaffed and underfunded*" (FG2). Despite these obstacles, they emphasised the importance of building rapport with students and its positive impact on behaviour and engagement. One participant described their interactions with a student: "*When we were able to touch base on a personal level through games involving the Scouts, … I was able to make some connections there*" (FG5). Another participant from the education sector reflected on the challenges in building connections with students:

> *[students] need time and that one-on-one thing to be able to develop. That and to be able to do some self-reflecting and have those conversations with people. Whereas a lot of the time we're just, you know, as you said before, [it's] just go, go, go up in a classroom and you don't have time to do that. (FG5)*

Person

The *Person* factors revealed unique child characteristics that were perceived to impact school disengagement. Participants described three main patterns of psychological or developmental presentations: mental health problems, diverse learning needs, and antisocial behaviour. They emphasised the complexity of these difficulties, noting significant overlap among the three patterns. Additionally, participants identified a common thread across these presentations: difficulties with personal and interpersonal skills.

Mental Health. In all focus groups, participants reported that mental health issues were common among children disengaging or disengaged from school. Anxiety was the most frequent mental health challenge reported, with participants describing that anxiety resulted in avoidance of school and poor attendance. Participants identified several contributing factors to children's anxiety, including negative parent-child relationships, parental reinforcement of anxious

behaviour, and unstable home environments marked by domestic violence, drug use, and a lack of external support services. In these cases, anxiety was often seen as a response to trauma within the home. One participant shared that children's anxiety could stem from a desire to protect a parent experiencing partner violence: "*If you do successfully get them [children] to school, they're worrying about the parent, they're distracted all day, they're checking their phone*" (FG2). Another participant from youth services highlighted the interconnectedness of anxiety, avoidance, and other mental health struggles, such as self-harm and suicidal thoughts: "*kids, nine years old, already having suicidal ideas, already self-harming and already refusing to go to school*" (FG2).

Diverse Learning Needs. Participants in four of the five focus groups believed that neurodivergent children with conditions such as attention-deficit/hyperactivity disorder, autism spectrum disorder, or foetal alcohol syndrome were more likely to disengage from school. It was noted that these children had diverse learning needs, which meant they often struggled to meet the structures and expectations of the mainstream education system. This was described as leading to misconceptions, with schools viewing these children as having poor behaviour rather than regulation issues ("*the school system just sees that as poor behaviour. It's that they cannot regulate";* FG1). While participants acknowledged growing awareness of neurodivergent conditions, they also noted that this awareness could sometimes be counterproductive, with some parents and children using the diagnosis to justify disengagement. At the same time, participants expressed concern that neurodivergent children often felt unsupported due to limited resources and insufficient teacher training on these conditions. Other participants indicated that children with undiagnosed conditions were at a greater risk of disengagement.

Antisocial Behaviour. A third pattern associated with disengagement was antisocial behaviour. Participants described behaviours ranging from conduct problems, disruptive behaviour, and disrespect towards authority (e.g., refusing to follow instructions, calling out in class, swearing) to more serious issues, such as peer victimisation and aggression, criminal offending, illicit drug use, and early sexualised behaviour. They noted that a sense of loneliness and lack of belonging can lead these children to connect with other antisocial peers ("*the kids tend to attract their like kind as well; they track similar kids who've got similar issues, and they tend to feed off that*"; FG5). Most participants characterised these children as coming from dysfunctional households.

Personal and Interpersonal Skills. Participants noted that disengaged children faced challenges in their personal and social functioning. They discussed that these children had difficulties trusting others, which hindered the development of constructive relationships both at school and in the community. Participants also observed that these children were reluctant to seek help when needed and exhibited low confidence and self-esteem ("*most are struggling with their identity around where they fit in society and a bit of shame around not being good enough*"; FG3). Additionally, most participants noted that disengaged children had limited aspirations for their futures, which further impacted their motivation to engage positively in school.

Context

Context relates to various environmental settings, conditions, and circumstances that participants perceived to affect school disengagement. Multiple layers of influence were identified: home environment (microsystem), parental disengagement (exosystem), school systems and structures (exosystem) and regional/rural community challenges (macrosystem).

Home Environment. A major contextual factor identified in all focus groups was that many disengaged children came from unstable, stressful, and complex home environments. Participants perceived that domestic violence in the home was a common risk factor for disengagement ("*I support… 9 to 13 [year olds] with disengagement, and 100% of the families I've worked with are from a domestic violence background*"; FG2). They also noted frequent drug use

in the homes of disengaged children (*"…drug use and violence are normalised"*; FG1), as well as experiences of child maltreatment and neglect, with involvement in child protective services serving as another risk factor (*"A lot of our kids are under orders from child safety – so they've got quite a traumatic background"*; FG1).

Most focus groups discussed complex family structures as an important factor associated with disengagement. Participants noted that children were more likely to disengage when living in step- or blended families with multiple caregivers, or in families where parents frequently partnered and re-partnered. Several participants highlighted that some children took on the role of caregiver for younger siblings, adding another layer of complexity to the family dynamic. One participant working in community services reported:

> *A lot of these kids have to be parents at home, and then they come to school, and we expect them to be kids. It's very confusing, because at home they have to be the parent looking after a 3- or 4-month-old baby. Then they come to school and, "no, you'll do as you're told, you're a child." That's a very complex world for a young person to operate in. (FG2)*

Parental Disengagement. Parents' own disengagement from education, employment, and support services was another significant contextual factor that participants reported as influencing school disengagement. Participants identified factors like intergenerational unemployment, welfare dependency, mental health issues, disability, and both current and historical parental incarceration as limiting parents' ability to support their child's schooling. Several participants noted that many parents were unwilling to engage in support services to assist their child (*"There is a cohort [of parents] that the schools are aware of that completely don't engage at all";* FG1). Further, participants noted several potential barriers to parental engagement with support services for their children among socially disadvantaged families, including restricted access to services due to financial hardship, fear of judgement in seeking help, no transport, and limited awareness of the risks associated with school disengagement.

Participants in all focus groups observed that many parents experiencing disadvantage held beliefs about employment and education that were shared and modelled to their children. These included negative attitudes towards education, low expectations for their children's future, and high acceptance of unemployment and welfare dependency. These beliefs, participants noted, led to insufficient educational support from parents, which in turn diminished children's academic motivation and aspirations, contributing to school disengagement. One participant from a community organisation that worked with disengaged children described their experiences with disengaged parents:

> *I have parents that are sitting on Centrelink [welfare] that can be working, they could be working, and they decide that they don't want to take the kids to school. So, all the kids, they get to stay home for the day because they [the parents] don't want to get out of bed and then the kids fall behind in school. It's just a cycle then. (FG5)*

School Systems and Structures. Participants perceived several school-related factors to impact disengagement, including conflicting educational priorities, rigid school structures, the inability to meet diverse learning needs, and lack of teacher training and preparedness. Participants commonly described the education system as having conflicting priorities, with teachers under growing pressure to address the complex needs of students (*"every teacher is expected to differentiate and cater to the whole spectrum of kids"*; FG5), while being largely governed by academic performance benchmarks (*"…school has become more about the targets that the teacher has to meet"*; FG3) and standardised assessment (*"[teachers] are moderating different kids to the same standards"*; FG5). One participant reflected on how these conflicting priorities made it challenging for teachers to balance addressing student needs with meeting the expectations of the education system *("as you move up these chains, you've got different priorities… I think that [schools] are becoming overburdened by bureaucracy rather than thinking*

about what's happening in the classrooms"; FG5). Some participants argued that by requiring teachers to prescribe to the current educational system, they were forcing students to conform to a 'one-size-fits-all' model ("*[students] are just being forced through this machine*"; FG5). One participant from the education sector acknowledged the impact on children when they did not meet the academic expectations of the model:

> *I cannot blame them. If I had gone to school for three, four years or whatever and I constantly failed, I would have no self-efficacy. I wouldn't be too motivated. I'd probably [be] doing something to avoid that as well. (FG5)*

In all focus groups, participants expressed concerns about whether the schooling system met the needs of all students. Four out of five groups questioned the relevance of the curriculum and its real-world applicability, while two groups raised concerns about the lack of Indigenous cultural inclusion and cross-cultural practices in schools ("*We refer students to alternative schools for Indigenous culture*"; FG1). Participants also noted a shortage of specialist staff to support students with complex needs. While it was acknowledged that some schools in the region employed psychologists, there was a consensus that more support was needed ("*we probably need it on a huger scale*"; FG2). Others criticised what they saw as outdated approaches to managing problem behaviours, such as detentions and suspensions, which they felt failed to address the social and emotional challenges faced by many students ("*Our system is failing these kids*"; FG2).

Other structural issues raised by participants included school scheduling and homework. Some noted that secondary school timetabling hindered teachers from building meaningful relationships with students ("*at high school, that teacher gets a kid once a week for one hour and they're not building those intimate relationships*"; FG4) or preparing them for real-world work experiences ("*that's part of the problem with high school, is that it's supposed to be setting you up for a work environment, but I don't know any work environment where I have a different boss every 40 minutes*"; FG4). Finally, several participants raised concerns regarding the impact of homework on child mental health, with one participant from the community services sector reflecting:

> *at school, they're saying, "so, you go to school", and then outside of school, you've got more school to do. So, you're not setting them up with real work practices. In the real world, they realise that you can't do that cause [sic] you burn people out when you make them work outside of their working hours. (FG2)*

Regional and Rural Community Challenges. Participants described several regional and rural circumstances that were perceived to impact school disengagement, including limited access to services and widespread social disadvantage. The discussions highlighted the complex interplay between various contextual challenges and the consequences on student educational experiences.

Participants described support systems for families, parents, and children facing complex issues as fragmented. All focus groups expressed concern about the lack of child specialists (e.g., psychologists, psychiatrists, paediatricians etc.) in the region and the lengthy wait times ("*It's about an 18-month wait for children [to see a Paediatrician]*" FG2). These delays, participants noted, worsened children's problems, negatively affecting their mental health and school engagement. Several participants highlighted poor communication between services, particularly between schools and government agencies. Furthermore, several participants argued that children with complex needs often "*fall through the cracks*" (FG1) in the system due to strict eligibility criteria for government-funded services. Three focus groups also raised the lack of culturally appropriate services, with one participant stating, "*We don't have a great cultural representative with services, even around Indigenous, Torres Strait Islander... we don't cater well to the cultural family needs*" (FG3).

A contentious issue among the participants was the influence of family social disadvantage on school disengagement. Several participants acknowledged the low socioeconomic status of the region ("*[name of town] has always been known as low socioeconomic*"; FG4) and cited factors such as financial difficulties, food insecurity, and housing instability as key contributors to school disengagement. However, others disagreed, arguing that socioeconomic status had little influence on disengagement, stating, "*It doesn't seem to matter what social background [students] come from*" (FG3).

Time

Participants agreed that school disengagement was a dynamic process influenced by a gradual accumulation of individual experiences and various factors over *time*. However, perspectives varied regarding the onset of this process. Some suggested that disengagement typically starts during transitional phases, like the move from primary to secondary school, while others argued that signs of disengagement can appear as early as primary school. One participant noted, "*by the time they get to us at nine, 10, 11 years old, they're at the extreme ends of things and already looking at disengaging*" (FG2). Nevertheless, participants emphasised that disengagement begins early and results from the gradual accumulation of risk factors.

Discussion

This study built on existing qualitative research by examining school disengagement through the perspectives of community members with experience working with disengaged children in a diverse regional and rural Australian community. It examined community experiences, perceptions of its higher prevalence in these areas, and the interplay of contributing factors. Using the *Process*, *Person*, *Context*, and *Time* model (Bronfenbrenner & Morris, 2006), the study analysed how Process, Person, and Contextual factors interacted over Time to shape disengagement. The findings suggest that while Process and Person factors are likely universally relevant, some Contextual factors appear more specific to regional and rural settings (Flavel et al., 2024; Robinson et al., 2017), compounding over Time and contributing to poorer educational outcomes.

Process

Participants perceived several process factors as influencing school disengagement, including parent-child and teacher-student relationships. These findings align with a large quantitative review (Gubbels et al., 2019), which also identified low parental support and poor teacher-student relationships as key risks for disengagement. This study deepened these insights by revealing contextual challenges faced by educators, such as large class sizes and increasing student diversity, which hinder efforts to foster positive relationships. These challenges appeared to reflect classroom dynamics and broader systemic issues, including inadequate professional development for teachers and limited parental support services. Thus, rather than attributing these challenges to a lack of effort or commitment from teachers or parents, it is essential to consider how educational policies, resource allocation, and support systems can be restructured to better address these issues.

Furthermore, the study identified parenting behaviours within families of disengaged children as another process factor believed to contribute to disengagement. These behaviours included challenges such as lack of structure, poor boundaries, inconsistent discipline, and inadequate limit-setting, which aligns with Marlow and Rehman's (2021) meta-analytic findings. However, understanding these parenting challenges requires considering the broader context and systems in which these families are situated. Historical (e.g., parents' own negative school experiences), socioeconomic (e.g., financial hardship, unemployment, working long hours), and systemic barriers (e.g., poor access to institutional support, limited community resources) likely influence

their ability to establish a stable home environment that supports the learning and wellbeing of their children. Without adequate resources and support systems, parents may struggle to create consistent expectations and reinforce positive behaviours, making it more difficult to counteract disengagement. These findings highlight the need to consider the complex interplay between family dynamics and broader social and economic factors when developing strategies to address school disengagement.

Another parenting practice participants identified was poor parental monitoring of children's social media and online gaming habits. These habits were linked to sleep deprivation and exposure to negative influences online (e.g., cyberbullying), which participants noted negatively impacted children's ability to engage in school. Past research suggests that excessive technology use can lower academic performance, reduce school connectedness (Sampasa-Kanyinga et al., 2022), and contribute to school burnout (Salmela-Aro et al., 2017). While further research is needed to understand the role of technology in school disengagement, the findings of the current study suggest a potential pathway where parenting practices may moderate the association between child technology use and school disengagement. However, it is important to recognise that this issue is multifaceted, with structural and contextual factors – such as access to digital literacy education, external pressures, social influences, and the broader digital landscape – also playing a significant role (Silcock et al., 2016; Wang et al., 2022).

Person

At the person level within the *Process*, *Person*, *Context*, and *Time* model, participants discussed what they perceived to be common characteristics among disengaged children and those at risk of disengagement. They noted that these children often experience a variety of social, emotional, neurodevelopmental, and behavioural challenges, which tend to be interconnected and not mutually exclusive. However, rather than viewing these challenges as inherent risk factors, it is crucial to consider how school environments, teaching practices, and access to support services influence students' ability to engage. This perspective aligns with existing research suggesting that factors like neurodevelopmental disorders (Nordin et al., 2023) and emotional and behavioural challenges (Parker & Hodgson, 2020) can influence school experiences, particularly when accommodations and supports are lacking.

Our findings suggest that school disengagement often stems from unmet support needs rather than individual shortcomings. This highlights the critical role of specialised school-based resources, interventions, and support services in addressing this issue. Consistent with our findings that teachers often lack knowledge and skills in trauma-informed practices, existing research also indicates that many Australian teachers feel inadequately trained to manage and respond to student wellbeing concerns (Gunawardena et al., 2024). This gap in teacher preparation highlights the need for targeted professional development and reforms in higher education training to equip teachers with the necessary skills and knowledge to support students effectively. Strengthening teacher training in these areas could help create more inclusive educational environments where students feel valued, supported, and engaged in their learning (Allen et al., 2023). Research further demonstrates that such educational practices and support mechanisms are closely linked to school engagement (Allen & Boyle, 2022).

Contextual

At the context level, the study identified several factors influencing disengagement, including dysfunctional home environments and parental disconnection from education and employment. These findings are consistent with prior research linking non-nuclear family structures, DV, parental substance abuse, welfare dependency, and child neglect to school disengagement (Maple et al., 2019; Robinson & Smyth, 2015). Regional and rural communities tend to have more complex family structures, lower parental educational attainment, higher unemployment rates, and greater social disadvantage compared to urban areas (National Rural Health Alliance, 2023).

These contextual factors may contribute to ongoing cycles of disengagement and social disadvantage over extended periods of time, thereby exacerbating existing disparities in educational outcomes (Vauhkonen et al., 2017).

Another contextual factor highlighted by participants was issues within the mainstream schooling system that they perceived as exacerbating student disengagement. One major concern from the community perspective was the reliance on standardised assessments and academic benchmarks set by governing bodies to gauge student engagement and progress. Participants argued that these rigid standards fail to account for students' diverse abilities and backgrounds, making it harder to address their individual needs. They contended that standardised assessments impose a one-size-fits-all approach to education, a perspective supported by previous research (e.g., Datnow & Park, 2018). These findings suggest that current educational policies may need to be reconsidered, particularly the emphasis on standardised testing as a primary measure of student success.

Furthermore, participants noted that schools within the region frequently lacked specialist staff, such as counsellors and psychologists, who are widely considered essential for addressing the complex needs and mental health challenges faced by many children. This shortage was seen as a critical issue, particularly given the higher prevalence of complex challenges in regional and rural areas (Lawrence et al., 2015) and the study community (Australian Bureau of Statistics, 2021b). Compounding this problem, participants spoke about the disjointed and limited support services that are currently available in these communities.

They also highlighted the lack of Indigenous support services, which are crucial for addressing the unique needs of Indigenous students and their families (Smith et al., 2017). Participants stated that the absence of cohesive and culturally appropriate support systems further hindered children's ability to engage in school, as they were unable to receive the necessary help and resources to thrive academically and personally. National statistics show that access to healthcare and mental health professionals decreases with remoteness (Australian Institute of Health and Welfare, 2024). Therefore, addressing these systemic issues is crucial for fostering a more inclusive and supportive educational environment that can better accommodate the diverse needs of students in regional and rural communities.

Time

Finally, participants in this study described school disengagement as a gradual process rather than a sudden event, with indicators of disengagement occurring several years before children eventually stop attending school. The findings identified two critical periods when disengagement began to manifest: early in primary school and during the transition to secondary school. These insights align with previous qualitative (Broadhurst et al., 2005) and quantitative (Janosz et al., 2008) research, which also emphasised various trajectories to disengagement. Therefore, understanding these critical periods and the gradual nature of disengagement is key to the development of early interventions and targeted support strategies to address student disengagement effectively.

Limitations

A limitation of this study is that participant demographic information (e.g., age, education, cultural background, length of residency in the community) was not collected. Although this may have constrained insights into potential biases, efforts were made to contextualise the participants' professional backgrounds throughout the results section. Additionally, the focus on a single community may impact the generalisability of the findings. Future research could expand the scope to include multiple communities.

Conclusions

This study builds upon previous qualitative research on school disengagement by exploring the experiences and perspectives of community stakeholders in a socioeconomically disadvantaged regional and rural area, highlighting the interconnected nature of the factors influencing disengagement. Despite the challenges in these communities, there was a notable sense of community cohesion and a collective commitment to supporting students, a feature found to be prominent in regional and rural communities (Crommelin et al., 2022; Onyx & Bullen, 2000; Watson et al., 2022). A strong sense of dedication was apparent among participants, who appeared to be doing their utmost to assist students within the constraints of available resources. The use of focus groups enabled meaningful interactions among stakeholders from various sectors and disciplines, bringing together diverse perspectives and backgrounds. This collaborative approach encouraged the exchange of insights and viewpoints that might not have been found through individual interviews or surveys alone. Thus, focus groups offered a more comprehensive understanding of the interconnected factors influencing school disengagement and highlighted the significant role of *Process*, *Person*, and *Contextual* factors on disengagement over *Time*.

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The Boarding School Education of Remote Aboriginal Students: What are the Expected Outcomes?

Wili Suluma
James Cook University
wili.suluma@jcu.edu.au

Greg Burnett
James Cook University
greg.burnett@jcu.edu.au

Abstract

Boarding schools for remote Aboriginal students serve a multifaceted purpose that extends beyond education provision. These institutions address the critical need for accessible, quality education in regions where local schooling options are limited or non-existent. The push for young Aboriginal students from remote communities to obtain a boarding school education for better opportunities often comes at the expense of prolonged separation from family and culture, homesickness, mental health, and numerous other challenges. While recent studies indicate that these challenges impact education outcomes and completion, governments continue to invest in sending remote Aboriginal students to boarding schools. Stakeholders' aspirations for their children are often overlooked in discussions about a boarding school education. This paper explores teachers', parents', and students' views and expectations of a boarding school education for remote Aboriginal students in an Indigenous boarding school in the Northern Territory of Australia. Research methods used to collect data for this study included documentary analysis, semi-structured interviews, and field observation. Findings were analysed through the Internal Colonialism and Human Capital Theory. Analysis of stakeholders' expectations of a boarding school education indicates mixed insights. While there were common expectations amongst teachers, parents and students, there were also differences. Academic and employment agendas were shared by all stakeholders; however, the socio-political agendas were distinctive to teachers.

Keywords: *boarding school outcomes, boarding school stakeholders, Indigenous education, Human Capital Theory, Internal Colonialism Theory*

Introduction

Education in remote communities is a challenge for many families. This is more so in 'very remote' (Australian Bureau of Statistics, 2023) Aboriginal communities. In the Northern Territory of Australia, where Aboriginal communities are in some of the most remote locations, the question about access and outcomes of education is often argued (Guenther & Osborne, 2020; Mander, 2012; Suluma, 2021). In 2014, *A Share in the Future: Review of Indigenous Education in the Northern Territory* (Wilson, 2014) saw the emergence of a boarding school strategy for remote Aboriginal students as one of its many recommendations. The review argued that secondary education in very remote communities was not viable for various reasons (Wilson, 2014). To

address these challenges, one recommendation was to progressively move senior primary schooling to regional centres and cities.

While such a recommendation may address the challenges related to access, opportunities, and outcomes, there is potential for detrimental impact when students move away from family and community for extended periods (Guenther et al., 2016; O'Bryan, 2021; Stewart, 2021). The push for young people from very remote communities to obtain a boarding school education for better opportunities often comes at the expense of prolonged separation from family/culture, homesickness, and mental health (Mander & Lester, 2023; Lester & Mander, 2020; Suluma, 2021). This brings to the fore the question: 'What are the expected outcomes of a boarding school education for remote Aboriginal students?'. This article reports on a study exploring teachers', parents' and students' views and expectations of boarding school education in an Indigenous boarding school in the Northern Territory. Given the lack of formal policy in this area, stakeholders' views and expectations of boarding for remote Aboriginal students were examined using the Internal Colonialism Theory and Human Capital Theory. In this study, the authors position themselves as "*allies*" (Bishop, 2015), not claiming Indigenous Australian "*roots*" themselves, but "*routes*" (Clifford, 1997; Friedman, 2002) instead that have taken them along teaching, school leadership, research, and other life pathways in and through Indigenous Australian communities.

College Background

Bonya College (a pseudonym) was founded in the 1970s. It started as a government boarding school for Aboriginal students from surrounding remote communities in the Northern Territory. In the 1990s, the Northern Territory Government privatised Bonya College. Some sectors of the community viewed the move as a deliberate policy to threaten Aboriginal self-determination and the return to the assimilation approach of the past, whereby the missionaries controlled the education of Aboriginal people. Despite the diverse views, parents of the College advocated for private ownership but on the condition that Aboriginal involvement in the governance of the College was maintained.

Bonya College enrols Aboriginal students from about 40 communities across the Northern Territory, Western Australia, South Australia, and Queensland. The student population is 100 per cent Aboriginal. While some students are from semi-urban centres, most come from very remote communities. Student enrolment fluctuates due to the transient nature of students' movement. The College's NAPLAN results for Years 7 and 9 in reading, writing, spelling, grammar, and numeracy are below average compared to students in similar schools nationally. The College places much emphasis on employment pathways, training, and vocational programs. Given the strong emphasis on vocational education, the College has a Pathways Department whose role is to explore and organise training opportunities, industry exposure, work experience and employment opportunities for students. According to the Director of Pathways, significant funding and planning are required to enable the College to collaborate with registered training organisations like the Northern Territory Department of Education, Northern Territory Police, and Fire and Emergency Services to deliver vocational courses and programs.

Theoretical Framing

Internal Colonialism Theory and Human Capital Theory offer complementary yet critically distinct frameworks for theorising this study. Internal Colonialism Theory provides a lens through which to analyse the systemic marginalisation of Indigenous peoples within a settler-colonial state (Kharem, 2006), framing boarding schools as instruments of cultural assimilation and socio-political control. It highlights how the spatial dislocation and cultural suppression experienced by remote Aboriginal students are not incidental but intrinsic to a broader project of domination that mirrors a colonial hangover. In contrast, Human Capital Theory views education as an

investment in individual productivity and economic mobility (Gillies, 2015). In this study, Human Capital Theory examines how institutional narratives emphasise skill development and employability, often disregarding the socio-cultural disjunctures that impede equitable outcomes. These theories expose the tensions between policy discourses of opportunity and empowerment and the lived realities of cultural loss, alienation, and systemic inequality. This dual-theoretical approach enables a nuanced understanding of how boarding school education both reflects and reproduces colonial power structures while simultaneously being framed within the neoliberal logic of economic inclusion.

Boarding Schools and Indigenous People

The negative education experiences of Indigenous people globally due to colonisation, have had lingering effects on their perceptions of boarding schools in contemporary times. Indigenous people hold the view that the historic purpose of boarding schools was to assimilate Indigenous populations into the mainstream society in which they live (Smith, 2009). The structured and controlled environment of a boarding school system rendered itself an effective tool in furthering such an agenda. According to Smith (2009), "*these schools were frequently administered in cooperation with Christian missions with the expressed purpose of Christianising, particularly in Latin America, North America, the Arctic and the Pacific*" (p. 3).

Smith (2009) further argues that assimilation policies came in various degrees and forms in different parts of the world. In Canada and the United States of America, native children were forcibly taken away from their families as a strategy to tackle the Indian problem. The traditional and native way of life and doing things were viewed as undesirable and a source of the problem. Richard Pratt, founder of the Carlisle Indian Industrial School, infamously declared that the goal of boarding schools was to "*kill the Indian in him and save the man*" (Adams, 1995, p. 52). The white supremacist ideology that accompanied the colonisers reinforced the infliction of cruel practices targeted at destroying the Indigenous race, culture, and traditions.

In Asia and Russia, boarding schools were also used as an assimilation tool for Indigenous people. In some parts of Asia, such as Mongolia, boarding schools were used to educate Indigenous people in remote and isolated areas (Smith, 2009). Initially, the goal in such schools was cultural preservation; however, due to the dominance of a majority culture/language, in this case, Mandarin, the emphasis was oriented towards assimilation (Johnson, 2000). Minority languages were considered undeveloped, and students were forced to learn in the dominant Mandarin language. In Russia, boarding schools initially targeted nomadic tribes to enable them to receive systematic education, but their popularity made it compulsory for everyone. According to Smith (2009), "*[f]rom the age of 2 years, Northern Indigenous children were forced to attend boarding schools where they were prohibited from speaking their languages. By 1970, no Indigenous languages were being taught in school*" (p. 22). In both Asia and Russia, the impact of boarding schools as an assimilatory tool negatively impacted Indigenous and minority students' languages, cultures and traditions.

The Australian Context: Historical Assimilation and Indigenous Education

Historically, Australian education policy was used as a tool of assimilation, aiming to integrate Aboriginal and Torres Strait Islander peoples into the dominant settler-colonial society. Jackson-Barrett and Lee-Hammond's (2019) work, *Education for Assimilation*, outlines how education systems functioned to undermine Indigenous knowledge systems, language, and culture. Policies such as those enacted during the Stolen Generations forcibly removed Indigenous children from their families and placed them in institutions or non-Indigenous homes, where education was used as a tool to assimilate them into Western norms and values. This legacy of assimilation laid the foundation for ongoing structural inequalities in education and continues to influence Indigenous students' experiences today.

Mander (2012) highlights the emotional and cultural dislocation that Indigenous students often experience in boarding schools, including homesickness, cultural loss, and the difficulty of navigating between home and school environments. While Mander and Lester (2023) acknowledge that boarding can provide access to educational opportunities, they argue that it frequently fails to support students' holistic well-being. Similarly, Macdonald et al. (2018) and Healey and Auld (2024) contend that many boarding environments lack the cultural safety and support structures necessary to genuinely meet the needs of Indigenous students. In response to these challenges, Lloyd and Duggie Pwerl (2020) advocate for culturally responsive, strength-based education models that prioritise relationships and Indigenous perspectives. O'Bryan and Fogarty (2020) further emphasise the impact of systemic barriers—such as language barriers, deficit discourse, and the urban-remote divide—that continue to obstruct meaningful educational engagement for Indigenous learners.

The Intended Outcomes of Education

From a critical perspective, education transcends the acquisition of knowledge, aiming to foster individuals' holistic development and contribute to society's advancement. According to Dewey (1938), education is not merely a preparation for life but is life itself—a continuous process of growth and reconstruction of experience. It cultivates critical thinking, ethical reasoning, and social responsibility, equipping learners to navigate and influence an ever-changing world (Noddings, 2005). Freire (1970) emphasises the emancipatory potential of education, arguing that it should empower individuals to challenge oppressive systems and become active agents of change. Furthermore, education is crucial in promoting equity and inclusion, providing a pathway for social mobility and reducing disparities (UNESCO, 2015). In modern contexts, education also supports the development of global competencies, preparing students to engage in interconnected and culturally diverse societies (OECD, 2018). Thus, education is about academic attainment and shaping individuals who can think critically, act ethically, and participate fully in local and global communities.

The intended outcomes of education have become a complex and contentious concept in recent times. It often reflects the socio-economic and political agendas of the jurisdiction or the nation. In Australia, according to the *Alice Springs (Mparntwe) Education Declaration* (Education Council, 2019), the education goals for Australians are "*[i]mproving educational outcomes for all young Australians [which] is central to the nation's social and economic prosperity and will position young people to live fulfilling, productive and responsible lives*" (p. 4). The *Alice Springs (Mparntwe) Declaration* also emphasises the role of education in equipping young Australians with the necessary knowledge, skills, and values for the nation's economic prosperity and social cohesion. It articulates that schooling is a shared responsibility of students, parents, families, businesses, and education providers (Education Council, 2019).

The *Alice Springs (Mparntwe) Declaration*, acknowledges Indigenous culture, highlighting it as a critical component of what education should achieve:

> *Through education, we are committed to ensuring that all students learn about the diversity of Aboriginal and Torres Strait Islander cultures and seeing all young Aboriginal and Torres Strait Islander peoples thrive in their education and all facets of life (Education Council, 2019, p. 3).*

While this acknowledgement is articulated in the document, the extent to which its aims are achieved is variable (see the *Closing the Gap Report* by the Department of Prime Minister and Cabinet, 2022). The overemphasis on the ideologies and agendas of those in power can lead to a narrow outcome of education that fails to consider social and cultural differences. Education from this perspective can be a challenge, particularly for people who do not share the Eurocentric culture and values of education offered to them (Morgan, 2019).

In contrast to the broad goals of education in the *Alice Springs Declaration*, Wilson's (2014) *A Share in the* Future focuses specifically on democratic access via English literacy development as the goal for the schooling of Indigenous Australians in the Northern Territory:

> *To focus on the skills and knowledge that underpin success in the Western education system. The review has taken as a non-negotiable that there must be an explicit focus on improving unacceptably low outcomes for Indigenous children and that this will not be achieved unless there is rigorous and relentless attention to learning English and gaining the skills that support participation in a modern democracy and economy (p. 35).*

In such a narrow and mono-cultural ideology of education, students are viewed as a homogeneous group. Mastering the English language, a foreign language in many Indigenous communities, is a perceived imperative for success. Success here is portrayed as the ability to actively participate in democratic and economic activities, a Eurocentric ideology driven by capitalism (Bass, 2014; Guenther & Fogarty, 2020). The Western notion of success becomes the benchmark for success, while other achievements on the periphery are considered less valuable in educational outcomes. From this perspective, the dominant culture has a significant influence on the agendas of education, thus creating identity tension and marginalisation of Aboriginal students (Guenther & Fogarty, 2020).

Methodology

Three research methods were used to collect data for this study: documentary analysis, semi-structured interviews, and field observation. Considering the sensitivity of researching Indigenous issues and people, a culturally appropriate method was employed. The adoption of the 'yarn' to complement the semi-structured interview allowed Indigenous participants to engage and share their stories. According to Bessarab and Ng'andu (2010), "*Yarning in a semi-structured interview is an informal and relaxed discussion through which both the researcher and the participant journey together, visiting places and topics of interest relevant to the research study*" (p. 38). The process allows researchers to connect and build an accountable relationship with Indigenous participants (Bessarab & Ng'andu, 2010). The semi-structured interview was used for non-Aboriginal participants. According to Fontana and Frey (1994), interviews can be classified into three categories: structured, semi-structured, and unstructured. In this study, the topics and research questions were outlined in advance as a semi-structured interview guide. Interviews and yarns with participants were conducted in person.

Student-related and College documents, both historical and contemporary, were a rich data source for this study. The documents analysed include school memoranda and reports, government/school policy documents, students' personal and academic information, attendance information, diaries, biographies, school/hostel reports and students' health reports. Documents were obtained with the permission of the principal, teachers and students. Ethical considerations were adhered to maintain the anonymity and confidentiality of the documentation used. One of the key advantages of conducting documentary research is that one can easily access information that would be difficult to get in other ways (Merriam, 2009).

Field observation is also increasingly used in qualitative research to gather data. A key advantage of conducting observations is that the researcher can observe what people do or say in real-life situations rather than what they say they do (Cohen, 2000). People do not always express their true views on a questionnaire or tell a stranger what they think in an interview. As such, the field observations were used to confirm findings from other sources. Field observations were carried out in classrooms during lessons and in the playground during recess and lunch breaks. Students' behaviour in their new learning environment was closely examined. Their reaction to the new learning environment and its impact on their learning and academic progress in the classroom was observed. Teachers and other staff members' behaviour towards remote Aboriginal

students at the school was also observed. Triangulation of data gathered from the three methods was adopted to enhance the validity and credibility of findings. NVivo software was used to analyse data and generate themes for discussion.

Identifying Participant Voices

The selection process was an integral part of the fieldwork and data collection. Four criteria of Guba's model of trustworthiness in qualitative research guided the process. They were true value (credibility), applicability (transferability), consistency (dependability) and neutrality (confirmability) (Guba, 1981). A purposeful selection approach was adopted to ensure the study population's credibility. According to Cohen et al. (2018), such an approach engages people with in-depth knowledge of the topic under study.

Ethical standards outlined by the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, Australian Research Council, and Universities Australia (2023) were closely adhered to during the invitation and recruitment process. Fairness, respect, autonomy, and cultural sensitivity were upheld at every stage of the process.

Participants' experience and good knowledge of the topic were criteria used to select participants. The nine boarding students and five Aboriginal parents were from very remote communities located across the Northern Territory. The students were enrolled at the College, and their experiences of boarding school ranged from three months to six years. Some parents involved in the study were not new to boarding school. Their experiences with boarding school were extensive. However, as English is a second language for many parents, basic English was used during the yarn. In some cases, family members competent in English were engaged as translators during the yarning circle. For similar reasons, the seven educators (including the Deputy Principal, teachers, and boarding staff) were selected because of their experience in Indigenous education and boarding schools. Collectively, the depth of knowledge among the participant groups enhanced the dependability and trustworthiness of their input. Ethics approval for the study was obtained from the Bonya College and the University of New England after following due process. Details of participants are available in the Findings section below.

Findings

College Staff Voices

Table 1 details information about the seven educators at the College who participated in this study.

Table 1: Summary of the Seven Educator Participants

Pseudonym	Position	Background
Lucas	Deputy Principal	Lucas is a non-Indigenous man who joined the College as a music teacher before becoming the Director of Teaching and Learning.
Olivia	Director of Pathways	Olivia is a non-Indigenous woman whose role involved the overall management of the Pathways Department. This includes working in partnership with registered training organisations to organise courses, training programs, industry experience and apprenticeship for students.
Henry	Director of Boarding	Henry is a Polynesian man. He joined the College as a House Parent and had slowly worked his way up as the Director of Boarding.
Charlotte	Head of Female Boarding	Charlotte is a non-Indigenous woman in charge of the Female Boarding House, including the management of the House Parents.
Amelia	Classroom Teacher	Amelia is a non-Indigenous woman. She is an experienced senior teacher who taught literacy to students between the ages of 15 and 18.
Ava	Classroom Teacher	Ava is a non-Indigenous woman who, prior to joining the school, had taught in remote Indigenous communities for 10 years.
Ella	Classroom Teacher	Ella is a non-Indigenous woman. She is a generalist teacher who had experience teaching Indigenous students overseas.

In describing the student population at the College, the Deputy Principal indicated:

> *Most students who are present here have had very poor schooling prior and we're trying to fill in a lot of gaps, we're trying to bring them up with literacy and numeracy skills . . . because the students that we get are not exposed to a lot of those things. (Lucas, Deputy Principal).*

The above statement summarises the academic ability and history of students enrolled at the College. As the Deputy Principal alluded, most students struggle with basic literacy and numeracy, the essential foundations for learning. This was observed by the authors during classroom visits, whereby students were engaged in work well below their year level. In one of the senior classes visited, students aged between 15 and 18 struggled to write a simple narrative. As Amelia (Classroom Teacher) pointed out, "*most of our teaching time is devoted to teaching basic skills in literacy*". Students' inability to cope with prescribed learning forces teachers to modify learning content. As a result, students are given manageable work that is well below their year level. The learning challenges and historical poor academic achievement appeared to have shaped the school and teacher's expectations of remote Aboriginal students at the College. Teachers' expectations of students were identified and discussed below.

Improve Literacy and Numeracy Skills. Teachers commented on low literacy and numeracy skills hindering students' learning at the College. They argued that literacy and numeracy skills need to be improved for students to progress in their learning. Despite the approaches employed by the school to address the learning gaps, teachers admitted that it is a challenge. According to teachers interviewed, teaching basic literacy and numeracy skills is

unconventional at secondary school; however, given the students' level of literacy and numeracy, it was a necessary exercise at the College. Such a view was supported by the college's Deputy Principal. The teachers' immediate goal was to improve students' literacy and numeracy skills necessary for further learning.

Teachers also highlighted that extending learning in other subject areas is often compromised due to the large amount of time spent teaching basic literacy knowledge. As Ella (Classroom Teacher) pointed out, "*most of our teaching time in class is consumed by addressing basic literacy challenges*". Difficulties with learning were evident in classrooms visited by the authors. This was reflected in incomplete tasks and failure to engage in class. It appeared that, in many cases, students could not cope with the complexity level of set tasks. Some barriers to learning observed during classroom visits were a lack of confidence in English, learning gaps prevalent among students, different teaching approaches employed by different teachers and lack of one-on-one support in the classrooms. Many students indicated they prefer practical activities like vocational education and training programs and sports activities rather than academic learning.

Integration into Mainstream Society. This expectation was stated by teachers as one of the key objectives of the College. Teachers constantly reiterated students' ability to function independently in the Australian mainstream environment post-schooling. The College generally holds the view that enabling students to "*walk in both worlds*" is a critical part of their education and training. This is articulated in the following statements by teachers:

> *Students need to be able to function in mainstream contexts or at least in town. When they go to Centrelink, they should be able to understand the basics of what they need to do, like filling out forms and all those kinds of things. When they go to the Registry to get a certificate, they need to be able to fill out forms, etc. (Eva, Classroom Teacher).*
>
> *My expectation is that they feel somewhat comfortable with mainstream society and are able to interact and operate confidently (Amelia, Classroom Teacher).*

The intent to prepare students for mainstream integration was evident in both the academic and the boarding division of the College. The school predominantly advances Eurocentric knowledge and value systems. Similarly, the boarding division promotes systems that marginalise Aboriginal ways of doing. A dining hall dress code that obligates students to wear specific clothing during mealtime is an example of reinforcing Eurocentric ways of doing at the school. During the fieldwork, students spoke of their discomfort with some rules and practices that conflict with their ways of doing things, such as the rigid timetable and the structured routines students must adhere to.

The rigid rules and routines enforced at the College appear to be overbearing for students, who come from a strong cultural and language background. The communal attributes of living in an Aboriginal community, which students are used to, conflict with the Eurocentric values such as the individualistic culture endorsed at the College. For example, in the community, boys who have been through ceremony are regarded as men and expected to be treated as such, whereas at school, they are seen as students and are required to follow orders and abide by the school rules. The challenges can be unbearable in many cases, particularly during transition stages. According to the boarding staff and supported by students, some have used the challenging experiences as an excuse to return home. In other cases, students embrace the challenge and accept it as a new norm away from home. Whether students value the Eurocentric knowledge systems intended to prepare them for mainstream integration cannot be ascertained; however, the College argues that the education provided at the school is necessary for mainstream existence.

Educated with Life Skills. This expectation by teachers for students to be educated with life skills is closely connected to the expectation presented in the previous section. Interestingly,

life skills alluded to here are skills that are perceived to be valuable in mainstream settings. These knowledge systems and skill sets will enable students to support themselves independently in the ever-changing Australian mainstream context. While some knowledge and skills are transferable to remote community settings, others are not. The intent to educate students with life skills is embedded in the programs and activities offered at the College. Apart from the programs offered in the Pathways Department, the Clontarf Academy (a sporting program for Indigenous students) also run programs targeted at developing some of these life skills. Some examples of the programs were leadership camps, community engagement programs, drug/alcohol training, healthy living/cooking programs, automotive training, white card training, confined space training and the *Drivesafe* program, to name a few. The programs are designed to assist students' transition into mainstream society post-schooling and possibly remote communities. Teachers also highlighted that the basic life skills are necessary for day-to-day existence:

> *In order to get a license for driving a motor vehicle, they should be able to not only read instructions and fill out forms but also be able to save money to pay the cost involved (Ava, Classroom Teacher).*
>
> *They need to be able to budget money to ensure that they are not going to starve and be able to look after their family when they have one (Amelia, Classroom Teacher).*
>
> *To be able to turn up every day for work on time is important . . . this is not only hard for Indigenous people but for everyone . . . that transition is very hard (Ava, Classroom Teacher).*
>
> *When they come to this high school there are opportunities to raise them to a certain level so they have got the ability to look after themselves when they leave school and that they are relatively literate––they can deal with agencies and government people and contacts to ask for help (Ella, Classroom Teacher).*

In mainstream settings, the above basic and sometimes taken-for-granted skills are mostly acquired naturally or picked up by students within the home environment. However, At Bonya College, such skills are taught through academic and non-academic programs.

Employability. The College's strong emphasis on VET demonstrates its focus on industry skill development and employment. The expectation is to equip students with industry knowledge and skills to help them transition easily into employment post-boarding school. This was emphasised in the following statements:

> *Students do a lot of VET courses. A lot of them are going off-campus and getting experience in employment areas, and with the backup of what they're learning here, they're building their confidence (Olivia, Director of Pathways).*
>
> *I want them to be confident and strong and to continue learning and particularly seek employment (Amelia, Classroom Teacher).*
>
> *I want to see students take up pathways that will lead to a job and to be able to work . . . and feel comfortable in a working environment (Ella, Classroom Teacher).*

While further education and employment are generally the overarching purposes of secondary education, employment availability is a critical element of the process. An assessment of the courses and training offered at the College suggests that the skills and knowledge taught are relevant and usable in urban settings where automotive, heavy equipment, processing, hospitality, goods, and services industries are located. Employment opportunities in the above sectors are scarce, if any, in many remote Aboriginal communities. Whether remote Aboriginal students would remain in urban centres to take advantage of job opportunities they are skilled in is difficult to predict as there is no reliable data available to track students' movement. However,

given students' attachment to family and community it is highly likely that many will return to their remote communities after finishing school. Accordingly, skills and certifications acquired from school can be productively used in remote communities, depending on market availability.

Positively Contribute to Family and Community. The expectation for students to return and contribute positively to their communities and support their families post-schooling was discussed by teachers at the College. As the following teachers stated:

> *It's about skill development and using some of those skills . . . so the aim is eventually for them to be able to go back into community and transfer that into whatever area that they're working in (Ella, Classroom Teacher).*

> *My ultimate aim would be for them to be confident young people who can add to their community. Whether it be their community at home or whatever community they move into, and to have additional skills that they can share with people and contribute to society (Olivia, Director of Pathways).*

The tight-knit family fabric that characterises Aboriginal people often demands the younger generation to return to Country and support family members post-schooling. In discussing the large number of students who return to the community post-Year 12, one of the long-serving teachers at the College stated:

> *Every year, about 90-95% of our students go back to their community when they finish here (Olivia, Director of Pathways).*

According to Olivia's anecdotal findings, such a practice has been the trend at the school. As such, it appeared that it had been normalised as a default post-school destination for many remote Aboriginal students at the College. Given the high percentage of students likely to return to their community every year, future research may explore how students have contributed and its impact on their remote community and family.

Reach Year 12. Teachers also mentioned the expectation for students to complete Year 12. However, it was discussed as "*getting to Year 12*" or "*reaching Year 12*". It seemed that teachers deliberately avoided the term "*complete Year 12*" due to the very low number of students who completed Year 12 at the College in the past. As the Deputy Principal stated, "*we have many students who will go through and complete Year 12 to some extent*". The above statement indicated that while many students reach Year 12, the degree of completion in terms of fulfilling course requirements varies amongst students. This is reflected on the 'MySchool' website (ACARA, 2025). In 2019, despite a cohort of students reaching Year 12, only one successfully completed the course requirement and was awarded the Northern Territory Certificate of Education and Training. A comparable situation occurred in 2017 and 2018, when two students successfully completed Year 12 during those respective years.

Despite the academic challenges, students can proceed to the next year level at the end of each year. According to the teachers, the emphasis is on keeping students at school until Year 12. The focus is on vocational courses and employment pathways where students are exposed to hands-on training and industry experience. It appeared that the academic pathway and achieving an Australian Tertiary Admissions Rank were not relevant at Bonya College. This is supported by data on Year 12 completions on the MySchool website, as highlighted previously. In many mainstream schools, effort and resources are dedicated to supporting students in achieving the best Australian Tertiary Admissions Rank. This was not the case at Bonya College. The expectation of educators is for students to remain at school through to Year 12. The following section discusses parents' details and their expectations.

Parent Voices

Table 2 gathers information about the five parents who participated in this study.

Table. 2: Summary of the Five Parent Participants

Pseudonym	Role and Profession	Background
Rosie	Stay-at-home Parent	Rosie was a stay-at-home parent whose son boarded at Bonya College. Her son had attended the school for two years.
Dan	Parent	Dan lived in his remote community and was unemployed. His son was a new student at Bonya College.
Sharnie	Parent and Assistant Teacher	Sharnie was an Assistant Teacher at the community school. Her daughter had finished boarding, and her son had been at the College for two years.
Celia	Parent and Age Care Worker	Celia had three children attending Bonya College. One of her sons was in Year 12.
Zane	Parent	Zane lived in his remote community and was unemployed. He had a daughter who attended Bonya College.

All five parents were from one very remote Aboriginal community in the Northern Territory. Three were unemployed or stay-at-home parents, and two parents were engaged in employment in their community, as indicated in Table 2. The decision for students to enrol at Bonya College was predominantly made by parents. This was reflected in the following statements:

> *I decided for my son to attend Bonya College, and I think it is a good decision for him (Rosie, Parent).*
>
> *Me and my partner decided for her to go to boarding school (Dan, Parent).*
>
> *I decided for him to go to boarding school because there is nothing here in Community (Sharnie, Parent).*

Parents' choice of boarding school was influenced by a range of factors that vary amongst families. It was noted that despite the commonality in parents' expectations, there were also differences. The differences in expectations can be attributed to parents' education, socialisation, and environment. Below are parents' views and expectations of their children at Bonya College.

Unclear Expectations. Some parents demonstrated a lack of confidence with unclear expectations of what they want their children to achieve at the end of their secondary education. This is articulated in the following statements:

> *See how far he goes at boarding school. I want him to achieve everything (Rosie, Parent).*
>
> *Whatever he wants to achieve, I'm happy with that. I want him to stay longer at school (Dan, Parent).*

The above statements illustrate the unclear expectations parents have for their children. Traditionally, students' final year of secondary education is a culmination of years of sacrifice that comes with a spectrum of expectations. In this case, the uncertain nature of parents' expectations could be attributed to their inability to express themselves in English. It is also unclear whether it is a cultural way of thinking or parents not sharing the Eurocentric aspirations for their children.

Complete Year 12 and Engage in Employment. The expectation for their children to finish Year 12 and engage in some form of employment was expressed by the two working parents.

This is consistent with the teachers' expectations, as discussed in the previous section. However, unemployed parents discussed post-schooling pathways with little clarity. Many did not articulate the type of activities or pathways they expect their child to engage in post-Bonya College. When questioned on the pathway preference for their child post-schooling, responses of similar sentiments were received: *"[h]e can do anything available or anything that he likes to do"* (Dan, Parent).

Good Education and a Good Future. To have a good education and a good future is an expectation shared by all parents. Statements like, *"I want her to have a good education and a good outcome for her future"* (Zane, Parent) were highlighted by parents. A good education and future can have varying meanings. From a Eurocentric standpoint, a good education would be equated to the successful completion of Year 12 or a university education, and a bright future would mean engaging in a form of employment and being financially independent—the individualistic Western liberal norms of success (Hughes et al., 2025). From a remote Aboriginal standpoint, the idea of a good education and a good future may have a different connotation. It may or may not necessarily mean the successful completion of Year 12 and employment (see Milne and Wotherspoon, 2023; Shay et al., 2021). Regardless of how it is interpreted, it is likely that the interpretation will reflect Aboriginal worldviews and belief systems, a future that values family, culture, and community. The next section discusses details about the students and their expectations of boarding school.

Student Voices

Table 3 gives more information about the nine students who participated in the study.

Table 3: Summary of the Nine Student Participants

Pseudonym	Year Level	Background
Margie	8	Margie was a new student at Bonya College. It was her first year at boarding school.
Mike	12	Mike started boarding at Bonya College in Year 8. He was in Year 12.
Saul	11	Saul was in Year 11 and had been boarding at Bonya College for two years.
Owen	9	Owen joined Bonya College from his remote community school. He had been at the boarding school for two years.
Eleanor	10	Eleanor had been at Bonya College for one year. Before joining the College, she had attended an interstate boarding school.
Stella	10	Stella was a new student at Bonya College. She had attended a boarding school interstate before moving closer to home.
Liam	9	Liam was a Year 9 student who joined Bonya College from his remote community school.
Jarvis	11	Jarvis was a Year 11 student who joined after completing his primary education in his remote community school.
Joe	11	Joe was in Year 11 and had boarded at Bonya College for four years.

Exploring students' expectations in this study allowed a better understanding of their reason for attending boarding school. Considering the sacrifices students make and leaving their families/communities to study, one would expect a range of aspirations. Every student is unique and, therefore, forms their own expectations, which are often influenced by factors such as ability level, parents' expectations, motivational level, and post-schooling destination. Below are students' views regarding their expectations of boarding school.

Complete Year 12/Finish Year 12/Reach Year 12. The phrases below were used interchangeably by students when referring to their intention of attaining Year 12. Students' stories suggest that such phrases do not necessarily mean the successful completion of the minimum academic requirements for Year 12: Successful completion of Year 12 means achieving the academic requirements of the Northern Territory Certificate of Education and Training.

> *I want to remain at boarding school and reach Year twelve (Owen, Student).*
>
> *I want to finish school; I've been here for five years now (Mike, Student).*
>
> *I want to complete Year twelve here. I've got one more year to go (Sam, Student).*

Despite the large number of students who reach Year 12 at the College every year, past results indicate that a very small number successfully complete the necessary academic requirements. Many students who make it to Year 12 either disengage during the year or fail to complete the course requirements successfully. Given the learning challenges students arrive with, teachers are aware that the successful completion of Year 12 is a challenging goal for many students at the College. Arguably, for students and parents, the question is whether the sacrifice to leave home and attend boarding school is the right decision. However, if students remain in their community, are educational provisions in place to support their academic needs?

Find Employment Post-school. Most of the students indicated their expectation to engage in employment on completing Year 12. These cohorts were mainly senior students on the verge of completing their education. Unlike parents, students were precise with the type of employment they intended to engage in:

> *I want to get a job and live my own life, maybe as a shopkeeper (Joe, Student).*
>
> *I'm thinking of just working next year to start at a young age. I'm looking at working in the mines (Mike, Student).*
>
> *I want to find a job when I finish school–I want to be a health worker (Margie, Student).*

The type of employment students indicated were opportunities commonly available in very remote Aboriginal communities. Employment like lawyers, surgeons and bank managers were not mentioned. It may be that the students' environment, exposure, and experiences influenced their expectations and goals in life. The emphasis on employment pathways and industry exposure at the College was also seen to influence students' expectations. For students like Mike, the industry experience was an eye-opener that motivated him to pursue a similar career post-schooling:

> *In 2017, I did a course called Resource and Infrastructure. It was just like working out in the mines. Two blokes came in to help us with the course, and it really interested me to do that type of work (Mike, Student).*

The obstacles are considerable for students expecting to pursue similar opportunities not available in their remote communities. For many, this will mean having to live away from family, to pursue their dreams.

Return to Community and Find Employment. While students want to secure employment post-schooling, ninety per cent indicated during the interview their preference of having a job in their community. According to teachers at the College, such a practice has been a common trend in the past. Most senior students return to their communities post-schooling every year and pick up available employment opportunities. Students' connection to family and Country was noted to have a great influence on their plans. This is echoed in the following statements:

> *I want work back in community because it's better than town, and families are there too (Owen, Student).*

I want to go back to community after schooling because I want to be near my family (Stella, Student).

I want to get a job in my community and stay there (Liam, Student).

The large cohort of students indicating a desire to return to the community to find work correlates with the teachers' interview findings that 90 to 95% of students return to their remote community each year. With such a high number of students returning to community, further research is required to determine the effectiveness of the education provided at Bonya College in preparing students to become valuable members of their remote communities.

Unsure and Undecided. Students who were undecided in their expectations were mostly females and junior students who were new to the College. Their stories highlighted the challenge of transitioning to a new school. Whether such a challenge impacted their views and expectations of boarding is unclear.

I don't know. Not sure what I want to do when I finish boarding school. (Stella, Student)

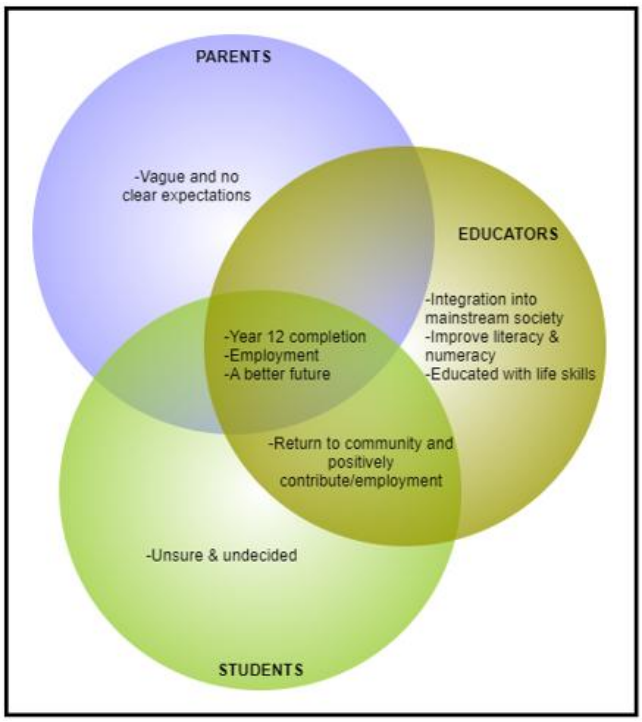
I'm not sure of what I want yet . . . I don't know. (Eleanor, Student)

In interpreting students' perspectives, it is important to acknowledge the limitations inherent in attributing meaning to their experiences. In this case, it is unclear what shaped students' views.

Analysis of Stakeholders' Expectations

Figure 1 summarises the analysis of stakeholders' expectations of a boarding school education at the College (see Figure 1). Our analysis reveals insights that can be critically interpreted through the lenses of Internal Colonialism Theory and Human Capital Theory. While teachers, parents, and students shared common aspirations—such as completing Year 12, securing employment, and achieving a "*better future*"—these goals reflect a prevailing belief in education for economic advancement, consistent with the principles of Human Capital Theory. However, the narrow focus on employment rather than university pathways suggests a deeper structural constraint. The absence of higher education aspirations may not simply reflect individual choice but rather the cumulative effect of historically embedded inequalities. From an Internal Colonialism perspective, this limited vision of the future is symptomatic of a system that has long positioned Indigenous education within an assimilationist framework: Prioritising economic productivity over cultural continuity or self-determination. Boarding schools, as legacy institutions of internal colonialism, often reproduce injustices and constrained expectations by channelling Indigenous students into vocational or low-skilled employment sectors rather than enabling pathways to transformative educational outcomes such as university study, as evident at Bonya College.

Figure 1. ***Stakeholder's Expectations of Boarding***



The expectations of some parents and students—though at times unclear—are largely focused on academic achievement and future employment opportunities (see Figure 1). This emphasises Human Capital Theory's core assumption that education serves as a vehicle for individual economic advancement, with boarding schools perceived as institutions that offer transformative, life-changing prospects. While it is difficult to determine how much parental influence directly shaped students' educational goals, existing literature (Roth, 2017) highlights the strong intergenerational dynamics that often guide such aspirations. The alignment of views between parents and students in this study can be interpreted as both a reflection of familial influence and a shared belief in education as a tool for mobility. However, this belief operates within a broader context of internal colonialism, in which the educational system promotes assimilationist pathways that prioritise integration into the mainstream economy over Indigenous-defined aspirations. Interestingly, both teachers and students shared an expectation that students would return to their communities and make meaningful contributions. For teachers, this was informed by historical patterns, while for students, it reaffirmed the centrality of family, community, and connection to Country (Arabena, 2020; Benveniste et al., 2022). This tension illustrates the complex dual role of boarding schools as both sites of opportunity and instruments of internal colonialism: while they promise social mobility through alignment with dominant socio-economic structures, they also risk reinforcing the marginalisation of Indigenous cultural identities by sidelining community-oriented goals in favour of mainstream success.

Educators' expectations were driven by academic, employment opportunities and socio-political agendas. While academic achievement and employment outcomes align with the expectations of parents and students—and reflect Human Capital Theory's framing of education as a pathway to economic productivity—educators also expressed socio-political agendas that emphasise integration into mainstream society. This emphasis was embedded not only in the College's mission and vision statements but also in the structure and delivery of its programs, which prioritised life skills and cultural norms aligned with the dominant Australian society. Through the Internal Colonialism Theory lens, this orientation reveals the enduring legacy of assimilationist education policies, where schools function as a tool for shaping Indigenous identities to fit within the structures of the settler-colonial state. The Indigenous boarding school environment, in this

context, becomes a controlled space for instilling Eurocentric values and practice (Smith, 2009)—an echo of colonial-era educational aims described by Herbert (2012) and Welch (1996). While such an approach can be argued as preparing students for life beyond their communities, it simultaneously reinforces internal colonial dynamics by marginalising Indigenous worldviews, languages, and cultural aspirations. Educators' expectations, while future-oriented and well-intentioned, reflect a broader system that continues to privilege assimilation and neoliberal agendas.

Conclusion

Parents, students, and educators' perspectives on the education of Aboriginal students from remote communities, as presented in this study, reveal tensions when viewed through the lenses of Internal Colonialism Theory and Human Capital Theory. While male and senior students appeared to express clearer educational expectations than their female and younger peers, a finding potentially shaped by prior schooling experiences and culturally situated roles, these expectations remain closely tied to employment outcomes. Parents frequently viewed boarding education as a pathway to jobs and a "*better future*," reflecting Human Capital Theory's emphasis on education as a means of economic advancement. However, their concurrent desire for children to return to family and community after schooling indicates the enduring cultural centrality of kinship and collective identity within Aboriginal communities—values that are often sidelined in mainstream education systems. Internal Colonialism Theory offers a critical lens, revealing how boarding schools, even those that identify as Indigenous institutions, can function as sites of cultural assimilation. Despite stated aims to prepare students to contribute positively to their home communities, educators at the College placed notable emphasis on equipping students with Eurocentric knowledge and values aligned with integration into mainstream society. This focus on employment readiness—while consistent with national policy goals such as those articulated in the Alice Springs (Mparntwe) Education Declaration—can inadvertently reproduce the internal colonial logic that positions Indigenous success in terms of conformity to dominant societal norms. The cultural disjuncture between community aspirations and institutional priorities underscores the persistent assimilationist imperatives embedded in Aboriginal education, as Morgan (2019) critically observed. Thus, while Human Capital Theory explains the focus on employability, Internal Colonialism Theory reveals how these education systems may continue to marginalise Indigenous cultural frameworks, even under the guise of opportunity and inclusion. The methodology employed in this study presents limitations, particularly the lack of engagement of a co-Aboriginal researcher, as English is a second language for Aboriginal participants, which may affect the findings gathered and their interpretation.

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An Evaluation of Secondary Agricultural Education Subject Offerings and Enrolments in Australia

Scott Graham
Charles Sturt University
sgraham@barker.nsw.edu.au

Jim Pratley
Charles Sturt University
jpratley@csu.edu.au

David Randall
Western Sydney University
david.randall@westernsydney.edu.au

Lincoln Gill
Charles Sturt University, School of Education
lgill@csu.edu.au

Jeff McCormick
Charles Sturt University, School of Agricultural, Environmental and Veterinary Sciences
jmccormick@csu.edu.au

Abstract

Over recent decades in Australia, secondary and tertiary institution enrolments and completions in agriculture-related courses have been inadequate for the employment demand that exists. This demand, inter alia, includes the well-publicised global issues of climate change, food security and the need to feed a significantly larger population. This paper presents a study of the current secondary agricultural education system across states and territories in Australia and evaluates its performance as it endeavours to meet the workforce needs of the nation's agricultural industries. The data reveal a plateau in university agriculture graduate numbers, although variable between states. The need to increase intakes to expand graduate numbers represents a challenge because of the decline in numbers of secondary school agriculture course participants, an important component of the pipeline. The variability in offerings across states and territories in secondary agricultural education appears to be a blockage in the system such that students in some states, and regions within states, have little opportunity to follow that line of study. Increasing supply of students into university courses in agriculture is the major challenge in addressing the workforce shortfall. There needs to be improvements in secondary student exposure to agriculture and the buoyant employment opportunities both on-farm and off-farm, including in the cities. An increase in agricultural literacy of school student advisers, i.e. parents and teachers, would seem to be an important endeavour.

Keywords: *agriculture, education, agricultural literacy, Australia, secondary school students, agricultural workforce*

Introduction

The global population continues to increase, albeit at a decreasing rate. It is projected that there will be 9.7 billion people to feed by 2050, up from 8.2 billion in 2025, peaking at 10.3 billion people around 2083 (Worldometer, 2025). Table 1 provides a summary of world hunger and childhood nutritional insufficiencies as reported by The Food and Agriculture Organisation [FAO] et al. (2024) showing the extent of the challenge. The disruption in food supplies, due to the invasion of Ukraine and the Gaza conflict, has added to the global food insecurity problem, as has climate change.

Table 1. ***World Incidence in Hunger and Nutritional Insufficiencies in 2021 (FAO et al., 2024)***

Affliction	Number of people affected
People in hunger in 2021	733 million (9.2% of population)
Moderate or severely food insecure	2.33 billion (28.9% of population)
Children younger than 5 years with wasting	45 million
Children stunted growth and development	149 million

This food security challenge requires a productive and versatile global agriculture sector. Not only are the staple commodities (such as rice, wheat, maize) needed, but proper nutrition demands availability and affordability of fruits, vegetables and pulses as well as meat and milk. Australia is a significant agricultural producer that ensures food security for its own communities as well as contributing to world food supply. It currently feeds the equivalent of around 60 million people their whole diet, with potential to feed up to 120 million people globally with further investment (Bellotti, 2017). The Australian Government, in its *Delivering Ag2030* report, detailed the vision to assist the agriculture sector to reach AUD100 billion in Gross Value of Production by 2030 (Department of Agriculture, Water and the Environment, 2022). According to this report, such prediction would require a near doubling of the then current production growth rate of 3% to 5.4%. Australia's contribution could add to the availability of staples and to the nutritional components mentioned, thereby reducing the global challenge, even despite issues of climate change and land degradation. Its biggest challenge, however, is ensuring an adequate and well-trained workforce for the national agricultural sector, the focus of this paper.

The terms 'agriculture' and 'food and fibre' are used interchangeably as different parts of the value system use different terms. Agriculture is the study of food and fibre production, processing and marketing.

The 'McColl Review' (McColl et al., 1991) was a national study of agricultural education. Amongst its recommendations was that the Australian agriculture sector needed to increase the number of agricultural graduates to meet the likely increase in employment demand. Rather than increase graduate numbers though, data show that there was a substantial decline over the succeeding decade (Pratley, 2012). Graduate completions from 1988 to 2010 declined for agriculture (800 to 300), horticulture (150 to 80) and agribusiness (250 to 90). These circumstances led to reviews into 'agricultural education and training' by The Western Australian Government (Cowan, 2010), The [Australia] Senate (2012), The Parliament of Victoria (2012) and the New South Wales Government (Pratley, 2012). Concurrently, Pratley and Hay (2010) showed that there were at least 6 jobs per graduate and the shortfall was a threat to the sustainability of the agricultural and horticultural industries. Pratley et al. (2022) showed similar outcomes a decade later. The supply of graduates in agriculture from universities changed only slightly during that period, suggesting the need for some form of disruption to generate greater interest from prospective students.

Workforce shortages in agriculture have been occurring internationally, most notably in the United States, United Kingdom, Canada and New Zealand. As with Australia, there has been high dependence on Itinerant migrant workers with, in many cases, worker exploitation. This dependence has been shown to be high risk (e.g. Covid-19 in Australia, Brexit in the United Kingdom, immigrant policy changes in the United States, exploitation in Canada) and has resulted in a greater focus on technology to reduce routine labour tasks. The outcome has been an increase in demand for technically qualified personnel, both university graduates and vocationally trained paraprofessionals. This has been reaffirmed by later publications (e.g. Pratley, 2017; Pratley & Kirkegaard, 2019; Azarias et al., 2020). Although each of the afore-mentioned

Agricultural Education Reviews identified this need to varying extents, such reviews have not resulted in the requisite increases in university undergraduate students to undertake these education pathways towards agricultural careers.

Concern occurred in the United States as early as 1974 around the inadequacy of agricultural education in secondary schools, as it was being taught only to a small percentage of students. Mayer and Mayer (1974, as cited by Frick, 1991) expressed dismay that most secondary students were not taught even the rudimentary aspects of agriculture, leading to a large percentage of the population being ignorant about an area basic to their existence. Similar issues have arisen in the United Kingdom (Dyer & Osborne, 1994: Dillon et al., 2003). The [United States] National Research Council (1988) coined the term 'agricultural literacy', defined loosely as possessing knowledge and understanding to be able to synthesise, analyse and communicate basic information about agriculture. It is recognised that such knowledge and understanding needs to evolve with sector changes resulting from technological and other influences. Research into secondary school agricultural literacy in the United States has been evaluated by Kovar and Ball (2013), and in Australia by Cosby et al. (2022) but is largely confined to those students enrolled in agriculture subjects. Australian research into agricultural literacy is summarised in Table 2.

Table 2. ***Chronology of Agricultural Research into Agricultural Literacy in Australia***

Issues	**References**
'Agriculture' as a *de facto* subject for disengaged and less academically capable students, which in turn generates a negative attitude amongst teachers	Pratley (2013, 2017)
Lack of agricultural understanding amongst adults, requiring more education at secondary level	Worsley et al. (2015)
Adoption of agricultural technologies by teachers in classrooms, partly as a method of engaging students	Cosby et al. (2019), Manning et al. (2022)
Lack of knowledge and understanding about agriculture by both primary and secondary students	Peltzer (2020), Primary Industries Education Foundation Australia (2020), Hancock et al., (2024), Manning et al. (2024)
Lack of awareness of career opportunities in agriculture amongst secondary students	Cosby et al. (2022)
Lack of awareness of career opportunities in agriculture amongst university students	Smith (2022)
Secondary school technology teachers' outdated perceptions of agriculture and careers, linked to their childhood upbringing	Cosby et al. (2024)

Pratley (2013) in the New South Wales Review considered the agricultural education continuum from primary through secondary to vocational and higher education, to the business of agriculture and the image of the sector. The Review noted the historically low enrolments in agriculture courses at all levels and expressed concern at the inability of education providers to attract young people into agriculture. It recorded that

> *the perceptions of agriculture, the educational experience about food and fibre, the career advice to students, and the workforce issues in the industry as a whole are not conducive to enticing people into agriculture, even though there are many and varied employment opportunities at competitive salaries* (p.6).

Given that secondary students represent a pipeline of potential university students of agriculture, it becomes important to understand the size and trends of this pipeline in satisfying university graduate demand. Sustainability of agriculture subjects at secondary level has become of paramount importance. Student surveys (e.g. Bell & Biddulph, 2009; Barber & Pratley, 2016; Smith, 2022) indicate consistently that most students choosing a career in agriculture do so because of connection to agriculture through family or school influences. That connection to agriculture is in decline through demographic changes; 85% of Australians now live within 50km of the coast and are isolated from the main agricultural industries. That contrasts with demographic distribution in 1944 and earlier when most of the population lived in rural areas. The only connection to agriculture for most current students is the exposure in schools, particularly in agriculture subjects.

When student numbers decrease, schools find it harder to justify resourcing the subject properly (Dodd, 2011; Parliament of Victoria, 2012) thereby leading to a downward spiral of even fewer total enrolments. A complication is the severe shortage of agriculture teachers, who are themselves agriculture graduates. The inability of schools to recruit these teachers increases the risk of agriculture being culled in favour of some other discipline where teacher recruitment is easier. Any decline in agriculture enrolments at a secondary school level is likely, in turn, to contribute to decreased uptake of agriculture-related degrees at university level.

The size and trends of this pipeline in satisfying demand for university agriculture graduates need to be understood so that remedial options are explored and implemented. There has been no detailed study of the performance of secondary school agriculture courses in the decade following the Reviews. It is recognised that agricultural studies provision differs between jurisdictions and so this paper compares the offerings and their student completions over the period 2012 to 2022. The questions to be explored include:

1. What are the trends in course contents and respective career pathways?
2. Have the course offerings in agriculture and horticulture across each state/territory of Australia helped increase the supply of students to university study and then to industry as qualified personnel?
3. Do those states with reduced availability of agriculture courses in the early years of high school show lower enrolments in senior years due to the lack of continuity and later engagement with the subject?

Methodology

Aim

This paper uses a quantitative approach, employing a descriptive research method through secondary analysis of existing public data (Clark et al., 2021). The aim is to provide a 'stocktake' of secondary agricultural enrolments across Australia over the recent decade 2012-2022. Such analysis has not previously been undertaken on a state-by-state basis in a single study. Given the differing population sizes and agricultural production levels in each state across Australia, comparisons with both state population and state value of agricultural production in AUD billion are evaluated as part of the analysis for this paper.

Data sources

Data were obtained from state education authorities specifically responsible for school curriculum and assessment. Authorities include:

- New South Wales Education Standards Authority (NESA),
- Victorian Curriculum and Assessment Authority (VCAA),
- Queensland Curriculum and Assessment Authority (QCAA),

- South Australian Certificate of Education Board (SACE),
- Western Australian School Curriculum and Standards Authority (SCSA),
- Tasmanian Assessment, Standards and Certification (TASC),
- Australian Capital Territory Board of Senior Secondary Studies (ACT BSSS)
- Northern Territory Board of Studies (NTBOS)

Due to low or no enrolments, Tasmanian, Australian Capital Territory and Northern Territory numbers are not included in graphs, although courses offered in those jurisdictions are included in Table 3 and enrolment numbers are included in national totals where applicable.

Schools' data were obtained from publicly accessible websites and archives of these curriculum authorities and were biennial for the period 2012-2022 (inclusive). All agriculture and horticulture-related courses, both academic and vocational in nature, were included.

State population data and total value of agricultural commodities produced by each state, for the period 2012-2022 (inclusive), were obtained from publicly accessible website and archive of the Australian Bureau of Statistics. For population comparisons, Year 12 student completions were compared with population data from the December quarter of that same year (i.e. Year 12 2022 completions corresponded with December 2022 population data for that state). Comparisons between Year 12 student completions and agricultural commodity value for each state corresponded with the subsequent financial year data, given school data were for a calendar year, and commodity value is reported by the Australian Bureau of Statistics in financial years, July to June (i.e. Year 12 student completions from 2022 were compared with agricultural commodity values of each state from 2022/23 financial year). For both population and production value comparisons, Year 12 student completions were a combined total of all agriculture/horticulture courses offered in that state.

Data Analysis

Both descriptive analysis and trend analysis were performed using Microsoft Excel (version 16.91, MacOS). For descriptive analysis, total enrolments in each course in each state are graphed to offer comparison between states and biennial changes over the period 2012-2022 (inclusive). A national total is presented as the sum of all enrolments in all courses offered to Year 12 students in all states and territories of Australia. Importantly, it is noted that in states offering two or more courses in agriculture/horticulture, students can enrol in more than one of these courses. Hence total numbers are not indicative of unique individuals but rather the number of completions of that course.

Given the differing populations of states, the comparison of Year 12 completions to population of each state evaluates the relative strength, or weakness, of enrolments in different jurisdictions of Australia.

Trend analysis was also performed by means of linear regression and on some graphs the equation of the trendline ($y = mx+b$) is displayed, providing an estimate of slope (m) and the coefficient of determination (R^2) which explains the proportion of the variance of the dependent variable y that is explained by the independent variable x, b being the intercept. R^2 values range from 0 to 1 and are commonly expressed as a percentage, although in these graphs appear as a 0 to 1 figure. An R^2 closer to 1 suggests the trendline is a strong fit with the annual data, whilst a R^2 closer to 0 suggests a weaker fit with the annual data. Therefore, those trendlines with an R^2 value closer to 1 show clearer and more predictable enrolment patterns, whether it be increasing or decreasing. It is noted that a large range of variables impact enrolments in secondary subjects, such as gender, socio-economic status, educational and career aspirations, influence of peers and value placed on a subject (Jeffries, 2019). Whereas year to year differences may be difficult to interpret, longer term trends appear clearer and likely reflect the relative strengths or

weaknesses of each state's individual approach to offering agricultural education in secondary school.

Data used are limited to the most recently published biennial data up to and including 2022. Given the data are public, anonymised and published by curriculum authorities in each state, no ethical considerations occur.

Results

National Perspective on Student Completion Rates

Secondary education in Australia is primarily the responsibility of each State and Territory Government which regulates the public and private (including faith-based) schools within its jurisdiction; and oversees course accreditation, student assessment and awards for all schools (Australian Government, 2022).

State governments, and their relevant curriculum authorities, determine which subjects their students study and the associated curriculum to follow. What then have been the trends and impacts in the school systems?

In 2008, state, territory and federal governments in Australia agreed to the concept of a national Australian Curriculum in schools. The curriculum, initially released in 2010, aimed to create common outcomes for all students across the nation. Initially, this focused on core subjects such as English, Mathematics, Science and History in younger year groups, *i.e.* from Foundation (Kindergarten) to Year 10 (Australian Curriculum, Assessment and Reporting Authority, 2015). This was extended to include those four subject areas to Years 11 and 12 level and included Geography from 2013. This national curriculum initiative has led to numerous 'food and fibre' related outcomes appearing across the Science, Technology and Geography syllabi from Foundation to Year 10 and within diverse teaching subjects in any given state or territory. Despite these outcomes, there is flexibility as to what examples are used to deliver the curriculum and, as most non-agriculture teachers have little or no experience and interest in agriculture, other examples are used. The Primary Industries Education Foundation Australia continues to provide educational materials for teachers (teachers' guides and lesson plans) across the range of subjects offered in schools from Foundation to Year 12. It also has professional development programs for all teachers (www.piefa.edu.au/education-resources and www.primezoneacademy.edu.au).

Despite this move towards a national curriculum, 'Agriculture', or specific 'food and fibre' subjects, vary widely throughout Australia reflecting state and territory autonomy in education (Table 3). Only one state, New South Wales, offers an agriculture-specific subject prior to Year 11, while options in the subject area for students in Years 11 and 12 have fluctuated in availability and enrolments over time.

Given the vastly different course offerings available in each state, and even amongst different schools within some states / territories without a central year 7-10 curriculum, the question arises as to what effect this has on enrolments in senior secondary years.

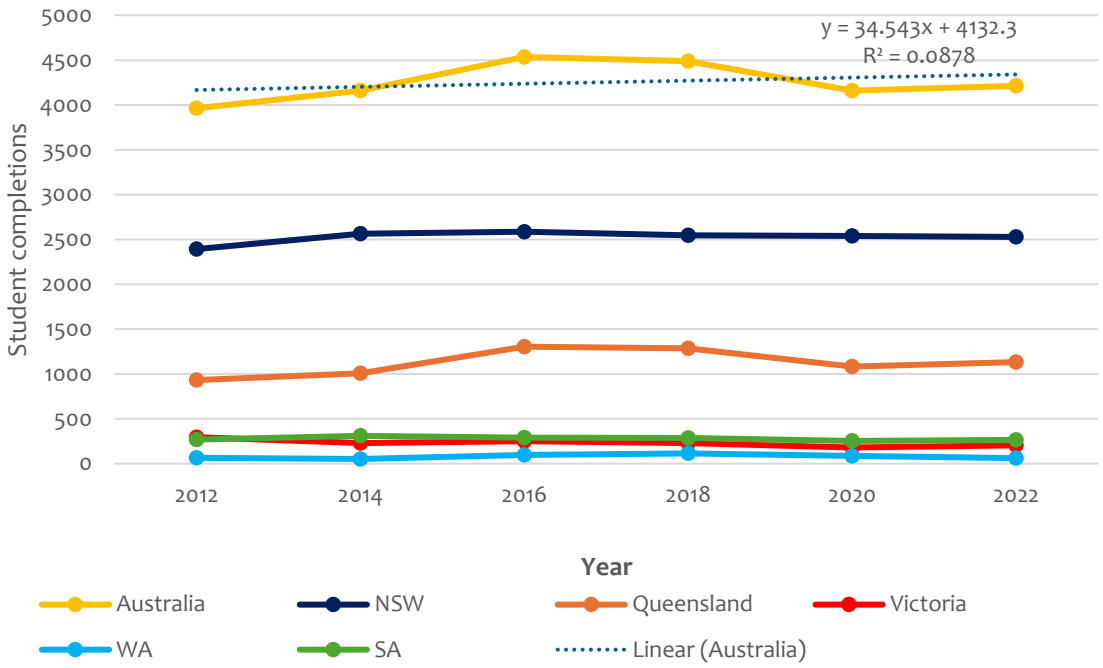
A study of total completions (Figure 1) in Year 12 Agriculture or Horticulture courses in Australia over the period 2012 to 2022 fails to show such progression. Numbers have flat-lined at an historical low, with no clear sign of improvement (nor significant decline) with the equation of the trendline ($y = 34.543x + 4132.3$) indicating an increase of only 34.5 students per two-year period. Nationally, the data vary from 3,963 to 4,535 annually over the period of study. Noticeable is the substantial influence of New South Wales which consistently supplies more than half and up to 61%, of those completions. Queensland is also a strong contributor with 1000 to 1300 student completions, whereas South Australia and Victoria deliver 100-300 and Western

Australia around 60-90. Tasmania, The Northern Territory and the Australian Capital Territory together contribute very few.

Table 3. ***Agriculture/Horticulture Subjects Offered From Years 7-12 in Each Australian State/Territory (NESA, 2022b; QCAA, 2022b; VCAA, 2022b; SCSA, 2022b; SACE, 2023; ACT BSSS, n.d.; TASC, 2022b)***

STATE	Years 7-10	Years 11-12
New South Wales	Agricultural Technology (Year 7-10) (optional) Technology Mandatory (Year 7-8) (compulsory subject which includes agriculture and food / fibre component) Food / fibre related content from Australian Curriculum incorporated in other subjects (*e.g.* Geography, Science)	Agriculture (optional) Primary Industries (optional)
Victoria	No state-wide standalone agriculture/ horticulture subjects	Agricultural and Horticultural Studies (optional)
Queensland	Schools can develop their own elective subjects to suit their context / community, and this can include agriculture Food / fibre related content from Australian Curriculum incorporated in other subjects (*e.g.* Geography, Technologies in food and fibre context)	Agricultural Science (optional) Agricultural Practices (optional)
Western Australia		Agribusiness (optional) Agricultural Science and Technology (optional)
South Australia		Agriculture (Year 11 optional) Agricultural Systems (Year 12 optional) Agricultural Production (Year 12 optional)
Tasmania		Agricultural Systems (optional) Agricultural Enterprises (optional)
Australian Capital Territory		Agriculture A/M (optional) and Agriculture A/T/M from 2023 Horticulture C (optional) and Horticulture A/M/V from 2023
Northern Territory		Agricultural Systems (optional) Agricultural Production (optional) NOTE: Northern Territory follows the South Australian curriculum

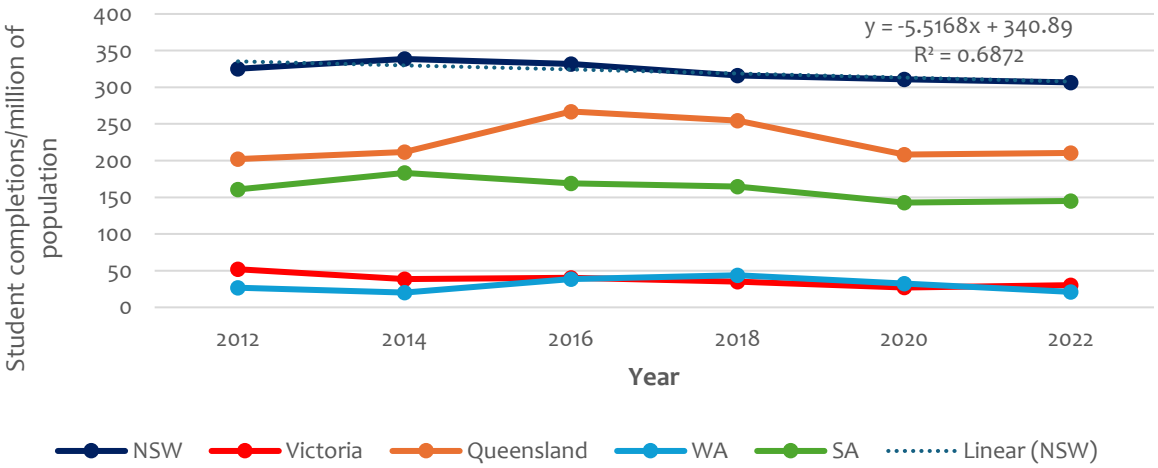
Figure 1. ***Total Completions by State and Nationally from Year 12 Agriculture/Horticulture Subjects, 2012-2022 (NESA, 2022a; QCAA, 2022a; VCAA, 2022a; SCSA, 2022a; SACE, 2022; ACT BSSS, 2022; TASC, 2022a).***



Note: Tasmania, Northern Territory and Australian Capital Territory numbers were negligible and are not included as individual states, but included in national total

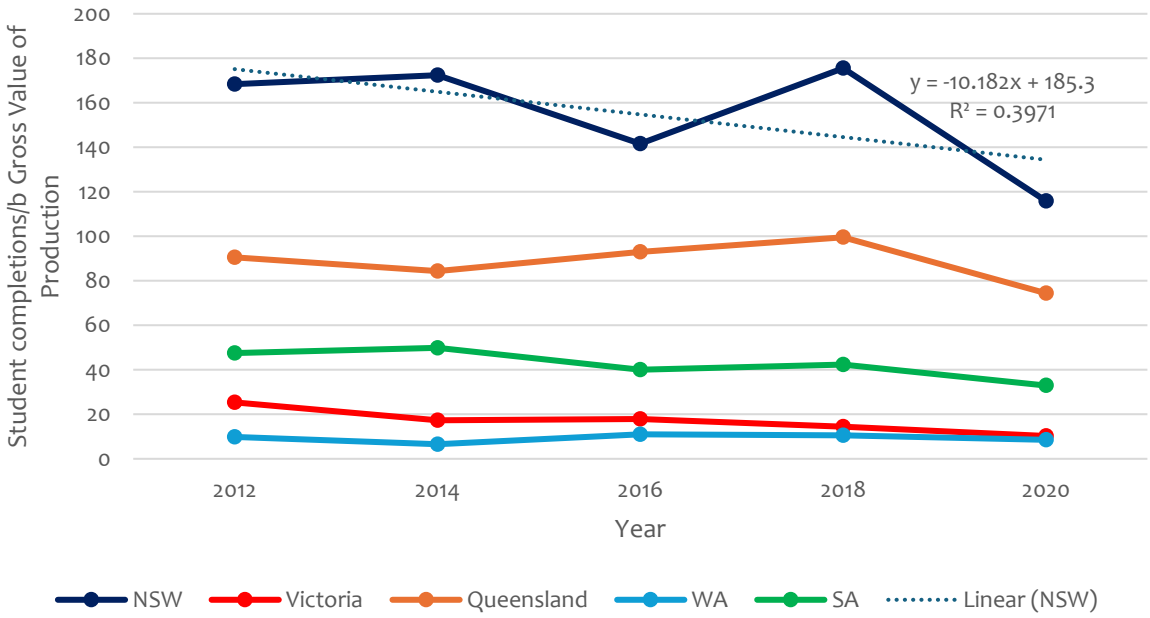
Student completions might be expected to relate to population of each state. Given that the population varies considerably between states, with New South Wales and Victoria being much larger in population than the other states, other metrics might be more insightful. Student completions per million of state population allows for that discrepancy (Figure 2) while completions per billion dollars of agricultural production (Figure 3) allows for variability in geography, including climate.

Figure 2. Total Year 12 Agriculture / Horticulture Completions by State per Million of Population, 2012-2022 (ABS, 2024; NESA, 2022a; QCAA, 2022a; VCAA, 2022a; SCSA, 2022a; SACE, 2022; ACT BSSS, 2022; TASC, 2022a).



Note: Tasmania, Northern Territory and Australian Capital Territory not included due to low numbers of completions.

Figure 3. ***Total Year 12 Agriculture / Horticulture Student Completions by State per AUD Billion Gross Value of Production of Agricultural Commodities Produced by State, 2012-2020 (ABS,2022; NESA,2022a; QCAA,2022a; VCAA,2022a; SCSA,2022a; SACE,2022)***



Note: Tasmania, Northern Territory and Australian Capital Territory not included in figure due to low completions. Production Value reported by the Australian Bureau of Statistics is for financial year whereas completion data are for calendar year i.e. comparisons are, for example, 2020 Completion Numbers Relative to 2020/21 Financial Year Production Value. The Australian Bureau of Statistics ceased publishing this data in 2022.

Relative to population, New South Wales remains the highest in completion rates at 307 to 339 per million of state population. Queensland, with a completion rate around 202 to 267, and South Australia, with 143 to 183, are strongly comparable whereas Victoria and Western Australia, both significant agricultural production states, have completion rates only around 20-50 graduates per million of population. Population data used are provided in Appendix 1. This shows there is a high variance amongst states in terms of Year 12 Agriculture/Horticulture completions produced relative to population. Overall, only Queensland had a higher ratio of students per capita completing Year 12 Agriculture courses in 2022 compared with 2012. All other states / territories (excluding Tasmania which had no senior syllabus or completions in 2012) generally trended downwards in completions per population over the period 2012-2022, finishing 2022 with fewer students per capita than in 2012. The slope of the trendline of New South Wales completions (y = -5.5168x + 340.89) indicates a decline of 5.5 students per million of population every two years.

Consideration of Year 12 student completions relative to the state Gross Value of Production in agriculture over the similar period 2012-2020 (Figure 3) produces the same rankings as those per population. New South Wales (116-180 completions), Queensland (74-100 completions) and South Australia (40-50 student completions) are substantially higher than those in the other states per AUD billion Gross Value of Production (i.e. Victoria 10-25; Western Australia 7-11: Tasmania 9-15 student completions). The Northern Territory and the Australian Capital Territory are not considered here due to negligible student completions in secondary agriculture. Gross Value of Production data used are provided in Appendix 2. By this measure, all states and territories trended downwards in Year 12 Agriculture course completions per AUD billion agricultural Gross Value of Production over the period 2012-2022, and all finished lower on this measure in 2022 than in the year 2012 (excluding Tasmania which had no completions in 2012). The slope of the

trendline of completions in the largest state, New South Wales (y = -10.182x + 185.3) indicates a decline of 10.2 students per AUD billion of Gross Value of Production every two years.

What are the Agriculture Course Provisions in Secondary Schools in Each State and Territory?

New South Wales. Agriculture/food and fibre-related content is included in several subjects in New South Wales schools. In addition to the Australian Curriculum content which is offered from Foundation (Kindergarten) to Year 10, *all* Year 7-8 students in New South Wales complete a mandatory context known as 'Agriculture and Food Technologies' in the Technology Mandatory course. This equates to approximately 50 hours of relevant content during those years (NSW Education Standards Authority, 2022b).

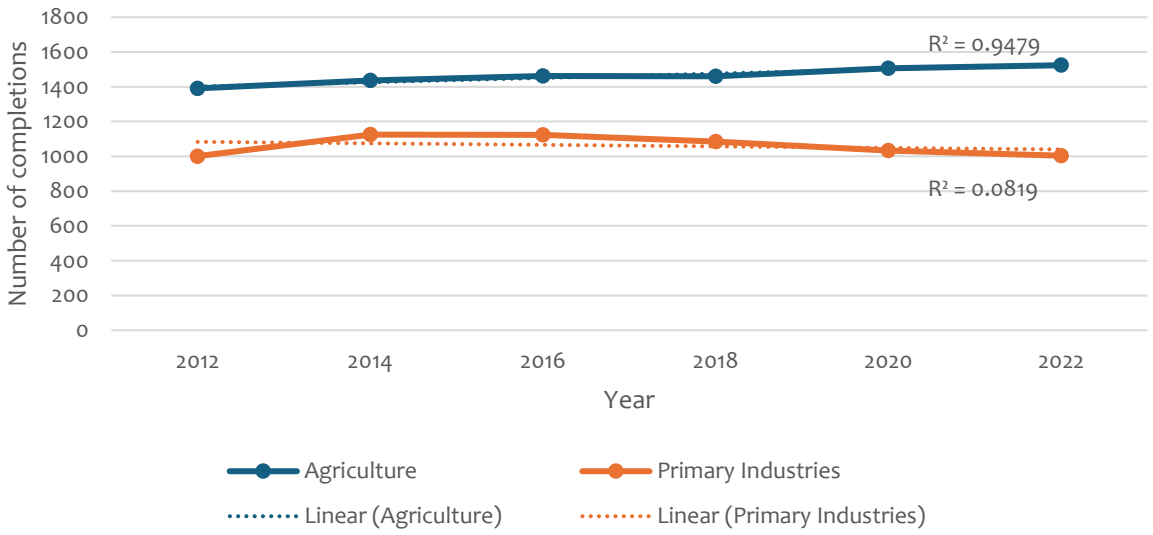
Additionally, New South Wales offers a stand-alone subject in Years 7-10 called 'Agricultural Technology' which students can choose, in addition to the 'Technology Mandatory' subject, in schools that offer it. This acts as an ideal springboard to encourage students to continue agricultural studies into Years 11 and 12.

In Years 11 and 12, two agriculture-related subjects are offered in New South Wales. 'Agriculture Stage 6' (henceforth referred to as 'Agriculture') is the larger subject by enrolment and is the more academically focused. It has a compulsory Higher School Certificate external examination and contributes towards an Australian Tertiary Admissions Rank (ATAR) if students opt to receive one. Students who aim to attend university are more likely to study 'Agriculture' than 'Primary Industries' for the Higher School Certificate.

Alternatively, 'Primary Industries' is a Vocational Education and Training (VET) subject that offers competency-based assessment throughout the subject. An optional HSC external examination can contribute towards an ATAR if students are receiving one. 'Primary Industries' is aimed at students who may take up 'on-farm' roles, given its practical basis and assessment by competency. Students later may go to Technical and Further Education colleges (TAFE) and/or directly into the workforce. In some schools, 'Primary Industries' can result in students attaining Certificate I, Certificate II or Certificate III qualifications. Students can choose to study both 'Agriculture' and 'Primary Industries' if they wish and if available. New South Wales also has a significant distance education program with more than five distance education schools offering secondary agriculture, such as Dubbo School of Distance Education and Sydney Distance Education High School. These allow students who cannot physically access school, or who attend a school in-person where Agriculture is not offered, to study Agriculture.

'Agriculture' consistently has had higher enrolments than 'Primary Industries' with approximately 1,391 to 1,524 students completing annually during the period 2012-2022 (Figure 5). This has remained steady, although at an historical low. 'Primary Industries', which was first offered in 2001, has also remained steady at approximately 1,000 completions per year over the period 2012-2022. This figure includes both those who choose to take the optional Higher School Certificate examination, and those who do not.

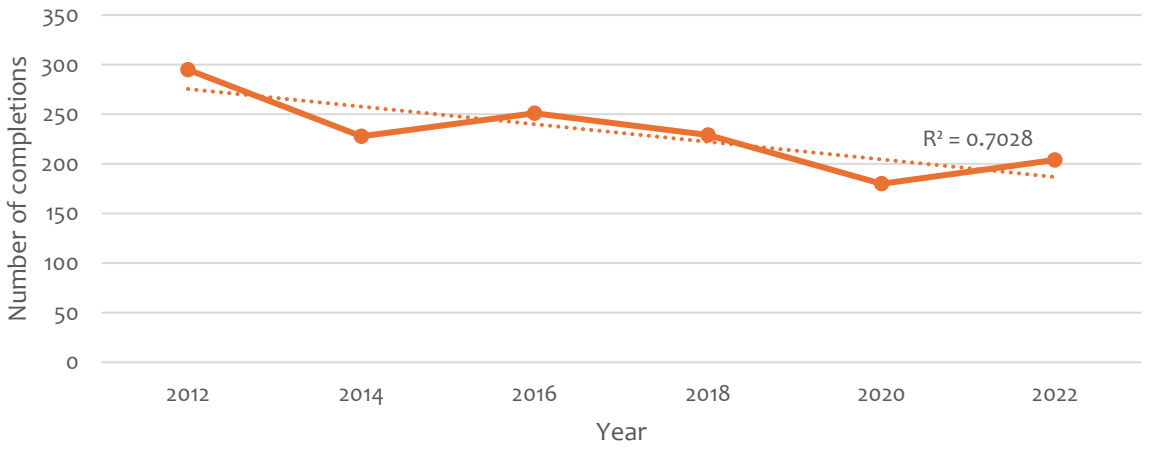
Figure 5. ***Total Subject Completions in New South Wales from Year 12 Agriculture and Primary Industries Subjects, 2012-2022 (NESA, 2022a)***



It appears that the significantly higher enrolments per capita and per AUD billion Gross Value of Production in New South Wales (Figure 3) relate to the additional educational opportunities offered in that state. Both the mandatory content in Years 7/8 and the state-wide agricultural curriculum in Years 7-10 are unique amongst the states. This is worthy of further investigation.

Victoria. The second largest state by population in Australia is at times the leading state for total annual value of agricultural commodities produced (Appendices 1 and 2). In public education, however, it offers no state-wide standalone food/fibre specific subject before Year 11 and only one food / fibre related subject in Years 11-12. This subject has had low enrolments and a declining number of student participants in the recent decade (Figure 6), from 295 in 2012 to a low of 180 in 2020 and 204 in 2022. Prior to Year 11, food/fibre content is taught within several subjects via Australian Curriculum content. Vocational qualifications such as Certificate II in Agriculture and in Horticulture can also be obtained via some schools in Victoria.

Figure 6. ***Total Completions from Year 12 Agricultural and Horticultural Studies Subject in Victoria, 2012-2022 (VCAA, 2022a)***



This situation continues to occur despite the Inquiry by The Parliament of Victoria (2012) into Agriculture Education and Training. The Inquiry noted a 31% decline in students over the prior

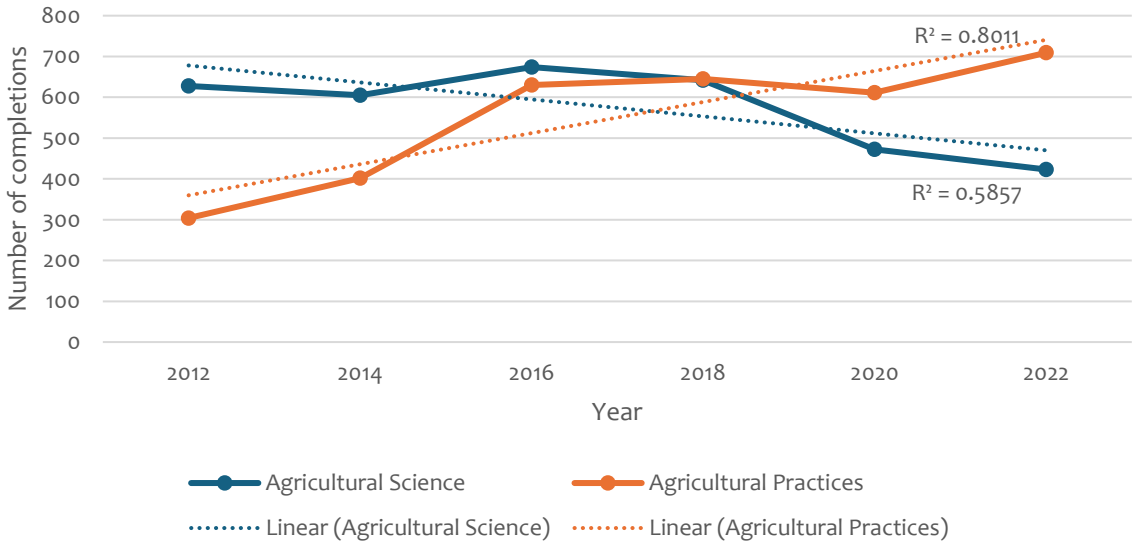
period, from 2002-2010 and considered this low enrolment as a likely cause for the low uptake of university-level agriculture-related courses.

Queensland. This state has the third largest population in Australia and regularly is second- or third-ranked in total annual value of agricultural commodities produced. Its output is significant (Appendices 1 and 2).

As with all other states in Australia excluding New South Wales, there is no state-wide stand-alone food/fibre specific subject before Year 11 in Queensland public schools. Related content at this stage is from the Australian Curriculum and infused through several subjects. In Years 11-12, two subjects are offered for senior students. 'Agricultural Science' is an academic-focused offering, categorised as a *General* subject, typically for those students with a post-school pathway that involves higher education. The second subject is known as 'Agricultural Practices' and is categorised as an *Applied* offering, a practical school-based program, typically targeted towards students who might attend TAFE and/or take up farm production work.

'Agricultural Science' has had annual enrolments previously around 500-600, although this has trended downward to 423 students in 2022 (Figure 7). Interestingly, and differently from New South Wales, the vocational production-focused subject, 'Agricultural Practices', in recent years has overtaken the academic subject of 'Agricultural Science' for total completions. In 2022, 709 students completed the vocational subject whereas only 423 completed the academic-focused subject, an apparent long-term shift. This occurrence raises interesting questions as it is opposite to the New South Wales experience, where the academic 'Agriculture' course dominates.

Figure 7. ***Total Completions from Year 12 Agricultural Science and Agricultural Practices Subjects in Queensland, 2012-2022 (QCAA, 2022)***

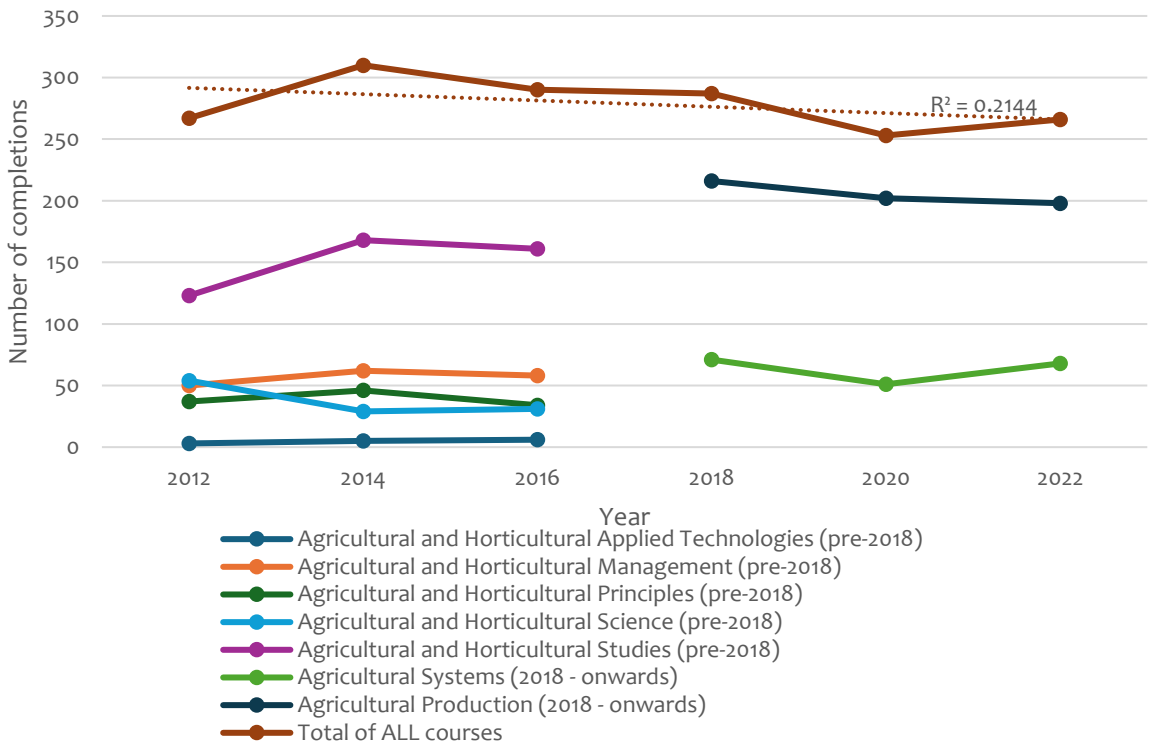


The state at times is equal highest with New South Wales in agriculture students per million population (Figure 2), and a clear second in terms of agriculture students per AUD billion production (Figure 3). Prior to 2019, Year 12 subjects were examined internally within schools in Queensland. External examinations were introduced from 2019 onward.

South Australia. Over the period 2012-2022, South Australia has had the highest agricultural commodity production in dollar value per capita of any state or territory in Australia (Appendices 1 and 2). In common with states other than New South Wales, there is no public state-wide specific food/fibre subject offered prior to Year 11 (Table 3). Approximately 65 schools offer agriculture as a standalone subject in Years 7-10 in the state, whereas others embed content within another subject such as Science. However, these Year 7-10 agriculture subjects are not

uniform state-wide, are created as bespoke subjects by individual schools to suit local contexts and communities and are based on a South Australian suggested scope and sequence, with sample food and fibre units of work also provided state-wide. Agriculture-specific subjects are offered in Years 11-12. In 2017, five previous subjects were transformed into two new subjects, 'Agricultural Systems' and 'Agricultural Production'. Total enrolments have remained reasonably steady across the period 2012-2022, peaking at 310 in 2014 and down to 266 in 2022 (Figure 8).

Figure 8. ***Total Completions From Year 12 Agriculture Subjects in South Australia, 2012-2022 (SACE Board, 2022)***



Note. Subject offerings changed from 2018 onwards, but totals of all available courses also shown for full period

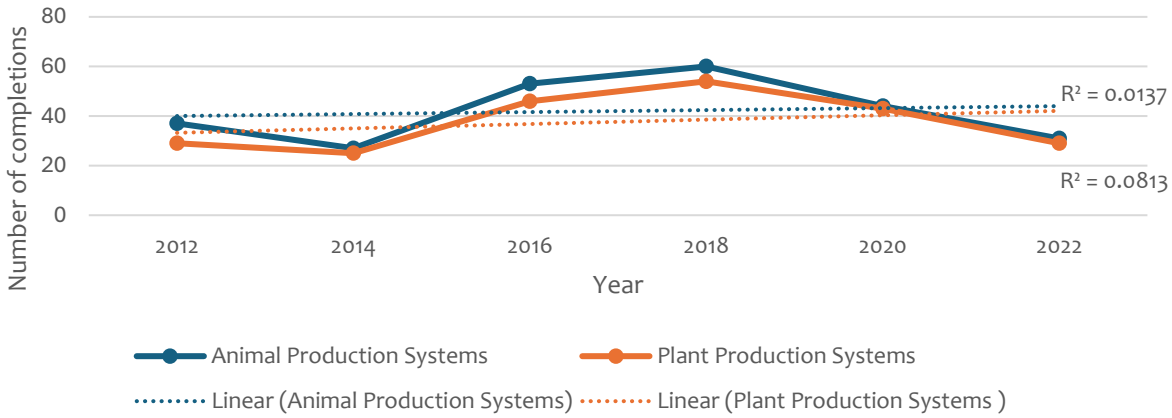
Students can also elect to complete certificates in vocational agriculture through Registered Training Organisations. These are mostly conducted externally to schools at the same time as students are completing their Leaving Certificate. Provision is made to have the subject count towards the Leaving Certificate.

Western Australia. As with most other states, there is no state-wide standalone specific food/fibre subject offering before Year 11 in Western Australia (Table 1). Some agriculture-related content is delivered within the food and fibre context of the 'Design and Technology' subject from Foundation to Year 10. Agricultural education in Western Australia is provided through its Western Australian College of Agriculture which comprises five residential school campuses at Cunderdin, Denmark, Harvey, Morawa, and Narrogin. Each campus is located on a commercial-sized farm. Such education is provided in Years 10, 11 and 12 where vocational qualifications can be obtained. In Years 11-12, two subjects, 'Animal Production Systems' and 'Plant Production Systems', are offered for senior students. Many, although not all, students undertake both subjects simultaneously and both can contribute to a student's ATAR.

Both metrics, *i.e.* Year 12 'Agriculture' completions per capita (Figure 2) and per AUD billion of production (Figure 3), place Western Australia towards the bottom of jurisdictions in Australia.

The completions from both subjects combined have fluctuated from a low of 52 in 2014 to 114 in 2018 (Figure 9) and then to 60 in 2022.

Figure 9. ***Total Completions of Year 12 ATAR-eligible Animal Production Systems and Plant Production Systems Subjects in Western Australia, 2012-2020 (SCSA, 2022)***



A curriculum review of the ATAR Animal and Plant Production subjects was undertaken in 2022 leading to the development of two new optional ATAR-eligible subjects, 'Agribusiness' and 'Agricultural Science and Technology' (SCSA, 2022b). These are offered in addition to the 'Animal Production' and 'Plant Production' subjects which have been retained as ATAR-ineligible *General* courses.

Tasmania. This state does not have a state-wide specific standalone food/fibre subject prior to Year 11 (Table 3). The state introduced 'Agricultural Systems' for senior students in Year 11-12 with the first leaving examination in Year 12 in 2017. Completions in the subject were 25 in 2018 and 20 in 2022 (TASC, 2022a). 'Agricultural Enterprise Level 2' is also offered "providing learners with an introduction to agriculture and developing enterprise skills and knowledge which position them to undertake entry-level positions or to undertake further study in the field" (TASC, 2022b). This subject does not include an external leaving examination with published enrolments and hence is not included in data provided.

Vocational education pathways are encouraged in schools to a greater extent than are external examination-based subjects such as 'Agricultural Systems'. As with other states, lack of suitably qualified agriculture teachers is a limiting factor as to where the subject can be offered.

These limited data place Tasmania among the lowest states/territories for Year 12 agricultural completions per capita (Figure 2) and per AUD billions of agricultural commodities produced (Figure 3).

Australian Capital Territory. With a small population, minimal land area and low total value of agricultural production relative to other states and territories (Appendices 1 and 2) it is not surprising that the Australian Capital Territory only has a small number of students studying secondary agriculture. One school in the Australian Capital Territory offers the New South Wales Higher School Certificate as their Leaving Certificate rather than the Australian Capital Territory's Senior Secondary Certificate, and as such, some students in Australian Capital Territory schools may be reflected in New South Wales figures for those studying agriculture subjects. Given the small number, there is significant fluctuation in student numbers completing the 'Agriculture A/M' and 'Horticulture C' courses each year in Year 12 in Australian Capital Territory schools. An 'A' course is a mainstream course for most students in Years 11-12, whilst an 'M' course is designed for those students who satisfy intellectual disability criteria. 'C' courses are accredited vocational education and training programs for Years 11-12 students and are assessed by Registered Training Organisations (ACT BSSS, n.d.). The 'Agriculture A/M' course has not offered

the opportunity for results in 'Agriculture' to contribute to the ATAR but has prepared students to access other pathways. In 2012, 11 students completed, with 5 in 2016 and none in 2014, 2018 or 2020. In 2022, 4 students complete the course (ACT BSSS, 2022). The agricultural offerings in the Australian Capital Territory were reviewed in 2022 followed by publication of a new curriculum, which now includes a T pathway to prepare students for higher education. This allows students to include the subject in the calculation of their ATARs.

Northern Territory. Agriculture in the Northern Territory follows the South Australian curriculum for the subject. The Year 12 leaving examination also follows that from South Australia. Whilst there was a small enrolment in the subject in 2020 in the Northern Territory, there were no known enrolments prior to this.

Discussion and Conclusion: Where to From Here?

Three substantial reviews into agricultural education and training (Australia - The Senate, 2012; Victoria - Parliament of Victoria, 2012; Pratley, 2013) coincided in their timing at a watershed moment in agricultural education due to historically low university enrolments in agriculture. However, data presented in this research have shown that student completions in agriculture-related courses at the end of secondary schooling in each state of Australia have flatlined. Key measures of completions, such as per capita (except for Queensland) or per AUD billion agricultural Gross Value of Production, have declined in all states of Australia.

There is, and has been for several decades, an urgent need to increase the number of graduates from agriculture-related university degrees to fill the jobs gap in the professional agriculture sector. It follows, given that secondary agriculture students potentially represent an important pipeline for the university courses, that more students are needed studying agriculture-related subjects at secondary school level. Smith (2022) found that 52% of students undertaking an agriculture-related degree at Charles Sturt University had studied agriculture in either Years 11 or 12, a significant proportion. Yet, the data on school intakes and completions infer that recommendations of the Reviews remain unactioned or have not worked their way through the system. The desired increase in the supply of students through secondary into tertiary courses and ultimately the trained workforce remains a challenge in a sector which struggles to attract enough skilled workers.

The questions raised from this scenario then include:

- Why have completion numbers not improved since these wide-ranging reviews? Have governments and industry done their parts to meet the recommendations?
- Given the slow-moving nature of government decision making and curriculum change, is more time than a decade needed to see effectual change?

The data clearly show that New South Wales has a substantially higher population of secondary agriculture students than any other state. It has proportionally higher enrolments and completions when based on population or state Gross Value of Production. It is also the only jurisdiction that has formal agricultural education prior to Years 11 and 12 and so secondary students have the opportunity of perhaps 2 to 6 years of developing agricultural literacy, including up to 4 years prior to their senior years, that enables them to evaluate career opportunities in agriculture. As such opportunity is not afforded students in other jurisdictions, or in schools that do not offer agricultural studies, the consideration of agriculture as a career is reduced or denied.

Kovar and Ball (2013) describe the United States rise in urbanisation over time as the basis for loss of agricultural literacy, leaving the future of its agriculture in smaller and smaller proportions of the population. This scenario is mirrored in Australia although to greater extent. Prior to 1944, around half the Australian population lived outside the capital cities in relatively close contact

with agricultural production. Agricultural literacy was likely much higher for the agriculture practised at that time than currently exists for contemporary agriculture. By 2011, 66% of the Australian population resided in the capital cities, rising to 68% in 2022. Importantly, 90% were in urban populations (ABS, 2024), with 85% living within 50km of the coastline, that is, away from the direct influence of agriculture.

In 2023, there were 257,000 people employed in agricultural production (Australian Bureau of Agricultural and Resource Economics and Sciences, 2024), of whom greater than 80% lived in regional areas. It is this population that is agriculturally literate. However, because of the disproportionate distribution of the population, most students (in New South Wales 67% - NESA, 2022a) live in the capital cities away from agriculture. Preliminary studies (Pratley, 2025) show that about two-thirds of university agriculture students are from private schools, around half of which are based in capital cities. Many of these students are boarders from regional areas of agriculture and so bring their agricultural literacy with them. However, metropolitan students in general are the largest group of students in Australia, but they appear to be the most untapped when it comes to their potential for the agriculture sector in this nation. The challenge then is to find ways to increase these students' interests in agriculture.

The issue is not just about students. Studies have shown that the most important influences on student subject selection and career choice are their schoolteachers and family members (Barber & Pratley, 2016; Primary Industries Education Foundation Australia, 2020). Inadequate agricultural literacy extends to the adults in these communities, including many teachers, and they will be advising students on their choices. The challenge for agriculture is to interest these communities located away from agricultural practice and help to improve their agricultural literacy. The issue of responsibility for building agricultural literacy remains confusing. There has been very little involvement by off-farm agribusiness where most professional employment opportunities exist. Consequently, most students equate agriculture with farming rather than agribusiness and, as they have no farm connections, they dismiss careers in agriculture as an option. It is incumbent on agribusiness to accept the responsibility of career promotion in its sector and invest time and funds into generating its future workforce. This has been explored by Pratley et al. (2022).

Emerging from this study are several challenges:

- The need to increase the number of schools who offer agricultural education. In states other than New South Wales, this means agricultural study opportunities in the earlier secondary school years, including a mandated 'Agriculture and food' component as occurs in New South Wales schools. It follows that there will need to be urgent attention to attract more teachers of agriculture to be trained.
- Principals need to ensure that Agriculture as a subject is elevated in status and expectation in schools and not be just a repository for low ability and disinterested students. There needs to be recognition in schools that the nature of agriculture has changed extensively and is now a very strong Science, Technology, Engineering, and Maths (STEM) subject highly dependent on science, technology, finance and engineering. Agricultural subjects need to explore the technology advances in the sector as a way of increasing interest but also changing perceptions towards a modern, technology-led industry sector.
- Agricultural teachers and industry need to engage with the community and colleagues to raise the level of interest and understanding of agriculture to the adult communities, particularly parents. It can be done as demonstrated by Graham (2021).
- Attention needs to be given to the perception or reality of the social inequity of the academic course for the Australian Tertiary Admissions Rank.

The current attitude is to promote agriculture to the agriculturally literate proportion of the community. While that is important to continue, it will deliver more of the same and university graduate numbers will remain inadequate. Change in the trajectory of agricultural enrolments

and completions at secondary school and at tertiary level necessarily will involve addressing these challenges, particularly in respect of the previously ignored metropolitan people.

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Appendices

Appendix 1. ***Total Value (AUD) of Agricultural Commodities Produced by Australian State per Financial Year (ABS 2022)***

Total value of agricultural commodities produced by state (nearest AUD million)					
	2012/2013	2014/15	2016/17	2018/19	2020/21
NSW	12,128	12,125	14,501	11,679	18,010
Victoria	11,631	13,144	14,016	15,886	17,542
Queensland	10,300	11,939	14,014	12,928	14,553
WA	6,690	7,922	8,991	10,750	10,201
SA	5,621	6,215	7,230	6,781	7,682
NT	479	835	610	759	746
ACT	9	8	11	9	9
Tasmania	1,190	1,438	1,470	1,637	2,113
TOTAL	48,048	53,625	60,842	60,430	70,856

Appendix 2. ***Estimated Resident Population by State in December Quarter of Each Year*** **(ABS 2024)**

Estimated resident population of each state in December quarter						
	2012	2014	2016	2018	2020	2022
NSW	7,353,189	7,562,171	7,793,277	7,992,853	8,084,192	8,238,800
Victoria	5,709,586	5,957,512	6,233,980	6,473,672	6,563,465	6,704,300
Queensland	4,611,304	4,747,263	4,884,196	5,051,610	5,191,354	5,378,300
WA	2,457,489	2,528,619	2,570,426	2,640,114	2,731,729	2,825,200
SA	1,663,082	1,693,107	1,720,224	1,758,014	1,796,955	1,834,300
NT	238,728	242,753	246,502	247,437	249,163	250,100
ACT	379,812	391,981	409,886	435,538	451,431	460,900
Tasmania	511,813	514,040	522,783	546,583	565,557	571,600
TOTAL	22,928,023	23,640,331	24,385,879	25,150,532	25,638,652	26,268,400

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Rural Horizons: Short-Term Rural Immersion and the Evolution of Medical Students' Attitudes Towards Rural Healthcare

Keith McNaught
Curtin Medical School, Curtin University
keith.mcnaught@curtin.edu.au

Gina Sjepcevich
Curtin Medical School, Curtin University
gina.sjepcevich@curtin.edu.au

Abstract

The formation of rural intention—the aspiration of medical students to practice in rural settings post-graduation—is a complex process, particularly during the early stages of medical students' professional and personal development, when career aspirations and life circumstances are evolving. Short-term rural immersion programs, such as the Kalgoorlie Immersion Program at Curtin Medical School, offer a unique opportunity to enrich this developmental phase through an experience of rural life and healthcare. This study examines the impact of the Kalgoorlie Immersion Program five-day rural immersion experience on perceptions of rural practice, career intentions, and interest in the Rural Clinical School of Western Australia of a group of second-year medical students. Using mixed-methods analysis of pre- and post-Kalgoorlie Immersion Program field trip data from 19 participants, the study found that the Program confirmed, refined, or opened the possibility of rural practice and interest in Rural Clinical School of Western Australia for students. The Program fostered engagement, addressed misconceptions, and helped students visualise themselves in rural settings. Short-term immersion programs like Kalgoorlie Immersion Program broaden the pipeline of future rural practitioners by complementing longer rural placements, such as Rural Clinical School of Western Australia. These programs help address workforce challenges in rural healthcare and produce well-rounded, empathetic doctors prepared to navigate diverse healthcare environments.

Keywords: *medical education, rural education, rural clinical placements, medical students, rural intention, community-based education*

Introduction

The recruitment and retention of doctors in rural areas remains a persistent challenge in Australia and worldwide. Strategies to address this often include a focus on rural origin students and rural immersion programs during medical education, with *l*onger immersion programs traditionally associated with higher rates of eventual rural practice (MacDonald & Duncanson, 2021; McGrail et al., 2023; Rural Health Workforce Australia, 2015; Smith et al., 2018). However, a reliance on rural origin and extended rural placements risks narrowing the field of potential rural practitioners and oversimplifying the complexity of this decision-making process for students.

Rural intention is shaped by multiple personal, professional, and logistical factors, particularly during the formative years of medical training. These include early experiences in rural healthcare, evolving professional identities, and life circumstances. McGrail and colleagues (2023)

observe "*The pathways to rural practice are rich and varied*" (p. 58). There is still much to learn about how these factors interact. Playford et al. (2017) suggest that there are factors of nature (rural origin and pre-existing rural interest) and nur

ture (rural experiences) at work, but the evidence about how they interact is inconclusive. Smith et al. (2018) describe a process of "*ruralisation of students' horizons*," encompassing interrelated themes of "*preparation and support*," rural or remote health experience and "*rural lifestyle and socialisation*" (p. 85).

Evidence is emerging that supports the potential for short-term rural immersion in creating positive attitudinal changes towards rural practice (Nyaradi et al., 2025). Short-term rural immersion programs can play a unique role by introducing students to rural healthcare and community life without requiring the substantial commitments associated with more extended programs such as the Rural Clinical School of Western Australia (RCSWA) that make them unavailable to some students. They present the possibility of rural practice and support student aspirations towards a longer rural placement. Through experience of rural locations and community, students gain a deeper understanding of what rural means in Western Australia and whether they can see themselves practising rurally in the future.

This study utilises student feedback to investigate the impact of a short-term rural immersion experience on the perspectives of second-year, pre-clinical medical students participating in the Kalgoorlie Immersion Program. Specifically, it explores how the program influences students' understanding of rural healthcare, their evolving career intentions, and their perceptions of rural practice. Focusing on the complexity of rural intention formation, this study contributes to a more nuanced understanding of how short-term programs can complement broader efforts to address rural workforce shortages.

Ethics approval for the project was granted by the Curtin University Research Office, approval no. 20240167.

Background

Curtin Medical School offers a Bachelor of Medicine, Bachelor of Surgery program with a key focus on providing doctors for rural Western Australia. As such, a minimum of 25% of places in the program are set aside for students of rural origin. The Curtin Medical School works closely with the Rural Clinical School of Western Australia (RCSWA) which currently provides the dominant rural experience offered to students from the three universities offering medical programs in Western Australia. It takes the form of a 12-month clinical placement at one of several sites across the state. This is in the fourth year of an undergraduate degree for Curtin students.

However, a full-year program such as RCSWA is not suitable for some students. It is a large financial commitment, requires relocation, and brings the challenges of being away from family and friends (Rural Health Workforce Australia, 2015). Relinquishing employment or accommodation in the notoriously difficult Perth housing market can also be a barrier (McNaught & Rhoding, 2022). In addition, not all applications to RCSWA are accepted, and it is not available to international students. It is expensive to run, and its value in creating graduates with rural intention is debatable. Playford et al. (2017) found that participation in RCSWA did not build rural intention if it was not already present. They said that a year-long rural clinical placement is a valuable learning experience even if a participant does not work rurally in the future. However, we must create a future rural workforce, and given demand outstrips available RCSWA places, the priority must be for those who not only want the RCSWA experience but also display rural workforce intentionality.

The potential of short-term rural immersion programs lies in several factors: their flexibility, facilitation of early exposure to rural settings, and they are less expensive to run and less

daunting for students than a commitment to a year-long program. They can open, maintain, refine, and solidify the possibility of rural practice, not only for students of rural origin, but can also support formation of intention in students of urban origin (Playford et al., 2021; Wright et al., 2014). They can also help students consider RCSWA as an option, potentially supporting successful applications and setting students up to get the most out of the experience.

Curtin University offers two short-term rural immersion experiences to second-year students. Rural Immersion Week is the first of these, held in March of the academic year for the entire second-year cohort set in various Wheatbelt locations in Western Australia. The second is the Kalgoorlie Immersion Program is an optional five-day program run during the mid-year fortnight break in July. Introduced in 2022, it is now in its third year. The program accepts a maximum of 20 students who are accompanied by two support staff and an academic lead. These students are pre-clinical, so the program focuses on understanding the community, local health issues and services, and what it is like to live in a rural area. Unlike the Rural Immersion Week program, students apply for the Kalgoorlie Immersion Program, and so the group is a subset of students who already have some interest in rural practice.

The students travel to the City of Kalgoorlie-Boulder, located in the Western Australian Goldfields, about 600 km northeast of Perth, on the traditional lands of the Wangkatja people. It is known for its historical connection to gold mining, which along with nickel, remains central to its economy (Kalgoorlie-Boulder Growth Plan Partnership, 2017). The city has a population of around 30,000, which is characterised by a mix of long-term residents and fly-in fly-out workers (Lucas, 2023). Aboriginal and Torres Strait Islander people constitute 12% of Kalgoorlie-Boulder's population, higher than the Western Australian average of 3.3% (Australian Bureau of Statistics, 2022). The Kalgoorlie population experiences higher rates of chronic diseases, such as diabetes, cardiovascular conditions, drug and alcohol use, and mental health challenges (WA Primary Health Alliance, 2024). Kalgoorlie experiences shortages and high turnover in all areas of healthcare staffing (Rural Health West, 2024), including doctors (Jefferies & Snowball, 2019). Poor perceptions of the liveability of the area are linked to the lower appeal of Kalgoorlie as a desirable place to live (Kalgoorlie-Boulder Growth Plan Partnership, 2017).

The Kalgoorlie Immersion Program for 2024 included visits to local tourist sites and community organisations, such as the men's shed and community garden, as well as tours and an opportunity to speak with staff from the hospital, Aboriginal health service, a mental health support service, Royal Flying Doctor Service, and RCSWA. A highlight of the trip for many students was a tour with a local Aboriginal family to dig for honey ants. Students were also provided with membership to the Goldfields Oasis Recreation Centre, which was well utilised by students, even beyond the allocated time in the program.

Methodology

A case study approach was used to examine the effect of Kalgoorlie Immersion Program on students' career aspirations, perceptions of rural practice, and intentions regarding application for RCSWA. Information about the Kalgoorlie Immersion Program and an invitation to apply were provided to the second year cohort of 110 students via email and during class time, including at the Rural Immersion Week debrief session. A total of 20 applications were received, with 20 accepted and 19 students eventually participating. All students consented to involvement in the research project, although this was not required for participation in the program.

Prior to travelling to Kalgoorlie, students were surveyed about their earlier Rural Immersion Week experience using an online Qualtrics survey, to provide a baseline snapshot of their thinking about rural practice and gather a demographic profile of the group. The survey questions are listed in Appendix A. The data were exported from Qualtrics into an Excel spreadsheet for analysis.

Following the Kalgoorlie Immersion Program field trip, semi-structured interviews were conducted with each student. Students were asked to compare the Rural Immersion Week and Kalgoorlie Immersion Program experiences, describe how their thinking about rural life and practice may have changed, the most significant experiences of the trip, and how they thought the Kalgoorlie Immersion Program could be improved. They were also asked about their intentions regarding applications for RCSWA. The interview questions are shown in Appendix B. A clean-read version of the interview transcripts was produced and moved to an Excel spreadsheet for analysis.

The data were de-identified, with each respondent allocated a unique number to track responses across the data sets. The analysis utilised a mixed-methods approach, combining quantitative and qualitative data. A subscription version of ChatGPT was used to assist in organising, analysing, and synthesising data from the survey and interviews, supporting both the thematic analysis of qualitative data and the analysis of quantitative data.

For the quantitative data analysis, ChatGPT was used to process and summarise numerical data, identifying key patterns and trends. All statistical interpretations and conclusions were verified by the researchers to ensure accuracy and relevance.

For the thematic analysis, an iterative approach was taken, with preliminary themes identified using the AI tool and subsequently refined and validated by researchers. Final decisions regarding categorisation, theme selection, and scope were researcher-led, guided by expertise and continuous engagement with the data, ensuring that the analysis accurately reflected the data, aligned with the research questions, and remained relevant to the study's objectives.

Findings

Of the cohort of 19 second-year medical students, nine identified as having a rural background, while the remaining 10 were from urban or non-rural areas. Rural-origin students hailed from various Western Australian locations: Broome, Albany, Karratha, Bunbury, Kalgoorlie, Port Hedland, Meekatharra, and Derby. Interstate locations were Darwin, Port Douglas, Cairns, and Yungaburra. The group also included two international students: one from Hong Kong and one from the Philippines. The cohort had a balanced gender distribution, with 10 students identifying as female and nine as male. The age of participants ranged from 18 to 21 years.

Many of the themes identified were consistent across both data sets:

- Understanding Rural Healthcare – Awareness of rural healthcare systems, disparities, and the critical need for rural doctors.
- Opportunities and Challenges of Rural Medical Practice – Hands-on learning experiences, community engagement and lifestyle.
- Exposure to Different Rural Settings – Insight into the varieties of rural experience, healthcare environments and delivery models.
- Personal and Professional Growth – Reflection on evolving perspectives and the ability to visualise a future in rural practice.
- Community Engagement and Contribution – Appreciation of the meaningful impact that doctors can make in rural communities.
- Hesitations and Lifestyle Considerations – Consideration of personal lifestyle preferences and potential concerns about rural practice.

These themes developed further in the Kalgoorlie Immersion Program interviews as students had time to reflect and compare the two rural immersion experiences, with interviews also allowing a little more exploration. The Program bought an additional theme to the fore, related to learning more about the RCSWA which had not been an element of Rural Immersion Week.

- Role of the Rural Clinical School (RCSWA) – Understanding the structure, application process, and learning opportunities within RCSWA.

Most students indicated that after the Rural Immersion Week trip they intended to work rurally on graduation, with 13 students selecting "*probably yes*," five "*definitely yes*," and one "*unsure*." Seven students reported no change in their thinking, as they were already interested in rural practice and said the experience reinforced this desire. Some students (n = 5) said Rural Immersion Week had broadened their understanding of rural healthcare, while some (n = 4) found the experience clarified misconceptions. Several (n = 6) highlighted the critical need for rural doctors. Of the 10 urban origin students, two indicated that the Rural Immersion Week experience had changed their thinking about rural practice.

Following the Kalgoorlie Immersion Program, students were again asked whether their thinking had changed about rural life and practice. A total of 11 students indicated yes, seven students indicated no (again because it refined or confirmed intention) and one was unsure. Interview discussions show that the Kalgoorlie Immersion Program built on the Rural Immersion Week experience, often further refining and/or reinforcing the possibility of rural practice.

> *I was already interested in working rurally and it just kind of increased my motivation to try and work there. (Respondent 17)*

> *I already knew I wanted to do RCS [Rural Clinical School], and I already knew at some point in my career I'd like to do some sort of rural work. Kalgoorlie just reinforced that. (Respondent 16)*

Some students (n = 4) moved from uncertainty to a more favourable view of rural practice.

> *Originally, I was open to practising rural, but after the trip, I'm more interested because of the support network among rural practitioners. (Respondent 13)*

> *… touring the Rural Clinical School and even having exposure to the Kalgoorlie Health Campus … really just pushed me towards that yes side. (Respondent 12)*

Some students (n = 5) were inspired by the potential to make meaningful contributions to rural communities and stronger interpersonal connections with patients and colleagues. One urban background student commented that following the two immersion experiences he would now prefer to work rurally, not having considered it an option before:

> *I think that was like a huge like change in mentality … I'd much rather prefer a rural environment to work in compared to a metro one just because of the experience and what kind of doctor I want to be in terms of … engaging in community. …. You can engage in community much better in a rural setting compared to a metro setting. (Respondent 10)*

Students' comments showed they appreciated and wanted to be able to contribute to areas of need.

> *A strong GP [General Practice] or rural generalist presence in a community … impacts the health outcomes of that community. (Respondent 12)*

> *I think both the other road trip and Kalgoorlie, showed me how valued doctors are in rural areas and how big a difference you can make. I knew you could make a difference, but I didn't realise quite how much. It's motivated me even more to work in a rural area once I graduate, even though I already wanted to. (Respondent 14)*

Some students (n = 8) made comments that suggested they were beginning to be able to visualise themselves in a rural setting.

> *I could more picture myself, the opportunities I would have working rurally from the Kalgoorlie [trip]. I have a bonded place, so I'm going to be spending those three years*

> *minimum [rurally] at some point, so I'm also just like very excited to see how that will fit into my life after Uni. (Respondent 2)*
>
> *More than anything, it's opened up a bunch of conversations about what working rurally would look like and the questions I should be asking about it. (Respondent 19)*
>
> *… every time I go out to rural country, as someone who hasn't really gone around WA very much, it makes it seem like it's very doable. It makes it less unfamiliar and like, oh yeah, I could do that. (Respondent 8)*
>
> *It's made me more comfortable to go rural, but I always had an idea to just spend a little bit of time in rural locations. (Respondent 11)*
>
> *I guess everyone was very frank about the reality of the situation and that it can be overwhelming and a lot of pressure. But I think that's really good to know as well because it's not setting you up for some glorified idea of what's going to happen. And you can be quite realistic about what you need to achieve in terms of self-care and stuff as well. (Respondent 2)*
>
> *I think I'm more interested in working in … rural areas because I found out that they have a huge support network among rural practitioners. (Respondent 13)*

Some students (n = 3) expressed hesitations or began to form preferences due to personal or lifestyle factors.

> *I would be open to working in Kalgoorlie for a little bit, . . . [but] . . . I just love my surfing, and I love the beach. (Respondent 2)*
>
> *I think I'll go South because I can't tolerate the heat. (Respondent 6)*

Consistent with this being a group of students already interested in rural experience, there was only slight variation regarding rural intention across rural- and urban-origin students. Before the Kalgoorlie Immersion Program, rural-origin students (nine of nine) expressed strong rural intention, with eight indicating they "definitely" or "probably" intended to work rurally after graduation, compared to eight of 10 urban-origin students. After the Kalgoorlie Immersion Program, rural-origin students remained consistent, with seven confirming or reinforcing their rural intentions and two reporting a further increase in interest. Urban-origin students displayed a broader range of responses, with five confirming their rural intentions, four reporting a stronger interest, and one remaining uncertain. All the urban origin students reported the Kalgoorlie Immersion Program having a positive impact on their thinking about rural practice on graduation. Both rural and urban background students described the program as clarifying or broadening their perspectives and making rural practice seem more achievable and appealing. Some comments pointed to the value of experiencing more than one rural location.

> *… being able at lunch, to just walk around. That was good because we were able to see so much. Even sitting at Nando's, we're able to talk to the person who works there. It was just so interesting because you learned that every rural town is different. (Respondent 15)*
>
> *I think it really depends on the different rural towns. Like someone who chooses to go in Albany or Kalgoorlie to work there, they're two completely different rural towns. (Respondent 9)*

Student feedback also indicated a deepening understanding of healthcare needs and delivery in different settings along with an appreciation of the variety of rural communities and environments.

> *I think just to understand how rural medicine works in Kalgoorlie is actually quite fascinating to me because I've never been [to] other rural areas. (Respondent 13)*

> *I think looking at the RFDS [Royal Flying Doctor Service] … was the standout for me, I really enjoyed having a chat to [the Doctor there] and just looking inside the planes and I didn't realise that they would be so enormous. I thought they were gonna be quite a quite a bit smaller than that but obviously if you have to travel long distances it makes sense, I guess. (Respondent 18)*

In relation to the honey ant tour with a local Aboriginal family, one student said:

> *I didn't get much time to speak with the Elders, but [the] grandkids told me a lot about what they do in Kalgoorlie …. how going … into the bush, is really a just a part of the day in their life. And I've never really been a part of that. I'm not well versed in that kind of cultural area, so I thought that was really interesting. And more of a healthcare side of things. I really enjoyed [visiting the Aboriginal Health Service] … I thought that the way they handle things in terms of no scheduled appointments walk in was really unique. (Respondent 5)*

During the post- Kalgoorlie Immersion Program interviews, students were also asked about their intentions regarding application for RCSWA. During the trip and subsequent interviews, it was clear that RCSWA played a large part in students' thinking about how rural experience may fit into their careers. Seventeen students expressed strong interest in applying for RCSWA following participation in the Kalgoorlie Immersion Program. All nine rural-origin students expressed clear intentions to apply for RCSWA, emphasising how the program reinforced their pre-existing aspirations. One participant noted,

> *I always wanted to do rural clinical school, but when we got to talk to the rural clinical school coordinators, that was really helpful because we all had a lot of questions and they answered a lot of them, which was nice. (Respondent 14)*

Of the 10 urban background students, seven said they intended to apply for the RCSWA, with two indicating that the Kalgoorlie Immersion Program had been the decisive factor in their thinking.

> *Yes, that's one of the biggest things that I've, I guess come away very certain about. … Yeah, from like a 50/50 to something I definitely want to pursue. (Respondent 12)*

Of the three other urban background students, two were international and therefore not eligible to apply, although they said they definitely would if given the opportunity. One response from a bonded student (who is required to spend three years in rural practice) was unclear, though they spoke positively about "*being able to get immersed in not just your medical learning, but also the rural aspects of life*" (Respondent 2). Overall, the Kalgoorlie Immersion Program was instrumental in solidifying rural-origin students' intentions while clarifying and expanding urban-origin students' perspectives on RCSWA.

Four students indicated that the Kalgoorlie Immersion Program had positively changed their thinking about RCSWA, and 11 that it had confirmed or reinforced their interest.

> *It did change my outlook on RCS a little bit because it always has been a 60/40 decision and now maybe it's just swung the other way. (Respondent 3)*

While a visit to the RCSWA and a discussion with the RCSWA Coordinator for Esperance was included in the program, the most enthusiastic discussions took place over a dinner, which this coordinator attended. One student commented:

> *The Rural Clinical School night… [was] … really cool because I think it got everyone very excited about what was to come, and it was very nice to see everyone … a bit hyped up after that. (Respondent 2)*

Nine students said the Kalgoorlie Immersion Program had provided them with knowledge about RCSWA that they had not found via other avenues. One student said that it was his interest in RCSWA that motivated him to participate in the Kalgoorlie Immersion Program, and several

mentioned the amount of information they were able to get about RCSWA and the application process as a significant aspect of the trip.

> *It confirmed it and gave me a little bit more information because I wasn't aware as to where all of the sites were and how exactly it would run. (Respondent 18)*

> *It was really good talking with the coordinator of Esperance because the whole process seems really difficult, but it was good to talk with her and get a better insight into how RCS is run and how the application process actually goes. (Respondent 8)*

> *That talk with [the RCSWA Program Coordinator] especially as she was mentioning the differences between the big sites and the small sites, was really helpful. (Respondent 11)*

Students were enthusiastic about RCSWA for a variety of reasons including the interpersonal relationships possible as part of a smaller team and cohort of students.

> *And then it just feels like in terms of a medical standpoint, you probably get to be more involved with the team and get to form some meaningful relationships with your [colleagues] and seniors. (Respondent 2)*

> *I also think it would be fun to live with a group of medical students and sort of learn as a smaller cohort. I think I would really enjoy that part as well. (Respondent 6)*

The potential for the RCSWA to provide a better clinical learning opportunity than a placement in a metropolitan hospital was a key takeaway for many students. Some (n = 2) had assumed that the better learning experience would be in a large hospital; however, the Kalgoorlie Immersion Program showed the greater variety of opportunities as part of a much smaller team for significant, hands-on learning of clinical skills.

> *… because in the initial stage my thinking was [if], I want the best training you'd have to be in a big city centre. … So, if you can get more hands-on experience in a rural area, that would be my ideal. (Respondent 3)*

> *I'm really interested by the potential for more hands-on opportunities, to be challenged a bit more and given a bit more responsibility. Sort of pushed a bit further. (Respondent 6)*

> *I guess in terms of education, I thought there'd be a lot more experience that I could get as a medical student being one of six instead of 1 of 100 or so. (Respondent 8)*

> *You wouldn't get the same experiences in a metro site because you would be sort of fighting to earn your place. Whereas in a rural place, … you instantly get first-hand experience … you might get called to do a C section one day or you might get called to do a surgical assist. And I feel like that experience is more valuable in the long term as a doctor because you want your clinical skills to outshine. (Respondent 7)*

> *In rural hospitals, you're not just a wallflower. You might get called to catch the baby. (Respondent 19)*

Some students felt this clinical experience would better prepare them for the last stages of their training.

> *When you're on rounds, a lot of the consultants or teachers can pick out the rural clinical students solely because of their skill set and how they're more adaptable to situations. (Respondent 12)*

> *I just don't want to be useless as an intern, so I want to have the opportunity to get better clinical skills and clinical experience before I graduate. And I think RCS is my best opportunity to do that. (Respondent 1)*

Discussion

In the second year of a five-year degree, students are still forming their professional identities and interests, and for many, their adult lives are still taking shape. They are also still developing an understanding of the complexities of healthcare systems and the realities of healthcare delivery in diverse settings. The complexity of life circumstances and career planning means many factors will influence eventual rural intention. Considering the Kalgoorlie Immersion Program within the broader educational and life journeys of medical students highlights how immersion experiences contribute to attitudes toward rural practice and the place it may occupy in future careers.

The Kalgoorlie Immersion Program allowed students to explore further what rural practice might look like for them and start visualising themselves in different settings. One student with a bonded place commented that the Program helped her start to see how the required minimum of three years rural practice would fit into her life and career. Many students' comments show they are exploring the prospect of future rural practice and how it might fit into their lives and careers. This aligns with the broader literature suggesting that rural intention is not a static concept but can evolve over time in response to experience (Playford et al., 2021). For students already considering rural practice, the Kalgoorlie Immersion Program confirmed and refined their intentions. The opportunity to experience two rural locations prompted students to reflect on the differences between each and appreciate the variety of rural experience and environments. Vujcich et al. (2020) also comment on the usefulness of this in an earlier study, observing, "*The experience of placements in two different regions … helped some students understand they could work in some rural/remote contexts but not others*" (p. 546).

While rural origin is often associated with positive rural intention, the findings in this study align with Playford et al.'s (2021) conclusion that undergraduate rural exposure especially affects students from an urban background. Our findings demonstrate that a short-term program can have a significant impact on urban-origin students, with all students reporting a positive change in their thinking about rural practice. The increased interest in RCSWA among some urban-background students suggests that immersive experiences like the Kalgoorlie Immersion Program play a crucial role in expanding career considerations and the pipeline of students interested in exploring RCSWA and rural practice. This is a valuable outcome of the Program as there is a positive association between students undertaking RCSWA and eventual rural practice (Playford et al., 2014; Walker et al., 2012). Our data showed RCSWA emerging as a large part of students' thinking about the possibility of rural practice in their careers with the RCSWA elements of the Kalgoorlie Immersion Program experience a highlight for many students. It is not surprising that student feedback naturally gravitated towards RCSWA, as it is a tangible and established pathway, and the Program is run in students' second year when they are beginning to consider clinical placements and future training pathways.

Students interested in applying for RCSWA reported that the Kalgoorlie Immersion Program provided valuable insights into what the experience might offer. The opportunity to engage with an RCSWA coordinator allowed students to understand better the variety of sites available, the lifestyle and learning opportunities, and the potential professional benefits of the program. Importantly, this was first-hand knowledge from someone with an engaging personality who was deeply involved in the program and the experience of students.

The data suggest that interest in RCSWA served as both an outcome and a lens through which students evaluated their broader career intentions. This builds on existing literature linking RCSWA to rural practice (O'Sullivan et al., 2018; Playford et al., 2014), by suggesting that early exposure and engagement with the RCSWA can be a key motivating factor for students considering rural practice. While some students explicitly stated a desire to work rurally long

term, others saw RCSWA as a valuable stepping stone, a way to test the waters of rural practice without committing to a permanent move.

Our data suggest it is likely that programs such as the Kalgoorlie Immersion Program help to normalise rural practice and establish it as an option for students who might not otherwise have considered it. This would be a significant outcome as, according to Playford et al. (2017), RCSWA does not necessarily build rural intention in students unless it was there already. Experiences such as the Kalgoorlie Immersion Program also present rural practice as an option for those that do not have an interest or are not accepted for RCSWA. It is also possible that greater rural experience means that those who do RCSWA have a clearer idea of what rural practice means and what a successful placement would mean for them, thus supporting the transformation of rural intention into rural practice.

A significant finding of the study was the recognition by many students of rural placements as a superior clinical learning opportunity to those available in the metropolitan area. This realisation often contrasted with previous assumptions that metro hospitals offered the best clinical training. Students wanted to have the best clinical skills they could on graduation. They saw the opportunities for more hands-on experience as part of a small team (rather than a much larger group in a metropolitan teaching hospital) and the ability to be helpful and make an impact as significant advantages of rural experience.

Our data support the idea that short term rural immersion experiences can complement and support other learning experiences, by providing a variety of experiences over a longer period of students' development, helping to clarify intentions and expectations, and refining thinking about the suitability of various locations. In this way, they support successful long-term placements (such as the RCSWA) and those that have a rural commitment as a result of having a bonded place.

Student responses also highlighted the significance of peer-to-peer interaction in fostering personal and professional growth. Students discussed their experiences during unstructured time, such as over meals. The shared experience of being part of a small, like-minded cohort created a supportive environment where students could explore their aspirations, exchange ideas, and challenge assumptions.

Many reflections indicate that students are thinking deeply about the kind of doctors they want to become and the impact they hope to have. Students began to understand their strengths, preferences, and values in the context of their future careers. They also expressed the aspirational aspect of rural practice—making a meaningful difference in underserved communities and addressing healthcare inequities. These findings underscore the importance of immersion experiences in shaping future doctors and align with research that emphasises the role of personal values in career choices (Noya et al., 2021).

Future Directions for the Kalgoorlie Immersion Program

Student satisfaction with the Kalgoorlie Immersion Program has been overwhelmingly positive, with praise for its organisation, diverse activities, and insights into rural healthcare and community dynamics. Many students found the experience exceeded their expectations. However, feedback suggests areas for enhancement to further strengthen the program. A recurring theme in student feedback was the desire for even more interaction with the local community. Students suggested inviting members of the local community to the evening meals or dinners or becoming involved in local projects.

The hospital tour emerged as an area for improvement. Students were very interested in the hospital but clearly hoped to learn more about its day-to-day operations. Meeting various staff and seeing behind the scenes aspects of the hospital would have enriched this experience.

Scheduling adjustments will also be considered for future trips. While many appreciated the program's varied itinerary, some noted that the first day felt overly busy and suggested grouping activities more strategically to allow for longer rest periods. A few participants also advocated for later start times, recognising the need for a balance between the program's rigour and students' need for recuperation during their mid-year break.

Peer-to-peer interaction emerged as one of the program's most impactful elements, with many students noting the value of time for reflection, discussion, and building of relationships within the group. Evening meals and downtime included in the program provided opportunity for this, as did visits to the Goldfields Oasis Recreation Centre. Many students commented on how much they enjoyed the Oasis visits. Plenty of scope for these interactions will be maintained in future programs.

Expanding participation is another important consideration. Introducing shorter immersion programs or introductory sessions could engage students who may not initially apply for the Kalgoorlie Immersion Program but would benefit from rural exposure. This approach could also support bonded students, helping them gain confidence and a positive outlook on rural placements.

The enthusiasm of international students who attended the Kalgoorlie Immersion Program highlights another area of opportunity. Creating similar initiatives for international participants or at the broader policy level, expanding eligibility for RCSWA could harness their potential to contribute to Australia's rural workforce.

For students considering the Rural Clinical School, the Kalgoorlie Immersion Program provided valuable insights into rural life and career pathways. Many found interactions with an RCSWA coordinator particularly helpful. Future iterations could build on this by incorporating more structured discussions with RCSWA leaders and alumni to clarify site options, logistics, and career planning.

Conclusion

The Kalgoorlie Immersion Program demonstrates the potential of short-term rural immersion programs to play an important role in medical students' professional and personal development during a formative stage of their education. The Program effectively confirmed, refined, or established the possibility of rural practice and interest in the Rural Clinical School amongst this cohort of students. For many students, the Program allowed them to visualise themselves in rural settings, explore the rewards and challenges of rural practice, and clarify their career intentions. This supports students' decision-making, preparing them for more immersive experiences and for considering the role rural practice and experience may have in their careers. The Program's ability to foster engagement, address misconceptions, and provide insights into the realities of rural practice suggests its value in broadening the pipeline of future rural practitioners. These experiences also help students become better doctors, fostering adaptability, compassion, and a deeper understanding of healthcare delivery across diverse contexts. Even for students who do not pursue rural practice, programs like the Kalgoorlie Immersion Program contribute meaningfully to their development as skilled and empathetic healthcare providers.

Short-term immersion programs are scalable and cost-effective, providing an accessible alternative or complement to longer rural placements. Their ability to integrate early exposure to rural healthcare, support reflective learning, and cultivate personal and professional growth positions them as a valuable addition to medical education.

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Appendix A

Questions used in Post Rural Immersion Week and pre–Kalgoorlie Immersion Program participant survey.

1. Do you have a rural background?
    - No
    - Yes. If so, where?
2. What is your age?
3. How do you describe your gender?
    - Male
    - Female
    - Non-binary/third gender
    - Prefer to self-describe
    - Prefer not to say
4. Where did you go for the March 2024 Rural Immersion Week?
    - Brookton
    - Corrigin
    - Katanning
    - Kondinin
    - Dalwallinu
    - Moora
    - Wongan Hills
5. How do you feel about that experience now?
    - Very disappointed
    - Disappointed
    - Neutral
    - Satisfied
    - Very satisfied
6. What is the main reason you chose this rating?
7. At this stage are you thinking of working rurally on graduation?
    - Definitely not
    - Probably not
    - Unsure
    - Probably yes
    - Definitely yes

8. Did the March rural immersion experience change your thinking about the potential of rural practice?
    - No
    - Unsure
    - Yes
9. What is the main reason form changing or not changing your thinking about the potential of rural practice?
10. What was the key learning for you from the March rural immersion experience?

Appendix B

Questions used in the post-Kalgoorlie Immersion Program semi-structured interview.

1. How do you compare your experience of the Kalgoorlie Immersion Program with eh other rural experiences you have had as a medical student such as the rural immersion week back in March?
2. Has the Kalgoorlie experience changed your thinking about rural life and practice?
    - How would you describe your change in thinking? OR
    - How has the Kalgoorlie immersion experience confirmed your thinking?
3. What was the most significant experience for you in your time in Kalgoorlie?
4. Are considering applying for RCS (Rural Clinical School) in the future?
    - If yes, why. If no, why?
5. Do you have thoughts on how the Kalgoorlie Immersion Program could be improved?

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Stepping into Country: How a Short Rural Immersion Transforms Medical Students' Perspectives

Anett Nyaradi
Curtin University
anett.nyaradi@curtin.edu.au
Keith McNaught
Curtin University
keith.mcnaught@curtin.edu.au

Abstract

The objective of the study was to evaluate the impact of a short-term Rural Immersion Week on medical students' intentions to pursue rural practice and their transformative experiences. A mixed-methods study was implemented, combining pre- and post-surveys with quantitative and qualitative analysis. Quantitative data were analysed using descriptive statistics and paired t-tests, and qualitative responses were explored through thematic analysis guided by Mezirow's Transformative Learning Theory. The study was conducted at Curtin Medical School, with the immersion program held in rural areas of Western Australia. A total of 113 second-year medical students participated, with 101 completing both pre- and post-surveys included in the analysis. Quantitative analysis showed a significant increase in intentions to work rurally (pre M = 3.77, SD = 0.90; post M = 4.16, SD = 0.90; $t(100) = -5.61$, $p < .001$) and apply to Rural Clinical School (pre M = 3.80, SD = 1.01; post M = 4.21, SD = 1.05; $t(100) = -4.93$, $p < .001$). Qualitative findings revealed transformative learning, including enhanced cultural awareness, empathy, and understanding of social determinants of health. The Rural Immersion Week significantly influenced students' intentions to pursue rural practice and fostered transformative personal and professional growth. Short-term rural immersion programs are a promising strategy to inspire interest in rural healthcare careers.

Keywords: *rural health, medical education, rural placement, transformative learning, health professional students*

Introduction

Medical education increasingly emphasizes immersive learning experiences that prepare students for the unique challenges and opportunities of rural healthcare settings. Rural communities frequently experience healthcare disparities due to geographic isolation, limited resources, and workforce shortages, which contribute to reduced access to specialised care and higher rates of chronic illnesses (World Health Organization, 2020). Addressing these disparities requires a new generation of healthcare providers equipped with adaptability, empathy, and a deep understanding of the social determinants of health.

One effective method for fostering these qualities in health professional students is through short-term rural immersion programs. Research has shown that these immersive experiences positively influence students' career aspirations, often encouraging them to consider future work in rural or remote healthcare (Deutchman et al., 2012; Vujcich et al., 2020; Wright et al., 2014).

Immersion programs expose students to the complexities of rural practice, such as the expanded scope of care, resourcefulness, and resilience required in these communities (Toussaint & Mak, 2010; Wright et al., 2014).

A recent literature review by the authors explores the transformative potential of rural immersion programs through the lens of Transformative Learning Theory (Nyaradi et al., 2025). The review highlights how such programs contribute to personal and professional growth, critical thinking, cultural competence, and social accountability. These findings support the value of short-term rural placements in preparing health professional students to serve underserved populations with empathy and a commitment to social responsibility.

The rural immersion week in this study builds on these insights, providing second-year medical students with an opportunity to experience rural life and engage with diverse rural communities in Western Australia. This program also introduces students to the cultural richness of the Njaki-Njaki Nyoongar, Yued Nyoongar, Gubrun, and Ballardong Nyoongar Peoples, whose histories and traditions shape the region's identity. The immersion emphasizes social determinants of health, encouraging students to consider how factors like geographic isolation, economic opportunities, and cultural heritage impact health and access to care. Supported by the Australian Government's Rural Health Multidisciplinary Training Program, Rural Health West and Rural Clinical School WA, this initiative fosters community engagement and cultural awareness, integral to preparing students for rural practice.

In this study, Mezirow's Transformative Learning Theory guides the analysis of medical students' reflective responses to the rural immersion program. The study examines how these experiences contributed to shifts in students' attitudes, values, and intentions to practice in rural settings, offering insights into the transformative potential of short-term rural placements in medical education.

Transformative Learning Theory

Transformative Learning Theory, developed by Mezirow (Mezirow, 1997), provides a comprehensive framework for understanding how adults change their perspectives through critical reflection triggered by meaningful experiences. The process begins with a "disorienting dilemma", an experience that disrupts an individual's habitual ways of thinking, prompting them to question long-held assumptions. This cognitive disruption sets in motion a reflective process in which learners critically assess their beliefs, explore alternative viewpoints, and engage in rational discourse with others. Through this reflective dialogue and examination, individuals revise their frames of reference, deeply ingrained structures of meaning shaped by culture, experience, and education, leading to a more inclusive, differentiated, and integrative worldview (Kitchenham, 2008; Mezirow, 1997). Mezirow identified ten phases in the transformative learning process: (1) a disorienting dilemma; (2) self-examination with feelings of fear, anger, guilt, or shame; (3) a critical assessment of assumptions; (4) recognition that one's discontent and the process of transformation are shared; (5) exploration of options for new roles, relationships, and actions; (6) planning a course of action; (7) acquiring knowledge and skills for implementing one's plans; (8) trying out new roles provisionally; (9) building competence and self-confidence in new roles and relationships; and (10) a reintegration into one's life based on conditions dictated by the new perspective. While not all transformative learning experiences follow these phases linearly, they provide a useful framework for analysing the depth and complexity of change in adult learners (Mezirow, 1997).

This framework is particularly relevant in health professions education, where immersive experiences in diverse communities, such as rural or Indigenous settings, often challenge students' preconceived notions about healthcare delivery, patient diversity, and their own roles as future practitioners (Frenk et al., 2010). In these contexts, transformative learning extends beyond personal growth to include a heightened awareness of social determinants of health,

cultural dynamics, and systemic inequities. Although Mezirow's theory focuses primarily on individual cognitive transformation, elements of social awareness, such as the development of critical consciousness, also emerge as integral to a holistic educational experience (Kumagai & Lypson, 2009).

The Rural Immersion Week

The Curtin Medical School (CMS) Rural Immersion Week offers second-year medical students a compulsory structured field experience in various rural towns across Western Australia. Groups of 16-18 students with two tutors and one administrator/support officer visit one of the seven towns including Moora, Dalwallinu, Wongan Hills, Kondinin/Kulin, Corrigin, Brookton, and Katanning. Over the course of four days, students live with local host families, giving them a firsthand perspective on community life and fostering connections with residents.

Each day of the immersion is organized around key learning activities that integrate cultural, social, and healthcare-focused experiences. Students visit healthcare facilities such as hospitals, GP practices and St John Ambulance services, as well as farms and local industries. Additionally, they engage with the local community through activities like the Teddy Bear Hospital for young children and high school mentoring sessions, which build student understanding of rural life and healthcare needs from a grassroots level. The program also includes sessions with Indigenous elders and community members, where students learn about the historical and cultural context of each area, emphasizing the deep connection to Country. The program is complemented by insights from Rural Health West, who is also pivotal in the organisation of the program, the Western Australia Country Health Service, the Rural Clinical School, highlighting potential career pathways in rural health.

Structured reflection sessions ending with a group presentation are integral to the program, encouraging students to process their experiences and consider how rural practice shapes healthcare delivery. Additionally, preparatory sessions, including Aboriginal health seminars, a problem-based learning tutorial, and panel discussions with rural doctors, provide students with foundational knowledge and context to maximize their engagement during the program.

Methods

Study Design

This study utilized a mixed-methods approach, with quantitative and qualitative data collection through pre- and post-surveys. The objective was to assess the transformative experience of the Curtin Medical School Rural Immersion Week on second-year medical students' views and intentions to work in rural settings.

In this study, the names of towns and health-related organisations have been retained to preserve the geographic and educational context of the Rural Immersion Week. While ethics approval (Curtin University HREC #HRE2023-0654) did not explicitly require or prohibit the anonymization of place names, no individual participants or private data are identified. This decision was made to reflect the real-world setting in which the program operates and to avoid contributing to what Seelig (Seelig, 2021) refers to as "*rural erasure*", the unintended marginalization of rural communities through anonymization in research.

Study Participants

The study included 113 second-year medical students from Curtin Medical School, Curtin University, who participated in a four-day rural immersion program in March 2024. Curtin Medical School offers a five-year undergraduate medical program, with the first three years focused on foundational learning and the final two years dedicated to clinical training. Most students enter the program directly from high school, with a smaller number of mature-age students. The

medical program provides pathways for students from rural backgrounds and those entering through an equity-based selection process. Fourth year students have an opportunity to spend the whole year in a rural clinical placement as part of the Rural Clinical School run by the University of Western Australia.

Data Collection

Data were collected using two paper-based surveys: a pre-survey administered before the immersion experience and a post-survey administered after its completion.

The pre-survey (Appendix 1) aimed to capture students' initial thoughts and expectations regarding the Rural Immersion Week. It included questions about prior experience with rural communities, perceived preparedness for the immersion, and anticipated impacts of the program on personal and professional levels. Students provided Likert-scale ratings on their intentions to work in rural areas and apply for rural clinical placements, while open-ended questions allowed them to share specific concerns, and expected benefits of the immersion experience. This survey established a baseline for assessing transformative changes in students' perspectives post-immersion.

The post-survey (Appendix 2) gathered data on changes in students' perspectives following the immersion week, examining shifts in their transformative experiences, including their understanding of rural health, cultural awareness, and personal growth. It also included Likert-scale questions to assess changes in intentions for rural practice, and applying to rural clinical placements. Additionally, the post-survey featured questions about specific aspects of the rural week, such as experiences with host families, interactions with tutors and peers, and memorable interactions within the community. Students provided feedback on the organizational aspects of the program and suggestions for improvement.

Data Analysis

Quantitative data from the surveys were analysed using SPSS. Descriptive statistics, such as percentages (in bar charts), were used to summarize responses from both surveys. Paired T-tests were conducted to compare pre- and post-survey responses, particularly focusing on students' intentions to work in rural settings and to apply to rural clinical placement.

Qualitative data from the open-ended survey responses were analysed manually. To enhance analytical rigour and reduce potential bias, one author conducted the initial coding by hand, identifying recurring patterns and themes that emerged directly from the data. The second author reviewed the coding to ensure coherence and consistency in theme development. This process followed an inductive approach, allowing student voices and lived experiences to shape the thematic structure without imposing a predetermined framework. In the second stage of analysis, the identified themes were interpreted through the lens of Mezirow's Transformative Learning Theory, with the original ten phases conceptually grouped into five broader categories for the purposes of this study: *disorienting dilemmas, critical reflection* (self-examination, critical assessment of assumptions, and recognising that transformation is shared), *perspective transformation* (exploring new roles and planning a course of action), *navigating challenges* (acquiring knowledge and skills, and trying out new roles), *and personal growth and reintegration* (building competence and confidence in new roles, and reintegrating the new perspective). This approach enabled a theoretically informed interpretation while preserving the integrity of the students' own language and perspectives.

Curtin University Human Research Ethics Committee has approved this study with approval number: HRE2023-0654.

Results

Quantitative Data

Of the 113 students, 4 did not attend the rural immersion but were required to participate in all preparatory sessions and post-immersion reflections. These students completed an alternative assessment in place of the group presentation. A total of 102 students completed both the pre- and post-surveys. One student did not provide consent to participate in the study, and their responses were excluded from the analysis, leaving a final sample of 101 participants for analysis.

Descriptive statistics were used to summarize students' intentions regarding rural practice and clinical placements before and after the rural immersion week. As illustrated in Figure 1, the distribution of responses on the Likert scale shows a notable shift in students' intentions to apply to Rural Clinical School after attending the immersion. Similarly, Figure 2 presents descriptive statistics for students' intentions to work rurally. The post-survey results show an increase in the highest Likert scale rating, suggesting a greater inclination to consider rural practice. These descriptive statistics reflect a positive shift in students' attitudes toward rural healthcare, aligning with the program's goals of promoting rural practice through experiential learning.

Further inferential analysis, using a paired t-test, confirmed that these observed changes were statistically significant, indicating that the immersion week had a meaningful impact on students' intentions regarding rural practice and clinical placements. The analysis treated the Likert scale responses as a continuous variable, allowing for a more nuanced assessment of shifts in students' intentions. The paired t-test results showed a significant increase in the mean Likert scale ratings from pre- to post-survey for both outcomes. Specifically, students' intention to apply to a Rural Clinical School increased from a pre-survey mean of 3.80 (SD = 1.01) to a post-survey mean of 4.21 (SD = 1.05), $t(100) = -4.93$, $p < .001$, with a medium effect size (Cohen's $d = -0.49$). Similarly, their intention to work rurally improved significantly, with the mean Likert scale ratings rising from 3.77 (SD = 0.90) pre-survey to 4.16 (SD = 0.90) post-survey, $t(100) = -5.61$, $p < .001$, and a medium effect size (Cohen's $d = -0.56$). These results underscore the substantial influence of the Rural Immersion Week on fostering students' interest in rural practice and education.

Figure 1: ***Descriptive Statistics for Students' Intentions to Apply to Rural Clinical School Before and After the Rural Immersion Week (Likert Scale: 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree, 5 = Strongly Agree)***

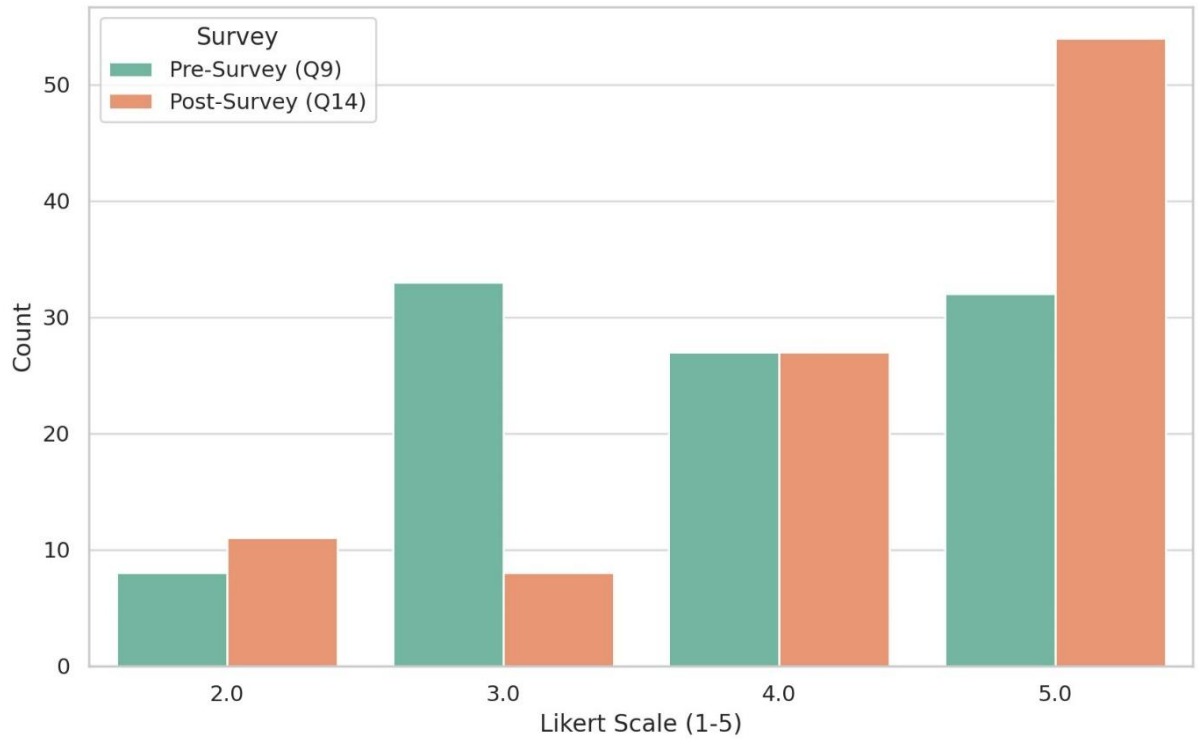
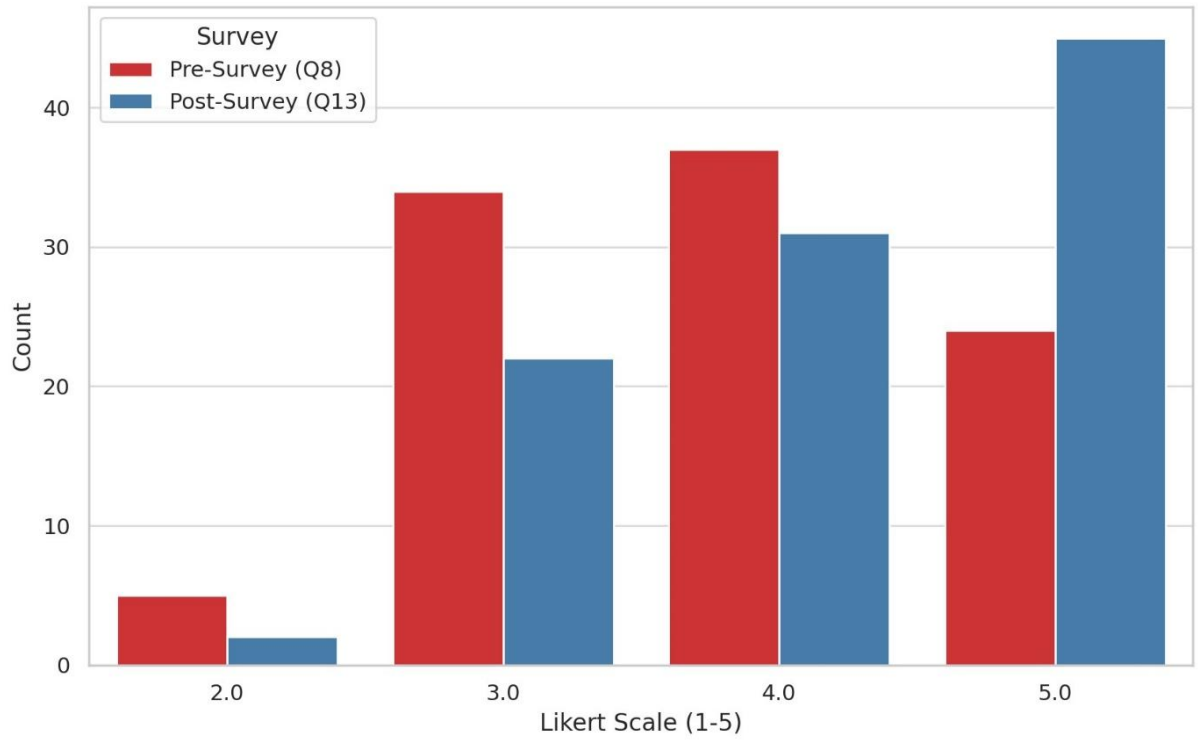


Figure 2: ***Descriptive Statistics for the Distribution of Students' Intentions to Work Rurally Before and After the Rural Immersion Week (Likert Scale: 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree, 5 = Strongly Agree)***



Qualitative Data

Thematic analysis of the qualitative survey responses revealed six common themes: *community*, *learning*, *challenges*, *personal growth*, *uncertainty*, and *no impact*. To support clarity and interpretation, Table 1 presents the coding framework used in this study, including each theme's definition and how it relates to key concepts within Mezirow's Transformative Learning Theory. The inclusion of *no impact* acknowledges that not all students experienced meaningful or lasting change, providing a necessary counterbalance to more transformative narratives and highlighting the varied nature of student experiences.

Table 1: ***Qualitative Coding Framework: Themes, Definitions, and Alignment with Mezirow's Transformative Learning Theory***

Theme	Definition	Mapped Phase	Theoretical Link
Community	Connection with host families, peers, tutors, and locals; feelings of belonging, support and social integration.	Across all phases	Community acted as a relational context that supported transformation across all phases, providing emotional safety and enabling reflection and adaptation.
Learning	Gaining knowledge about rural health, Indigenous culture, or systemic challenges.	Critical Reflection	Demonstrates critical self-examination and reassessment of previously held assumptions; fosters awareness of social determinants and cultural complexity.
Challenges	Emotional, social, or logistical difficulties during immersion (e.g., fatigue, isolation).	Navigating Challenges	Reflects the process of trying out new roles and confronting discomfort; supports experiential learning and adaptive transformation.
Personal Growth	Reflections on increased empathy, confidence, humility, or desire to serve others.	Perspective Transformation, Personal Growth and Reintegration	Indicates shifts in values and professional identity; represents the learner internalising new perspectives and moving toward reintegration.
Uncertainty	Confusion, hesitation, or ambiguity about the impact of the immersion, often arising from experiences that challenged their prior expectations.	Disorienting Dilemmas	Represents the initial disruption of meaning perspectives; learners encounter new information or experiences that provoke cognitive dissonance but have not yet resolved or reframed their assumptions.
No Impact	Students express no change or relevance from the experience.	Outside Transformative Framework	Reflects absence of perspective shift; may represent resistance to change, lack of engagement, or experiences not triggering enough dissonance to prompt reflection.

Disorienting Dilemmas: Uncertainty and Challenged Expectations. Before the rural immersion, students anticipated the experience with both excitement and apprehension. Many looked forward to exploring the rural lifestyle, the strong community bonds typical of rural areas and learning about rural healthcare dynamics. However, some expressed concerns about

adapting to rural life, including challenges such as isolation, limited resources, and unfamiliar social settings.

The immersion week introduced students to the realities of rural healthcare, often contrasting with their initial assumptions. This contrast often generated a sense of uncertainty, as students began to question preconceived notions about rural health systems and community dynamics. Reflections revealed how immersion challenged expectations, particularly in relation to the role and resilience of rural healthcare providers. Students noted when asked about the interesting and significant aspect of doctors living and working rurally and the rural healthcare services:

> *The town relies heavily on the doctor and the support and trust the community have for the doctors.*
>
> *How passionate the staff seemed about their work.*
>
> *They were quite resourceful than I thought.*

This initial contrast between expectations and on-the-ground realities aligns with Mezirow's concept of disorienting dilemmas, where students encountered scenarios that conflicted with their preconceived ideas about rural health.

Critical Reflection: Developing Cultural and Social Awareness. The immersion week encouraged students to engage in critical reflection, a key component of Mezirow's theory (Mezirow, 1997), where individuals re-examine their beliefs and assumptions in light of new experiences. Many students gained a deeper understanding of the healthcare challenges faced by Aboriginal communities, which provided them with a perspective on the social determinants of health in rural settings. The emphasis on cultural awareness, facilitated by interactions with Indigenous community members, was transformative for several participants.

This process was closely linked to the theme of learning, particularly in relation to understanding historical and systemic factors affecting Aboriginal health. Students frequently commented on how these interactions broadened their empathy and cultural competence, especially those students who went to the Marribank Mission in Katanning and Mogumber Mission in Moora. Marribank and Mogumber were historical missions in Western Australia, established as government-sanctioned sites where Aboriginal people were forcibly relocated and confined, often separating families and disrupting cultural practices. These missions are remembered as places of hardship and resilience, representing significant aspects of Aboriginal history, cultural loss, and the impact of colonial policies on Indigenous communities (Find and Connect Support Services, n.d.). As participants reflected:

> *Their history is incredibly heartbreaking but it truly helped me to understand the idea of intergenerational trauma.*
>
> *[I] Saw Marribank and it was incredible experience to learn firsthand of its impacts.*

This critical reflection fostered a heightened cultural awareness and an appreciation for the significance of cultural sensitivity in healthcare delivery.

Perspective Transformation: Shifting Attitudes Toward Rural Life and Healthcare. As a result of the immersion experience, many students experienced a shift in their perspectives on rural practice and rural life, which aligns with Mezirow's concept of perspective transformation (Mezirow, 1997). This phase represents a fundamental reorientation of the students' views and professional aspirations.

Many students reported an increased openness to rural living and healthcare careers. Their reflections, tied to the theme of personal growth, frequently expressed a re-evaluation of lifestyle preferences and a strengthened interest in rural work. Participants commented:

I thought a slow-paced lifestyle would not suit me, but I found it to be a nice change from the city life.

Initially hesitant about similar experiences, I now appreciate and understand the possibility of living and working rurally, finding enjoyment in it.

Forming those connections [with community] makes you want to return.

This transformative change reflects Mezirow's idea that individuals reshape their frames of reference, in this case, broadening their life and career aspirations to include rural practice.

Navigating Challenges and Building Resilience. Many students identified the logistical and social demands of the immersion week, such as long travel times, intensive scheduling, and limited downtime, as significant aspects of their experience. These challenges align with Mezirow's phase of trying on new roles and negotiating obstacles, where individuals engage in new ways of being and learn to overcome associated difficulties (Mezirow, 1997). For many, the week required them to stretch beyond their usual routines and adjust to new social and environmental dynamics. One student described this shift as an opportunity to grow socially, noting: "*It has allowed me to step out of my social comfort zone".*

Students also described how engaging directly with rural environments helped them adapt to unfamiliar conditions and expectations, a central aspect of negotiating new roles in transformative learning. One participant captured this experience, stating: "*Rural week isn't something that can be fully grasped through textbooks; it's an experiential journey".*

As students overcame the challenges, many described increased resilience, adaptability, and confidence in their ability to function in unfamiliar settings. One student reflected: "*The experience helped me realize my capability to thrive in a rural town, fostering a mindset of openness and appreciation for similar experiences."* Another added: "*I've learned that I have a genuine passion for rural health and contributing to balance the negativism in those areas".*

These reflections illustrate how the act of working through discomfort and unfamiliarity supported students' development of practical resilience, self-awareness, and an emerging sense of professional identity, all key elements of transformative learning.

Personal Growth and Empowerment: Increased Empathy and Commitment to Service. Reflecting on the overall experience, many students described the immersion week as a period of profound personal and professional growth. This outcome aligns not only with Mezirow's reintegration phase, where learners incorporate new values into their self-concept and future practice, but also with perspective transformation, which involves a fundamental shift in worldview and identity. In this study, personal growth emerged as both a central theme in student reflections and a representation of these final stages of transformative learning.

Through direct engagement with rural communities, students developed a deeper empathy and appreciation for rural life, with one student sharing: "*More understanding of rural health and life helps me better interact with rural patients".*

Some students described how the immersion clarified their career goals, particularly in relation to rural practice. As one participant noted it: "*Helped establish my ideas of wanting to work rurally in the future."* Others described how the week challenged their emotional and ethical perspectives:

It has made me more kind and compassionate to farmers.

It has humbled me down.

These reflections show how empathy and respect for rural communities became integrated into students' evolving professional identities. One student reflected on the fulfilment gained from their involvement, stating: "*I think the feeling of contributing to the community is very rewarding."*

Others described more abstract or emotional impacts:

> *[It] increased my beliefs in humanity.*
>
> *The rural week opened up a different lifestyle that I appreciate.*

This stage of transformative learning demonstrates how students not only acquired new perspectives, but internalised them, fostering a stronger commitment to rural health and an appreciation for diversity, resilience, and community.

The Enabling Role of Community. Across the phases of transformation, the theme of *Community*, expressed through relationships with host families, peers, tutors, and rural residents, was not confined to a single stage, but instead served as a consistent enabler of learning and reflection. These interpersonal connections helped students feel supported as they encountered disorienting dilemmas, adapted to unfamiliar environments, and re-evaluated their assumptions. Strong connections with peers, tutors, and host families became an essential support system in navigating these challenges. Students shared:

> *My connection with my peers, tutors, and host families grew very strong and deep.*
>
> *I have gained more peers that I am close with.*

The emotional safety and sense of belonging that emerged from these relationships provided the foundation for many students' transformative experiences. Community, in this sense, functioned not as a separate phase, but as the relational context that supported transformation across all phases.

In summary, in alignment with Mezirow's Transformative Learning Theory, the Rural Immersion Week prompted students to encounter disorienting dilemmas, engage in critical reflection, undergo perspective transformation, and ultimately experience personal growth. These stages, facilitated by meaningful interactions with rural communities, helped students broaden their empathy, deepen their cultural understanding, and consider rural healthcare as a viable career path.

While many students reported shifts in perspective and personal growth consistent with transformative learning, not all participants experienced the immersion in this way. A small number of students indicated minimal or no change in their views, captured under the theme *No Impact*. These responses did not map onto Mezirow's phases but were included to reflect the diversity of student engagement. Their presence underscores that transformation is not guaranteed and may depend on individual readiness, context, or the nature of the immersion experience.

Discussion

The results of this study indicate that the Rural Immersion Week significantly influenced students' intentions to pursue future rural clinical placements and consider rural practice as a career path. Descriptive statistics revealed an increase in students' positive responses toward working in rural settings and applying to rural clinical schools in the post-survey. Paired t-test results further confirmed that these shifts were statistically significant, suggesting that the immersive experience successfully promoted interest in rural healthcare, aligning with the program's objectives.

These findings are consistent with studies demonstrating the positive impact of rural immersion experiences on medical students' career intentions. For instance, Wright et al. found that a three-week rural program led to a positive shift in students' attitudes toward practicing in rural areas (Wright et al., 2014). Similarly, health professional students' participation in short, compulsory placement in Tasmania, led to an increased intention to pursue rural work (Dalton et al., 2008).

These studies, alongside our findings, underscore the value of short rural immersion as an effective strategy for addressing healthcare workforce shortages in rural areas by inspiring students to consider rural careers.

However, it is essential to acknowledge that not all studies have reported positive impacts of short rural immersion experiences. Abid et al. reported that, in contrast to extended placements, short rural immersion programs in New Zealand had no significant impact on health science students' intentions to work in rural areas (Abid et al., 2020).

Some research suggests that the initial boost in interest for rural practice may wane over time. A review found no long-term positive impact of rural clinical placement experiences on rural practice; however, they indicated it was likely due in part to the limited number of longitudinal studies on the topic (Seaman et al., 2022). Similarly, some studies reported that some students returned from rural placements with reinforced negative perceptions, particularly if they encountered challenging conditions, such as financial stress, professional isolation, or poor quality of supervision, that made rural practice seem less desirable (Bradley et al., 2020; Smith et al., 2018).

The transformative impact observed in this study can be understood through Mezirow's Transformative Learning Theory (Mezirow, 1997), with qualitative analysis providing insights into the depth of this transformation. Students experienced disorienting dilemmas and uncertainty as their assumptions about rural life and healthcare were challenged by firsthand exposure. This confrontation with new realities prompted critical reflection, particularly regarding cultural competence and the health impacts faced by Aboriginal communities. Learning about historical injustices and systemic challenges contributed to a deeper awareness of social determinants of health, fostering empathy and cultural sensitivity. The program also facilitated perspective transformation, a central component of Mezirow's theory, as students shifted their views on rural life and healthcare. This transformation was supported by the theme of personal growth and enabled through the strong sense of community experienced during the immersion. Interactions with host families, tutors, and peers provided a relational context that helped students adapt, reflect, and reframe their assumptions. Community, in this sense, acted as a mechanism for change across all phases of learning. While many students described a deepened commitment to rural health, a small number reported little or no change, highlighting that transformative learning is not universal and may depend on individual engagement or readiness.

Despite these promising results, this study has limitations. The reliance on self-reported data in surveys may introduce response bias, as students might feel inclined to provide favourable responses in the post-survey. Additionally, the study focused on a single cohort from Curtin Medical School, which may limit the generalizability of the findings to other medical programs. While information on students' rural or metropolitan backgrounds was collected, the sample size within each subgroup was not sufficient to support statistically robust comparisons. As such, the analysis focused on pre–post changes across the full cohort. The authors' involvement in designing and delivering the Rural Immersion Week may also introduce potential bias in interpreting student responses, though steps were taken to ensure reflexivity and consistency in data analysis. Further investigation with larger, stratified samples could examine whether background (e.g., rural vs metropolitan) influences the program's impact on student intentions. Longitudinal studies would also help determine whether initial interest in rural practice translates into long-term career decisions. Moreover, exploring the role of ongoing support and mentorship after rural placements could provide valuable insights into sustaining students' engagement with rural health.

In summary, the Rural Immersion Week demonstrates the transformative potential of experiential learning in shaping medical students' attitudes toward rural healthcare. While the findings are encouraging, it is important to consider that the positive effects observed may

require ongoing reinforcement. These findings, along with the broader literature, highlight the value of immersive rural experiences in cultivating empathetic, culturally competent healthcare providers committed to serving rural and underserved communities.

Conclusion

This study shows that a short-term Rural Immersion Week can significantly increase medical students' interest in rural practice, fostering cultural competence and social responsibility. These findings support the inclusion of short immersive rural experiences in medical education as a strategy to address healthcare disparities in rural areas. Future research should explore the long-term effects of such programs on students' career choices.

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Appendix 1: Pre-Survey

Curtin University

Understanding the impact of the Curtin Medical Student Rural Immersion Week

Student name: _____

Student number. _____

The purpose of this survey is to help us understand your current thinking about the Rural Immersion week experience. There are no 'correct answers' in this survey.

Completion of this survey is a requirement of the assessments for rural immersion week. The data will be de-identified and your identity will not be known to the researchers.

You may withhold your consent for your responses to the survey to be used for research purposes.

Please tick the box below to provide consent for your responses to be used for research purposes:

☐ I have received information regarding the use of this survey for research purposes and had an opportunity to ask questions. I believe I understand the purpose, extent and possible risks of my involvement in this project and I voluntarily consent to take part.

1. Will this be your first experience of living in rural Australia?

_____

_____

2. What you think might be the best aspect(s) of the rural immersion week?

_____

_____

3. What concerns do you have about the rural immersion week?

_____

_____

4. In what way do you think the rural immersion week might impact you as a person?

_____

_____

5. In what way do you think the rural immersion week might impact on where you work as a doctor in the future?

_____

_____

6. Did you apply to Curtin Medical School on the Equity Pathway?

No	Yes
○	○

7. Did you apply to Curtin Medical School as a rural origin student?

No	Yes
○	○

8. Are you considering working rurally as a doctor in the future?

Very unlikely	Unlikely	Neutral	Likely	Highly likely
○	○	○	○	○

9. Are you thinking about applying for a Rural Clinical School placement in Year 4?

Very unlikely	Unlikely	Neutral	Likely	Highly likely
○	○	○	○	○

10. Is there anything you would like to add?

_____

_____

Appendix 2: Post-Survey

Curtin University

Understanding the impact of the Curtin Medical Student Rural Immersion Week

Student name: _____

Student number: _____

The purpose of this survey is to help us understand your current thinking about the Rural Immersion week experience. There are no 'correct answers' in this survey.

Completion of this survey is a requirement of the assessments for rural immersion week. The data will be de-identified and your identity will not be known to the researchers. However, you may withhold your consent for your responses to the survey to be used for research purposes.

Please tick the box below to provide consent for your responses to be used for research purposes:

☐ I have received information regarding the use of this survey for research purposes and had an opportunity to ask questions. I believe I understand the purpose, extent and possible risks of my involvement in this project and I voluntarily consent to take part.

1. Which town did you go to?

○	**Brookton**
○	Corrigin
○	Kondinin
○	Dalwallinu
○	Moora
○	Wongan Hills
○	Katanning

2. In terms of preparation for the rural immersion week, how much do you agree with the following:

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
I understood the purpose of the fieldtrip.	○	○	○	○	○
I felt prepared for the experience.	○	○	○	○	○

3. What was useful in the preparation for the fieldtrip? (Tick all that apply).

- ☐ Population-based study, specific to this programme
- ☐ Handbook, specific to this programme
- ☐ Blackboard site, specific to this programme
- ☐ Workshop briefing, specific to this programme
- ☐ Aboriginal Health workshop, specific to this programme

4. What could Curtin Medical School do differently/better in preparing students for the fieldtrip?

_____

_____

5. Regarding the organisation of the fieldtrip, how much do you agree with the following:

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Transport to and from was satisfactory	○	○	○	○	○
My billet hosts made me feel welcome	○	○	○	○	○
There was sufficient support available for me on the fieldtrip (e.g., presence of tutors, I knew who to contact if I had a problem, etc.)	○	○	○	○	○
I felt safe on the fieldtrip.	○	○	○	○	○

6. In terms of your learning experiences, how much do you agree with the following:

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
I had a clear idea of what I needed to learn during the fieldtrip	○	○	○	○	○
The activities enabled me to meet the learning objectives	○	○	○	○	○
The learning experiences were sufficiently challenging	○	○	○	○	○
The learning experiences helped me to develop my understanding of important concepts	○	○	○	○	○
Interaction with tutors and fellow students helped me to think critically.	○	○	○	○	○

7. What did you find interesting or significant about doctors living and working in a rural setting?

_____

_____

8. What was noteworthy (positive or otherwise) about rural healthcare services?

_____

_____

9. What was noteworthy (positive or otherwise) regarding the Aboriginal community in your town (e.g., local history and health challenges)?

_____

_____

10. Describe any experiences which were very memorable to you (for example, you contributed to some aspect of rural life or healthcare, you had a memorable interaction with a local, etc).

_____

_____

11. What suggestions do you have for improving the fieldtrip?

_____

_____

12. Did the social interactions with your peers, tutors, host and community influence your experience during the rural week? If yes, in what way?

_____

_____

13. Are you considering working rurally as a doctor in the future?

Very unlikely	Unlikely	Neutral	Likely	Highly likely
○	○	○	○	○

14. Are you thinking about applying for a Rural Clinical School placement in Year 4?

Very unlikely	Unlikely	Neutral	Likely	Highly likely
○	○	○	○	○

15. What was the best aspect(s) of the rural immersion week?

_____

_____

16. What was the worst aspect(s) about the rural immersion week?

_____

_____

17. In social interactions with the rural community, were there instances where you could have done things differently or better? If yes, please explain.

_____

_____

18. Did you learn something that contradicted what you knew, or an assumption you had, before Rural Immersion Week? If yes, please expand

_____

_____

19. Do you feel that you contributed in some way to the local community?

No	Neutral	Yes
○	○	○

20. Reflecting on your own experience, do you think students are more likely to return to a rural area if they feel they made a contribution to the community where they stayed?

No	Neutral	Yes
○	○	○

Please comment here

_____

_____

21. Has the rural week affected you as a person? If yes, in what way?

_____

_____

22. Is there anything else you would like to add?

_____

_____

Australian and International Journal of Rural Education

EduVenture: Sparking the Conversation. Creating Moments of Connection

Gemma Death
Taree Universities Campus
gemma.death@tareeuni.org.au
Evan Weller
Taree Universities Campus
evan.weller@tareeuni.org.au

Abstract

The EduVenture project, initiated under the Regional Partnerships Project Pool Program (Australian Government Department of Education, 2024), aims to address barriers faced by regional and remote students in aspiring to and preparing for higher education. This initiative stems from the Australian Government Department of Education's (2019) *National Regional, Rural, and Remote Tertiary Education Strategy* and is led by Taree Universities Campus, a Regional University Study Hub, in partnership with the Australian National University and the University of Newcastle. By leveraging community consultation and co-design principles, the project fosters engagement between Taree Universities Campus, local high schools, universities and industries to enhance students' aspirations and career preparedness. Phase 1 of the project emphasised gathering community insights, including perspectives from students, educators and local community members, including Indigenous leaders, while Phase 2 implements hands-on experiences, such as career workshops, industry collaboration and campus tours. Activities are tailored to address the socio-educational challenges identified in the Mid Coast region of New South Wales, where students and schools face significant socio-economic disadvantage and low attendance rates.

Key Words: *aspirations, career, community, confidence, consultation, youth*

Introduction

The EduVenture project is born out of the Regional Partnerships Project Pool Program (Australian Government Department of Education, 2024), which responds to the *National Regional, Rural and Remote Tertiary Education Strategy* (Australian Government Department of Education, 2019). This research identified that regional and remote students experience additional challenges that may act as barriers to aspiration and preparedness for higher education. As a Regional University Study Hub (Regional University Study Hubs Network, 2024), it aims to widen participation in our local community, a key requirement in our funding agreement with the Department of Regional Education. Therefore, this project became an opportunity to trial ways we could engage and build relationships with our local schools.

The EduVenture project directed resources to develop innovative, sustainable partnerships between Table A universities and a Regional University Study Hub, and to build community-driven initiatives,

thus promoting higher education for under-represented students. In 2023, Taree Universities Campus joined the Eastern Australian Regional University Centre Partnership funded by the Regional Partnerships Project Pool Program (Australian Government Department of Education, 2024), in collaboration with the Australian National University and the University of Newcastle.

Phase 1 focused on community consultation to co-design the project, while Phase 2 delivery includes practical, relevant and hands-on experiences for high school students, to expand and build their aspirations. The *Australian Universities Accord* (Australian Government Department of Education, 2024) highlights that young people from low socio-economic status areas share similar aspirations with those from high socio-economic status areas; however, they often lack opportunities for these to develop. EduVenture aims to bridge this gap.

Context and Community Consultation

Initial project planning began in 2022 with community consultation. It was essential that this project was built with the specific needs of the community in mind. Such consultation ensures students are engaged in relevant and meaningful experiences locally and are offered realistic future opportunities and role model examples of a variety of pathways, thus motivating them to find accessible and purposeful postschool pathways.

An analysis of two key public schools in the New South Wales Mid North Coast region revealed educational trends that are concerning (see Tables 1, 2 and 3). The data indicate that these schools have disproportionate numbers of students from socio-educationally disadvantaged backgrounds, specifically in the bottom quartile. Additionally, both institutions demonstrate sub-optimal attendance rates and struggle to retain students through the senior years of schooling. These local-level statistics provide important context for understanding educational challenges in the Mid Coast region.

Table 1: ***High School Demographic Profile***

School	Distribution of Socio-Educational Advantage				% of First Nations Students
	Bottom quartile	Second quartile	Third quartile	Top quartile	
Chatham High	77%	17%	5%	1%	45%
Taree High	53%	28%	13%	6%	23%

Note: These data come from the Australian Curriculum, Assessment and Reporting Authority (2024).

Table 2: ***School Attendance Rates***

School	Student attendance rate	First Nations student attendance rate	% of First Nations students at the school
Chatham High	68%	63%	45%
Taree High	76%	66%	23%

Note: These data come from the Australian Curriculum, Assessment and Reporting Authority (2024).

Table 3: ***Chatham High School Senior Cohort Enrolment Numbers Over Recent Years***

Year	Student Numbers		
	End of Year 10	End of Year 11 (% decline from Year 10 of previous year)	End of Year 12 (% decline from Year 11 of previous year)
2023	93	68 (39.8%)	31 (42.6%)
2022	113	54 (22.9%)	48 (29.4%)
2021	70	68[a]	41[a]

Notes: These data come from the Australian Curriculum, Assessment and Reporting Authority (2024).
[a] Percentage data not available.

The community consultation process included current high school students, careers advisors and school principals, local Biripi Elders, First Nations representatives from Taree Indigenous Development and Enterprise, Taree Universities Campus staff and local university graduates and students. The consultation, facilitated by representatives from the Country Universities Centre network, exposed the following key points:

- Students want to hear real stories, from the early years of high school.
- The importance of local, accessible, impactful role models.
- Hearing from universities in Year 11 is too late.
- Exposure to local work opportunities from businesses.
- Students need to understand the relevance of school to the world of work.
- Engagement of parents and community members to inspire and encourage students.
- How can Taree Universities Campus create a "social" side of university?

Consequently, the EduVenture project would facilitate Phase 2 activities focusing on career/aspiration-building each term, with the Australian National University, University of Newcastle, Taree Technical and Further Education (TAFE) and local industry guest speakers. The visits would begin in Term 2 for students in Year 8 in 2023 at six local public high schools, and then continue over a two-year period with the final visit in Term 2 of Year 10 in 2025.

The project aims to:

- increase the visibility of the different journeys that students take post-school and empower them to make educated choices
- increase student self-belief and confidence to tackle decisions and challenges associated with school and transitioning out of school.

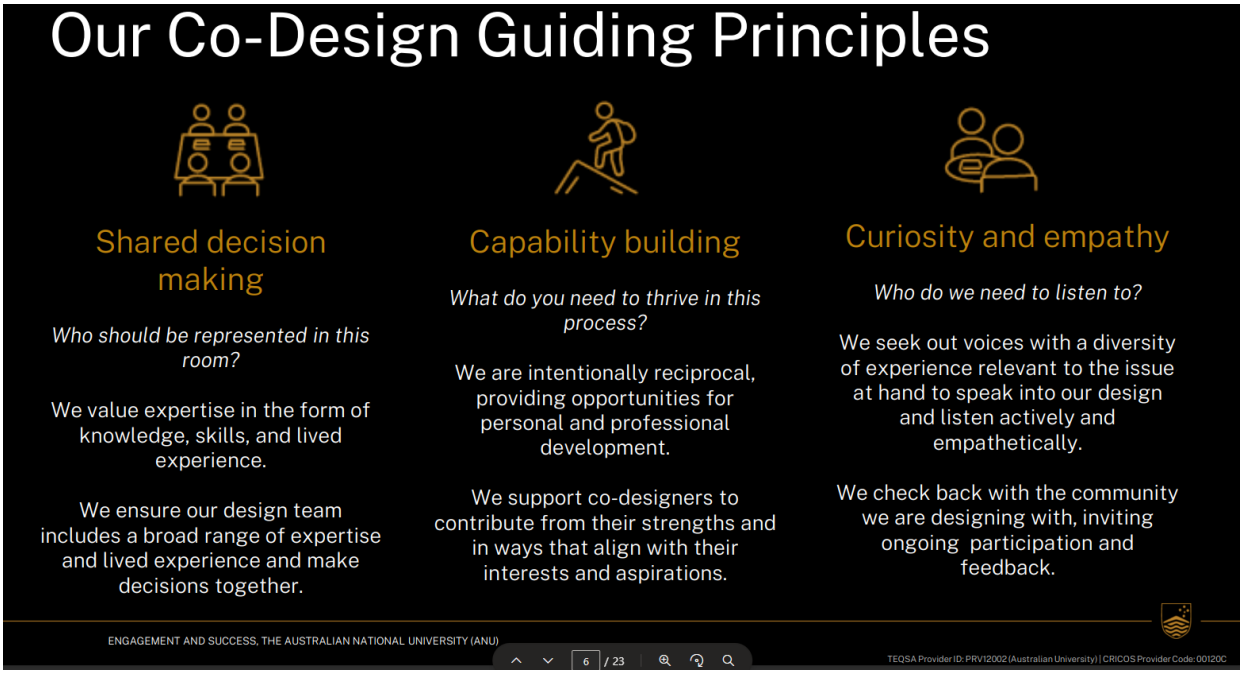
Through the community consultation, insightful learnings were gained both initially and throughout the project. These included:

- understanding the need to be adaptable to ensure inclusivity of opinions,
- understanding that consultation is not a one-off occurrence (this continues to be a key theme throughout the project), and
- realising that two key voices were missing: the target cohort (Year 8/9 students) and their parents.

Co-Design

Following the development of the Program Logic and Evaluation Plan (see Appendix A), practical deliverables needed to be established to ensure each activity was focused and related back to the project aims. The co-design was facilitated by our partner, the Australian National University, and followed essential co-design principles of shared decision-making, capacity building, and curiosity and empathy (see Figure 1).

Figure 1: ***Co-Design Principles Used During Phase 2 of the Project***

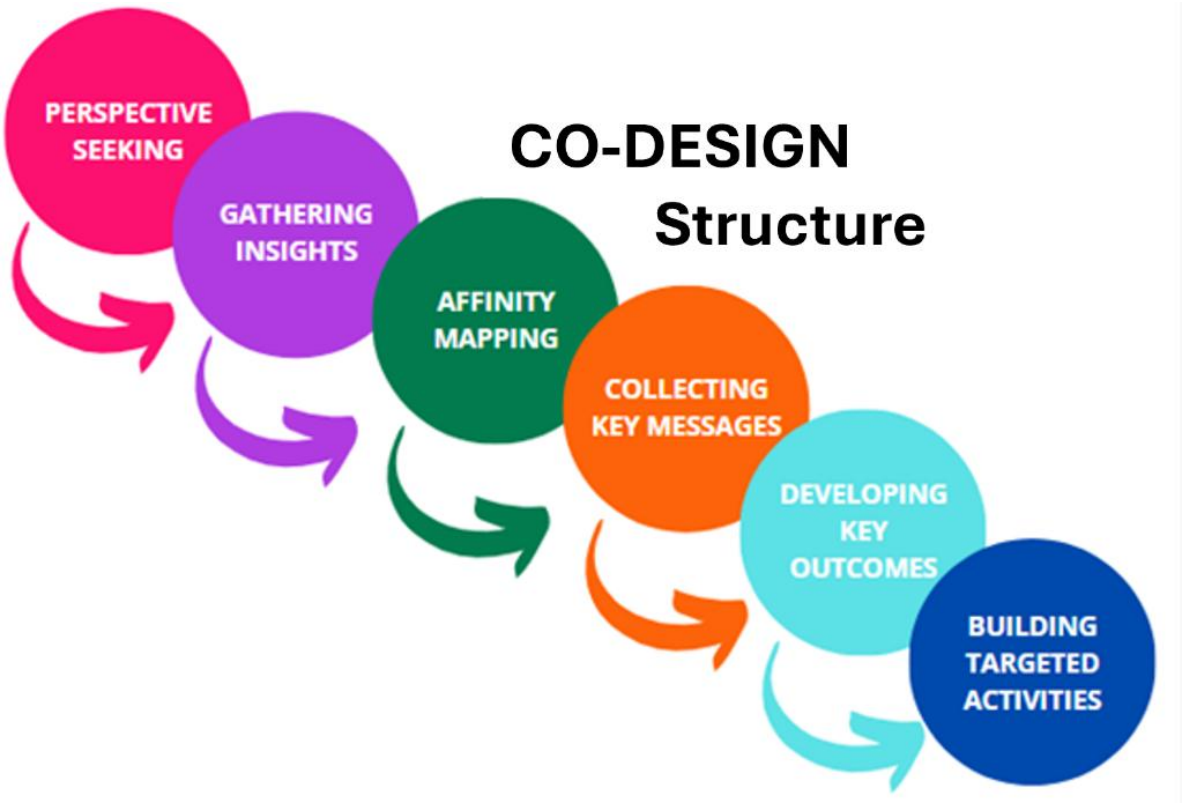


The Australian National University and Taree Universities Campus teams learnt about each other's backgrounds and experience, allowing the activities to be designed around the sharing of real-life experiences. This was a key element heard from the students in the community consultation. Figure 2 shows the co-design structure.

It is important to note that, even though all effort was made to tailor the activities to our regional context, at each school the team still reflected, refined and modified activities. This demonstrated that, even in one community, many different journeys exist, highlighting the importance of flexible, community-led strategies.

Prior to the midpoint of the project, a second formal co-design was held with the Australian National University, University of Newcastle, Taree Universities Campus and careers advisors from the local high schools. The purpose of this session was not only to design the school visits, but also to act as a mid-project touchpoint for all stakeholders, allowing them to review the primary aim and purpose of the project, and to ensure that all facilitators were aligned in the delivery, thereby ensuring consistent and impactful visits to schools for the students. This became important as we started the second half of the project.

Figure 2: ***Co-Design Structure: Turning Aims into Actions***



Activity Implementation

To bring the project to life, activities were sequenced with intentionality, including many opportunities for feedback, evaluation and reflection, thus allowing school visits to be continually refined. In keeping with the career management competencies outlined by the *Australian Blueprint for Career Development* (National Careers Institute et al., 2022), the feedback taken from the community consultation was sequenced across the two years to align with student development:

- Year 8: Build positive self-concepts; interact positively with others; understand that careers are more than a job and will change throughout life; explore student strengths and build an understanding of transferable skills and how these can be articulated into a resume.
- Year 9: Exposure to real career stories from student alumni and local business representatives; mini career taste-tester workshops with the Australian National University and University of Newcastle, attendance at Taree Universities Campus' career expo (CareerQuip) and Gloucester Connect Career Expo, excursions and campus tours to the University of Newcastle and TAFE, to feel what it is like to be on campus.
- Year 10: Introduction of the Human Library Project (Taree Universities Campus, 2024); building mentor relationships from our local community, review skills, strengths and interest work from Year 8 and establish how they can be linked to the world of work; create a careers information session prior to Year 11 subject selection; utilise virtual reality technology to immerse students in career experiences and interview skill techniques; offer further excursion opportunities for students to see options in the local area and beyond.

Challenges

One of the greatest challenges throughout the project has been connecting with the correct people at each school and having buy-in from careers advisors and school staff, including supervising teachers. Building relationships and listening to staff and student feedback has been critical in ensuring effective program delivery. Including careers advisors in the second co-design was an effective measure, helping to ensure that they not only knew what to expect during the visit, but to also to give us input about their particular students.

Further challenges have included meeting the needs of such a diverse group of students and finding the balance between meeting their needs, answering their desires from feedback, and exposing them to careers they have never heard of. Our Year 9 visits have included choice and options, which work well to engage a greater number of students.

Evaluation

Evaluation for EduVenture has been two-fold. For the wider Eastern Australian Regional University Centre Partnership project, an online Qualtrics survey was developed to be administered three times over the two years: pre-, mid- and post-project surveys. The survey comprised both qualitative and quantitative data (see Appendix B). Post-visit questionnaires were also developed, with three quick questions for students to offer immediate feedback following each school visit. At the time of writing this report, the project was at the midway point. While data are demonstrated below, some of the most impactful feedback is the student connections through conversations with Taree Universities Campus staff and Uni Ambassadors. Often student confidence to chat and ask questions is not revealed until a relationship is formed and connections are made. It is this side of evaluation that led to our tag line: *Sparking a conversation. Creating moments of connection.*

The following graphs show improvements across one year, from the pre- (conducted 2023) to mid- (conducted 2024) project surveys. For example, 12% more students already agree or strongly agree they know more about study options after school (see Figures 3 and 4) and 6% more agree or strongly agree they are considering studying at university (see Figures 3 and 5), in line with a positive shift in responses to what studying at university might be like (see Figure 6). In terms of students' interests and skills, although a large percentage (>60%) stated pre-project that they agreed or strongly agreed how to use them in the future (see Figures 3, 7 and 8), the number of different careers students stated they were interested in increased substantially in the mid-project survey, with responses becoming more specific and moving aways from broad career fields (see Figure 3).

Figure 3: ***Percentage of Students who Agreed and Strongly Agreed with Survey Prompts Pre- and Mid-project***

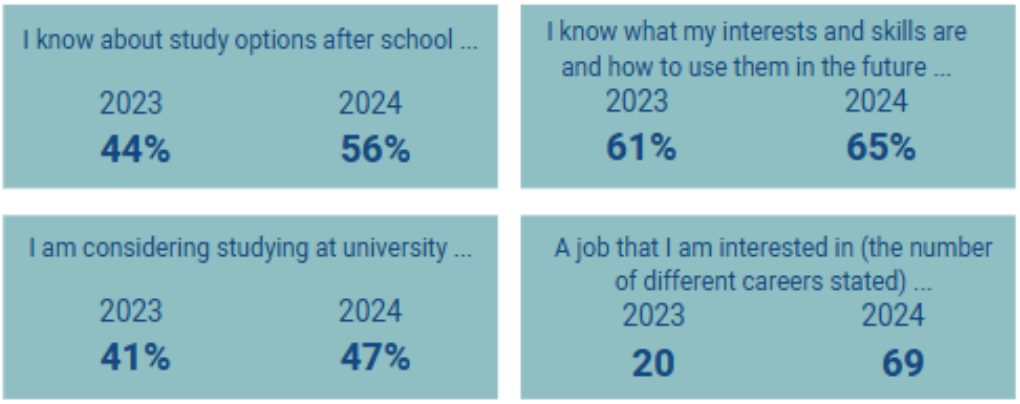


Figure 4: ***Distribution of Pre- and Mid-project Student Responses when Prompted "I know about study options after school"***

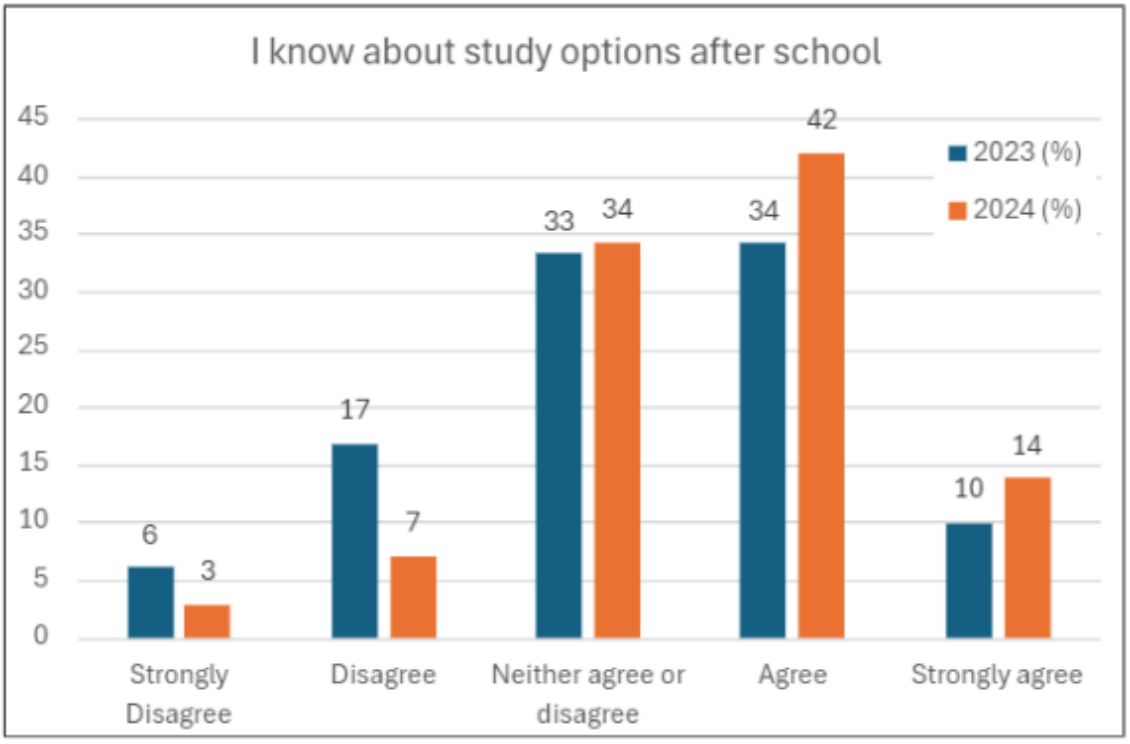


Figure 5: ***Distribution of Pre- and Mid-project Student Responses when Prompted "I am considering study at university after school"***

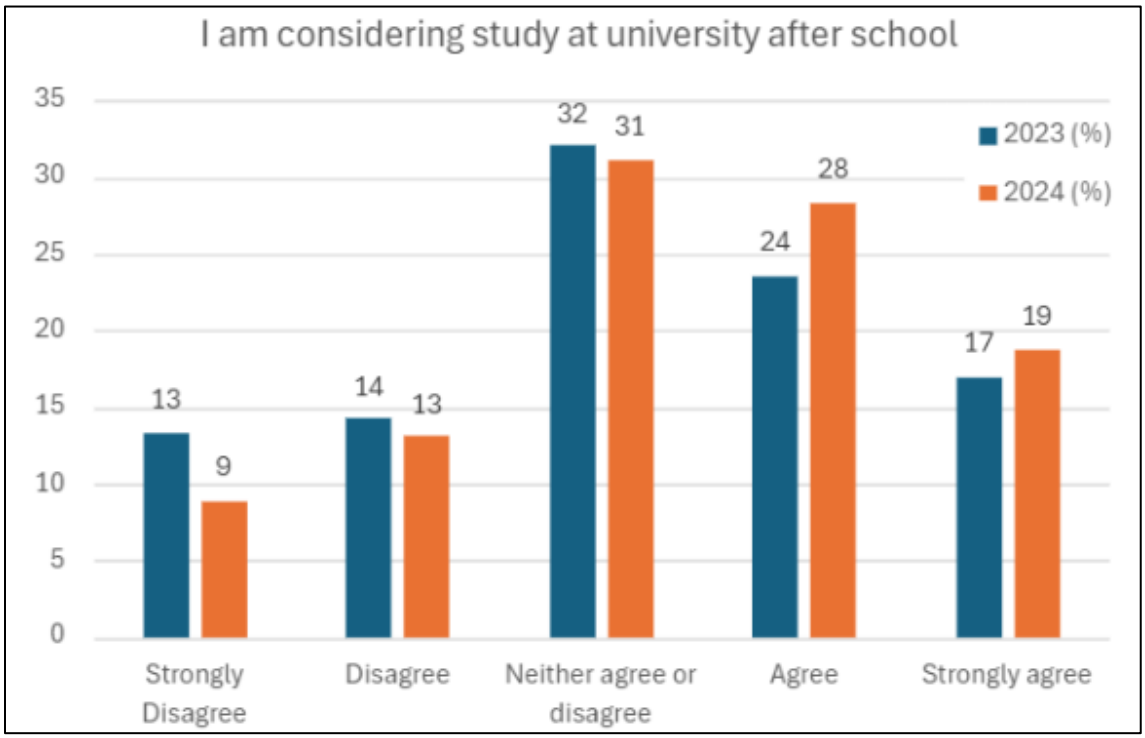


Figure 6: ***Distribution of Pre- and Mid-project Student Responses when Prompted "I know what studying at university might be like"***

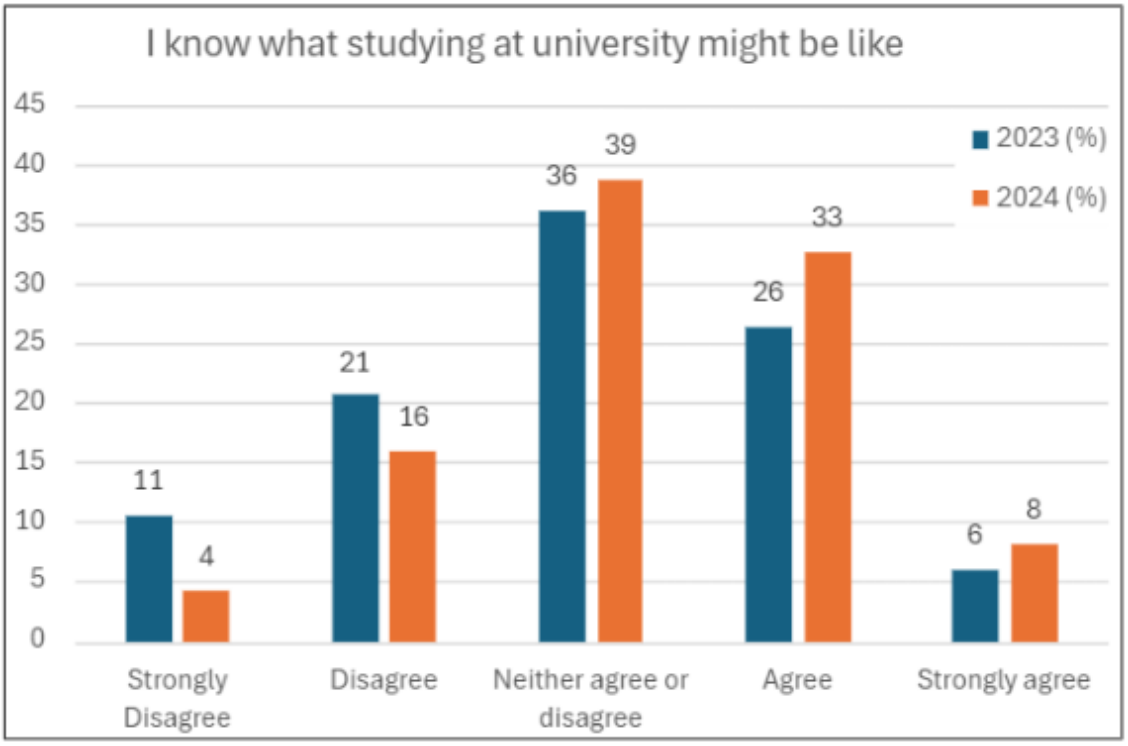


Figure 7: ***Distribution of Pre- and Mid-project Student Responses when Prompted "I know what my interests are and how to use them in the future"***

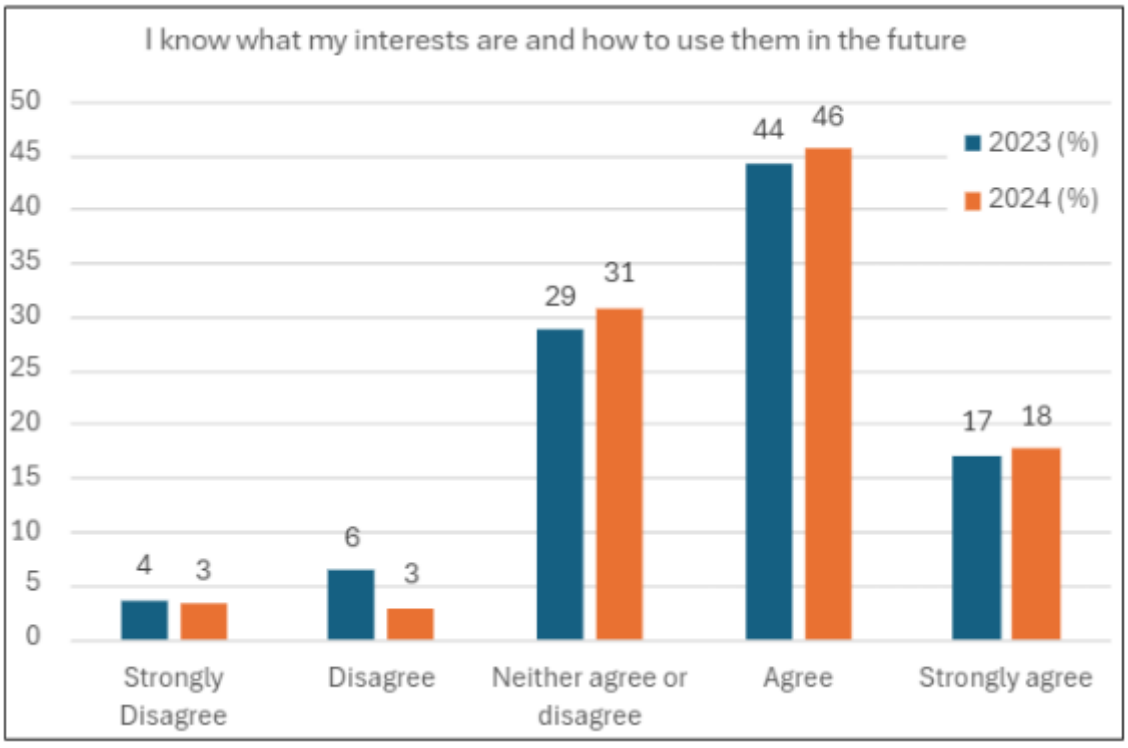
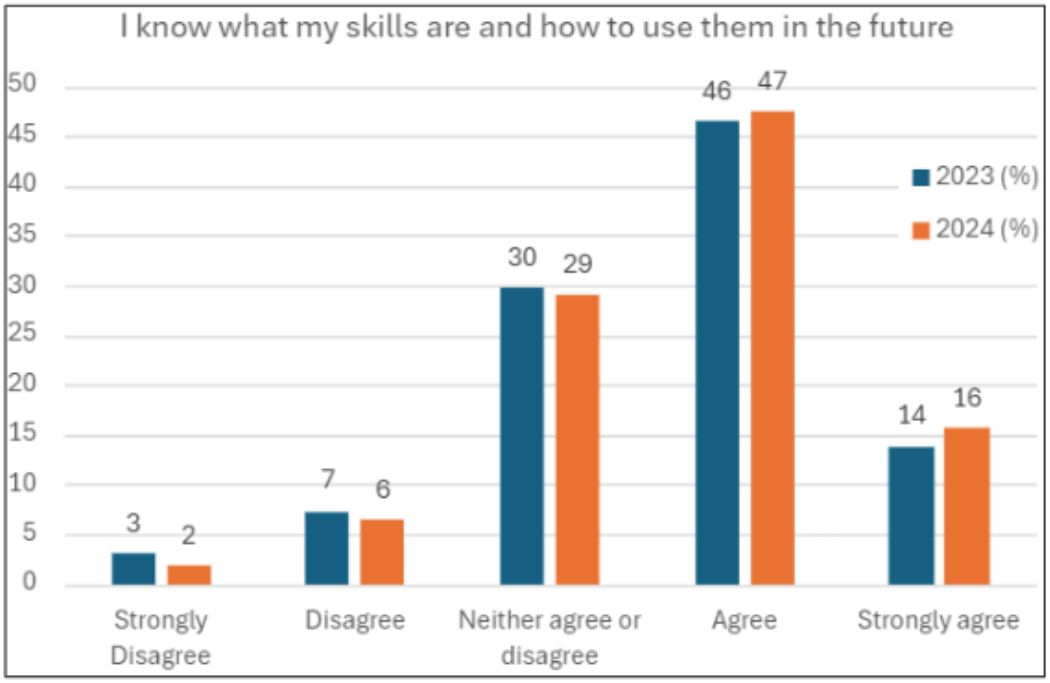


Figure 8: ***Distribution of Pre- and Mid-project Student Responses when Prompted "I know what my skills are and how to use them in the future"***



The survey also captured valuable qualitative data regarding attitudes towards university study. These reveal several key themes that emerged from students' reflections. When asked about their feelings towards university, students expressed a complex mix of emotions that can be broadly categorised into three main areas:

- Excitement and opportunity: Some students viewed university with enthusiasm and optimism, seeing it as a pathway to their desired future. As one student noted: "*I feel excited at the opportunity of being able to go to university and study courses and get degrees in areas that I want to learn more about.*" Another expressed similar sentiment while acknowledging some apprehension: "*Scared, but excited, happy to learn and want to do my dream career*.
- Uncertainty and anxiety: A significant number of responses reflected uncertainty and anxiety about university. Students expressed concerns about making the right choices, with one student sharing: "*I feel a bit nervous because I am growing up and I am studying my life job and so I don't want to make the wrong choice*." Others simply stated their uncertainty directly: "*I am not sure*" and "*uncertain*."
- Practical concerns: Some students identified specific barriers to university participation. These included concerns about academic ability ("*If I was intelligent enough, I would go*") and financial considerations ("*I wanna go but the only thing is cost*").

When asked about what support would help them feel more confident about post-school pathways, students identified several key areas for improvement:

- Information and exposure: Students expressed a desire for broader exposure to career options, with one requesting to "*have more ranges of topics to discuss about future career options and branch out from the typical areas*." Another specifically asked to "*show us what the jobs we would like to do actually look like and inform us about what we have to do to get there*."

- Practical guidance: There was a clear desire for specific, practical information about educational pathways. Students wanted to understand "*what degrees lead to what*" and requested information about "*how to actually get there and what qualifications we need*." Some students also expressed interest in personalised guidance, with one suggesting "*a survey that i put in what I'm good at and what I'm interested in and it gives me a list of jobs I would suit*."
- Experiential learning: Several responses indicated a desire for first-hand experience and exposure, with requests to "*show us what it's like there*" and for "*more activities to our interests*." This feedback suggests students would benefit from a comprehensive career guidance approach that combines broad career exposure with specific pathway information and opportunities for experiential learning.

In terms of moving forward, we acknowledge the project has demonstrated some excellent results so far, but continued discussions with careers advisors, students and industry have led to the refinement of activities and practice. The project's final year will bring practical experiences for students, as they participate in campus tours of the University of Newcastle and the local TAFE.

Careers advisors have sought some support in preparing students for subject selection in Year 11, delivering activities on personal reflection and linking skills and interests to possible job options in the future. Resources such as the Australia's National Career Information Service's *myfuture* website (https://myfuture.edu.au) will be utilised to ensure these sessions are evidence-based and the information delivered is accurate. Additionally, a major inhibitor for our regional schools is the challenge for students to participate in work experience, because of a lack of opportunity, an increase in occupational child protection and safety requirements, as well as minimal industry areas willing to take on work experience students. Taree Universities Campus will therefore be providing training in virtual reality, to offer students an opportunity to experience different occupations inside the school or regional university study hub environment.

Conclusion

EduVenture has provided a learning experience for all those involved, from the local regional university study hub (Taree Universities Campus), school students, teachers and the broader partnerships with the Australian National University and University of Newcastle. Having the opportunity to work locally in schools allows Taree Universities Campus to respond to feedback and the specific needs of this community. Building relationships and connectedness between stakeholders has been an integral positive side of the project, with sustainability for future endeavours.

Whilst it has been established that a two-year project will not demonstrate immediate impact in the community, counting the moments of connections and sparks of conversations has demonstrated that it has been a worthwhile opportunity to improve the aspirations of students across six high schools in regional New South Wales and to learn how Taree Universities Campus can best work with schools and students in outreach activities.

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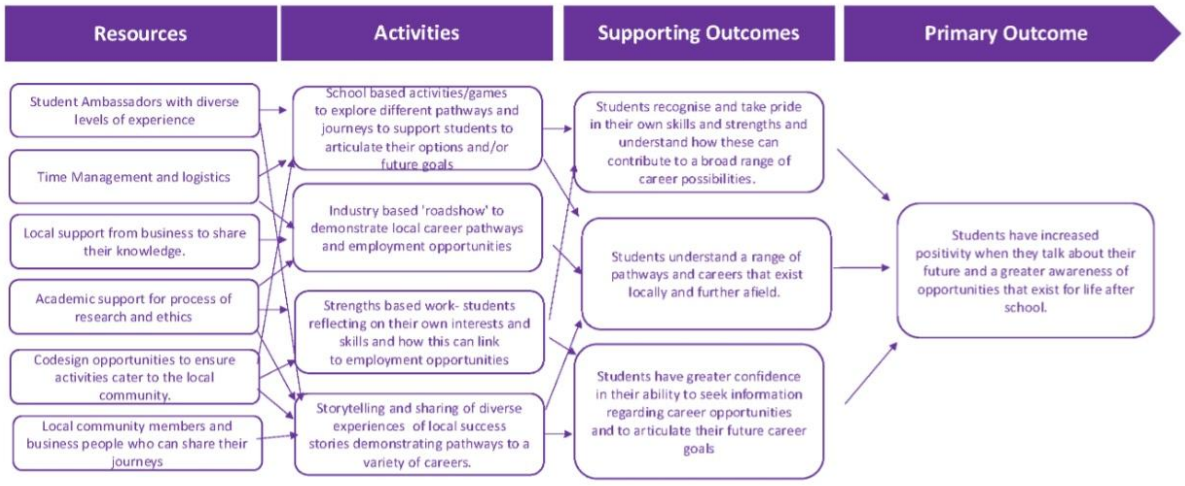
Appendix A: Program Logic and Evaluation Plan

Program Logic



Evaluation Plan Template

Primary Outcome	Supporting Outcome	Target Audience	What data collection tools will you use?	When would these tools be implemented?	Where will the tools be implemented?	Who will be implementing the data collection tool?
Students have increased positivity when they talk about their future and a greater awareness of opportunities that exist?	*Students recognise and take pride in their own skills and strengths and understand how these can contribute to a broad range of career possibilities.* *Students understand a range of pathways and careers that exist locally and further afield.* *Students have greater confidence in their ability to seek information regarding career opportunities and to articulate their future career goals*	*Year 8 students across 6 schools in the Mid Coast Council area. Approx 500-600 students.*	*Research Survey Questionnaire* *Workshop Evaluation Surveys/activities.*	*Research Survey Questionnaire will be conducted pre; mid; end of the 2 year study.* *Evaluation Surveys will be collected after each session. These will inform next workshops- they will not be reported in the data collection for EARCUP.*	*Research questionnaires will be conducted and collected in the school session.* *ANU will be responsible for the storage of data*	*The RUC and ANU staff members and facilitators.*

Appendix B: Qualtrics Survey Questions

School _____ Unique Code _____ Date _____

I identify as (circle the answer):

Female Male I prefer the term: I prefer not to say

Do you identify as Aboriginal or Torres Strait Islander?

Yes, Aboriginal | Yes, Torres Strait Islander | Yes, both Aboriginal and Torres Strait Islander | No or Prefer not to say

Have your family or friends studied at university?

My parent or guardian | My sibling | Someone from my extended family | A friend

Someone else I know (write who): | I don't know anyone who has studied at university

How much do you agree with each of the following statements?

I know what my interests are and how I can use them in the future	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I know what my skills are and how I can use them in the future	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I know what job I want to do as an adult	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I know about study options after school	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I know what studying at university might be like	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I am considering study at university after school	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I can imagine myself as a university student	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

How do you feel when you think about university?

The job(s) I imagine myself doing when I am older are:

What do you think you will do when you finish school?

Full-time employment TAFE/Apprenticeship University Gap Year

Something else (write what): I don't know

What would you like to know about university?

What could we do to help you feel more confident about what you would like to do after school?

Describe a University student: