

THE IMPACT OF VIRTUAL LEARNING ON STUDENTS' ASPIRATIONS
IN RURAL AND REGIONAL NEW SOUTH WALES (AUSTRALIA)

BY

WENDY MOCKLER GILES

DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Education in Education Policy, Organization and Leadership
with a concentration in Learning Design and Leadership
in the Graduate College of the
University of Illinois Urbana-Champaign, 2025

Urbana, Illinois

Doctoral Committee:

Professor William Cope, Chair
Professor Mary Kalantzis, Director of Research
Assistant Professor Xinran Zhu
Professor Yu-ling You, National Changhua University of Education

ABSTRACT

In Australia, and particularly in its most populous state of New South Wales, school students from rural and regional backgrounds do not perform as well as their metropolitan-based peers on national standardized tests or high-stakes state examinations and they consistently report having lower aspirations than urban students. Behind these outcomes, rural and regional students demonstrate lower levels of engagement and attendance at school, and fewer of them complete school or study at university. This “remoteness gap” correlates with socio-economic status, but this only partly explains the stubborn and persistent educational outcome gaps. Research found that in-school factors such as school climate, access to expert teachers and high-quality curriculum materials for a broad range of subjects were as predictive of educational aspirations as school characteristics, such as size and type, and more than family and student characteristics and experiences. Critically, however, access to expert teachers and high-quality curriculum materials are not always available to rural and regional students.

This study of the Virtual Learning Collaborative revealed that through a network of schools in rural and regional New South Wales, students overcame entrenched access and equity structural barriers by accessing expert teachers and high-quality curriculum materials through virtual courses not available in-person at their school. They not only matriculated and then accessed their preferred university courses but also reported gains in their academic self-concept and self-regulation skills from studying a course virtually. In the analysis, academic buoyancy emerged as instrumental in developing students’ academic confidence (related to academic self-efficacy) and provided a novel theoretical contribution to addressing the rural-urban education gap through virtual learning networks.

ACKNOWLEDGMENTS

It is customary for indigenous peoples across the world to acknowledge and value traditional ownership of country. In doing so, they recognize and value the obligations and responsibilities for country that each of us carries as a significant political, social and symbolic mark of respect and as an important cultural protocol.

I acknowledge the traditional custodians of the land on which this was written, the Yuin people, and their connection to the land, the Bega River and the community. I pay my respects to their Elders, past, present and emerging and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

In the understanding that we belong to our place, I acknowledge my family and my community of mentors and peers that have supported my “journey of discovery”, including the polymath Professor William Cope, and Professor Mary Kalantzis, whose intellect is as sharp and striking as flint matched by the warmth of her humanity. I would also like to acknowledge my students, who are the alpha and omega of my learning journey.

Dedication

For my friend, Michelle da Roza

9 March 1963 - 21 May 2018

A life lived well shapes and is shaped by and through the lives of others.

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CHAPTER 1: INTRODUCTION

Asked the origins of their character, Americans might give half a dozen or more answers – the Puritan forefathers, the constitution and its enlightened authors, the Civil War, the unrestrained marketplace, immigration, liberty, the absence of an established Church, the frontier. Different parts of the country are likely to give different answers.

But Australians have really only ever had one answer: the bush is where it comes from ...the bush is a mirror about imagined natural and unvarnished selves, an emblem of our natures - our natures being hardy and adaptable like gum trees and mulga, dried out like the sclerophyllous, and quite unlike the natures of people from continents that lack this kind of vegetation.

From *The Bush* by Don Watson (2014)

Bourdieu (1986) developed a multi-dimensional view of capital as the spoils of competition driven by practice in social fields. He stated that the immanent structure of the social world acts as a set of constraints “determining the chances of success for practices” (Bourdieu, p. 242) where some agents with greater access to social, cultural and economic capital achieve greater success. Realizing the potential of individual agency against structural determinism drives my work and study.

Students in rural and regional Australia, or more colloquially from ‘the bush’, typically experience poorer educational outcomes than their city counterparts. This is reflected in their final course scores and lower levels of engagement, attendance, and aspirations for further study, and these students do not have regular access to high-quality teachers and school leaders. I am compelled to ask if we have sleep-walked into a dormant future for rural and regional communities, the seeds of which are lurking in our past. If, as Watson (2014) points out, the Australian character owes itself to the bush, why do our children from the bush miss out on the chance to develop theirs?

In the *habitus* of secondary schools in New South Wales (Australia), the Higher School Certificate for senior matriculating students has made everyone market players. Teachers teach to the test, narrow the curriculum, and drill students so that they can beat the competition. It

works for most students, at least those in the cities. As a teacher in this dynamic I have wrestled with my conscience, wondering about what I have left out or brought into the classroom because ‘it won’t be on the test’. Have I traded my students’ right to Young’s (2014) powerful knowledge for their marketability in a neoliberal economy of education? Drawing from Bourdieu’s work, Young’s premise is that the curriculum should guarantee equality because “children as future citizens all have the same educational rights” (p. 70). But in rural and regional areas of New South Wales (Australia) where I live and work, that guarantee of equality is even more elusive in the framework of the Higher School Certificate. Beyond the architects of neoliberalism, I wonder who is ultimately responsible for this competitive, cut-throat and ‘teach to the test’ dynamic that leaves out rural and regional students and what is to be done about it?

The emergence of new technologies and the softening of community attitudes towards learning online after COVID-19 motivated the New South Wales (Australia) rural and regional school communities in the study to keep their children at home instead of sending them off to city boarding schools and they approached the Catholic Education Office to offer the Higher School Certificate at local Catholic schools. The Virtual Learning Collaborative came out of that community longing and need to support students’ school completion and aspirations. I took on that role to connect students and teachers across an area nearly 50,000 square miles and soon realized it was not just about school completion, it was also about empowering individuals and overcoming geographic determinism. This study was motivated and informed by that realization.

Reading Apple (1993) was like reliving the Big Bang moment of neoliberalism for education as he identified how it began, namely through its instruments of “privatization, centralization, vocationalization, and differentiation” (p. 5). When he wrote that “the world, in essence, becomes a vast supermarket” (p.6), he was right. Over thirty years later, we now live in

a globalized and integrated world where boundaries, both virtual and physical, are arbitrary and even our intellect is commodified in generative artificial intelligence apps. Apple grasped the counter-intuitive realization that the neoliberalist pursuit of social cohesion will force entire groups to be othered. This may be what has happened to rural and regional students in New South Wales (Australia) where the stubborn and persistent gap in education outcomes has quietly been accepted as a casualty of competition. This silence and lack of representation feels like a form of Bourdieu's (1986) symbolic violence.

Apple et al. (2022) challenged the neoliberal paradigm with a call to action for democratic participation and the role of education at the site of struggle. That work, grounded in practice, is provocative and burns with a fiery justice taking the teacher beyond their classroom. Apple et al.'s advice can be summed up in this quote, "What educators cannot do is look away" (p. 12). Furthermore, Ball (2013) urged that unless we engage in a critical ontology of ourselves, our disciplines, our institutions, and our teaching practices, nothing will change. Through this research I am committed to follow Apple et al. and Ball's advice and that I need to search for the truth in my community that could help seed change for rural and regional students.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The literature reviewed revealed several common issues, challenges and barriers that impact the learning outcomes of rural, regional, and remote students. The studies and reports included in this systematic literature review posited that in most countries, students attending schools in rural, regional, and remote areas typically experienced poorer education outcomes than their metropolitan peers. Echazarra and Radinger (2019) stated that in economically developed countries, 15-year-old students in cities of 100,000 or more people are about one-half a year of schooling ahead of their peers in rural, regional and remote areas. Li et al. (2017) said that in New South Wales (Australia) that disparity between 15-year-olds from different socio-economic backgrounds was more than three years of schooling. Chesters and Cuervo (2022) undertook a regression analysis that indicated that top-performing 15-year-old urban students in Australia were 3.3 times more likely than their rural and regional peers to attend university. The literature reviewed also indicated that students in rural and regional areas of Australia were less likely to aspire to completing a university degree compared with students attending schools in metropolitan or urban areas (Behrendt et al., 2021; Centre for Education Statistics and Evaluation, 2013; Fray et al., 2020; Hossain et al., 2008).

Fuqua and Roberts (2021) listed the poorer education outcomes for rural and regional Australian students as “lower rates of early childhood education, lower rates of matriculation to university, higher rates of vocational education subjects, lower school retention and senior secondary completion, lower literacy and numeracy scores and less access to the breadth of the curriculum” (p. 287). A significant number of studies found a correlation between in-school factors (such as school size and type, and the quality of teaching) and out-of-school factors

(including socio-economic status and demographic variables) with rural, regional, and remote students' aspirations, achievement and engagement in education at school and in post-school pathways (Centre for Education Statistics and Evaluation, 2021; Halsey, 2018; Li et al., 2017; Sullivan et al., 2018). Echazarra and Radinger's (2019) findings indicated that the design of education policies and models for rural and regional schools benefitted from context-specific initiatives where schools are "using learning time productively, creating a positive learning environment, using multiple assessments strategically, and building a skilled and dedicated community of school professionals" (p. 46).

2.1.1 Context for the systematic literature review

Longstanding disparities in outcomes between rural and urban communities were identified in Programme for International Student Assessment data and Organisation for Economic Cooperation and Development international research reports, such as in Echazarra and Radinger (2019), Sullivan et al. (2018), and Organisation for Economic Cooperation and Development (2013). In Australia, the National Inquiry into Rural and Remote Education, conducted by the Human Rights and Equal Opportunity Commission (1999), stated that rural education in Australia was not of an appropriate standard and quality, and was a significant concern at the time of that inquiry. More recently in Australia, the Jesuit Social Services (2021) reported in their *Dropping Off the Edge* series of longitudinal studies, that student results from the National Assessment Program for Literacy and Numeracy were strongly linked to a student's family's socio-economic status. The authors of that report also stated that student results in the lower quintiles were more likely to be reported in disadvantaged non-metropolitan or rural locations in Australia.

The Organisation for Economic Cooperation and Development (2013) observed that Australia was the fifth highest country showing an urban advantage in student performance for reading but maintained that “differences in students’ socio-economic background explained only part of the performance gap between students who attended urban schools and those who attended schools in non-urban areas” (p. 2). In that report, schools in areas where the population was more than 100,000 people were considered urban, while schools in areas with a lower population than 100,000 were considered non-urban. Sullivan et al. (2018) observed that half of the developed countries that participated in the Programme for International Student Assessment did not report an achievement difference between their rural and urban populations. They thus suggested that education policies and school practices may either ameliorate or exacerbate rural disadvantage which is significant for Australia given the persistent experience of a rural-urban education gap.

Beswick et al. (2023) stated in their major report, commissioned by the New South Wales (Australia) Department of Education, that while there were many targeted and well-designed programs that addressed the needs of students and schools in rural and regional areas, data indicated that existing programs had not achieved their aims to improve education outcomes for New South Wales (Australia) Department of Education rural and regional schools. Beswick et al.’s review followed earlier targeted evaluations and inquiries focused on rural and regional differences in education outcomes from the Centre for Education Statistics and Evaluation (2013, 2020) and Halsey (2018a). Beswick et al. stated that in the Australian context, even with significant scholarship and resourcing, “there are few evidence-based practices and strategies that support the improvement of outcomes in rural schools” (p. 34). The literature reviewed identified a direction for future research to improve the outcomes in rural and regional schools.

This was the leapfrogging capabilities of information and communications technologies for rural and regional learners embedded in participatory alliances within and between schools. This literature review discusses the overarching determinants of education outcomes for rural and regional students revealed by the literature reviewed, focusing on the role of virtual learning.

2.2 DEFINITIONS

In appraising the literature reviewed to gain insights into education outcomes for students attending school in rural, regional, and remote areas and how their communities use information and communications technologies for teaching and learning, the following definitions established their relevance.

2.2.1 Educational outcomes

Educational outcomes were loosely defined in the literature reviewed with several authors neglecting to provide specific examples to identify their interpretation of educational outcomes. Cornelius and Mackey-Smith (2022), for example, perceived improved educational outcomes as broadening students' future life choices. Abbott-Chapman et al. (2017) stated that “community history, geography and activity infrastructure produce different educational outcomes for young people ... over time” (p. 127) and, like Li et al. (2017), the authors noted that educational outcomes are multidimensional. Yeung et al. (2013) positioned positive self-concept as an important education outcome, especially for Indigenous students. Tieken and Casey (2016) tied educational outcomes to aspirations of rural youth. Ewulley et al. (2023) referred to drivers and predictors of education outcomes, and their impact of minimizing inequalities in the context of providing basic education in Ghana, but like others in different contexts, (Beswick et al., 2023; Echazarra & Radinger, 2019; Halsey, 2018a, 2018b; OECD,

2013) they used the term “educational outcomes” to connote any outcome deriving from education, without qualification.

The Centre for Education Statistics and Evaluation (2020) stated that educational outcomes included attendance, engagement, and transition to further study, which was repeated by O’Donnell et al. (2022) who interchanged educational outcomes with metrics related to school functioning and academic performance. A common theme that emerged in the literature reviewed was that educational outcomes were consistent with academic achievement (Banerjee, 2016; Corbett & Gereluk, 2020b; Leithwood & Jantzi, 2009) and generally synonymous with learning outcomes (Beswick et al., 2023; Smith & Haslett, 2017). Other researchers provided exact definitions and expressions of educational outcomes as “test scores and high school graduation rates” (Sullivan et al., 2018, p. 2), and “NAPLAN Reading, Numeracy, Writing, and Spelling scores, Year 12 completion rate, TAFE (Technical and Further Education) and university attendance rate” (Li et al., 2017, p. 14). Roberts and Fuqua (2021) explained that academic scores acted as a proxy for educational outcomes, but in their collection of works, the editors included authors that promoted a more nuanced approach to education outcomes. This included access to and availability of resources for students attending schools in rural, regional, and remote areas as well as transitions to postsecondary pathways including tertiary studies.

Interpreting education outcomes in the literature reviewed for an Australian context was informed by the National Declaration on Education Goals for All Australians (The Declaration), set out in the *Mparntwe Education Declaration*. The Declaration sets out two goals (Education Council, 2022):

Goal 1: *The Australian education system promotes excellence and equity.*

Goal 2: *All young Australians become confident and creative individuals, successful lifelong learners, and active and informed members of the community.*

Educational outcomes, as described generally in the literature reviewed, were linked to the costs and benefits that resulted because of a student or community's engagement in education. Li et al. (2017), O'Donnell et al. (2022) and Sullivan et al. (2018) indicated that typically, education outcomes and their impacts differed along the time continuum from short, medium to long-term timeframes. The Centre for Education Statistics and Evaluation (2021), Halsey (2018a) and Perales et al. (2023) also observed that education outcomes may be positive or negative, intended or unintended, directly observable or unobservable at a given time for a population subset. The notable common interpretation in the literature reviewed about education outcomes is that they represented a change in knowledge, skills, behaviors, capacities, and access and are evident in achievement, aspirations, attendance, engagement, well-being, and attainment of qualifications, employment, and long-term security.

2.2.2 Rural versus urban

Echazarra and Radinger (2019, p. 7) suggested that “there is not a one consistent way of defining ‘rurality’”. Definitions governing the identification and classification of rural, regional, and remote areas were evident in the literature reviewed which used instrumental and quantitative data, as well as qualitative measurements drawn from understandings of rural spaces, primarily through lived experience. For example, Halsey (2018a) and Schafft (2016) noted that quantitative data had dominated methodologically in rural education research and explained that this had informed policies and practice. Green and Reid (2021) used a threefold conceptualization of rurality, reproduced here from their work. It provided a broader definition that acknowledged the empirical dimensions and the narrative of the rural place as a theory of practice.

This threefold definition brings together the abstraction of statistical-quantitative measurement, the materiality of geographic and topographic formations, relationships and connections, and the emotional impact of social and cultural interaction.

(Green & Reid, 2021, p. 33)

Each of these separate elements of measurable distances and population data, geographic, and cultural dimensions of Green and Reid's (2021) threefold definition were referred to widely in the literature reviewed as a composite definition to identify rural areas (Corbett, 2016; Echazarra & Radinger, 2019; Halsey, 2018a; Lennon, 2021; Roberts et al., 2022; San Antonio, 2016). In framing the inquiry into rural, regional, and remote education, Halsey stated that the predominance of measurable distances and population data defined rurality. That review specifically referred to the Australian Bureau of Statistics' remoteness categories (Australian Bureau of Statistics, 2022b) that are based on road distances between locations. It also used the geolocations of metropolitan, provincial and remote to categorize students undertaking international tests as part of the Program for International Student Assessment. Halsey explained that qualitative definitions which "focus on the cultural and relational dimensions of places and people" (p. 8), were also significant. Similarly, Corbett noted the complexity inherent in understanding and defining rurality but held that it is rooted in place which creates the "place-specific uniqueness of many rural schools" (p. 278). Echazarra and Radinger exposed a need to move beyond the urban-rural dichotomy as they argued that while rurality was known through statistical definitions, it was constructed socially and through the morphology of landscapes.

A repeated motif in the literature was that rural was defined geographically, usually as a measure of distance of being away from a metropolitan place, where describing areas as non-metropolitan derived from a deficit model. Any geographical area that was not contained in a major capital city was described as non-metropolitan. For example, the Centre for Education Statistics and Evaluation (2013) used "rural" and "non-metropolitan" as umbrella terms, and

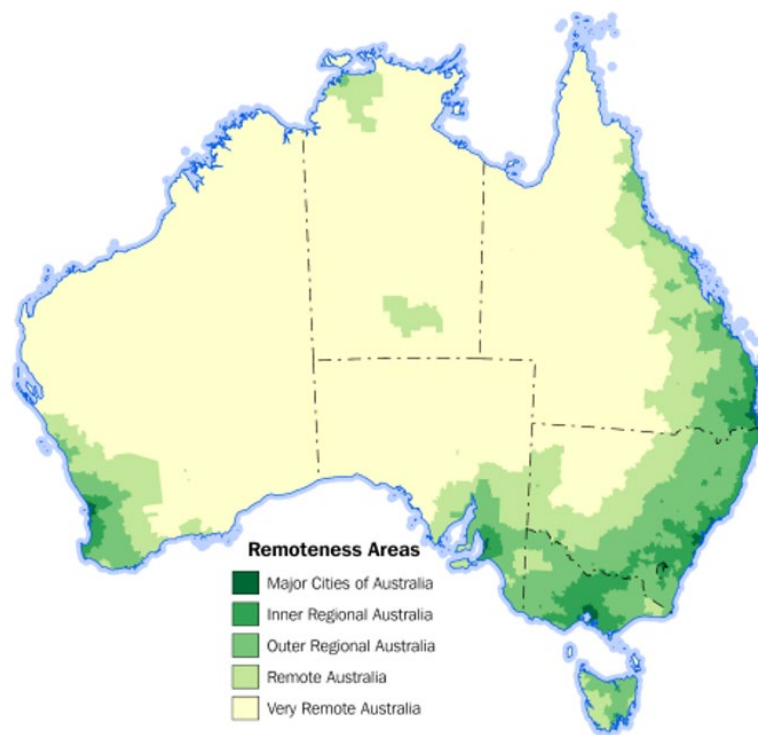
acknowledged that it homogenized rural, regional, and remote regions based on their geographic positioning. Multiple authors noted the definition of rural as anywhere that was not in a metropolitan area was problematic, but it had utility for classifying, describing and analyzing, and was significant in the critical provisioning of education (Arnold, 2001; Beswick et al., 2023; Corbett, 2016; Eacott & Freeborn, 2019; Halsey, 2018a; Herbert, 2020).

Beswick et al. (2023) stated that the context of rural and regional schools varied along with policies implemented in different countries, and this had repercussions for the comparability of data across countries if the rural classifications were not consistent. Corbett and Gereluck (2020a) noted that the particularities of individual countries, notably Canada, which was the subject of Corbett and Gereluck's study, related to "the diversity and uniqueness of physical and cultural geography" (p. 308). Tieken and San Antonio (2016) added the dimension of time, noting that "the rural America of today is fundamentally different from rural places and communities of decades past" (p. 131). Halsey (2018b) pointed out that while determinations for schooling provision, specifically in Australia, were based on population size and distance from capital cities or major regional centers, the qualitative understanding which focused on how places reflected their rurality through the "essences of places and spaces" (p. 8) was more instructive in informing policy that addressed critical need. Geography, culture, time, and sense of place were all dominant themes in the literature connected with identifying rurality. Green and Reid (2021) stated that this inclusive understanding had implications for moving away from the rural-urban dichotomy which had limited the conceptualization of rurality. Their definition did not rely on the deficit position of rural as other-than-urban.

The Australian Bureau of Statistics (2022b) used a "Remoteness Structure" that discriminated between areas that fall within the "non-metropolitan" area. The Remoteness

Structure divided the states and territories into regions based on their access to services (Australian Bureau of Statistics, 2023). The map below (Figure 2-1) illustrates the classifications of Remoteness Areas for Australia as used by the Australian Bureau of Statistics (2023). The non-metropolitan area is represented by four categories: Inner Regional, Outer Regional, Remote and Very Remote. In the literature reviewed, studies that focused on an Australian context referred to these categories.

Figure 2-1: Map of Australian Statistical Geography Standard (Edition 3) Remoteness Areas for Australia (ABS, 2023)



2.2.3 Virtual learning

Cope and Kalantzis (2016) described virtual learning environments as “typically in constant development” (p. 10), which reflected how virtual learning responds to emerging and adapting behaviors of technologies and teachers. Dillenbourg et al. (2002) found that definitions in the literature for virtual learning are simultaneously overly general and overly specific.

Dillenbourg et al. offered the following comprehensive list of features that identify a virtual learning environment:

- A virtual learning environment is a designed information space.
- A virtual learning environment is a social space: educational interactions occur in the environment, turning spaces into places.
- The virtual space is explicitly represented: the representation of this information/social space can vary from text to 3D immersive worlds.
- Students are not only active, but also actors: they co-construct the virtual space.
- Virtual learning environments are not restricted to distance education: they also enrich classroom activities.
- Virtual learning environments integrate heterogeneous technologies and multiple pedagogical approaches.
- Most virtual environments overlap with physical environments.

(Dillenbourg et al., 2002, p. 3)

2.2.4 e-Learning ecologies

Frielick (2004) cited ecological perspectives in education as being linked to e-Learning. He described e-Learning as a postmodern understanding of an ecosystem where there were “wholes together with parts, and the connections that link separations” (p. 328). Cope and Kalantzis (2017) used the term “e-Learning ecologies” to describe the “patterns of pedagogy that accompany e-Learning” (p. 1) where e-Learning referred to online learning environments, virtual schools, MOOCs (or Massive Open Online Courses), as well as classrooms that provided blended and ubiquitous learning environments that used a range of digital technologies. This included learning management systems, e-textbooks, flipped classrooms that utilized YouTube and other video providers, online games and simulators, discussion boards and artificial intelligence for just-in-time assessments.

2.3 THEORETICAL FRAMEWORKS

In the literature reviewed, theories and interpretive frameworks which ordered knowledge in the field of research into rural, regional, and remote education directly referenced either or

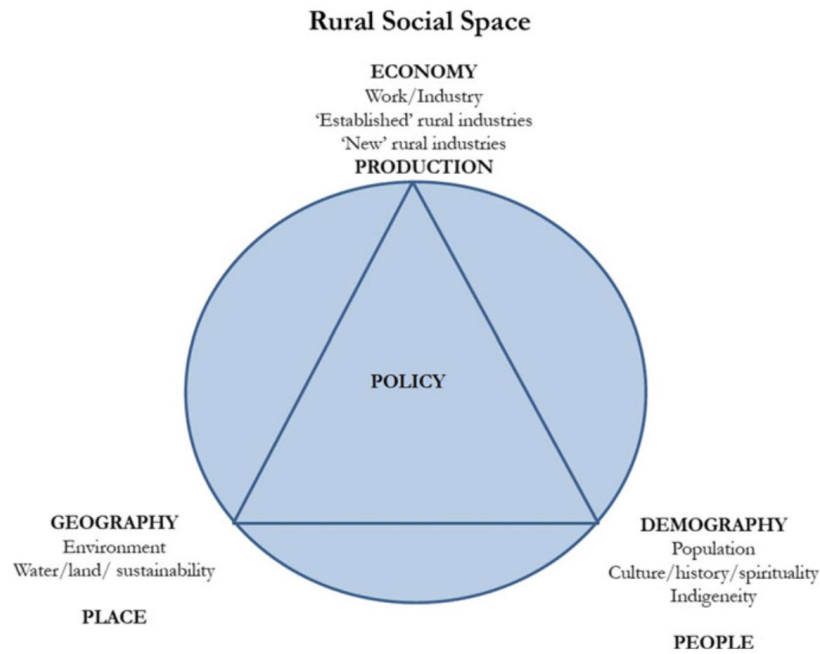
both measurable or quantitative definitions and the socio-cultural or qualitative definitions of rural, regional, and remote areas. For example, Shucksmith and Brown (2016) observed that these definitions had created “two main conflicting narratives, pastoralism and pre-modernity [which] shape our perceptions of rurality” (p. 2). In that framework, the authors contended that pastoralists viewed rural and regional areas as culturally significant, albeit romanticized, which was realized through the socio-cultural or qualitative definition of rurality. They referenced modernists holding a diametrically opposed position. Shucksmith and Brown described the modernists’ attitude towards rural and regional areas as considering them to be “essentially backward and requiring transformation” (p. 2), which the authors related to the observable data that poorer education outcomes generally increased with distance from major cities. These distinct and opposing narratives were repeated often throughout the literature reviewed (Arnold, 2001; Beswick et al., 2023; Corbett, 2016; Cornelius & Mackey-Smith, 2022; Echazarra & Radinger, 2019; Fray et al., 2020; Halsey, 2018a, 2018b; Lennon, 2021; Schafft, 2016).

Corbett and Gereluk (2020b) claimed that rural is “a fundamentally spatial concept” (p. 3), which melded the two competing narratives stemming from a social constructivist approach and a demographic structural approach. Roberts et al.’s (2022) work, “directed towards advancing the development of a theoretical understanding of the rural (a collective term for all non-metropolitan categories, such as regional, remote, country)” also referred to the social constructivist and demographic structural approaches which dominated theoretical frameworks in the field. Roberts et al. argued more specifically that a statistical definition in Australia had operationalized policy and that this had reinforced a metro-normativity. The authors also stated that this denied rural people a rural standpoint and that was an inherently colonial approach.

San Antonio (2016), Schafft (2016), and Van Gundy et al. (2016) stated that complexity and diversity in social structures were significant in understanding rural narratives. Brennan (2005) and Roberts and Fuqua (2021) also noted that the lack of attention to place had meant that a metrocentric understanding about society, students and learning had prevailed, which had led to misleading and harmful policy decisions for rural and regional areas.

Green and Reid (2021) introduced Bourdieu's theory of practice as an informing theory for their conceptual-analytical model of the Rural Social Space, illustrated in Figure 2-2. The authors stated that the rural place is a practiced rural social space which is produced and influenced by actors' agency, production, and investment. In the Rural Social Space model, Green and Reid utilized Bourdieu's key concepts of *habitus*, field, and capital to "capture social space as a distinctive concept in the rural, drawing in notions of power and hierarchy, bringing together rural space and social space to help complexify the idea of reality, or the rural condition" (p. 36). Henderson (2021) suggested that this model, which foregrounds rurality through people, place, space, and location, questioned implicit assumptions about metrocentric norms. Green and Reid emphasized that "deep and careful understanding of rural social space is important for the practices that support teachers to be retained in rural schools" (p. 43) and that their model deconstructed the nature of a social space dynamically and relationally.

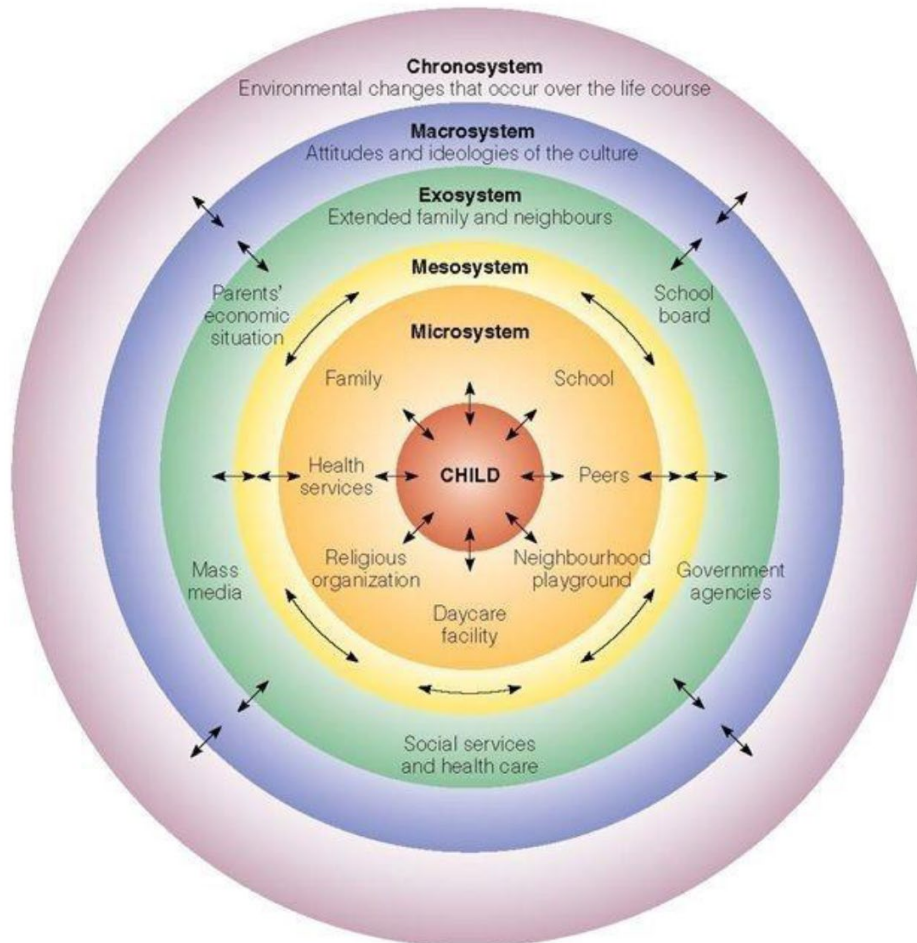
Figure 2-2: Rural Social Space framework (Green & Reid, 2021, p. 37)



Several authors (Agger et al., 2023; Beswick et al., 2023; Gallay et al., 2016; Halsey, 2018a; Irvin et al., 2016; Sutherland et al., 2023; Wallace, 2010) used ecological development theory in framing their research, in particular Bronfenbrenner’s (1995) Ecologic Systems Theory. Bronfenbrenner’s Ecologic Systems Theory positioned a child’s development within layers of relationships and influences that become increasingly less direct. It referenced five nested levels of external influence on a child’s development, those being: Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem, as illustrated in Figure 2-3: Bronfenbrenner’s Ecologic Systems Theory model (reproduced from Beswick et al., 2023, p. 20). It was described by Beswick et al. as a model that “remains a useful representation of the ecology of a child while also aligning with major and emerging theories of development” (p. 20). In the literature reviewed, the ecological perspective stated that the merging and overlapping complex structures compounded and negated factors of influence on a child’s learning environment. The model was useful in framing the key themes of the literature discussed as it

plotted and positioned in-school and out-of-school determinants on education outcomes in their sphere of influence and it privileged the student as the center of that ecology.

Figure 2-3: Bronfenbrenner's ecologic model (Beswick et al., 2023, p. 20)



In the literature reviewed, theoretical and interpretative frameworks for methodological considerations of emerging technological use in rural, regional, and remote education directly referenced the complexity of rurality (Roberts & Fuqua, 2021). Conceptual frameworks held that de-identifying the rural devalued its impact (Fuqua & Roberts, 2021) and empowered metro-normative discourses (Schafft, 2016). Researchers in the field of rural education in the literature reviewed commonly used a social capital research approach that relied on building trust and

relationships in rural communities. For example in the studies by Borup et al. (2020), Tatebe (2021) and Tena-Meza et al. (2022), they interrogated social relationships that were assumed to underpin human capital such as educational attainment. Research findings were also informed by space-conscious conceptual frameworks, such as Chesters and Cuervo (2022), Cuervo, Corbett, et al. (2019), and Green and Reid (2021) that acknowledged the significance of historical, economic and societal considerations of a place. Fuqua (2021) also added to the extant literature with an ethical framework that provided researchers with dimensions for ethical practice in rural areas informed by the effects of geography and location on research design and interpretation. This was echoed in the literature reviewed, for example, Corbett and Gereluk (2020a) said that while rural communities had been homogenized, they were unique, and Cuervo et al. (2019) added that the school in that environment was a central focus of social and cultural capital.

Tatebe's (2021) analysis in the study of a semi-rural school's development used the principles of redistribution, recognition and representation to understand the complexity of that community. This was identical to Cuervo's (2016) pluralistic conceptualization of distributive justice as the interdependent interplay between distributive (economic distribution of resources), associational (democratic decision-making) and recognitional domains (understanding place and context). That theoretical framework as described by Cuervo and echoed in the literature reviewed (Aly et al., 2022; Chesters & Cuervo, 2022; Corbett & Gereluk, 2020b; Fuqua, 2021; Fuqua & Roberts, 2021) served to situate social justice so it could work as "action-guiding" (Cuervo, p. 80) and said that social justice needed to be moved from an abstract conceptualization into concrete social contexts.

2.4 METHODOLOGY

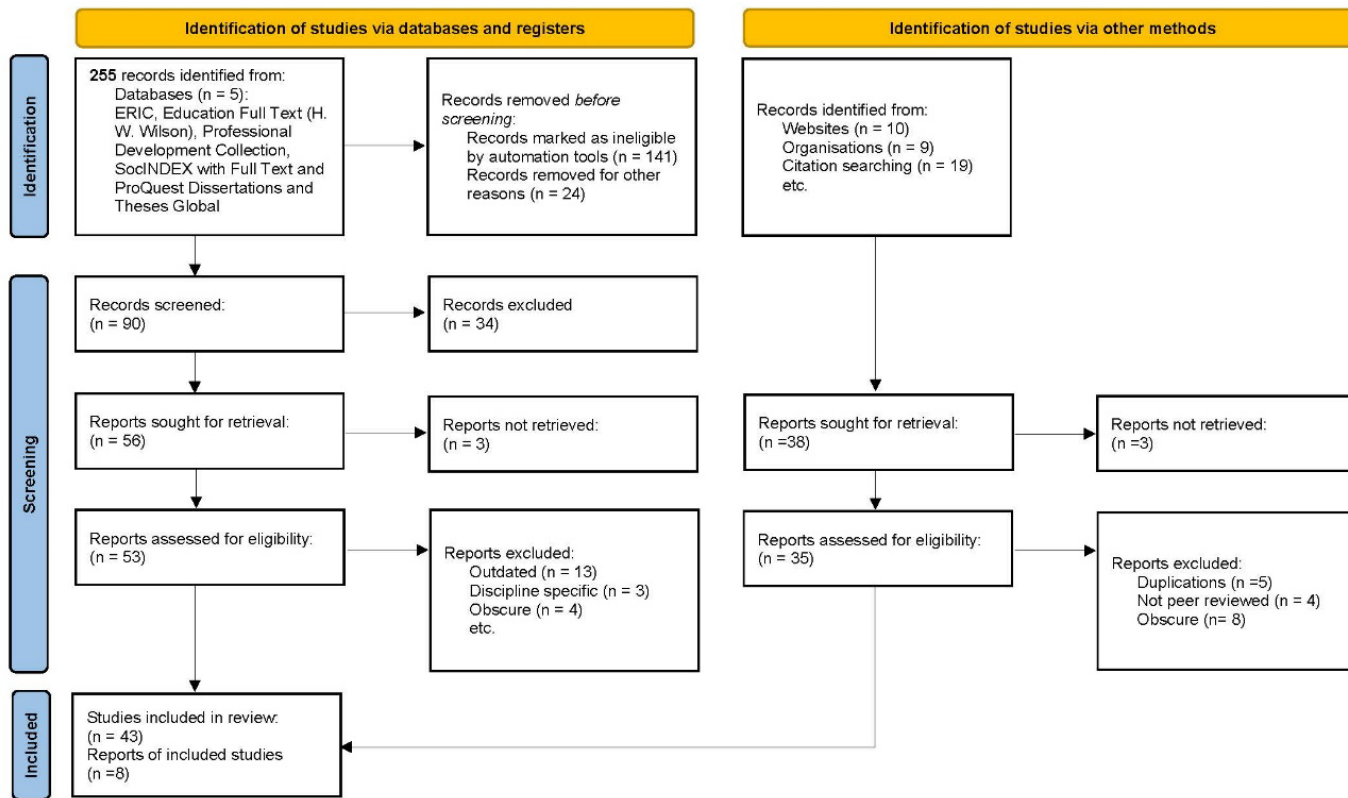
A systematic review was conducted of the academic literature, complemented by grey literature, such as working papers, evaluations, and national reports and reviews commissioned by government bodies and institutions. Additional sources from grey literature were located based on advice from Beswick et al. (2023) that “there is very limited research on effective practices that are based on a rural sample and provide high-quality evidence” (p. 22) where those authors indicated that reporting on interventions often appeared in locations other than peer-reviewed literature.

The protocol from preferred reporting items for systematic reviews and meta-analyses (PRISMA) (Moher et al., 2009) was followed in conducting this systematic review of the literature. The overarching area of inquiry was the determinants of education outcomes for students attending high school in rural, regional and remote areas, leading into the ways that rural and regional schools and their communities use new technologies for teaching and learning in school-based programs. Figure 2-4: PRISMA Flow Diagram summarizes this approach to quality-appraise and synthesize the literature. Searches were completed using the keywords: “rural or regional or remote” AND “schools” AND “education outcomes or education achievement or academic achievement” that were refined with “ruraling”, “virtual learning or online learning, online teaching, and online programs”, “rural leadership”, “professional development” AND “high school”, within the date range of 2010-2024. The following databases were searched for access to reliable, peer-reviewed contemporary research: ERIC, Education Full Text (H.W. Wilson), Professional Development Collection and SocINDEX with Full Text. Abstracts were analyzed as to their relevance to the guiding research question:

- In what ways do rural and regional schools and their communities use new technologies for teaching and learning that improve education outcomes?

The initial records identified numbered in the thousands. This figure was reduced with the inclusion of adding the search parameter “Australia”. Automation tools were then integrated into the study selection process with records removed before screening by using thesaurus terms of keywords that were health-related, including “birth control” and to exclude all sites and publishers associated with medical research and health education, such as *Nurse Education Journal*. These medical-based studies were removed as they did not explicitly relate to education outcomes in schools for students. Sources related to early learning, such as the *International Journal of Early Years Education*, or which had a tenuous or obscure link with students in rural and regional high school and their education outcomes, such as “marriage” and “sex education” were also removed. Studies that focused on high school experiences and significant events that precipitate students’ transition to post-school pathways were prioritized in the search process. The original review protocol was then modified as part of the iterative process of a systematic review when assessing the risk of bias towards Australian based research. The search was broadened to include international studies. One reviewer then screened each record (title/abstract) and retrieved each report at each stage of screening. The literature under review after the final screening included relevant studies that reflected these refinements to provide a robust range that broadly represented the tenure of the literature.

Figure 2-4: PRISMA Flow Diagram (Moher et al., 2009)



2.5 THEMES IN THE ECOLOGY OF THE RURAL STUDENT

The literature reviewed revealed a set of core themes of the rural and regional student's school experience. The discussion of the themes was organized using Bronfenbrenner's (1995) Ecological Systems Theory. Beginning with the child or student, the thematic discussion begins with Indigenous education and students and student engagement. It then moves to the microsystem that focuses on the student's teaching and learning environment, before panning out to the broader landscape described by Bronfenbrenner as the mesosystem and the macrosystem. In the sections that follow, a summary is provided of the literature reviewed on each of these themes.

2.5.1 Indigenous education

Echazarra and Radinger's (2019) analysis using the Organisation for Economic Cooperation and Development Program for International Student Assessment 2015 database reported that in Australia, Canada, Chile and the United States, rural and regional communities are also home to significant Indigenous populations. The authors stated that the low socio-economic status coupled with low academic achievement observed in rural populations had a disproportionate effect on education outcomes for students from an Indigenous background. Agger et al. (2023) conducted a systematic literature review surrounding college aspiration of rural Indigenous students in the United States and explained that for students who are both rural and Indigenous, "the educational disparities related to secondary and postsecondary education are particularly salient" (p. 396). Yeung et al. (2013) stated in that study of 1, 342 Indigenous and non-Indigenous students from 52 schools in New South Wales (Australia) comparing literacy and numeracy results with self-concept, that "Indigenous Australians have remained one of the most disadvantaged Indigenous populations in the world" (p. 407).

Agger et al.'s (2023) systematic review stated that Indigenous students enrolled in and completed college at much lower rates than their non-Indigenous peers and that this had negative repercussions for their postsecondary pathways. Hossain et al.'s (2008) qualitative study of 30 first year Indigenous undergraduate and Indigenous higher education pathways program students, and Behrendt et al.'s (2021) report on higher education access and outcomes for Aboriginal and Torres Strait Islander people prepared for the Australian Minister of Education, found that Indigenous students were under-represented in the higher education system of Australia. Halsey (2018b) concluded that the legacy of dispossession from colonialist policies had created a formidable challenge in providing education equity for Australian Aboriginal and Torres Strait Islander Peoples. The Centre for Education Statistics and Evaluation (2023a) described Australian Aboriginal students' aspirations to finish school and enroll in postsecondary education pathways as the apex factor in attainment of secondary and postsecondary qualifications, but socio-economic and academic barriers presented overwhelming challenges for Aboriginal students and their families.

The literature reviewed acknowledged the disproportionate disadvantage that rural Indigenous students experienced, for instance as described by Agger et al. (2023), as an intersectionality of the effects of marginalization and oppression due to race, class, and gender. Common in the findings of the studies reviewed was the evidence from successful interventions that had achieved outcomes for Indigenous students that approached the achievement levels of non-Indigenous students. The literature reviewed indicated that these outcomes were realized by embedding and supporting mentoring (Behrendt et al., 2021; Guenther, 2013), together with academic and financial support (Hossain et al., 2008), through greater consultation with Indigenous communities. The literature reviewed suggested that these interventions influenced

students' self-concept and aspirations and were a driver for engagement and attainment of academic achievement (Beswick et al., 2023; Centre for Education Statistics and Evaluation, 2023a; Halsey, 2018b; Yeung et al., 2013).

2.5.2 Students and student engagement

This thematic subset of students and student engagement focused on learner characteristics in a rural, regional, and remote context discussed in the literature reviewed. This understanding was informed by Hattie's (2011) research which characterized contributions from the student as "background influences, attitudes and dispositions, physical influences, and preschool effects" (p. 41). Using the rural and regional lens in screening the literature reviewed, attitudes and dispositions figured prominently, in particular: student aspirations (Centre for Education Statistics and Evaluation, 2013; Cooper et al., 2018; Fray et al., 2020; Kenway & Hickey-Moody, 2011; Tieken & San Antonio, 2016); student motivation (Centre for Education Statistics and Evaluation, 2013; Gramaje & Buenviaje, 2023; Halsey, 2018a); a student's family's attitudes, (Ellis et al., 2010; Fray et al., 2020; Golding et al., 2007; Tieken, 2016); and the interaction of these influences on student engagement (Centre for Education Statistics and Evaluation, 2013; Ellis et al., 2010; Gramaje & Buenviaje, 2023; Halsey, 2018a).

Student aspirations were discussed extensively in the literature reviewed in connection not only with student engagement but also with Indigenous education, post-school pathways, school culture and environments, and school-community relations. For example, Kenway and Hickey-Moody (2011) described aspiration as "a disposition, an attitude, a psychological and individual state" (p. 152). Cooper et al. (2018) provided a more specific definition as the "ability to identify and set goals for the future, while being inspired in the present to work towards those goals" (p. 85). Fray et al. (2020) suggested that the aspirations of rural and regional students had

received little attention in Australian academic research, which inspired their scoping review of the empirical studies published between 1991 and 2016 that examined aspirations for higher education of students from regional and remote areas. In their analysis of 65 articles, six themes were found that influenced student aspirations for university studies: cost and distance; supportive home and community environments; attachment to home and community; schooling and academic achievement; knowledge of postsecondary pathways; and lastly individual characteristics. The authors observed that metropolitan students did not seem to encounter such obstacles in the same way as rural and regional students.

Cooper et al.'s (2018) multiple regression analysis used data from over 9,400 Australian students from the Longitudinal Surveys of Australian Youth, an initiative of the Australian Government Department of Education, together with data from the Program for International Student Assessment, which provided a set of individual and school level measurements. They correlated this data with the Organisation for Economic Cooperation and Development Index of Economic, Cultural and Social Status. Cooper et al. found that after controlling for socio-economic status, students from remote areas are less likely than their metropolitan or provincial peers to express the intention to attend university and this was a reliable predictor of subsequent participation in education.

Fray et al. (2020) stated that while rural, regional, and remote students were more likely to receive university offers than their metropolitan peers in Australia, they were also more likely to defer or take no action when university offers were made. Kenway and Hickey-Moody (2011) claimed that normalizing aspiration is problematic in rural and regional areas because “some groups have strategic aspirations, but they lack the strategic means” (p. 161). They suggested that policies aimed at rural youth had simplified aspiration and ran the risk of making any

implementation of initiatives designed to improve aspiration ineffective. The Centre for Education Statistics and Evaluation (2013) stated that lower parental aspirations were an obstacle for rural and regional students, as were teachers' low expectations. The role of teachers in influencing student aspiration is discussed in the Teachers and Teaching section of the themes of the literature reviewed.

In the Centre for Education Statistics and Evaluation's (2013) comprehensive literature review, the authors agreed with Redding and Walberg (2012) that student motivation is no more an issue in rural and regional schools than metropolitan areas. They conceded, however, that in rural and regional areas, "some students may be inhibited by a 'low horizon' mindset" (p. 13). Hattie (2011) stated that "the home can be a nurturing place for the achievement of students, or it can be a place of low expectations and lack of encouragement in learning" (p. 61). While this binary was not repeated in the literature, numerous authors did recognize the significance of parental attitudes on student aspiration, motivation, and engagement. There was also a gendered experience discussed in the literature reviewed. Cuervo et al. (2019) and Lennon (2021) found that in Australia, female students and students of first-generation migrants or with parents in professional occupations were more likely than males to pursue further study. Those studies also found that males in rural and regional areas in Australia were more likely to want a manual job and that these aspirations were informed by structural barriers faced by rural and regional youth.

Fray et al. (2020) stated that there had been reports of parents actively discouraging their children from attending university. Golding et al. (2007) articulated that in Australia, students planning to go onto higher education had typically experienced success at school and were supported and informed in their choice by their families. The Centre for Education Statistics and Evaluation (2013) observed that fewer parents living in rural and regional areas had attended

university and were highly conscious of the financial burden of tertiary study. Fray et al. observed that half the articles in the scoping review identified financial difficulties as the key obstacle to higher education aspirations. Hattie's statement regarding home potentially being a place of low expectations and lack of encouragement could be explained by financial difficulties influencing parental attitudes.

Shirley and Hargreaves (2021) claimed that "engagement is the new frontier of student achievement" (p. 215). Gramaje and Buenviaje (2023) linked it to academic optimism, academic achievement, and motivation. Bostwick et al.'s (2022) study interrogated academic buoyancy described by Martin and Marsh (2008) as students' perceived ability to "effectively deal with setback, challenge, adversity, and pressure in the academic setting" (p. 172). The Centre for Education Statistics and Evaluation (2013) indicated that technology can be a powerful tool for stimulating student engagement and motivation.

2.5.3 Curriculum and assessment

The literature reviewed focused on curriculum access as a primary theme related to rural and regional student outcomes which was concerned with the inequities in providing pedagogical materials (Blannin et al., 2022; Cornelius & Mackey-Smith, 2022; Roberts, 2013), bespoke professional development (Centre for Education Statistics and Evaluation, 2020; Fenwick, 2017; Halsey, 2018a) and curriculum adaptation to rural contexts (Cornelius & Mackey-Smith, 2022; Echazarra & Radinger, 2019; Halsey, 2018b; Reid, 2018).

Blannin et al. (2022), Echazarra and Radinger (2019), Halsey (2018b) and Reid (2018) showed that governments structured education policy and school curriculum to enable and encourage people's capabilities to engage successfully with work, democracy and social and cultural life. Reid acknowledged that the evolving demands on teachers and students to adapt and

successfully engage with the curriculum, however, was more difficult for schools in rural and regional areas as they could not compete against the pressure of market competition. Reid suggested that this can “lead to a culture of copying those schools that appear to be successful, which leads to homogeneity and conformity of practice” (p. 83) that depersonalizes and removes the rural experience from rural and regional schools. There was evidence in the literature reviewed that the performative culture underpinning national and international assessment comparisons did not fully account for some of the rural-urban differences in academic achievement (Fenwick, 2017; O’Donnell et al., 2022).

Sullivan et al. (2018) used data from the Organisation for Economic Cooperation and Development’s Programme for International Student Assessment across Australia, Canada, and New Zealand in a secondary analysis. They used descriptive statistics to uncover patterns in the distribution of educational outcomes and experiences across the rural urban continuum, within and between the three countries. Sullivan et al. found that students with higher socio-economic status, usually in metropolitan areas, are more likely to have access to a more rigorous academic curriculum. Findings from Roberts et al.’s (2019) study of curriculum access and achievement under the New South Wales’s (Australia) school exit credential, the Higher School Certificate, corroborated with Sullivan et al.’s research.

Roberts et al.’s (2019) study used data from 2017 of 73,371 students with reference to metrics for parental education attainment and occupation. They found that the Higher School Certificate curriculum was in a hierarchy and that access to, and achievement in that hierarchy was influenced by socio-economic status, location, and gender. Roberts et al.’s study intersected with Kenway and Hickey-Moody’s (2011) findings that some students “are eager to enhance their life chances but their working-class strategies are out of sync with the school’s grid of

prestige, knowledge and power” (p. 161). The Centre for Education Statistics and Evaluation (2013) stated that smaller schools have less capacity to provide specialized curriculum that gave students access to higher levels of academic achievement. The official curriculum may be open-access but as Fenwick (2017) stated, the enacted curriculum was narrowed as teachers increasingly taught to the test.

Echazarra and Radinger (2019) claimed that teachers in rural areas may be unprepared to adapt lessons “by giving a rural flavour to the curriculum” (p. 39) and less likely to have access to curriculum specialists than their metropolitan peers. The Centre for Education Statistics and Evaluation (2020) stated that providing a diverse curriculum in smaller schools is difficult, and this was more common in rural, regional and remote areas as they experienced lower enrollments. Fenwick (2017) and Reid (2018) indicated that the neo-liberal assessment paradigm impacted curriculum, and this had amplified disadvantage through restricted access to knowledge structures for teachers and students in rural and regional schools. Memarian and Doleck (2024) explained that the integration of artificial intelligence in education had begun to shift the focus of pedagogy from the assessment of learning to the assessment for learning but the literature reviewed did not highlight the implications of this for rural and regional students.

2.5.4 Teachers and teaching

The dominant themes that surfaced in the literature reviewed regarding teachers and teaching in rural, regional, and remote areas were concerned with preparing teachers to teach in rural schools; recruiting teachers, especially staffing schools with quality teachers; retaining teachers; and developing high-quality teachers in rural schools and teacher attrition. Sullivan et al. (2018) stated that teachers and teaching have a role in schools and school systems in mediating rural disadvantage but, as Green and Reid (2021) explained, the lack of attention to

place and space in teacher education had meant that teachers were prepared with a generalized metro-centric understanding of students that did not align with rural contexts. Corbett and Gereluk (2020b), in their comprehensive text examining rural education policy in Canada, suggested rural teaching and teacher education should be “a matter of learning where you are” (p. 303). The authors claimed that knowing and understanding the people, place, histories, and cultures of a rural place builds an awareness and sensitivity that supports the future of the community and its development as well as the teacher’s.

Corbett and Gereluk’s (2020b) findings concurred with Sullivan et al. (2018) that teachers need to be culturally assimilated into a community and cannot relate to, or teach, what they do not know or understand. Looker and Bollman (2020) questioned the way face to face university teacher education was typically assumed to be the only quality way to deliver professional programming. They argued that this could potentially exclude rural teacher candidates who are deeply invested in their communities and who could be the people most likely to remain there because their identities are invested in the place. This is discussed in the next section, Information and Communications Technologies.

Recruitment was a recurring theme in the literature reviewed (Beswick et al., 2023; Centre for Education Statistics and Evaluation, 2013; Rhinesmith et al., 2023) but Rhinesmith et al. observed in their systematic review of recruitment and retention of teachers in rural settings in the United States, that over the past four decades, “research on policies intended to impact teacher recruitment and retention in rural areas has remained on the periphery of education policy research” (p. 358). They acknowledged that the social and professional isolation of rural geographies was a challenge in recruiting teachers as did Beswick et al., Centre for Education Statistics and Evaluation (2013, 2020), Halsey (2018b), and Roberts and Fuqua (2021). Beswick

et al. suggested that a coordinated approach by the New South Wales Department of Education (Australia) could be implemented for the provision of appropriate staffing for rural, regional, and remote schools to address the difficulties associated with staffing schools with quality teachers in rural areas. Counter to this point, that report also acknowledged the “disconnect between the central administration of the department and rural and regional schools, seen through the application of targets, procedures, policies and programs that take little account of local circumstances” (p. 3). Rhinesmith et al. stated that in Alaska some rural schools had established and communicated pathways directly to local candidates to teach locally which had been successful. Further to that point, Redding and Walberg (2012) suggested that teachers who are recruited from outside a community “be trained in culturally sensitive parent communication” (p. 28).

Beswick et al., (2023), Green and Reid (2021), Redding and Walberg (2012) and Rhinesmith et al. (2023) all referred to the centrality of the school to rural community life and that this influenced the retention and development of teachers in rural settings. Echazarra and Radinger (2019), using student survey data from the Organisation for Economic Cooperation and Development Program for International Student Assessment, observed that, on average, teachers in rural schools tended to be more supportive of students in the classroom than teachers in metropolitan schools, and that teachers who are more supportive, after accounting for students’ and schools’ socio-economic status, had students who scored slightly higher in science. Sullivan et al.’s (2018) secondary analysis of the Organisation for Economic Cooperation and Development’s Program for International Student Assessment data from 2009 indicated, however, that Australian students reported substantially less positive relationships with their teachers than their peers in Canada and New Zealand.

The Centre for Education Statistics and Evaluation (2013) observed in its analysis of the Australian National Assessment Program for Literacy and Numeracy student data from 2008-2012 with reference to empirical studies that “high quality pedagogy was least prevalent where it was most needed in low socio-economic status communities and high Aboriginal contexts” (p. 12). That review also stated that the remoteness gap, that is the difference between education outcomes for students in remote in non-metropolitan areas compared with students in metropolitan areas, is larger in Australia than any average of other Organisation for Economic Cooperation and Development nations, and it is larger in New South Wales than almost any other state in Australia. From the literature reviewed, the proportion of Aboriginal students in Australian communities was negatively related to teachers’ decisions to stay in a community and their demonstration of high-quality teaching.

There were mixed findings in the literature reviewed regarding teacher attrition and retention but it was generally argued that teacher attrition was related to retention and development strategies. The Centre for Education Statistics and Evaluation (2013) reported that teacher retention was a persistent issue in Australian rural, regional, and remote schools and that new teachers did not always expect to stay for long. That report also detailed that remote schools in New South Wales (Australia) were six times more likely to report high staff turnover than schools in metropolitan areas. Rhinesmith et al. (2023) presented a different view of the United States that found that teachers in rural schools were less likely to turnover than their urban and suburban counterparts. Rural teachers in that review were also identified as having a strong persistence in low-income school districts. The Centre for Education Statistics and Evaluation’s (2013) data indicated that incentives in Australia had attracted teachers to rural settings but had not kept them there.

The Centre for Education Statistics and Evaluation (2020) emphasized that a greater focus on teachers' professional development in rural settings could improve retention of high-quality teachers. The Centre for Education Statistics and Evaluation (2013) stressed that students in rural and remote areas benefited from the same range of quality teaching practices as their metropolitan peers and described this as a teacher "understanding the needs of, and catering to, individual students in ways that foster their engagement with learning, build a sense of competence, and support students to realize their potential" (p. 12) and that professional learning that addressed quality teaching could support enjoyment of classroom teaching and job satisfaction. Sullivan et al. (2018), in examining the discrepancies in the Program for International Student Assessment 2009 data related to Australian teachers, stated that the field could benefit from an inquiry into the nature and degree of support and professional development provided to Australian rural school teachers. Istance and Paniagua (2019) suggested that leapfrogging projects, outlined by Winthrop et al. (2018), and described as innovative or transformative approaches that redefined the role of the teacher as a creative and critical influence on learning, could address the substantial learning gap. Beswick et al. (2023, p. 130) outlined five guidelines that ensured professional learning for teachers in rural and regional schools was tailored to local needs:

1. Access to quality tailored professional development to strengthen capacity.
2. Prioritizing achievement and instruction.
3. Promoting shared instructional leadership.
4. Selecting the best people for the roles.
5. Growing teamwork and a sense of belonging in a culture of professional community.

The literature reviewed generally indicated that professional learning and development supported retention and it was a positive experience for teachers when it was presented in a flexible delivery mode (Centre for Education Statistics and Evaluation, 2020), such as asynchronous online modules that supported collegiate and professional trust (Beswick et al.,

2023) and was contextual to local needs (Centre for Education Statistics and Evaluation, 2013; Rhinesmith et al., 2023; Roberts & Fuqua, 2021).

2.5.5 School leadership

Beswick et al. (2023) posited that substantial studies identified that school leadership had become more taxing and that it was critical to improving academic and well-being outcomes for students in rural, regional, and remote schools. Halsey (2018a) stated that the importance of being an educational leader in rural, regional, and remote schools and communities needed to be better understood and valued by systems and employers. Echazarra and Radinger (2019), Gramaje and Buenviaje (2023), Halsey, and Sutherland et al. (2023) all emphasized that school leadership was one of the most influential factors on school culture. In the literature reviewed its significance was affirmed but Sutherland et al.'s systematic literature review of studies on rural leadership from the United States, Canada, Australia, and the United Kingdom observed that empirical scholarship on the context, experiences, assets, and challenges for rural educational leaders was fragmentary.

Gramaje and Buenviaje (2023) explained that leadership is the extent of the leader's influence on followers. Halsey (2018a) acknowledged that the rural leader's primary role was to influence the quality of teaching and learning in a school. Beswick et al. (2023) and Echazarra and Radinger (2019) identified that a school leader's role in a rural, regional, and remote school was diverse and carried additional burdens such as community development. Sutherland et al. (2023) also stated that due to fewer fiscal and human resources, leadership in rural and regional schools had a greater administrative burden. Halsey (2018a) stated that the compliance workload of rural leaders hindered them from being instructional leaders. Cornelius and Mackey-Smith (2022) found in their autoethnography using data from a remote school in Australia that external

improvement teams indicated an “outsider blindness” (p. 936) to the cultural and well-being needs of students and that “the web of imposed expectations created by national assessments, comparisons with other schools, teaching standards, mandated curriculum and pre-determined improvement priorities has been problematized” (p. 939). Sutherland et al. also concluded that educational policies were typically metro-centric and this produced layers of conflict for rural leaders.

Sullivan et al. (2023) and Halsey (2018a) reported that principals in rural schools were more likely to be teaching principals and recommended greater support and resourcing to narrow the magnitude of professional responsibilities for rural leaders. Cornelius and Mackey-Smith (2022) made similar recommendations based on their research, adding that there needed to be broader and individualized measures of success to identify improvements in schools. The literature reviewed stated that even though rural areas were diverse in national and international contexts, rural leaders had significant common multidimensional roles and relationships with rural communities. In the literature reviewed, rural leaders were shown to be significant to improving education outcomes but there was a dearth of scholarship in this area concerning exemplary leadership practices for rural contexts.

2.5.6 Financial and material resources

In the literature reviewed, financial and material resources in rural schools were linked positively to education outcomes for students. For instance, Sullivan et al.’s (2018) secondary analysis of 2009 data for Australia, Canada and New Zealand demonstrated an unevenness in distributions of school resources and teachers as well as school learning environments. Echazarra and Radinger (2019) observed that the small size of rural communities made the provision of education more expensive per student as it was more difficult to take advantage of economies of

scale and network effects. That analysis of Organisation for Economic Cooperation and Development Program for International Student Assessment 2015 data also stated that those long distances increased the travel, communication, and training costs in rural, regional, and remote schools. Common in the literature reviewed was a question around equity of resource allocation for rural, regional, and remote schools (Echazarra & Radinger, 2019; Li et al., 2017; Wallace, 2010).

Li et al.'s (2017) regression analysis, using academic scores from the Australian National Assessment Program for Literacy and Numeracy 2011 data set and census data from MySchool (Australian Curriculum, Assessment and Reporting Authority, 2024), indicated that increased overall school resourcing was more significant for improving National Assessment Program for Literacy and Numeracy scores in reading than the socio-economic factor. Those researchers included the proportion of teachers at a school who held a postgraduate degree as an additional educational resource measure, not just physical assets such as computers. Echazarra and Radinger (2019) reported that in Australia, Ireland, Norway and Mexico, rural principals were more concerned than metropolitan principals about the resources available to them. Sullivan et al. (2018) concluded from their study that differences in the quality of school educational resources for communities with fewer than 100,000 residents did not account for New Zealand students having higher reading achievement than their peers in Australia. They suggested that teachers in Australian rural schools could be better supported and trained.

Chesters and Cuervo (2022), Cuervo, Chesters, et al. (2019), and Tena-Meza et al. (2022) outlined that metro-centric education policy did not account for the criticality of access and this resulted in limited access to education and inequitable resourcing in rural areas compared with urban centers. Chesters and Cuervo found that “the lack of focus on unequal access to resources

serves to deem rural and regional students as lacking the appropriate type and level of aspirations” (p. 856), citing the spatial blindness of education policy as a significant causal factor.

2.4.7 School-community relations

Repeated in the literature reviewed was that the rural school was likely to be the civic, cultural, economic and social center of the rural community (Abbott-Chapman et al., 2022; Beswick et al., 2023; Echazarra & Radinger, 2019; Halsey, 2018a; Schafft, 2016). Furthermore, this central role in the community amplified the role of leaders as community developers (Roberts & Fuqua, 2021; Sutherland et al., 2023; Ticken & San Antonio, 2016) and elevated community partnerships as a significant contributor to students’ education outcomes, more so than in urban areas (Beswick et al.; Gallay et al.; Mlcek, 2009; Roberts & Fuqua; Wallace, 2010). School-community relations, as understood in the literature reviewed, was represented by formal and informal ties with the community such as parent-school engagement and school community partnerships through service learning, job shadowing, mentoring, school to work programs, apprenticeship opportunities and tertiary institutions.

In revealing the significance of school-community relations in rural, regional, and remote areas reviewed in the literature, parental and school engagement was key. This development of the understanding of parental and school engagement as a reflection of school-community relations followed Turner’s (2018) theoretical framework of the primary and secondary *habitus*. That framework served to distinguish between the inward parental influence on school culture and outward parental influence on school-community relations. Turner explained that the primary *habitus* for the student was the family, while the secondary *habitus* was acquired at school and in their community. It was evident in the literature reviewed that these areas had a

fluid relationship and acted in concert on students' attitudes, beliefs, and values with implications for academic and well-being outcomes. Gavidia-Payne et al. (2015) linked parental and school engagement positively to children's self-concept. Similarly, Turner linked it to expectations and aspirations, while McCarthy (2016) demonstrated its influence on school choice.

Van Gundy et al. (2016) indicated that parental engagement was associated with school connectedness, which Nichols et al. (2018) claimed supported students' social and emotional well-being. The literature reviewed also identified that in rural areas, partnerships and networks offered pragmatic solutions between educational institutions (Mlcek, 2009), for vocational opportunities (Schafft, 2016), employment (Van Gundy et al., 2016) and reconciliation with Indigenous communities (Beswick et al., 2023). Schafft stated that effective school-community relationships underpinned a democratic dialogue between school and community and contributed to the economic development of the rural community and the collective capacity of people to work together.

It was found in the literature reviewed that school-community relations affected parents' decisions for their children to stay or leave, and students' decisions to stay or leave their rural communities concomitant with self-concept, aspirations, and employment prospects. These decisions affected students' long-term education outcomes for employment (Van Gundy et al., 2016) and what Gavidia-Payne et al. (2015) described as resilience outcomes, or socio-emotional and academic adaptability. Gavidia-Payne et al. explored self-concept differences between rural and urban children in Victoria (Australia) and investigated relationships between student teacher relationships, parental school engagement and self-concept in both groups. That study demonstrated that while parental school engagement was not directly linked to rural children's

self-concept, “rural children whose parents had high levels of school engagement experienced higher quality student teacher relationships which in turn was associated with positive self-concept” (p. 131). Abbott-Chapman et al.’s (2017) constructivist analysis demonstrated a gendered qualification of this phenomenon. That study, based on interviews with 65 parents who lived in rural Tasmania (Australia) about their children having to move out of the area to pursue secondary and postsecondary education, indicated that mothers were focused on relationships and fathers were concerned with working in a rural area.

Abbott-Chapman et al.’s (2017) study found that rural and remote communities, especially farming families, experienced financial risk more acutely than communities in metropolitan or large regional centers. That study found that when parents were financially stressed, they believed their children should leave the community to improve their employment prospects. Schafft’s (2016) multi-method study used data from a national survey sample of 8,754 secondary school students across 73 rural schools in the United States and examined the relationship between rural education and rural development. It added another dimension to Abbott-Chapman et al.’s observation regarding parents’ motivations to advise students to leave a rural community. Schafft found that educators and community members in communities with the least distress and the greatest economic activity also encouraged young people to leave but this was because of the “presence of opportunity and their confidence in the community attachment of rural youth” (p. 143). That community connectedness was critical for students’ aspirations of postsecondary opportunities correlated with findings from Van Gundy et al.’s (2016) study.

Another significant aspect of school-community relations was school choice. McCarthy (2016) explored the confluence of geography, school culture and race on the parents’ choice of school. Using a case study methodology engaging with 36 non-Indigenous parents who had

children in a secondary coeducational Catholic boarding school in northwest Queensland (Australia), McCarthy's data suggested that school-community relations in those rural communities were defined by a racialized thinking of differential treatment, particularly, "a strong and enduring perception among parents that Indigenous people generally are advantaged and this is most evident to them in the ways in which their children are treated at school" (p. 39). Abbott-Chapman et al. (2022) found that the rise or decline of regional industries and employment opportunities influenced school choice and was significantly influenced by the cost and availability of transport and suitable accommodation.

Mlcek (2009) underscored that school-community partnerships enabled community development through prudent financial and strategic investment. Mlcek's evaluation of a partnership between the national vocational and education provider, Technical and Further Education, and Charles Sturt University in regional New South Wales (Australia) found that the co-enrollment program met global cultural expectations to produce highly skilled and qualified workers in a local setting. Some community partnerships, however, were not considered favorably in the literature reviewed. For example, Abbott-Chapman et al.'s (2022) study indicated that online partnerships for distance education were considered inadequate for student learning by parents. The researchers did not articulate the reasons for this perception. Beswick et al. (2023) emphasized that effective community engagement by schools was dependent on a deep understanding of local communities and when that was embedded in educational partnerships, there was a significant benefit to students.

2.5.8 Information and communications technologies

Information and communications technologies have emerged as transformative tools in addressing educational challenges faced by rural, regional, and remote communities. It was

identified in the literature reviewed as effective in expanding access to education, providing professional development opportunities for teachers, and improving information access for post-school transitions (Echazarra & Radinger, 2019; Halsey, 2018a; Van Bergen & Daniel, 2023). Through various modalities including distance, online, blended, and virtual learning, information and communications technologies, it was also shown to offer more affordable and accessible curriculum options for students in rural areas. When functioning optimally, these technologies enabled rural communities to connect with the broader education community more effectively than ever before. The successful implementation of information and communications technologies, however, was shown to face several challenges. These included issues with design, delivery, and support infrastructure. Halsey (2018a) emphasized that unreliable, inconsistent, or inaccessible technology can adversely impact rural students' ability to overcome educational barriers and access global opportunities. The Centre for Education Statistics and Evaluation (2020) further stressed that community confidence and ability to use online learning platforms depended heavily on reliable bandwidth and hardware availability.

Landrum (2020) showed that student confidence in using online platforms, self-regulation strategies, and time management skills correlated positively with satisfaction in online learning environments. Van Bergen and Daniel (2023), however, found that teachers' experiences vary, with those having lower instructional self-efficacy in online tools reporting higher emotional exhaustion. Research by Berry (2019) and Johnson et al. (2023) indicated that a sense of community was central to student engagement in online environments. The literature reviewed revealed that successful online communities depended on several factors:

- Teachers' capacity for online instruction
- Students' self-regulation abilities

- Age-appropriate course design and navigation
- Infrastructure reliability and accessibility
- Community involvement and support
- Quality standards and best practices

Virtual learning schools represent formalized cyber-social communities of practice and have become increasingly prevalent in rural education settings worldwide. Australia pioneered this approach in 1931 with correspondence schools, which evolved into today's sophisticated virtual learning environments (Stacey, 2005). These schools operate within what Cope and Kalantzis (2017) described as ecologies of e-Learning, which they characterized by attracting seven key affordances: ubiquitous learning; active knowledge production; multimodal knowledge representations; recursive feedback; collaborative intelligence; metacognitive reflection; and differentiated learning. Research indicated that digital tools alone did not guarantee learning success or a sense of belonging. FitzPatrick (2012), Lewis (2021) and Reinhart and Banister (2018) identified the antecedents of successful e-Learning environments, such as prepared educators, technology access, and students who demonstrated some self-regulated learning skills, that needed to be satisfied if education systems hoped to leverage the potential benefits for rural and regional students from technology.

Shattuck and Burch (2018) said that the National Standards for Quality Online Courses, Online Teaching and Online Programs (Quality Matters et al., 2024) (see Appendix A), provided “well-focused attention on the pedagogical issues” (p. 3) for online and blended learning processes. Lewis (2021) recommended these National Standards for Quality Online Courses, Online Teaching and Online Programs stating that they enhanced the quality of online courses and experiences. FitzPatrick (2012), like Reinhart and Banister (2018), stated that interaction,

presence, and engagement were the dominant factors for successful e-Learning. Shattuck and Burch posited that the Academic Community of Engagement framework (Borup et al., 2020) was useful in expanding the research around engagement.

Beswick et al. (2023) found that Aurora College in New South Wales (Australia), represented a successful implementation of virtual learning in rural education. They stated that the College demonstrated how delivering specialist subjects remotely using interactive technology had overcome traditional barriers faced by rural students, including: limited curriculum offerings; reduced access to expert teachers; geographic isolation; and resource constraints. The College operated as a 'school within schools' through a networked multi-campus model, effectively addressing learning needs of rural and regional students while promoting global learning experiences (Robertson & Ford, 2019). The literature reviewed emphasized that while technology could offer significant potential for improving rural education outcomes, it should not be viewed as a universal solution. Local contextualization remained crucial for both teacher and student education (Istance & Paniagua, 2019). As technology continues to evolve, the literature reviewed proposed that the focus should remain on creating sustainable, equitable access to quality education for rural, regional, and remote communities while maintaining strong connections to local contexts and needs.

2.5.9 School culture

School culture in rural, regional, and remote areas figured prominently in the literature reviewed as a leading determinant of education outcomes for students in those areas. It included factors such as school discipline; bullying prevention, collective efficacy of teachers, parental engagement, community partnerships, and school size as well as issues around resourcing for diverse geography, including transportation, as contributing to a school's culture. Furthermore,

the role of leaders in rural schools was seen as critical in recruiting and retaining teachers in their schools who could contribute to a sustainable positive school culture (Beswick et al., 2023; Cornelius & Mackey-Smith, 2022; Gramaje & Buenviaje, 2023; Halsey, 2018b; Sutherland et al., 2023).

O'Donnell et al.'s (2022) regression analysis of data from 1,477 school students in Australia who graduated in 2017 with a tertiary ranking score indicating their eligibility for university enrollment, indicated that a positive school culture was a protective factor for students against risk associated with living in regional locations. Beswick et al., (2023), Echazarra and Radinger (2019), Gallay et al. (2016), Li et al. (2017), Perales et al. (2023), and Tieken (2016) claimed there was strong empirical evidence, predominantly from the United States, that a positive school culture, also referred to as school climate or school environment, was a predictive factor of students' academic achievement and other positive educational outcomes. In the literature reviewed, school culture in rural, regional, and remote schools was linked positively to student aspirations for pursuing further education (Irvin et al., 2016; Kenway & Hickey-Moody, 2011; Tieken, 2016), academic achievement (Echazarra & Radinger, 2019; Irvin et al., 2016; Perales et al., 2023), and student engagement (Guenther, 2013; O'Donnell et al., 2022).

Perales et al. (2023) described school culture as evident in four domains: safety, academic climate, relationships and community, and institutional environment. In O'Donnell et al.'s (2022) quantitative research examining the relationship between educational expectations and school functioning in Australia, those authors used parents' responses to a survey that related to their child's capacity to engage in academic activities as a proxy to measure school culture. Perales et al. stated that the distribution of school climate was not uniform across Australia and that there was evidence that schools in rural, regional, and remote areas had less positive school

cultures than metropolitan schools. That research used the data from 10,000 children who participated in the Australian National Assessment Program for Literacy and Numeracy and the Longitudinal Survey of Australian Youth and concluded that school climate factors were a substantially greater influence in secondary school, particularly in Year 7 and Year 9, than primary school. Irvin et al.'s (2016) study of around 8,700 students from 73 schools across 34 states in the United States found that school experiences were as predictive of educational aspirations as school characteristics and more than family and student characteristics and experiences.

This account of the literature reviewed uses Perales et al.'s (2023) four domain specific description of school culture as an organizing principle. Perales et al. identified safety as the first domain, reflected in discipline and order, and physical and emotional safety as a leading descriptor and contributor to school culture. Echazarra and Radinger (2019) claimed that small schools, more commonly found in rural, regional, and remote areas, were perceived as safer environments than metropolitan schools but that students in rural schools were somewhat more likely to report being a victim of bullying than students in metropolitan schools. That report also indicated that rural schools faced barriers in providing programs that supported students' development of social and emotional skills. Sullivan et al. (2018) found that students in rural communities in Australia enjoyed fewer positive educational experiences and fewer positive relationships with their teachers than their peers in Canada or New Zealand.

The second domain that Perales et al. (2023) identified as an expression of school culture, was academic climate, demonstrated by the teaching and learning practice and the quality of instruction and professional development evident in a school. Since a more nuanced discussion of curriculum and assessment and teachers and teaching in rural, regional, and remote schools

appears in earlier sections of this literature review, this discussion focuses on the broader characteristics of curriculum, described by Roberts (2013, p. 90) as “encompassing the broad educational experience” and how that influences school culture.

Common in the literature reviewed was a recognition across countries and regions that rural economies had been defined by what Tieken (2016) described as trade industries, such as farming, logging, mining and manufacturing and that these had informed the local school job-driven curriculum. Echazarra and Radinger (2019) suggested that rural regions now included economic activities that were typically found in agriculture, natural resources and tourism which had restricted the range of work programs available to students. Tieken’s large ethnographic research project that examined college aspirations and the persistence of first-generation college students in New England, explained that while traditional rural industries were faltering, there was still a jobs-driven narrative that affected choice at school that drove postsecondary pathway decisions. This was a similar observation in Roberts’ et al. (2019) study of curriculum access and achievement, where that author concluded that the New South Wales (Australia) curriculum increasingly funneled students from low socio-economic status and non-metropolitan backgrounds into vocational education subjects. Vocational education is designed for students to become job ready. Roberts and Fuqua (2021) suggested that school culture that is reinforced by local resourcing and employer partnerships assisted students to make informed choices.

The third domain outlined by Perales et al. (2019) of school culture was concerned with relationships and community, for example respect for diversity and the quality of relationships. Gallay et al. (2016) identified from their mixed methods study of a place-based stewardship education program in schools in rural Michigan that there was a critical role of schools as “public places that enable students to participate in conversations and decisions about their communities

and imagine futures that are alternative to the status quo” (p. 171). Echazarra and Radinger (2019), Kenway and Hickey-Moody (2011), and O’Donnell et al. (2022) acknowledged that students’ participation in extracurricular activities may improve educational outcomes, but this was dependent on school culture. O’Donnell et al. claimed that the disparities between educational outcomes between Australian adolescents living in regional communities with those students from metropolitan communities are partially due to the development of lower educational expectations among regional adolescents. In that study, O’Donnell et al. found that “differences for adolescents in regional areas dissipated when they were engaged in three or more different types of extracurricular activities” (p. 2368).

Parental engagement emerged as a significant theme in the literature reviewed around school culture. Irvin et al. (2016) found in a study based in the United States that parents of White, African American, Hispanic Latino, and Native American students in rural areas had comparably high levels of educational aspirations for their children. Irvin et al. indicated, however, that parents were less likely to have a postsecondary education attainment, which was similar to Australia (Australian Bureau of Statistics, 2022a), and parents with less education have lower educational achievement and expectations. Tieken (2016) stated that some rural parents continued to undermine and oppose college aspirations.

Perales et al. (2023) stated that the institutional environment which was evident in the size of the school and the availability of resources was significant for school culture. The literature reviewed indicated that school size can affect academic performance, especially in senior years. The Centre for Education Statistics and Evaluation (2013) linked school size to the gap in outcomes between metropolitan and non-metropolitan students in New South Wales (Australia), which correlated with limited course offerings and available teaching expertise for a

broad range of academically rigorous and rewarding courses. Leithwood and Jantzis' (2009) review examined 57 post-1990 empirical studies of school size effects on a variety of student and organizational outcomes. They found that smaller schools had significantly higher rates of participation in extracurricular activities. Their findings differentiated between diverse and heterogenous populations in elementary and secondary settings and recommended elementary schools should be limited to 300-500 students and secondary schools serve between 600 and 1000 students for optimal results. Echazarra and Radinger (2019) claimed that rural families have a limited choice of schools, education programs, after school activities, and access to additional support.

Dale et al. (2023) found that university qualifications enabled upward social mobility, but this was subject to access and accessibility, especially around transportation. In that qualitative study that relied on interviews with ten equity practitioners from three Australian universities, the findings indicated that the further a student lives from a metropolitan area, the lower the expectation was that they would go to university. That study revealed that access and accessibility due to mass public transport for students who must relocate to metropolitan areas for tertiary study can limit university participation in Australia. Hillman (2016) examined distance elasticity, that is how sensitive enrollment patterns were relative to proximity from a college in the United States. That study indicated that there are systematic patterns of college locations along lines of race and class that reflected transportation costs interacting with college choices. This supported Li et al.'s (2017) findings that academically high performing suburbs in Australia are usually in capital cities, typically Sydney (New South Wales, Australia), although some agricultural suburbs ranked relatively highly. Those authors suggested that institutional

features of the school system influenced the efficiency of education, and that regional resource targeting was necessary.

2.5.10 Post-school

In the literature reviewed, it was found that student, teacher, parental, and community understandings of the post-school possibilities for students were influenced by the educational priorities of their communities and the individual interpersonal, emotional and self-identity inputs of emerging adults in rural communities. It was a significant theme in the literature as it influenced and was influenced by teacher expectations (Beswick et al., 2023), parental expectations (Fray et al., 2020), the regional economy (Schafft, 2016), government policies (Herbert, 2020) and peers (San Antonio, 2016). The literature reviewed considered post-school pathways to be the destination and trajectory of education in schools. For students in rural, regional, and remote schools, this was impacted by challenges such as distance and cost, access to information and support networks and the social and emotional experiences of rural adolescence. Recommendations and insights from the literature reviewed offered interventions that could mitigate challenges for rural youth to delimit their aspirations and achievement.

Perales et al. (2023) identified that remoteness was negatively associated with various post-school outcomes. In particular, they referenced Chesters and Cuervo (2022) who indicated that rural, regional, and remote students were less likely to enroll in higher education in Australia, even after controlling for academic achievement at age 15 and accounting for Australian Tertiary Admission Ranking scores. Fray et al. (2020) detailed from their review of the literature the following key influences on aspirations for higher education and post-school options: “financial difficulties and distance to university; the emotional cost of relocation; the significant role of home and community in shaping aspirations; supportive school environments,

teacher encouragement and negative school experiences; and a lack of certainty regarding post-school options” (p. 70-1). San Antonio’s (2016) longitudinal qualitative study based in the United States which investigated through the voice of the students their decision-making processes as emerging adults, detailed a similar list of factors as Fray et al. as significant to students deciding on their post-school options. As these factors, including empirical scholarship, were representative of the literature, policies and interventions that address these factors are likely to be effective in supporting students.

Beswick et al. (2023) made the following recommendations: ensure career advice includes a focus on local industry needs and locally available post-school options; schools should engage with alumni to articulate their post-school pathways and provide role-models; and access university orientation programs that enable students to familiarize themselves with university, careers, and university life. San Antonio’s (2016) participants in the study stressed that any advice needs to move “beyond the dualisms of staying or leaving, college or not and embrace the possibility of new blends and complexities invented by creative and energetic youth” (p. 266).

2.6 GAPS IN THE LITERATURE

In the literature reviewed, the determinants of education outcomes in rural, regional, and remote areas for senior students were tied to policies and research that influenced school capacity, the education and professional development of teachers and leaders, school cultures, networks for teachers and students, information and communications technologies, and facilitating transitions to post-school pathways. The research indicated there was a correlation between in-school factors (such as school size and type, and quality of teaching) and out-of-school factors (including socio-economic status and demographic variables) with the aspirations, achievements, engagement, and attainment of students in rural, regional, and remote schools,

measured using national standardized test scores, school completion rates and enrollments in post-school education. Sullivan et al. (2018) indicated that in economically developed countries, 15-year-old students in cities of 100,000 or more people are about one-half year of schooling ahead of their peers in rural, regional, and remote areas. Furthermore, the other-than-urban student population in most Organisation for Economic Cooperation and Development countries indicated lower levels of engagement, attendance, and aspirations for further study (Organisation for Economic Cooperation and Development, 2013).

The most obvious gap in the literature reviewed was that the scholarship, wholistically, had not addressed a persistent gap in education outcomes between urban and rural students, especially in New South Wales (Australia). The reason for this could stem from socio-economic and demographic factors which appear stubborn and non-negligible, but from a human rights perspective, this should not be a fated course. This opened an opportunity to investigate factors that were not dependent on family and community socio-economic and demographic factors, transcended restrictions on school capacity and improved access and connection to information and resources.

Openings in the literature reviewed that could meet these conditions were:

1. Ruraling policy and research to influence school capacity.
2. The development of teachers and leaders to influence school culture.
3. Information and communications technologies.

The ecosystem was a repeated motif of learning environments. Cope and Kalantzis (2017) built on this theory, converging an ecologic perspective with e-Learning environments. Frielick (2004), Istance and Paniagua (2019) and Organisation for Economic Cooperation and Development (2015) also referred to ecologic frameworks to understand and enable innovative interventions, specifically using emerging technologies in entrenched areas of inequity. What

was widely repeated in the literature reviewed was an acknowledgement that it was the social connections in digital networks that interconnected and responded in an ecological pattern that created affordances for growth. This was pivotal in Cope and Kalantzis' framework, engendering a distinctly human perspective that elevated the relationship between individuals as significant. Their seven affordances of e-Learning were evident in the literature reviewed (such as Johnson et al., 2023), especially research predicated on a socio-constructivist understanding of learning, for example, Borup et al. (2020) and Jones et al. (2006). Given this, the seven affordances offered a reliable and valid articulation of new learning paradigms brought about by e-Learning environments.

Bianchi et al. (2021), Granić (2022) and Johnson et al. (2023) stated that technology had transformed education and cited fundamental structural changes around technological access that had enhanced productivity and transformed teaching, especially in virtual learning environments. Istance and Paniagua (2019) detailed those emerging technologies had significant potential for rural and regional schools to leapfrog over entrenched access and equity structural barriers.

The literature reviewed posited that in the face of a rapidly accelerating pace of change around technology, the meso-level was still seen as a fundamental foundation for ensuring distributive justice (Cuervo, 2016; Fuqua, 2021; Istance & Paniagua, 2019; Jones et al., 2006; Organisation for Economic Cooperation and Development, 2015). But given Granić's (2022) findings that self-efficacy was a significant determinant of technology adoption, and with the exponential rate of development of digital tools, there was likely to be a diminishing number of educators that felt able to adopt new technologies as they emerged. Cyber-social communities of practice need to support this transformative change but there may be limitations to enact this

transformation to leverage learning gains for students in rural and regional areas. Understanding these limitations could build theory on the right drivers for change in rural and regional schools.

There were multiple studies in the literature reviewed that examined causes and correlations between education outcomes for students at schools in rural and regional New South Wales (Australia) (Beswick et al., 2023; Centre for Education Statistics and Evaluation, 2013, 2020; Green & Reid, 2021; Li et al.; Roberts et al., 2019; Robertson & Ford, 2019). There was, however, limited evidence of sustained and successful initiatives that had addressed lagging outcomes for students in rural and regional New South Wales (Australia) (Australian Government Productivity Commission, 2022; Beswick et al.; Centre for Education Statistics and Evaluation, 2020). Australia may have been a pioneer in the development of virtual schools and the development of Aurora College may have been shown to abrogate some barriers experienced by rural and regional students, such as diminished access to the curriculum and inequitable resourcing, but Chesters and Cuervo's (2022) findings and others (Beswick et al., 2023; Centre for Education Statistics and Evaluation, 2021a; Cuervo et al., 2019; Fray et al., 2020; Halsey, 2018b; Perales et al., 2023) showed that there was a stubborn persistence of inequalities affecting rural and regional youth in contemporary Australian settings. Emerging technologies in new settings offered new lines of enquiry, and the literature reviewed maintained that interaction, presence and engagement was essential in blended, online and virtual settings. Understanding the role of the teacher and the learner in that emerging environment was recognized as critical in improving education outcomes for students in rural and regional areas.

2.7 CONCLUSION

Scholarship researching the urban-rural education gap reported there had been incremental gains over time in closing it (Echazarra & Radinger, 2019; Halsey, 2018a; Redding

& Walberg, 2012), and in New South Wales (Australia), this had been a limited experience (Beswick et al., 2023; Li et al., 2017; Perales et al., 2023). Bostwick et al. (2022) and Gavidia-Payne et al. (2015) found that stagnating or declining educational outcomes eroded the quality of social relationships and cohesion and affected communities' resilience in difficult social and economic times. Given Beswick et al.'s claim of the paucity of evidence-based practices and strategies that had supported improving outcomes for students in rural and regional schools in New South Wales (Australia), the ongoing impact from deteriorating relationships to those communities' economic, social and cultural capital could be detrimental. Halsey (2018a) stated that when information and communications technology was functioning optimally, it could overcome barriers commonly experienced by rural and regional students, such as reduced curriculum offerings and limited access to expert teachers. Istance and Paniagua (2019) and Robertson and Ford (2019) found that information and communication technologies were also significant in leapfrogging entrenched disadvantage in rural and regional areas when they utilized pedagogical innovations in a networked multi-campus model. The literature reviewed offered recommendations towards addressing the entrenched inequity of poorer education outcomes in rural and regional areas using virtual learning that was enriched by knowledge networks and increased curriculum offerings and access to expert teachers. It was also shown to dismantle some financial barriers from logistical impediments, such as staff shortages.

Molefe et al. (2017) explained that “adolescent expectations (what one thinks will happen) and aspirations (what one hopes will happen) are important precursors to students' successful transition into adult roles and to their fulfillment of adult responsibilities later in life” (p. 1). Students' aspirations for post-school pathways that included higher education, or other ways that bettered their social and economic position, were closely linked to achievement in the

literature reviewed, showing a positive relationship between them (Abbott-Chapman et al., 2022; Agger et al., 2023; Behrendt et al., 2021; Beswick et al., 2023; Centre for Education Statistics and Evaluation, 2023b; Chesters & Cuervo, 2022). The literature reviewed indicated that rural and regional students' expectations and aspirations tended to be reported as lower than urban students (Centre for Education Statistics and Evaluation, 2013; Fray et al., 2020). Chesters and Cuervo said that this was in part due to "a restricted range of subjects in their final years of secondary school" (p. 57) and other structural inequities such as an inadequacy of local higher education options, rather than individual dispositions that had constrained student aspirations. Fray et al. said that "the corpus of studies provides a limited understanding of such characteristics as the emotional and material realities of students' lives that might affect their aspirations for high education" (p. 72). Cooper et al. (2018) said that low aspirations may be a rational response to circumstances in rural and regional areas.

Irvin et al.'s (2016) study found that school experiences were as predictive of educational aspirations as school characteristics and more than family and student characteristics and experiences. In Australia, Perales et al.'s (2023) study found that schools in rural, regional, and remote areas had less positive school cultures than metropolitan schools, stating that if students in rural and regional areas attended the same school as metropolitan students with similar socio-economic backgrounds then their scores in the National Assessment Program for Literacy and Numeracy would narrow the rural-urban education gap by 48-98%. Cuervo et al. (2019) said that "educational aspirations are now at the forefront of education policy as governments focus on how to increase the proportion of Australians with university-level qualifications and, in particular, how to encourage more regional and rural students to aspire to higher education" (p. 858). The Australian Universities Accord: Final Report (Australian Government, 2024)

identified participation targets to grow the proportion of undergraduate university students for regional, rural and remote students from 19.8% in 2024 to 24% in 2035. The literature reviewed indicated that improving students' aspirations in rural and regional areas was a desired outcome but was highly dependent on school experiences. Given Perales' et al. findings on school environments in rural and regional areas, this could be problematic for Australia.

The Centre for Evaluation and Statistics' (2020) report claimed that Aurora College, a multi-campus virtual learning school in New South Wales (Australia) overcame some of the persistent challenges that rural and regional school students faced. It was not clear in the research, however, how it affected students' post-school pathways and especially how it had influenced their aspirations. Moreover, the emergence of new technologies that realized the affordances of e-Learning ecologies may be affecting students' aspirations and expectations in new and different ways than reported in past research. Fray et al. (2020) also said that "there is a critical need for greater understanding of the diversity of experiences, influences, and aspirations among students within rural and remote communities" (p. 61). Considering national targets in Australia for rural and regional students to attend university, then more recent data may be needed to identify factors in the school environment that positively influenced students' post-school pathway aspirations. Notably, research should acknowledge the diversity of rural place and report on education outcomes resulting from contemporary pedagogical innovations that realized the affordances of e-Learning ecologies. Further research using an ecological perspective that privileged the student in a rural, regional, and remote context, cognizant of the role of professional development for teachers and leaders on school culture and the leapfrogging capabilities of information and communications technologies was needed to energize the field. Also informed by the literature review was ruraling the field of education research that brought a

phenomenological perspective from the ordinary lives of people in rural, regional, and remote communities into the sphere of influence of policy and practice at a systems level. As a glocal response, this underpinned possibilities for further research to address the rural-urban gap in New South Wales (Australia).

CHAPTER 3: THEORY AND METHODOLOGY

3.1 INTRODUCTION

Progress towards equitable educational outcomes for rural and regional students in Australia has been slow but the literature reviewed offered recommendations that had been shown to mitigate challenges and delimit rural students' academic achievement and aspirations. Beswick et al. (2023), Centre for Education Statistics and Evaluation (2023b), Fray et al. (2020), and Tieken (2016) linked educational outcomes positively to the aspirations of rural youth. In raising aspirations of rural youth, Irvin et al.'s (2016) study concluded that school experiences were as predictive of educational aspirations as school characteristics and more than family and student characteristics and experiences. Bostwick et al. (2022) defined school experiences as "a students' perceptions of school support (learning support, teacher relational support, school belonging, and classroom management) and intrapersonal psychological constructs focused on their academic motivation and engagement (perseverance, perceived competence, and valuing of school)" (p. 1933). Therefore, a rural student's perceptions of school support and the psychological constructs that influence their motivation and engagement are critical to their aspirations, which feed back into their educational achievement.

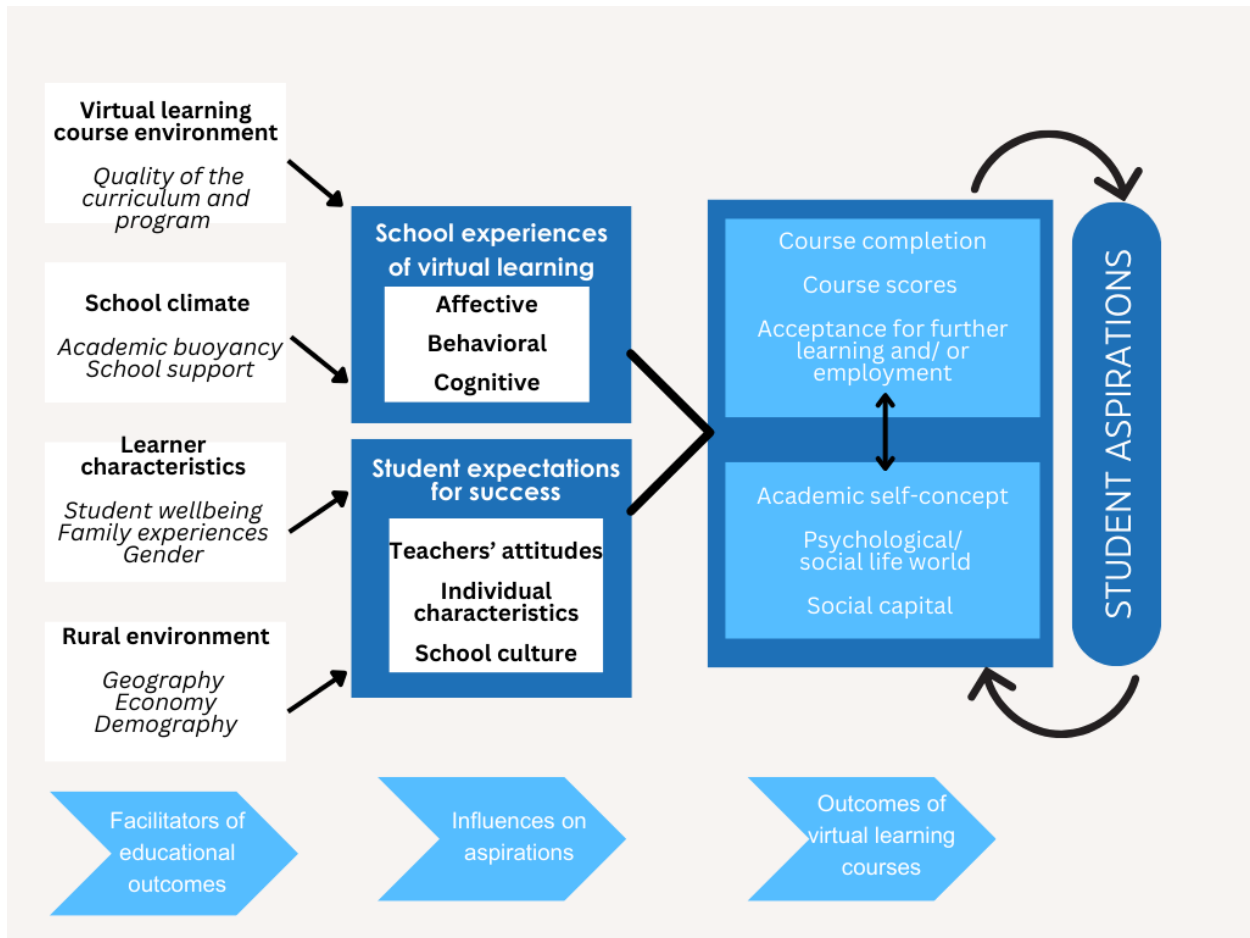
Information and communications technology was also confirmed in the literature reviewed as relevant in addressing stubborn and persistent gaps in education outcomes between rural and regional areas and metropolitan centers (Echazarra & Radinger, 2019; Halsey, 2018b; Istance & Paniagua, 2019; Organisation for Economic Cooperation and Development, 2015). Critical in that discourse was developing learning networks in virtual settings (Ellis et al., 2010; Hasnat & Greenwood, 2021; Patterson et al., 2021). Molefe et al. (2017) and Shattuck and Burch (2018) suggested that prior research on differences in postsecondary aspirations, expectations,

enrollment, and persistence between rural and nonrural students may not apply to today's students because it used old data from research sites that did not reflect contemporary digital technologies. Fray et al. (2020) suggested that the aspirations of rural and regional students had received little attention in Australian academic research and that there needed to be a "greater understanding of the diversity of experiences, influences, and aspirations among students within rural and remote communities" (p. 61). Considering these findings, new data based on empirical studies that investigated emerging technologies and their impact on education outcomes, including aspirations was recognized as being able to provide critical insights to address the urban-rural education gap.

The literature reviewed revealed two relationships. Firstly, it established that students' aspirations were linked to their school experiences, and secondly that technology and educational outcomes in rural and regional schools were positively related when conditions were met for technologically-mediated learning, for example when educators were prepared, students were developmentally appropriate and technology infrastructure and support were available. There was, however, a gap in understanding how rural and regional students' virtual learning experiences influenced their achievement and aspirations. This research addressed that gap in the context of schooling for senior students in rural and regional New South Wales (Australia).

Figure 3-1: Facilitators, Influences and Outcomes of Virtual Learning Courses that Affect Aspirations outlines these relationships and underpinned the theoretical framework and theory of action that follow.

Figure 3-1: Facilitators, influences and outcomes of virtual learning courses that affect aspirations



Chapter 3 outlines key concepts and theories in the literature reviewed which investigated the effect of a virtual learning network on students' postsecondary aspirations, especially with the introduction of new technologies. Specifically, this research investigated critical data on emerging technologies in four unique rural and regional contexts using a mixed methods case study of a virtual learning program, the Virtual Learning Collaborative, in New South Wales (Australia). The research attempted to explain the impact of this technologically mediated network of academic communities on school experiences for rural and regional students and how the Virtual Learning Collaborative's feature and the nature of the model had influenced postsecondary aspirations and educational outcomes of those students.

3.1.1 Aspirations

Cuervo, Corbett, et al. (2019) described aspirations as a psychological concept and posited that they were central to rural education and often seen as synonymous with social mobility. They contended that in the broader public discourse, aspirations of students in a rural context presupposed they had to leave their current circumstances to improve their lives. Molefe et al. (2017) said, “prior research on education ambitions does not distinguish between aspirations and expectations” (p. A-1) and linked students’ aspirations to their gender, parents’ level of education, students’ level of preparedness for higher education and cultural and social factors, such as how the influence of living in small, isolated populations with limited career options can limit student aspirations. Tieken (2016) posited that the higher education gap between rural and nonrural students was due in part to rural students’ lower educational aspirations stemming from a student’s sense of belonging or alienation, which critically influenced their decision to stay or leave their community. The studies by Agger et al. (2023), Corbett (2016), Fray et al. (2020), Kenway and Hickey-Moody (2011), and Tieken and San Antonio (2016) also found that students’ aspirations and expectations were consequential. For example, they were associated with students’ school and academic experiences (Irvin et al., 2016) and helped to guide their postsecondary life choices (Molefe et al.).

Perales et al. (2023) and Wang and Degol (2016) linked students’ experiences at school with school climate, nominating more cooperative relationships between students and teachers as a contributing factor in engagement due to more positive student perceptions of the academic climate. Echazarra and Radinger (2019) recommended the expansion of a rigorous curriculum, adapted to local circumstances, stating that it was important in raising aspirations as it created more opportunities for rural students to study courses that may offer alternative pathways beyond

a job-ready curriculum. Fray et al.'s (2020) review of the literature recommended investigating rural and regional "teachers' assumptions about their students and their teaching practices and how these then shape young people's capacities to aspire to higher education" (p. 72). The Australian Government Productivity Commission (2022) made similar recommendations that teachers need to understand what students hope to achieve from their education and "teach to those aspirations" (p. 126) and stated that governments can promote those behaviors. In the literature reviewed, student aspirations were linked to school climate, including teacher attitudes, and were associated with the rigor of the curriculum, student engagement and course completion, which were expressed through students' post-school preferences. Underpinning these factors were socio-cultural and economic considerations, including parents' education levels, gendered roles and a student's engagement with their learning community as shown in Figure 3-1: Facilitators, Influences and Outcomes of Virtual Learning Courses that Affect Aspirations.

3.2 THEORETICAL FRAMEWORK

This section establishes the conceptual foundation for understanding how virtual learning environments can address the educational challenges faced by rural and regional students, informed by the literature reviewed. The framework integrated three key theoretical perspectives that explained the relationships between context, virtual and school learning environments and postsecondary aspirations. It presented perspectives that not only build understanding of the broader phenomenon of rural and regional students' aspirations but also underpinned the theory of action for how the Virtual Learning Collaborative could influence education outcomes, given the indications in the literature reviewed.

3.2.1 Understanding rural and regional students' aspirations: Social Capital Theory

Bourdieu's (1986) Social Capital Theory provided the foundational lens for understanding why rural students often face constrained postsecondary aspirations despite academic capability. Bourdieu argued that educational outcomes are not always directly related to an individual's effort or aptitude but resulted from their social connections and cultural resources which he referred to as social capital. In his seminal work, Bourdieu argued that social capital becomes evident through two mechanisms, namely the size and quality of an individual's social network and the cultural knowledge and expectations embedded in those networks. Sabatini (2006) synthesized Bourdieu's theory into two measurable components, that being social capital as a resource connected with group membership and social networks, and secondly, the quality of relationships between individuals rather than just group characteristics. Rural and regional students typically face limitations in each of these two aspects through geographic isolation and smaller and more limited networks. This theoretical lens explained why providing rural and regional students with a high-quality curriculum was not sufficient for improving education outcomes as they also needed access to the social networks and cultural knowledge that supported postsecondary transitions.

Green and Reid's (2021) Rural Social Space framework extended this understanding by situating rural communities within three interconnected domains of geography, economy and demography. This framework moved away from the homogenization of rural contexts and in this study, it helped explain how different rural characteristics created unique patterns of social capital availability. The trialectic approach recognized that rural social spaces are not defined by what they lack compared to urban settings but that their unique geographic, economic and

demographic characteristics created distinct educational contexts that could support or challenge students' postsecondary aspirations in inimitable ways.

3.2.2 Understanding virtual learning environments: Affordances and engagement

Two complementary theories explained how virtual learning environments could create educational opportunities that are likely to delimit rural and regional disadvantages. These were Cope and Kalantzis' (2017) seven affordances of e-Learning that enable new pedagogical approaches and Borup et al.'s (2020) Academic Communities of Engagement.

Cope and Kalantzis' (2017) identified the affordances of e-Learning as ubiquitous learning, active knowledge production, multimodal knowledge representations, recursive feedback, collaborative intelligence, metacognitive reflection and differentiated learning. Cope and Kalantzis argued that e-Learning could support a change in pedagogy from a didactic or teacher-centered approach to a reflexive and student-centered approach that gave rise to these affordances. They described didactic pedagogy as that which focused on direct instructional guidance, cognition, particularly through the individual learner's long-term memory, and mimesis or knowledge replication while reflexive pedagogy was a more fluid process where knowledge activity is dialogical, represented by epistemic artifacts or representations that are widely shared and used. In the latter, Cope and Kalantzis posited that "knowledge is dynamic and evolving" (p. 11). These diverging perspectives are explained in Table 3-1: Comparing Didactic and Reflexive Pedagogy. This transformation was particularly relevant for this research in rural contexts because it described how virtual learning overcame traditional constraints like limited course offerings, teacher shortages, and geographic isolation. Critical to this research was that Cope and Kalantzis' theory acknowledged that using technology was insufficient in

improving education outcomes stating that the pedagogical transformation towards reflexive learning was the catalyst for the affordances.

Table 3-1: Comparing didactic and reflexive pedagogy (Cope & Kalantzis, 2017, p. 14)

	<i>Didactic Pedagogy</i>	<i>Reflexive Pedagogy</i>
<i>Spatio-temporal dimension</i>	Confined by the four walls of the classroom and the cells of the timetable	Ubiquitous learning: anywhere, anytime, anyhow
<i>Epistemic dimension</i>	The learner as knowledge consumer, passive knowledge acquisition, memorization	Active knowledge making: the learner-as-knowledge producer and discerning knowledge discoverer/ navigator
<i>Discursive dimension</i>	Academic literacies: traditional textbooks, student assignments and tests	Multimodal meaning: new media texts, multimodal knowledge representations
<i>Evaluative dimension</i>	Emphasis on summative assessments and retrospective judgments that serve managerial purposes but are not immediately actionable	Recursive feedback: formative assessment, prospective and constructive feedback, learning analytics
<i>Social dimension</i>	The isolated learner, with a focus on individual cognition and memory	Collaborative intelligence: peer- to-peer learning, sourcing social memory, using available knowledge tools appropriately
<i>Cognitive dimension</i>	Focus on facts to be remembered, theories to be correctly applied	Metacognition: thinking about thinking, critical self-reflection on knowledge processes and disciplinary practices
<i>Comparative dimension</i>	Homogenizing, one-size-fits-all curriculum, standardized teaching and assessment	Differentiated learning: flexible, self-expressive, and adaptive learning, addressing each student according to his or her interests, self-identity, and needs

Borup et al.'s (2020) Academic Communities of Engagement framework explained how virtual learning environments can foster the deep engagement that precipitates academic success.

That framework identified three dimensions of engagement:

- Affective engagement: emotional energy and interest in learning
- Behavioral engagement: participation, effort and task completion
- Cognitive engagement: mental effort, strategic thinking and self-regulation

Borup et al.'s research found that engagement in virtual learning environments was dependent on community factors such as students' connections with teachers, peers and other members of the community who supported their learning. That framework articulated a measurable way to discern how virtual learning can build relational aspects of education that were crucial in those environments. Johnson et al.'s (2023) K-12 Online Learning Conceptual framework, derived from their systematic literature review supported these two theories as it identified how contextual factors, which included learner characteristics, content area and modality, must align with instructional components, such as connected learners, learning design and instructor presence, to produce effective outcomes. That research emphasized that virtual learning must account for students' specific circumstances and needs, which are discussed below.

3.2.3 Understanding contextual influences: Ecological Systems Theory

Bronfenbrenner's (1995) Ecological Systems Theory provided the overarching framework for this study in understanding how multiple levels of context can influence student development and learning. The theory identified five nested systems (shown in Figure 3-2):

- Microsystem: immediate environments of family, school and peers
- Mesosystem: interaction between microsystems
- Exosystem: external environments that indirectly influence the child

- Macrosystem: cultural values, customs and laws
- Chronosystem: Changes over time

This theory helped explain why individual-level interventions may be insufficient for rural and regional students in virtual learning environments. It outlined that education outcomes resulted from complex interactions across all ecological levels. This meant that virtual learning programs needed to account for family considerations in the microsystem, school and community relationships in the mesosystem as well as the economic conditions in the exosystem and the cultural attitudes towards technology and education in the macrosystem, cognizant of the changing circumstances over time in the chronosystem. Frielick's (2004) Ecological Model and Learning/ Teaching specifically addressed how educational environments can be designed to support learning across different contextual layers when teachers and students co-constructed knowledge.

3.2.4 Theoretical framework summary and justification

These theories worked together to explain the complex challenges rural and regional students face and how that understanding can address the research questions for the study, summarized below:

- Bourdieu's (1986) Social Capital Theory explained why rural and regional students often have constrained aspirations despite having academic ability as they lack access to networks and cultural knowledge that support postsecondary transitions common in urban settings. Green and Reid's (2021) Rural Social Space framework drew on Social Capital Theory to understand the interaction of those networks.
- Theories that focused on virtual learning environments included above, namely Cope and Kalantzis (2017) and Borup et al. (2020), detailed how technology-enabled networks can

provide new forms of access to rigorous and high-quality curriculums, expert instruction and peer networks that overcome constraints common in rural and regional areas.

- Ecological Systems Theory, developed by Bronfenbrenner (1995), emphasized how education must account for the multiple contextual factors of the student's environment which in this study included the contextual factors of the rural and regional environment.

The integration of these theories showed that for rural and regional contexts, virtual learning programs required more than just online access to courses, they must systematically address social capital limitations while accounting for the ecological complexity of rural contexts. The literature reviewed found that virtual learning environments must provide not only high-quality curriculum but also focus on relationship building, cultural bridging and contextual responsiveness and this understanding underpinned the theoretical framework for the study.

The literature reviewed found that rural and regional students' postsecondary aspirations resulted from the interaction of social capital availability, learning environment quality, and ecological context factors. It also showed that virtual learning environments have the potential to address rural educational constraints, but only when they are designed to build social capital, foster deep engagement, and account for rural ecological complexity.

That understanding informed the framework and generated the following key propositions for the research design:

1. Rural students' constrained aspirations often result from limited social capital rather than limited academic ability.
2. Virtual learning can expand social capital by connecting students to broader networks and cultural resources.

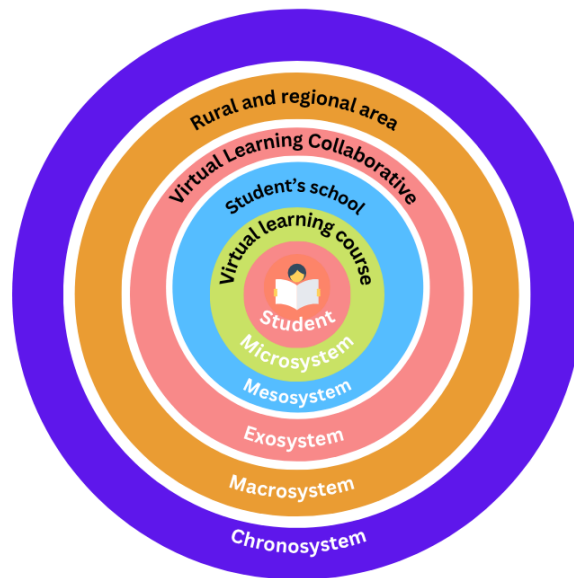
3. Effective virtual learning requires transformation toward reflexive, student-centered pedagogy.
4. Engagement in virtual environments depends on building authentic communities of learning.
5. Virtual learning interventions must account for rural ecological contexts rather than simply extending urban models.

Understanding the experience of a rural, regional or remote school student, who is enrolled in and dependent on virtual courses to graduate and access postsecondary pathways, speaks to the complexity of rurality and that field of research. Corbett and Gereluk (2020a) contended that realizing the complexity and challenge of rural education in research can help dispel exclusive notions of rural homogeneity and move beyond the “rural problem” to “an awareness, sensitivity and recognition that is unique to the place and to its people” (p. 302).

In Figure 3-2, the virtual learning student sits at the center of their e-Learning ecology interacting with course curriculum, pedagogy and assessment frameworks and their attendant requirements and supports from teachers and peers, potentially experiencing affordances of e-Learning as described by Cope and Kalantzis’ (2017). Structures around that learning environment come from institutional boundaries (Frielick, 2004), attitudes and ideologies operating in the macrosystem (Bronfenbrenner, 1995), filtering through school policies (Quality Matters et al. 2024), knowledge artefacts and representations (Cope & Kalantzis, 2017) and teacher knowledge and preparedness, as well as technology infrastructure and support (Borup et al., 2020; Johnson et al., 2023). The model visualizes the student’s social network wholistically, showing the diffusion of knowledge and information, conceptualizing Bourdieu’s (1986) social capital through the interaction between agents. This model aimed to conceive of these different

dimensions, creating a symbolic understanding of the student’s social space in a rural and regional school.

Figure 3-2: The student’s e-Learning ecology of the Virtual Learning Collaborative using Bronfenbrenner’s (1995) Ecologic Systems Model



The limitations of the theoretical model of the student’s e-Learning ecology stemmed from its hybridizing of the included theories. It generalized aspects of the theories, which may not have been designed for broader application or to be reliably integrated into other frameworks. For example, Borup et al.’s (2020) model of student engagement in the affective, behavioral and cognitive domains does not purport to describe course or academic outcomes. It maintained a focus on academic success. Borup et al. explained that it “goes beyond only equating success with the narrow definition of achieving a particular grade in a course” (p. 811). This, however, does not face the reality of higher education requirements, such as course scores, financial burdens, family ties and geographical proximity. In recognizing this, in the proposed theoretical model, student engagement is a desirable outcome but so is the rigor of the curriculum (Frielick, 2004; Quality Matters et al., 2024), course completion and students’

satisficing of career goals for social mobility and connectedness (Bourdieu, 1986). Borup et al.'s Academic Communities of Engagement Framework was not intended to indicate or measure students' postsecondary aspirations so re-purposing it for this research intention could have been problematic. The methods and methodology needed to account for limitations of the theoretical framework and ensure the processes reflected the precepts of validity, reliability and inter-rater ability.

By embracing the call for 'ruraling' the research (Roberts & Fuqua, 2021), the model foregrounded the messy complexity of unique rural and regional sites across different geographies which challenged the analysis of data. The complexity of the model may have overcomplicated students' experiences and education outcomes. For example, there may have been limited school curriculum offerings and teacher availability which impacted a student's career aspirations and access to academically rigorous courses. A quality learning environment and rigorous curriculum of a course that did not match a student's preferences would most likely not improve education outcomes for that student. In the complexity of the theory, it was also difficult to discern between correlation and causation across multiple variables, such as a student's non-completion of a course may correlate with an economic downturn in a regional area. For example, it may be caused by the depressed economic conditions as the student sought immediate employment due to financial stresses on the family, not because of the course or program specifics. Methodological design considerations and clear guidelines in the Implementation Plan for data sources, collection and analysis considered direct and indirect relationships to gain clear insight into how cyber learning environments impacted students' postsecondary aspirations in rural and regional areas.

3.3 THEORY OF ACTION FOR THE VIRTUAL LEARNING COLLABORATIVE

Building on the theoretical framework derived from the literature reviewed, as outlined above, this section articulates the theory of action for how the Virtual Learning Collaborative was expected to influence the rural and regional students' postsecondary aspirations, course achievement and exit credential attainment.

3.3.1 Theory of action statement

If rural and regional students participated in the Virtual Learning Collaborative, which provided high-quality virtual learning courses within supportive school climates while accounting for learner characteristics and the rural social space, then they will have experienced improved engagement (affective, behavioral, and cognitive), leading to improved academic outcomes and strengthened academic self-concept and social capital, resulting in higher postsecondary aspirations.

3.3.2 Causal logic and mechanisms

Figure 3-1: Facilitators, Influences and Outcomes of Virtual Learning Courses that Affect Aspirations illustrates this theory of action as a causal pathway that moves from facilitators through influences through to outcomes, including aspirations. The causal mechanisms are derived from the literature reviewed on virtual learning environments (Borup et al., 2020; Cope & Kalantzis, 2017; Quality Matters et al., 2024), rural education challenges (Corbett & Gereluk, 2020a; Green & Reid, 2021), and student engagement theory (Bostwick et al., 2022). This integrated approach for virtual learning systematically addressed the social capital limitations, pedagogical constraints, and ecological challenges that typically limit rural and regional students' educational opportunities through the affordances of e-Learning that boosted students' academic buoyancy.

Facilitators: Creating conditions for success

Virtual learning course environment

Cope and Kalantzis' (2017) research identified seven affordances of e-Learning that could enable virtual learning programs to address rural and regional educational constraints. In particular, ubiquitous learning, where learning happens anywhere, anytime, could overcome geographic barriers that limit students' course options. Collaborative intelligence, evident in technologically mediated peer connections, could compensate for limited local peer networks. Active knowledge production in student-centered digital learning environments, which builds academic confidence and self-efficacy together with differentiated learning, could accommodate diverse learning needs.

School climate

Martin and Marsh's (2008) research on academic buoyancy demonstrated that supportive school environments helped students persist through academic challenges. Bronfenbrenner's (1995) Ecological Systems Theory predicted that microsystem supports were crucial for student development. The theory anticipated that schools providing strong academic and emotional support created conditions where students successfully navigated virtual learning challenges and developed persistence, resilience and self-reliance described by academic buoyancy.

Learner characteristics

Green and Reid (2021) identified unique characteristics that rural and regional communities bring to educational experiences and Borup et al. (2020) outlined how these social bonds supported students who felt connected and optimistic while facing challenges including limited digital literacy and economic or fiscal pressures. The theory predicted that virtual learning programs must account for these persistent conditions to be effective.

Rural and regional environment

Green and Reid's (2021) Rural Social Space framework demonstrated how geographic, economic, and demographic factors create specific educational contexts that differ from urban environments. Research consistently showed that rural and regional students faced constraints including geographic isolation, limited local course offerings, and restricted social networks with postsecondary experience (Beswick et al., 2023). The theory predicted that virtual learning could address these specific rural constraints through technology mediated learning environments.

Process mechanisms: Building engagement and expectations

School experiences

Borup et al.'s (2020) Academic Communities of Engagement Framework provided empirical evidence that student success in virtual environments depended on three dimensions of engagement: affective, cognitive and behavioral. That research found that affective engagement developed when students experienced interest, confidence, and emotional connection to learning; that behavioral engagement required consistent participation, effort, and task completion; and that cognitive engagement involved deep mental effort, strategic thinking, and metacognitive skill development. The theory predicted that virtual learning environments designed around these engagement principles produced stronger student outcomes than those that focused solely on content delivery.

Student expectations

Frielick's (2004) research stated that effective learning depended on teacher-student partnerships mediated by culture and relationships. Johnson et al.'s (2023) literature review indicated that instructor presence and relationship quality were critical factors in online learning success. The theory predicted that programs that fostered strong teacher-student relationships and

positive expectations produced better outcomes than those focusing primarily on course content and technology access.

Outcomes

Academic outcomes

The literature reviewed demonstrated that academic success built self-efficacy and expanded students' sense of possible futures (Tieken & San Antonio, 2016). For rural students specifically, studies showed that access to rigorous coursework overcame traditional barriers to postsecondary pathways (Roberts et al., 2019). The theory predicted that successful completion of challenging virtual courses provided concrete evidence of academic capability.

Psychological outcomes

Bourdieu's (1986) Social Capital Theory explained how educational outcomes depended on social networks and cultural resources. Chesters and Cuervo's (2022) research on rural education found that limited social capital often constrained rural students' aspirations despite academic ability. The theory predicted that virtual learning could build social capital by:

- Expanding academic self-concept through successful navigation of challenging coursework
- Developing social networks that provided information about postsecondary opportunities
- Building cultural knowledge about postsecondary opportunities

Students' postsecondary aspirations

The literature reviewed found that aspirations developed through the interaction of academic capability, social capital, and opportunity awareness (Cuervo, Chesters, et al., 2019; Fray et al., 2020). Furthermore, the literature reviewed that focused on rural and regional

education showed that geographic and social constraints often limited aspirations despite academic potential (Cuervo, Chesters, et al., 2019). The theory predicted that virtual learning that addressed both academic access and social capital limitations supported and promoted postsecondary aspirations.

3.4 LOGIC MODEL AND RESEARCH QUESTIONS

In establishing the theoretical framework, the first part of this chapter discussed the three theoretical perspectives that explained the relationships between context, school and virtual learning environments, and educational outcomes. It informed the direction for this study, which was an explanatory sequential mixed methods case study driven by these research questions:

- What was the impact of the Virtual Learning Collaborative on rural and regional students' postsecondary aspirations, course achievement and attainment of their school exit credential?
- What are the features and nature of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that have contributed to improving rural and regional students' education outcomes and postsecondary aspirations?

The discussion then critically evaluated the theoretical framework for the research. To account for the multiple experiential dimensions of a student's e-Learning ecology the logic model was developed, illustrated in Figure 3-3 on page 79. It used data from the rural space, the virtual learning program (which operates across multiple schools), a student's home school, the virtual learning course and the student's interests and aptitude and then triangulates that data, through cross-checking and reporting back to interviewees through member checking, to identify the main source of influence on a student's postsecondary aspirations. While the theoretical

perspectives are aligned to different segments of the ecosystem, this showed where their dominance could be observed but it did not discount their influence across all domains, as recognized in ecological systems.

3.4.1 Hypotheses

For this theory of action to operate as predicted, data was collected and analyzed to indicate that the Virtual Learning Collaborative met these provisions to:

- provide genuinely high-quality curriculum and reflexive pedagogy.
- maintain strong instructor presence and authentic relationship building.
- account for rural contextual factors in program design and delivery.
- build authentic communities of engagement.
- provide adequate technical and academic support for successful participation.

After establishing to what extent these conditions were met, the study sought to prove or disprove the following hypotheses relating firstly to impact, then to features and nature of the model, articulated in the research questions:

Research Question 1 Hypotheses (Impact of the Virtual Learning Collaborative):

- Rural and regional students participating in the Virtual Learning Collaborative will demonstrate increased postsecondary aspirations, particularly those pursuing tertiary pathways, compared to baseline rural student aspiration patterns.
- Students in the Virtual Learning Collaborative will achieve successful course outcomes as measured by completion rates, grade distributions, and Higher School Certificate performance that supports their postsecondary pathway goals.

- The Virtual Learning Collaborative will support rural and regional students' attainment of their Higher School Certificate by providing access to required courses that would otherwise be unavailable at their local schools.

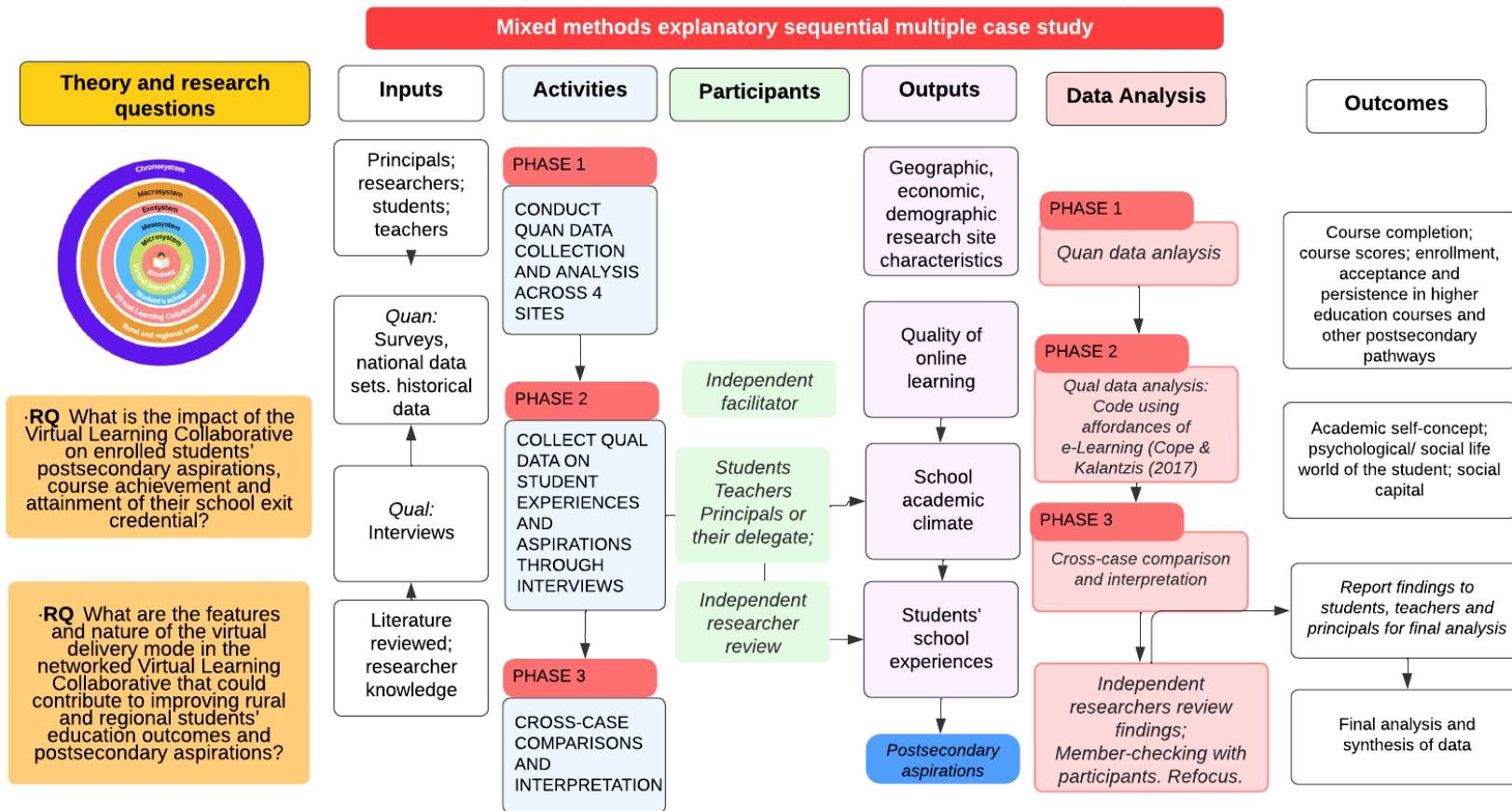
Research Question 2 Hypotheses (Features and Nature of the Virtual Learning Model):

- The Virtual Learning Collaborative will enable e-Learning affordances that improve education outcomes for rural and regional students
- The quality of relationships between virtual learning teachers and students, and the integration of virtual learning within supportive school climates, will moderate the effectiveness of the virtual delivery model in improving educational outcomes.

Figure 3-3: Logic model

The "Virtual Learning Collaborative" Effect on Student Aspiration

The Virtual Learning Collaborative is a multi-campus networked model providing virtual courses for senior students preparing to graduate from school in New South Wales (Australia).



3.5 METHODOLOGY

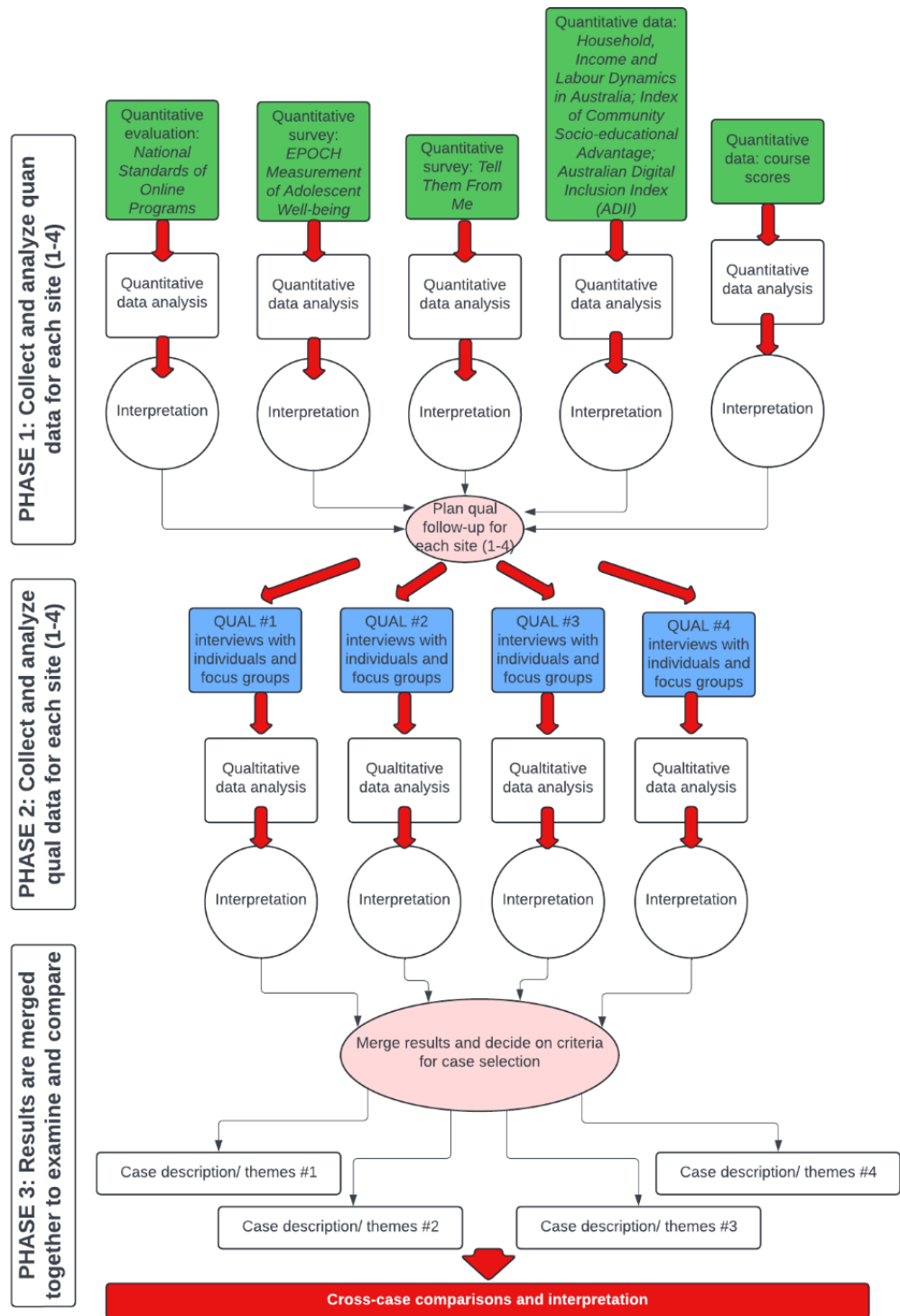
Improvement towards equitable schooling and educational outcomes for rural and regional communities has been reported as particularly slow and this stubborn and persistent problem has become the center of a national debate about building aspiration and attainment of a tertiary education qualification in rural, regional and remote areas (Australian Government, 2024). Findings from peer-reviewed research offered some directions to address this problem. Beswick et al., Borup et al. (2020), Echazarra and Radinger (2019) and Istance and Paniagua (2020) found that when emerging technologies were utilized in innovative pedagogical networks, they enabled rural and regional communities to overcome long-entrenched structural barriers that had limited those students' school experiences and educational outcomes. The scope of those studies was limited however, as they did not investigate the impact of emerging technologies in virtual learning networks on student aspirations and the attainment of a tertiary education qualification in unique rural and regional contexts.

The purpose of this mixed methods case study was to address that gap in the literature reviewed by understanding rural and regional students' experience in the Virtual Learning Collaborative and how it affected their postsecondary aspirations. The Virtual Learning Collaborative operated as a multi-campus networked model which provided virtual courses for senior students preparing to graduate from school across rural and regional New South Wales (Australia). The research centered on understanding the behavior of the program at four unique school sites in rural and regional New South Wales (Australia).

The study used a mixed methods case study design involving an explanatory sequential core design within the framework of a multiple case study. The explanatory sequential design involved a two-phase data collection project for each of the four research sites where quantitative

data was collected in the first phase and used to plan the second, qualitative phase. In the third phase, the merged quantitative and qualitative data was analyzed from each of the four case studies. An interpretive approach was used to make meaning for comparisons between the case studies to understand the diversity of experiences, influences, and aspirations among students within the rural and remote communities in the study. This three-phased research design is shown in Figure 3-4: Mixed Methods Case Study Design.

Figure 3-4: Mixed methods case study design



3.4.1 The Virtual Learning Collaborative

The purpose of the study was to identify and describe the features and nature of the e-Learning ecosystem of the Virtual Learning Collaborative, and its impact on students' education outcomes, particularly their postsecondary aspirations. The study's theoretical framework positioned this as a social endeavor supporting students to build their social capital so that they could access secure and fulfilling life outcomes. In supporting students, teachers designed and delivered teaching and learning programs tailored for virtual classrooms in a cyber-social community. The ecological dimension was recognized in the multi-level experience with teachers directed to embed high impact teaching practices that included Rosenshine's Principles (Rosenhine, 2012) adapted for virtual settings, improve their expertise through evaluating and reflecting on their formal and informal assessment programs in a community of practice guided by the National Standards for Quality Online Courses (Quality Matters et al., 2024), moderate tasks with expert teachers to ensure consistency across schools, and meet regulatory requirements for registration of the course, such as mandatory hours of study and assessment and reporting requirements. The intended purpose of the Virtual Learning Collaborative, as agreed by the stakeholders, was to broaden course offerings that ensured there are more opportunities for students to access courses that supported their preferred post-school pathways.

The population of interest in this study were students enrolled in courses offered by the Virtual Learning Collaborative in 2023 and/or 2024, and their home school was one of the four schools in this multiple case study. Aged between 15 and 18 years of age, male and female, they were enrolled in Year 11 or Year 12 courses and live or lived in rural and regional areas of New South Wales (Australia). The size of the population at each site for 2024 is shown below in Table 3-2: Population in the study in 2024. Pseudonyms have been used to anonymize schools.

Students, not enrollments, are counted in the population. All students are potential respondents in the population. The population statistics represented the pragmatic reality that class sizes are small but inclusive of all participants at the time of the study.

Table 3-2: Population in the study in 2024

School	Gender	Year 11	Year 12	Total
Orchard Hills College	Female	1	3	4
	Male	0	4	4
Blue Water College	Female	5	1	6
	Male	9	2	11
Mountain View College	Female	9	2	11
	Male	10	2	12
Golden Plains College	Female	5	2	7
	Male	0	1	1
Total population		39	17	56

3.4.2 Research design

In their seminal paper on defining mixed methods, R. B. Johnson et al. (2007, p. 123) provided this definition of mixed methods:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

Mixed methods originated as a methodology in the late 1980s and early 1990s in diverse fields such as health sciences and education. Cohen et al. (2011) suggested it has continued to evolve. Creswell and Creswell (2018) claimed that it has been increasingly used in federal funding

initiatives, dissertations and discussions in journals in the social and health sciences. Denscombe (2008, p. 272) reported that mixed methods can:

- (a) increase the accuracy of data;
- (b) provide a more complete picture of the phenomenon under study than would be yielded by a single approach, thereby overcoming the weaknesses and biases of single approaches;
- (c) enable the researcher to develop the analysis and build on the original data; and
- (d) aid sampling.

Dawadi et al. (2021) suggested that mixed methods research allowed for a more complete understanding of research phenomena by integrating qualitative depth with quantitative data.

Creswell and Creswell (2018) argued that the integration of open-ended (qualitative) and closed-ended (quantitative) data “provides a stronger understanding of the problem or question than either by itself” (p. 213). By using multiple methods for data sources, mixed methods research improved the validity of findings through triangulation, where the convergence of information from different sources strengthened the credibility of results (Creswell, 2011). Mixed methods research, also being adaptable, was tailored to address the complex research questions in this study by combining different types of data and analysis, supporting the researcher to explore different dimensions of a research problem (Denscombe, 2008). Creswell and Creswell stated that using the explanatory sequential design in a mixed methods case study also enabled the researcher to use quantitative data to explain qualitative results and resolve contradictions which provided a more comprehensive understanding of the data.

A mixed methods approach was an appropriate methodology for this study due to its ability to provide a comprehensive, valid, yet nuanced understanding of the research problem and address the complexities inherent in schools and virtual learning environments. This approach was chosen to capture both the broad, generalizable aspects of the virtual learning environment (through quantitative methods) and the detailed, context-specific experiences of students, teachers and educational leaders (through qualitative methods). There were, however,

significant challenges to using a mixed methods design as it was more complex and time-consuming than using a single method.

A mixed methods research design requires careful planning and execution of both qualitative and quantitative components, which can be labor-intensive and costly. The complexity of the mixed methods design also required purposeful and clearly structured models to dictate the flow of research activities. It was a challenge for the researcher to demonstrate their expertise across both quantitative and qualitative data methods. Notably, it was incumbent on the researcher to become proficient with integrating the data and synthesizing the analysis to produce a cohesive discussion. There was a risk of obtaining conflicting results from quantitative and qualitative data, which may have been challenging to reconcile and may have complicated the interpretation of findings. However, this did happen.

The mixed methods case study research design for this study incorporated an explanatory sequential design and involved three phases of data collection and analysis, integrating both qualitative and quantitative methods in a structured manner (see Figure 3-4: Mixed Methods Case Study Design). While J.-A. Reid (2021) recommended that researchers embed themselves in rural research sites so as to develop their understanding of their unique context, the findings of an insider researcher can sometimes be criticized for their lack of objectivity (Russ-Eft & Preskill, 2017). In following the explanatory sequential design, the researcher built on independent quantitative data with qualitative data, thus providing an objective orientated study that was also manageable, given time and labor constraints on a single researcher. This contributed to the research design's validity.

Initially, quantitative data collection was conducted for all four schools to provide aggregated and unique site-specific data drawn from sources that address the different dimensions of a student's eLearning ecologic system. It included data from:

- the Household, Income and Labour Dynamics in Australia survey (Melbourne Institute, 2024),
- the Index of Community Socio-Educational Advantage (Australian Curriculum, Assessment and Reporting Authority, 2013) (see Appendix C),
- the Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024),
- the Virtual Learning Collaborative evaluation using the National Standards of Online Programs (Quality Matters et al., 2024) (see Appendices A and E),
- a measure of the school's climate drawn from the Tell Them From Me survey data (Centre for Education Statistics and Evaluation, 2023b),
- Insights data from the Virtual Learning Collaborative's learning management system, Microsoft Teams,
- student data using the EPOCH Measurement of Adolescent Well-being (Kern et al., 2016) (see Appendix B),
- student survey data from "Destinations and Expectations" survey (see Appendix D)

Following a thematic analysis to identify themes and narratives that explained the quantitative results, such as barriers to virtual learning or motivational factors, the analysis from this quantitative data was used to inform the design of the interview questions asked of the four schools' principals, or their delegate, and purposefully selected students.

The explanatory sequential design research design privileged positivist quantitative data in establishing objective parameters for the study. This intentional research design choice neutralized potential ethical concerns that could arise as the researcher could be perceived as having a vested interest in the research sites with associated questions of power and influence as a teacher and the program coordinator (discussed further in “Role of the researcher”). The intent of the explanatory sequential design was to have the qualitative data help explain the initial patterns, correlations, and significant differences in quantitative results (Creswell & Creswell, 2018). Using this thick descriptive data, attribute coding (Saldaña, 2021) was applied to identify basic descriptive information such as the research site, participant characteristics or demographics and data format. The analysis in the third phase then used an interpretative methodology to make meaning of the lived experience of students, teachers and other community members working within the Virtual Learning Collaborative. Wilson (2017) suggested that the study of finding and conveying meaning, or hermeneutics in interpretivism, can be traced back to the Greeks. In the hermeneutic circle, different facets of human interpretation work in a cumulative, circular direction relating the parts to the whole. This is analogous to the interconnected parts of the Virtual Learning Collaborative, for example the academic community at the student’s school responding and adapting to create new environments introduced by virtual learning courses. While the Virtual Learning Collaborative as a system lacks consciousness and intentionality, components communicate cogently in the system which could be described as a hermeneutic dialogue of action.

Given criticisms of interpretative methodology, notably that it lacks rigor and internal validity because of its constructivist ontology (Bhattacharjee, 2012; Cohen et al., 2011; Creswell & Creswell, 2018), the research design of this study recognized that methodological transparency

was critical and should be systematic, including processes such as bracketing, independent facilitators, peer reviewing and member checking (Russ-Eft & Preskill, 2017). With these inclusions, interpretivism was an appropriate methodology as aspirations, a central concept in this study, are a psychological construct deeply embedded in an individual's interpretation of their personal, social and cultural contexts (as described by Cuervo, Chesters, et al., 2019). Aspirations are shaped by human experiences and social contexts, the latter described by Bhattacharjee as the basis of interpretivist ontology.

In this research design, the interpretive researcher used 'local knowledge', or their situated meaning, for sense-making of their own circumstances. Wilson (2017, p. 366) suggested this can lead to "true understanding" from full engagement. The study, however, maintained a focus on uncovering meaning patterns within lived experience using systematic reflection and interpretation and ensured that they were reflexive in their role as researcher. To satisfy this striving to make meaning and ensure minimal bias, the researcher worked with independent reviewers in the second and third phases of the research. Both reviewers were well-established researchers whose involvement helped ensure the analysis reflected the purpose of the study.

3.4.3 Role of the researcher

Denscombe (2010) explained that "it is hard to overstate the importance of research ethics in the context of contemporary social research" (p. 7) and the emphasis should be on the possibility of harm. That author identified four guarantees that social researchers need to prioritize in their research design:

1. participants will remain anonymous;
2. data will be treated as confidential;
3. participants understand the nature of the research and their involvement; and

4. participants voluntarily consent to being involved.

Wilson (2017) stated that when the researcher constitutes an integral part of the research these ethical considerations take on further responsibilities that should be acknowledged and managed. In this study of the Virtual Learning Collaborative, the researcher was an insider researcher which meant that the interaction between the researcher and the researched reflected that relationship. They were a teacher and the Virtual Learning Coordinator of the Virtual Learning Collaborative.

Mercer (2007) defined an insider researcher as someone who has “a lived familiarity with the group being researched” (p. 3). In supporting an ethical approach to the research involving an insider researcher in satisfying Denscombe's (2010) checklist, a reliability test was also applied. That is, would an independent researcher reach the same conclusions as the insider researcher if the study was replicated? This test to the research design was applied in discussions with independent reviewers and where wanting, the researcher incorporated accommodations and remediations that confirmed the reliability and ethical stance of the study.

Wilson (2017) claimed that in the case of insider researchers, the behavior of students (or principals) will consciously or unconsciously be influenced by the fact that the researcher interviewing or consulting them is their own teacher (or colleague) and that the researcher's insider status may create power imbalances with participants, potentially affecting their willingness to be candid or participate at all. Given that finding, in this study students were invited to volunteer their responses in a questionnaire which was anonymous. An independent facilitator conducted semi-structured interviews with students where the topics and issues were identified in advance by the researcher, providing the facilitator with the sequence and wording of questions. The interviews and focus group discussions were audio-recorded with

transcriptions made available for the researcher to analyze. These accommodations supported an ethical and reliable reporting of students' responses unencumbered by any potential perception of a power imbalance. The researcher made the analysis available to students for member checking.

While power imbalances are well-known between teachers and students and can affect the research (Creswell & Creswell, 2018; Denzin et al., 2024; Guba & Lincoln, 1989; Wilson, 2017), power relationships between colleagues is more complex (Mercer, 2007; Unluer, 2012; Wilson, 2017). Bonner and Tolhurst (2002) identified three key advantages of being an insider researcher, further explained by Unluer (2012) as “(a) having a greater understanding of the culture being studied; (b) not altering the flow of social interaction unnaturally; and (c) having an established intimacy which promotes both the telling and the judging of truth” (p. 2011). Unluer also stated that insider researchers have social capital and knowledge that outsiders take a long time to learn. Mercer (2007) posited that identities are relative and in discussing the role of the researcher that the insider/outsider dichotomy is inadequate as there are always other factors such as gender, education, occupation, age and family background that create rapport and ‘insiderness’. Being part of an institution where research is being conducted is just another innate characteristic. For these reasons and ultimately the benefits from being an insider researcher, the researcher interviewed the four principals.

Mercer (2007) found that insider researchers have greater access to organizations and that data collection is less time-consuming. They are also less intrusive so that their involvement in research is less likely to change the behavior of participants where there is reciprocity in power relationships. Insider researchers also bring familiarity to a research site which can lead to “thicker description or greater verisimilitude” (Mercer, 2007, p. 6). Mercer also contended that the insider researcher also often exhibited a considerable rapport within an organization. Unluer

(2012) suggested however that the insider researcher, while benefitting from these advantages, may be confronted by their dual role. In the research plan, the researcher when interviewing the principals took a preventative approach to minimize their potential bias. One practical and pragmatic inclusion was to share the interview data and analysis with an external academic advisor who was established and well-regarded in the field of rural education. Another strategy to support an ethical and reliable approach was to create an audit trail that included raw data, procedures and notes from the researcher on how the research was proceeding, including a reflexive journal.

For the insider researcher, several factors mitigated the risk of having a vested interest in positive outcomes from this research. The researcher has held the role of Coordinator for less than two years which provided a degree of detachment from the immediate concerns and pressures of the role, allowing for a more objective perspective. The researcher's professional life encompassed a range of interests and roles beyond the specific area under study which broadened their perspective. They were also deeply committed to the integrity of the research and the pursuit of knowledge, rather than an outcome that may benefit Catholic Education Canberra Goulburn. There are a number of methodological safeguards, such as triangulation, member checking, external auditing and reflexive journalling that were included to ensure the validity and reliability of the research. Ethical considerations were also paramount in the research application to Catholic Education Canberra Goulburn (see Appendix O and Appendix K: Study approval- Principals.) and the Institutional Review Board (see Appendix N) which prioritized unbiased inquiry over personal or professional interests.

3.4.4 Limitations and threats to validity

Validity and reliability are key attributes of effective research and essential for using and interpreting quantitative and qualitative research. In stressing the need for design validity and reliability, Creswell (2008) outlined the importance of designing research to “minimize compromises in drawing good conclusions” (p. 307). Furthermore, Russ-Eft and Preskill (2017) established that findings are only useful if they are based on accurate and credible results. Threats to the validity and reliability of potential findings, left unaddressed and unaccounted for, could lead to misleading or false conclusions.

The research design for this study approached validity from the standpoint that this is a social science inquiry of the Virtual Learning Collaborative, where the double hermeneutic is present. This recognized that meaning-making was produced by both the context and by the researcher’s interactions and interpretations in a dialogical production of meaning. Brogden (2010) explained that “the presence of the double hermeneutic creates an additional space of interpretation that is neither that which is being researched nor the researcher; instead, the double hermeneutic calls attention to the interaction and concomitant meaning-making therein” (p. 324). This meant that the accounts of participants and the researcher were representations of reality rather than a reproduction of it, as it characterized and understood the phenomenon of the Virtual Learning Collaborative through individual experiences and interpretations. This had bearing on the principles of validity to be applied to this mixed methods research as it advanced from discrete positivism with its positivist certainty to multiple realities from meaning from data from participants. Cohen et al. (2011) described this as replacing positivist notions of validity with “confidence in our results” (p. 181) and “the notion of authenticity” (p. 180). This section of the methodology will address the tension between internal and external validity for the mixed

methods case study to support confidence and authenticity, with specific reference to the threats to validity compounded by the role of the researcher.

Threats to validity can relate to whether the study uses qualitative or quantitative data but Cohen et al. (2011) argued that while they can never be completely eliminated, they can be attenuated by recognizing the threat inherent in these two research paradigms. For example, they suggested that in quantitative research, validity should hold to positivist principles and Creswell and Creswell (2018) explained that in an explanatory sequential mixed methods approach using qualitative methods, that there should a concern for processes rather than outcomes. These recommendations and others will be considered here.

Internal validity

There are several different kinds of validity, but this discussion will begin with the two main types, internal and external validity in addressing validity agreement and the tension between these two in supporting confidence and authenticity of the findings. The distinction between internal and external validity lies in their respective audiences, with internal validity relating to the phenomenon under observation and external validity pertaining to the findings' broader generalizability. Cohen et al. (2011) stated that "internal validity seeks to demonstrate that the explanation of a particular event, issue or set of data which a piece of research provides can actually be sustained by the data" (p. 183). Similarly, Russ-Eft and Preskill (2017) explained that for a research design to exhibit internal validity, the data should answer the questions set out by the research. Bhattacharjee (2012) described this as causality, stipulating three conditions that must be met: "(1) covariation of cause and effect (i.e., if cause happens, then effect also happens; and if cause does not happen, effect does not happen), (2) temporal precedence; cause must

precede effect in time, (3) no plausible alternative explanation (or spurious correlation)” (pp 35-36). In analyzing data, confirming these conditions of causality offered proof of internal validity.

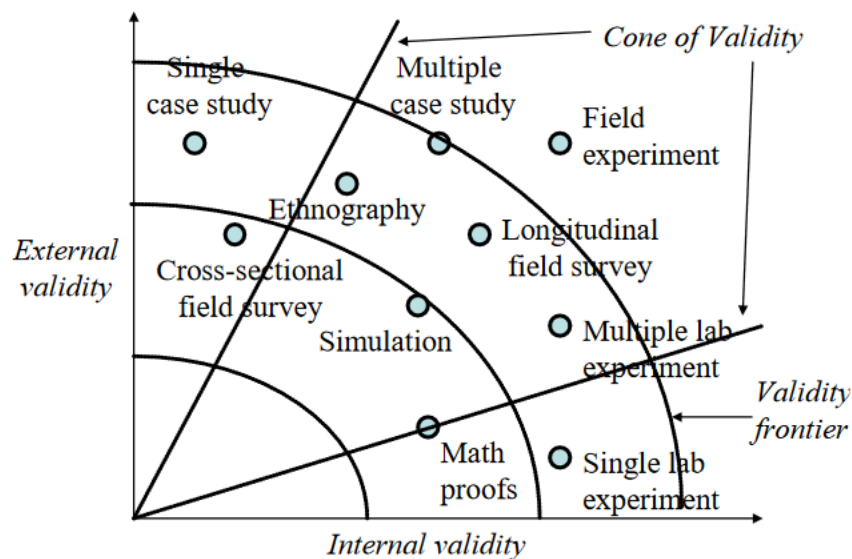
Sifting through the data and discerning the relationship between the Virtual Learning Collaborative and students’ aspirations presented a challenge. Some possible variables had been accounted for in the data, for example, socioeconomic and parental education profiles of the community as well as student gender and teacher support but confounding or spurious variables could have derailed a valid analysis, such as the students’ maturation and family background which may be a more prominent influence than their engagement in a virtual learning course. However, if the student was enrolled in a high-quality virtual learning course and they achieved results that enabled their choices that were beyond their initial intentions, by Bhattacharjee’s (2012) line of causality, it could be inferred that the virtual learning course affected that specific student’s aspirations. To ensure generalizability, this pattern would need to be observable across a range of groups within the Virtual Learning Collaborative but this was limited due to the sample size.

External validity

External validity in quantitative and qualitative research is concerned with generalizability, typically the extent to which the findings from a sample can be compared, transferred or generalized to a population (Cohen et al., 2011). Threats to external validity are likely to limit this generalizability to other people, organizations, contexts or times. Bhattacharjee (2012) provided an overview of the variation in internal and external validity for a range of research designs, as shown in Figure 3-5: Internal and External Validity. This research design committed to a multiple case study, as there are four research sites, and is positioned within Bhattacharjee’s Cone of Validity for internal and external validity. Following

Bhattacharjee’s logic, the generalizability of the research design for this study was improved because it allowed for a comparison across multiple sites that overcame a single site’s bias that is likely to be “heavily contextualized and nuanced” (Bhattacharjee, p. 40). Wilson (2017) also concluded that while case studies can be criticized for construct validity due to the potential subjectivity of the researcher, when pattern-matching was used, as in multiple case studies, this overcame concerns of internal validity arising from a problem of inferences. The multiple case study approach helped support the internal and external validity of this research design.

Figure 3-5: Internal and external validity (Bhattacharjee, 2012, p. 36)



Validity of the research design

The explanatory sequential design of the study also supported validity as explained by Creswell (2008) and Creswell and Creswell (2018). Creswell and Creswell stated that for validity agreement of an explanatory sequential mixed methods design, the researcher needed to establish the veracity of the scores from the quantitative data and to discuss the validity of the qualitative findings. Furthermore, they suggested that it is incumbent on the researcher to “weigh all of the options for following up on the quantitative results ... before settling on one approach” (p. 223)

and to plan for a continuity of participation from individuals' data in the quantitative data and the qualitative data. These were the key challenges discussed below that were addressed in planning this explanatory sequential mixed methods study.

Cohen et al. (2011) identified nine possible characteristics of quantitative data that needed to be satisfactorily addressed to ensure its validity. These were: “controllability; replicability; predictability; the derivation of laws and universal statements (i.e. generalizability); context-freedom; fragmentation and atomization of research; randomization of samples; neutrality/ objectivity; and observability” (p. 180). In this research design there are seven independent quantitative data sources, four of which are datasets with populations where the participants in the Virtual Learning Collaborative were a small and inconsequential subset. These were Housing, Income and Labour Dynamics of Australia (Melbourne Institute, 2024), the Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024), the Index of Socio-Educational Advantage (Australian Curriculum, Assessment and Reporting Authority, 2024), and the measure of academic buoyancy drawn from the broader survey that included most schools in New South Wales (Australia) Tell Them From Me (Centre for Education Statistics and Evaluation, 2023b).

These four datasets generally satisfy Cohen et al.'s (2011) criteria for quantitative data. They controlled for socio-educational factors, the latter two for comparing school performances. The Housing, Income and Labour Dynamics of Australia is a longitudinal study that like the Index of Socio-Educational Advantage and Tell Them From Me survey utilized a consistent and standardized methodology that allowed for replicability and predictability for reporting educational outcomes and performance for schools with similar socio-economic backgrounds. The data student survey, developed in Canada (Centre for Education Statistics and Evaluation,

2015), and adapted to the Australian context, collected responses from students about their perceptions of teaching support, motivation, and engagement. The data from the Tell Them From Me survey and the Australian Digital Inclusion Index also helped predict trends over time. These four datasets were also drawn from large representative samples that allowed for generalizability and the Index of Socio-Educational Advantage especially allowed for comparisons between schools regardless of their specific local contexts. The Tell Them From Me survey had a large number of participating schools which allowed for some degree of generalization but there are limitations on the extent of generalizability beyond New South Wales (Australia). The datasets also minimized subjectivity as they used standardized formulae, questions and data collection methods although the Tell Them From Me survey included school-specific factors that were unique to the surveyed population's context. They all used observable data that were based on participants' lives, location, income and education. The Tell Them From Me survey data was more focused on educational context compared to the socio-economic dimensions reported in Housing, Income and Labour Dynamics of Australia and the Australian Digital Inclusion Index and it provided complementary detailed data to the Index of Socio-Educational Advantage. The four together allowed for a comprehensive picture of educational settings and outcomes in the context of digital environments and strengthened the validity of the research design.

The other four quantitative instruments used in the research design, National Standards for Online Programs (Quality Matters et al., 2024) (see Appendix A), the EPOCH Adolescent Well-being Measure (Kern et al., 2016) (see Appendix B), the student survey "Destinations and Expectations (Appendix D) and the virtual learning course outcomes, for example grades, attendance and engagement data using Microsoft Teams Insights data, also satisfied Cohen's (2011) criteria for quantitative data. The National Standards for Online Programs (Quality

Matters et al., 2024) is used widely, providing a standardized instrument that offered a high degree of validity in terms of objectivity, replicability, and generalizability, but limited in predictability of actual outcomes due to participants' subjectivity in evaluating programs. The descriptors and rubrics were explicit, however, so the latitude for misdiagnosis was lessened. The EPOCH Adolescent Well-being Measure, used for detecting strengths and weaknesses in students' well-being, provided good replicability and generalizability, but faced challenges in terms of objectivity and observability as the data was self-reported. The student questionnaire, "Destinations and Expectations", used a format immediately recognizable by students in a Kahoot! which was engaging and familiar in learning environments. The questions were based on Marks et al.'s (2011) adaptation of the On Track student questionnaires that provided longitudinal data with reliable comparisons to compare means from different populations. That study used data from a similar representative survey conducted in late 2010 of approximately 6,100 New South Wales (Australia) students who were in Years 10, 11 and 12 in 2009. The virtual learning course outcomes referred to Microsoft Teams Insights data which excelled in observability and objectivity, such as in areas of attendance and engagement with learning materials but limited in generalizability and context-freedom. Individual assessment scores and final grades, which are included in this dataset, were moderated through the standardized Higher School Certificate (New South Wales Education Authority, 2024) which provided for controllability, replicability and generalizability. The combination of these instruments with the datasets discussed above provided a valid and comprehensive picture of educational contexts, well-being, and outcomes in the Virtual Learning Collaborative. A limitation was the large amount of data which introduced confounding variables which could have adversely affected the validity of the analysis. Some instruments, however, provided single point measures, such as the

Index of Socio-Educational Advantage and academic buoyancy using the Tell Them From Me data, which allowed for comparisons across populations and limited unwieldy data analysis demands. Furthermore, Creswell (2008) suggested that the analysis of an explanatory design is “easier to see and conduct than in a triangulation design” (p. 566) so the sequential use of this data to inform the qualitative framework balanced the strengths with the challenges in meeting validity agreement.

In interrogating this research design for its validity, it is timely to revisit the first research question for the study, “What was the impact of the Virtual Learning Collaborative on rural and regional students’ postsecondary aspirations, course achievement and attainment of their school exit credential?” This inquiry sought to understand how the Virtual Learning Collaborative had operated through multiple mediums and influenced multiple realities that became evident in vocalized or otherwise expressed aspirations, and the purpose of the research was to interpret or make meaning which can be represented in the double hermeneutic. It was concerned with understanding people’s accounts, specifically principals’ perspectives and observations and students’ articulation of their chosen pathways post-school, which were relative to context and experience. It wholistically employed an interpretive approach where the double hermeneutic led the researcher, as Brogden (2010, p. 323) explained, “to tend to the dual, or double, meanings present at both the microlevels of research design and the macrolevels of situating the research within a given social science community”.

The quantitative data provided key characteristics of the macrolevel landscape and informed the follow-up interviews with individuals and focus groups that employed a qualitative approach. In referring to qualitative studies, Maxwell (1992) connoted validity with “the kinds of understanding that accounts can embody” (p. 284) and referred to five corresponding types of

validity that concern qualitative researchers, namely, descriptive validity, interpretive validity, theoretical validity, generalizability, and evaluative validity. These criteria were used to establish the validity of this research design. The discussion of validity also set out how the study avoided some of the common problems evident in qualitative and interpretive research such as data overload, problems of acting on first impressions only, ensuring sampling is representative not just convenience sampling, discounting disconfirming data and not overemphasizing the reliability of the data (Cohen et al., 2011).

Descriptive validity

Descriptive validity refers to the factual accuracy of the researcher's account of what was said or heard during interviews and focus group discussions. Cohen et al. (2011) suggested that in this respect, validity subsumes reliability representing credibility. There are multiple remediations and preventative measures that were integrated into the research design to ensure the integrity of the participants' intentions in analyzing their accounts or "primary understanding" (Maxwell, 1992, p. 286). These included recording the meeting using Microsoft Teams to generate an accurate transcription and using an independent facilitator to lead the interviews and focus group discussions. Member checking was also used to review interview transcripts. Independent peer reviewing of initial findings strengthened the validity of the analysis.

Interpretive validity

Interpretive validity is significantly different to descriptive validity, although related. Maxwell (1992) identifies this as emic, that is, the perspective that comes from within the culture where the research is situated, such as the common language and metalanguage of the Virtual Learning Collaborative, the Higher School Certificate academic environment and, in the case of

these research sites, the catholicity of these schools. In this way, the role of the insider researcher benefited the interpretive validity of the study as they accurately recognized and culturally represented the participants' perspectives, thoughts, feelings and experiences and in that pursuit ensured that they mitigated unconscious bias. Using open-ended questions allowed participants to express their views fully without interruption, as well as conducting some follow-up interviews or focus groups to clarify interpretations ameliorated challenges to interpretive validity. Employing an independent facilitator was also a pragmatic approach to mitigating potential bias from an insider researcher. Notwithstanding this, researcher reflexivity was paramount here as well, as that unmasked unconscious biases which could have exaggerated similarities between the researcher and the participants.

Theoretical validity

Theoretical validity, as described by Cohen (2011), is “the extent to which the research explains phenomena” (p. 181) is the same as construct validity and reflects internal validity. It was critical for developing a coherent understanding of how the Virtual Learning Collaborative influenced students' aspirations and pathways. Maxwell (1992) explained that it “explicitly addresses the theoretical constructions that the researcher brings to, or develops during, the study” (p. 291). They suggest that theoretical validity was supported when there is consensus within the community concerned with the research about the terms used to characterize the Virtual Learning Collaborative. The thorough literature review and deep engagement with the theories discussed in the literature reviewed grounded this study and supported the theoretical validity of the research design. Human experience underpinned the interpretation and meaning-making of the data which also provided a resilient and exhaustive framework that met the criteria of theoretical validity. Threats to this validity could have stemmed from the researcher using

cognitive shortcuts and over-generalizing which could limit the parameters of the research but peer review of the theoretical framework and emerging explanations mitigated these threats to theoretical validity.

Generalizability

Maxwell (1992) and Cohen et al. (2011) differentiated generalizability for qualitative research as being able to generalize within specific groups or communities, situations or circumstances being directly studied (internal validity) and to specific similar outsider communities, situations or circumstances (external validity). Maxwell suggested that generalizations in qualitative research occur through theory development which can make sense of similar persons or situations in the wider populations. The theory of action for this study follows this recommendation. For generalizability, qualitative studies often use purposeful sampling, as in the case of this study, to ensure that when testing ideas about the phenomenon, such as the Virtual Learning Collaborative, the participants are directly involved and can attest to all facets of their experience. Creswell and Creswell (2018) made explicit recommendations for researchers to ensure the same sample population is used in the quantitative and qualitative phases of the study so that there is a consistency that contributes to accuracy of the findings. Interviewing in this instance posed unique problems for internal validity. The validity of the participants' accounts was tempered by the relationship between the interviewer and the participant, such as when the researcher was also the teacher and interviews a student. In this case, where the student relies on the teacher for a passing grade or positive report to their parent or carer, the student may not disclose aspects of their experience that could be perceived as negative as the student wants to maintain a good relationship with the teacher. In this case, the explanatory sequential research design was used to diffuse the inherent power relationship

between the insider researcher as teacher and the student. Objective and anonymous data from students using the “Destinations and Expectations” questionnaire (see Appendix D) and the National Standards for Online Programs (Quality Matters et al., 2024) (see Appendices A and E) was used to inform the qualitative questions for interviews with students. The questions were formatted to invite students to explain the data which depersonalized their involvement and encouraged open and authentic accounts of their experience. Using an independent facilitator also ameliorated potential power imbalances presented by the researcher conducting interviews with students.

Evaluative validity

Evaluative validity refers to the application of an evaluative, judgmental stance towards the research. It recognizes the threat of researcher unconscious bias, such as making evaluative judgements when describing the phenomena under study. This could include in the case of the Virtual learning Collaborative, for example, the researcher assuming a student’s aspirations was due to family background or experience based on academic engagement which may not represent the current context for the student. In addition to engaging in active reflexivity, the researcher used multiple quantitative and qualitative data sources to support evaluative claims and engaged in peer debriefing to challenge and refine evaluative interpretations.

3.4.5 Summary of the validity of the methodology

To ensure the integrity of any research project, Bhattacharjee (2012), Cohen et al. (2011), Dawadi et al. (2021), Denzin et al. (2024) and Guba and Lincoln (1989) recommended a number of steps adopted here for this study. These included prolonged engagement in the field to build trust with participants (Cohen et al.) and gain a deeper understanding of the context as rich data was key for ensuring the validity of qualitative research (Bhattacharjee). The researcher of this

study was the Coordinator of the Virtual Learning Collaborative and had held that role for two years. While this was of benefit to the study, especially in creating thick descriptions with detailed accounts of research contexts and participants, gained from persistent observation, confirmation bias needed to be addressed. This happened through triangulation to corroborate the findings (Denzin et al.), leaving an audit trail that included raw data, procedures and notes from the researcher on how the research was proceeding (Guba and Lincoln), and engaging in member checking or respondent validation. Checking for researcher effects and clarifying researcher bias as part of being reflexive happened through checking the meaning of outliers or extreme cases and examining disconfirming cases to specifically look for sources of invalidity. Peer debriefing was structured throughout the implementation plan for external evaluation of the research, including its conduct and findings. This comprehensive list of ways to ensure validity was applicable to the quantitative and qualitative paradigms of the study, together with referential adequacy to the literature reviewed supported confidence and authenticity of the findings of the study.

3.6 STUDY DETAILS

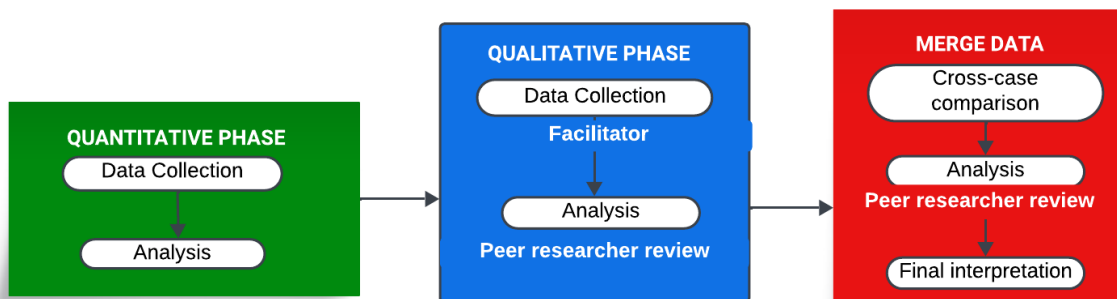
In 2023, eleven schools with Year 11 and 12 student populations in Canberra Goulburn Catholic Education (see Figure 3-7: Catholic Dioceses in New South Wales, Australia, for the geographical location of the entity) partnered in the Virtual Learning Collaborative to provide virtual learning opportunities for their senior students. This continued into 2024. Students remained enrolled at their own school but could enroll in a virtual course, taught by a teacher from one of the Catholic Education Canberra Goulburn schools. Students participated in the virtual course while based at their own school and were supported by their virtual teacher who

may or may not have been in the same school as the student. They were also supported by the Virtual Learning Advisor who was based at the student's home school.

Virtual courses were compliant with the relevant jurisdiction for their state, and course scores contributed towards students' senior school certificate and their national ranking or Australian Tertiary Admissions Ranking. A virtual course was one or two of the courses that were part of the student's total study program. The population of interest in this study consisted of students enrolled in the first two years of the Virtual Learning Collaborative. They were aged between 15 and 18 years of age, male and female and in either Year 11 or Year 12. They live or lived in rural and regional areas of New South Wales (Australia) and were enrolled in a systemic Catholic school in the Canberra Goulburn Archdiocese. The significance of the research was to understand the impact of the Virtual Learning Collaborative, under the current model, on students' education outcomes, especially postsecondary aspirations.

A truncated version of the study using a mixed methods explanatory sequential research design in a multiple case study is illustrated in Figure 3-6: Overview of the Mixed Methods Explanatory Sequential Research Design, which outlines the key functions of the three phased design.

Figure 3-6: Overview of the mixed methods explanatory sequential research design



3.5.1 Research sites

The research site for this study existed virtually and physically in the Virtual Learning Collaborative which provided courses for students across the Canberra Goulburn Archdiocese (see Figure 3-7: Catholic Dioceses in New South Wales, Australia). The research study involved collecting and analyzing quantitative and qualitative data from four schools in New South Wales (Australia) whose students and teachers participated in the teaching and learning programs in the Virtual Learning Collaborative. That data included national datasets that indicated the significant geographical, historical, economic and societal considerations of a place and context-specific questionnaires and interviews that focused on how the Virtual Learning Collaborative had influenced postsecondary aspirations and pathways of Year 11 and 12 students. The research sites were purposefully selected based on their locations to offer four unique and differentiated perspectives on educational experiences in rural and regional New South Wales (Australia). Their locations have been included to highlight the geographical differences between the regions which followed the prescriptions from the literature reviewed that rural research should not be homogenized but instead incorporate diversity of place (Fuqua & Roberts, 2021; Green & Reid, 2021).

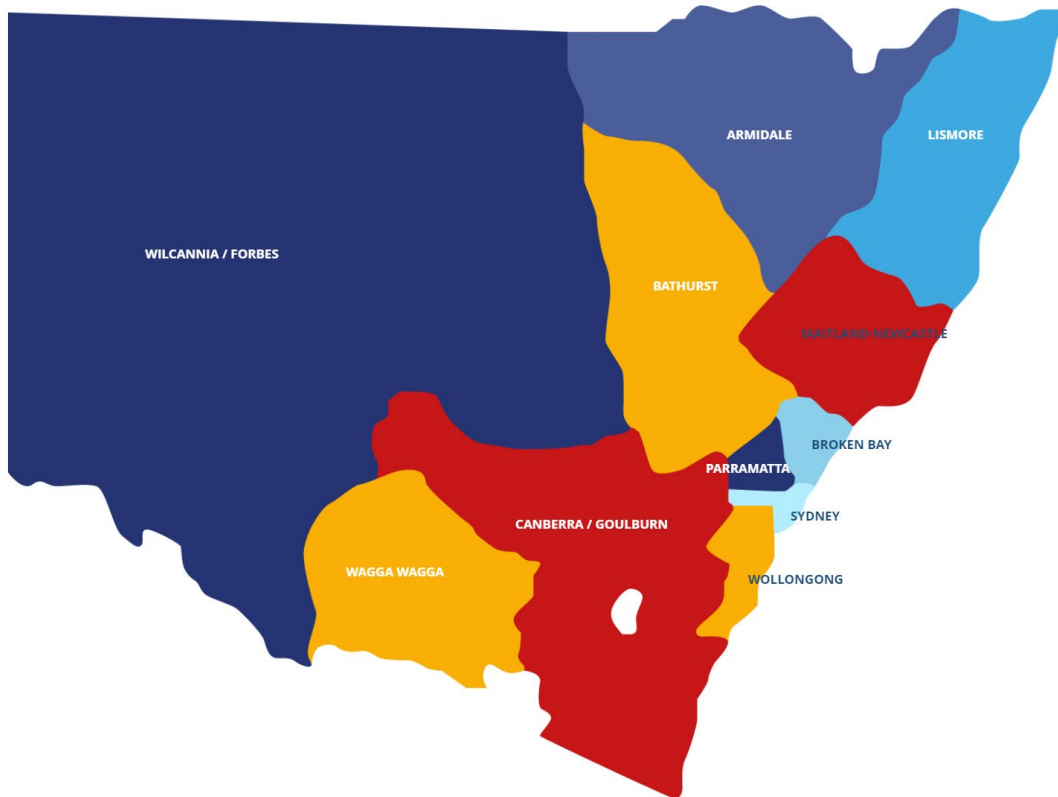
The schools have been anonymized for this study and given the following pseudonyms:

- Orchard Hills College
- Blue Water College
- Mountain View College
- Golden Plains College

Interrogating the influence of virtual learning on student aspiration across multiple rural and regional contexts helped understand how complementary course offerings through the

Virtual Learning Collaborative impacted the rural-urban education gap and provided relevant findings that privileged the complexity of education in rural areas in New South Wales (Australia).

Figure 3-7: Catholic Dioceses in New South Wales (Australia) (Catholic Schools NSW, 2024) showing the Canberra Goulburn Archdiocese where schools are located in the study



3.5.2 Participants

Participants included students, teachers, and principals.

Students

Student participants were Year 11 and 12 students who were studying one or two of the courses offered by the Virtual Learning Collaborative and were enrolled in one of the four schools in the study. Those students were invited by email, posts in class teams and during online class meetings to complete anonymous surveys that aimed to understand their virtual learning

experience and general well-being (see Appendices B and M). After requisite permissions were granted from the University of Illinois Urbana-Champaign Institutional Review Board (see Appendix N), the Catholic Education Office of Canberra Goulburn (see Appendix O), parents and students (see Appendices G, H and I for parental permissions and student assent and consent forms), data collection began. The surveys used statements that invited students to record their agreement or disagreement, scored using a Likert scale. Students were also invited to anonymously complete a questionnaire called “Destinations and Expectations” which was designed as a 15-question poll using an engaging and familiar format of a Kahoot! (see Appendix D: Destinations and Expectations). These questions were also statements that invited participants to respond using a Likert scale that used a 4-point continuum. Both surveys took less than five minutes to complete and did not present a significant impost on participants’ time or effort.

Participants were made fully aware of the purpose of the study and that they were actively participating in the research and would not be pressured to complete the questionnaires or interviews. They were made aware that their privacy was protected through using anonymous surveys and coded data that would not reveal the identity of individuals. All students ($N=56$) were invited to participate in the interviews outlining the purpose of the study, the protection of the privacy of participants through disassociating names from responses during the coding and recording process, the length of time they were required for the interviews and that they had a say in how their statements were interpreted. They were also be informed that treatment of any harmful or intimate information would be subject to legislated requirements. Participants were also be made aware of the ethical guidelines governing the conversation, centered around maintaining a respectful and democratic dialogue (See Appendix F: Checklist for Interviews).

Purposive sampling was then used to identify ten students who were representative of the four schools, gender considerations, different courses and varying experiences of course results, for example not all students should be A grade students. These students were recruited by invitation to participate in 20 to 30-minute individual interviews. Students who consented to participate in the interviews were interviewed by an independent facilitator (see Appendix J: Interview questions for students). All student participants in interviews were invited to be involved as collaborators in the review stage and shared in the final report as a sign of respect and reciprocity for providing valuable data in the study.

The study adhered to the Catholic Education Canberra Goulburn Codes of Conduct (Catholic Archdiocese of Canberra and Goulburn, 2018) and mandatory reporting legislation guidelines around collecting data with vulnerable people (minors under the age of 18 years). For example, if a student had disclosed that parental abuse was a limiting factor on their post-school aspirations, this would have been reported to the Department of Communities and Justice under mandatory reporting legislation (Department of Communities and Justice, 2024). These interviews allowed for researchers to interact with the participants and bring forward evidence from the students' self-reported surveys and other data collected in Phase 1. Interviews with individuals provided rich qualitative data through the stories, examples, and observations of the participants which have been reported in Chapter 4.

In the interests of propriety and fidelity to the research study's key questions, an experienced facilitator was asked to conduct interviews with individual students. Pertinent to the organization of the interviews was to conduct them in a timely manner of around 20 to 30-minutes duration to avoid making excessive demands on the participants. Pilot testing with students had occurred as students had made enquiries on courses and post-school pathways with

their teachers and advisors. This was used to inform the interview guide (see Appendix J: Interview questions for students). The interviews were semi-structured following a brief survey regarding the evidence around student aspirations and virtual learning initiatives in rural and regional areas to orientate participants to the key questions.

Controls around the neutrality of the independent facilitator was a priority, supported by induction training to facilitate understanding of the metalanguage of the Virtual Learning Collaborative and the rural and regional schools. Consideration of the cultural context of the individual interviews was also a noted inclusion in the design. These considerations were shared with the facilitator by the researcher and reiterated throughout the process to reinforce their commitment to maintaining the interview process' integrity. The participants received prior notice of the researcher's concern for avoiding bias and encouraged to anonymously report any indiscretions that they experienced or observed, which would be followed up according to the University of Illinois and Catholic Education's policies for ethical research (no reports were made). Permission from the participants to protect their rights was secured before progressing to interviews. These permissions were informed by advice from the University of Illinois Urbana-Champaign Institutional Review Board (see Appendix N for approval) and Catholic Archdiocese of Canberra Goulburn Education (see Appendix O for approval conditions).

The number of potential student participants for interviews is listed in Table 3-3: Potential Student Participants Organized by Course and School. The small number of participants, a pragmatic reality of rural and regional education, was limited by the class sizes which appear below.

Table 3-3: Potential student participants organized by course and school

Course	Teacher	Number of students in course by school			
		<i>Orchard Hills</i>	<i>Blue Water</i>	<i>Mountain View</i>	<i>Golden Plains</i>
Y11 Biology	BS	1	0	0	0
Y12 Biology	BS	0	0	3	1
Y11 Business Studies	HS	0	10	11	4
Y12 Business Studies	HS	0	0	5	0
Y11 Economics	Researcher	0	4	1	0
Y12 Economics	Researcher	0	3	0	0
Y11 Software Engineering	DG	0	0	3	0
Y11 Personal Development, Health, and Physical Education	AM	0	0	11	0
Y12 Advanced Mathematics	NA	6	0	0	0
Y12 Mathematics Extension 1	PW	5	0	0	0
Total		12	17	34	5

Teachers

As shown in the table above, in the Virtual Learning Collaborative there were seven teachers teaching ten courses to students who attended one of the four schools in the study. The researcher was one of the teachers and in this environment was part of the research. At the commencement of the research, teachers were advised that they were indirectly participating in the quantitative data collection phase of the research study. Over 2023 and 2024, teachers

reported up to four times to parents and carers on students' work habits. Given that the data is published and known and owned by schools and families, the accuracy of the data is uncontested and given that individual data will not be shared, its use in this study maintained the confidentiality of students.

The descriptors for work habits reflected attributes for successful learning in a virtual learning environment and were in alignment with the literature reviewed, specifically Borup et al. (2020), Frielick (2004), Johnson et al. (2023), Lewis (2021), and Quality Matters et al. (2024). They were set for reporting to parents prior to the appointment of the researcher as the Virtual Learning Coordinator. Teachers' reports to parents and carers of students enrolled in virtual learning courses were an independent source of objective, longitudinal data. The descriptors of work habits that teachers reported on are listed here:

- Completion and quality of work
- Time management and organization
- Contribution to online discussions
- Communication with the teacher
- Collaboration
- Commitment to ongoing reflection and learning

Teachers reported on each student's performance in each of the categories listed above using either "Outstanding", "Very Good", "Satisfactory" or "Improvement Needed". This offered representative data for the following sub-question: What knowledge and skills do teachers recognize that students have acquired during their coursework in the Virtual Learning Collaborative? The significance of this data was that it indicated students' academic buoyancy (Bostwick et al., 2022) and development of self-regulating techniques that engendered successful online learning experiences (Johnson et al., 2023) which were linked to a positive academic self-concept and aspirations (Halsey, 2018a; Tiekens, 2016). The researcher's dual roles as teacher

and Coordinator had implications for the quality of data from interviews with teachers by the researcher due to the power dynamics, so it was a pragmatic response to utilize teacher-generated historical data. This data was also useful in confirming or disconfirming student self-reported data in the surveys and interviews.

Principals

Creswell and Creswell (2018) posited that “a hallmark of good qualitative research is the report of the diversity of perspectives about the topic” (p. 95). The research design for this study aligned with that qualifier as it strategically integrated the multiple perspectives of stakeholders in the Virtual Learning Collaborative, including the principals of the four schools in this study. Principals were invited to participate in interviews with the researcher. They were informed as to the purpose of the study and that their participation was voluntary. They were able to appoint a delegate to represent them or invite a teacher or executive member of staff to join the interview to provide a counterpoint or supporting information to the dialogue. Data from the quantitative sources in Phase 1 of the research design informed the interview guide. There was a deliberate inclusion of open-ended questions to give principals the opportunity to share their insights uninterrupted and all data from Phase 1, positive and negative, was disclosed in orienting the discussion. As the researcher was the Virtual Learning Coordinator and had existing relationships with the principals, there were several ethical issues that were addressed in the research design.

In gaining their informed consent for the study (see Appendix K), principals were advised that the integrity of the research depended on their honest and authentic accounts and observations which provided valuable insights into the effects of virtual learning programs, potentially benefiting rural and regional education. The participants were reminded that truthful

feedback can lead to improvements in the virtual learning program, ultimately benefiting students and schools and that the research findings could influence educational policy and practice beyond their immediate context. The researcher also emphasized the separation of their role as a researcher and the Coordinator and that a third-party reviewer was reviewing the findings to maintain objectivity, noting that their honest responses were kept confidential and reported anonymously.

The dual roles of the researcher as a teacher and the Coordinator presented a potential for a conflict of interest in interviewing principals that needed to be managed. Ensuring transparency was a priority was established through triangulation to corroborate the findings, leaving an audit trail that included raw data, procedures and notes from the researcher on how the research was proceeding, and engaging in member checking and respondent validation using a third-party neutral reviewer. The interviews with the principals were conducted in-person or online with consideration of each principal's availability. They were recorded by video using an automatic transcription service which was available in reviewing the findings. Principals were given the opportunity to respond to the findings and report back any interpretations that did not concur with their original intentions. Further to supporting the validity of the findings, the researcher kept a reflexive journal throughout the research process, documenting their thoughts and potential biases in detailing how their position might influence the research. These accommodations reduced bias and improved data validation as they actively managed any perceived conflict of interest with principals.

3.7 DATA SOURCES

The qualitative data sources for this mixed methods case study included students, teachers, and principals. These data sources have been discussed extensively in the "Participants"

section. Policy papers and historical records and reports that have been generated in the operation of the Virtual Learning Collaborative, such as reports to parents and guardians on student progress, were also consulted and analyzed in generating comprehensive data on student achievement and experiences. Given the construct of the virtual learning environment, digital sources such as posts and student responses were also accessed as well as student exit data, such as post-school preferences, and comprehensive Higher School Certificate analysis data made available through the New South Wales Education Standards Authority. Existing datasets that provided previously collected research data and census data was also utilized in contextualizing the four schools' data analysis, namely the Housing, Income and Labour Dynamics of Australia (Melbourne Institute, 2024), the Index of Socio-Educational Advantage (Australian Curriculum, Assessment and Reporting Authority, 2024), the Tell Them From Me survey (Centre for Education Statistics and Evaluation, 2023b), and the Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024). Observational settings, such as Microsoft Teams meetings and architecture were also used in creating thick descriptions of student engagement, motivation and general well-being as these factors were critical in understanding how the learning environment affected or influenced student aspirations and achievement.

3.8 DATA COLLECTION INSTRUMENTS

As the research design was a mixed methods explanatory sequential case study, the quantitative data collected in Phase 1 informed the interview guide for Phase 2, so specific details, beyond protocols and basic framing, for interviews with principals and interviews and focus groups with students conducted by an independent facilitator had to be confirmed.

Discussion of how the researcher approached that aspect of the research design is included here after a brief review of the quantitative data instruments used in the study.

3.7.1 Quantitative data: National datasets and surveys

Multiple quantitative data sources and instruments were integrated into the research design for the study, given the role of the researcher as an insider and the attendant limitations, particularly the potential for bias. The comprehensive inclusion of national and census data was an intentional strategy to present an objective account that situated the study within the context of existing and wider research. For example, using the national datasets of the Household, Income and Labour Dynamics in Australia (Melbourne Institute, 2024), Index of Community Socio-educational Advantage (Australian Curriculum, Assessment and Reporting Authority, 2013), and Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024) situated the research sites in the Australian national landscape. Given the scope and complexity of the research design, using data sources and instruments from previously collected sources not only improved the reliability of the study, but also acted as a labor and time-saving accommodation. Six of the nine quantitative sources and instruments were from previously collected data, independent of the researcher.

Besides the national datasets, three of the data sources that were previously collected were historical documents, artefacts and digital data that provided a longitudinal scope of student achievement, attainment and experience in the Virtual Learning Collaborative. These were data from the Tell Them From Me survey (Centre for Education Statistics and Evaluation, 2023b), official reports to parents on student work habits, and observational data from Microsoft Teams Insights, including attendance, engagement with learning materials, and course scores. These data were valuable in the research design as they objectively described students' experiences in

the affective, behavioral and cognitive domains that contributed to students' expectations for success and postsecondary aspirations (as described in Figure 3-1: Facilitators, Influences and Outcomes of Virtual Learning Courses that Affect Aspirations).

The remaining three quantitative instruments were questionnaires generated for the students in the population of interest for this study. They were adapted from reputable and tested studies discussed in the literature reviewed to maintain the reliability of the study. They were the EPOCH Measure of Adolescent Well-Being (Kern et al., 2016) (Appendix B), the Destinations and Expectations Kahoot! (Appendix D), adapted from longitudinal career surveys used in Victoria and New South Wales (Marks et al., 2011) and the Virtual Learning Collaborative Evaluation (Appendices E and M) that used the National Standards for Online Programs (Quality Matters et al., 2024).

3.7.2 Qualitative data: Interviews

As explained in the "Participants" and "Research Design" sections, interviews were conducted with students and principals to understand their perspective on the student experience in the Virtual Learning Collaborative and self-reported postsecondary aspirations. As outlined earlier, students were interviewed by an independent facilitator or completed questionnaires and the researcher interviewed principals to support the validity and reliability of the study.

The interviews with purposefully selected students who presented as a representative sample (discussed in "Participants") were held online. The principals were made aware of all relevant details. The independent researcher had a valid Working with Children Check as issued by the New South Wales government. To minimize any concerns arising from the researcher's dual role, they took leave from their paid employment as the Virtual Learning Collaborative Coordinator during the designated time with the facilitator to participate in the research process.

The semi-structured interviews with students yielded an in-depth understanding of the motivations of students, complementing the close-ended quantitative data collected in Phase 1. Unless interviewees specified to the contrary, the interview talk was considered ‘on record’ and ‘for the record’ and the conversation was recorded and transcribed. That data was held in confidence using enterprise accounts with attendant data safeguards and multi-factor authentication protections. The interview guide for the discussion was set by the researcher, informed by the data analysis from Phase 1 (see Appendix J: Interview questions for students). The independent facilitator was provided with information on preferred interview skills such as the good interviewer needs to be attentive, is sensitive to the feelings of the participant, is able to tolerate silences, is adept at using prompts, probes and checks and is non-judgmental (Denscombe, 2010) and utilized Denscombe’s interview checklist (Appendix F) to ensure the integrity of the research was maintained and supported.

With informed consent and guarantees of confidentiality (see Appendices G, H, I and K), the researcher’s interviews with the principals adhered to prescribed protocols and recommendations from the literature reviewed, such as informing the principal of the nature and purpose of the interview and seeking their permission for it to be recorded (see Appendix L: Interview questions and protocols for Principals). It was explained that the interview’s purpose was to gain principals’ insights on how the Virtual Learning Collaborative had influenced students’ achievements, attainment of postsecondary offers of work and/or further education and the aspirations expressed by the students and their families. Cohen et al. (2011) recommended formulating indirect questions as these are more likely to produce an open response. The interview questions utilized a range of general and specific inquiries that elicited structured and unstructured responses. The interview questions were framed around these themes and are

available in Appendix L: Interview questions and protocols for principals. Similar data protections and confidentiality standards were used as those explained for student interviews.

3.9 DATA ANALYSIS

This study employed a mixed methods explanatory sequential design within a multiple case study framework. This approach was well-suited for the complex research questions that required both quantitative and qualitative insights. The design involved collecting and analyzing quantitative data first, followed by qualitative data collection and analysis to help explain the quantitative results. Therefore, the analysis for Phase 2 was dependent on the data collected in Phase 1 as it interpreted what that data meant. Each method acted as a counterbalance for the other and they shared equal priority. Phase 3 used the theoretical framework to interpret meaning expressed through the forms and functions of the Virtual Learning Collaborative in a cross-case comparison of the accumulated data.

The research design and theoretical framework used an interpretivist approach in analyzing data. The interpretivist paradigm guided this research by recognizing that the students, principals and communities' experiences of virtual learning are socially-constructed and context-dependent. This philosophical stance aligned with the mixed methods research design as it acknowledged that educational settings need to be understood through multiple forms of evidence and that participants' interpretations were central to understanding impact on aspirations. The theory of action framework served as an interpretive lens rather than a deterministic model, providing structure for understanding participant experiences while remaining open to meanings and mechanisms that emerged from the participants' own interpretations of their virtual learning experiences.

Denscombe (2010, p. 236) outlined the focus of interpretivist data analysis as:

- *How and why things happen*: in terms of possible mechanisms, potential causes, plausible theories;
- *Who undertook the research*: researcher biography, identity and experiences;
- *When and where the study took place*: cultural and historical context, social values;
- *What alternatives exist*: comparisons with competing theories.

This discussion of the data analysis aimed to explain the intended approach to analyzing the data, using an interpretivist approach that followed Denscombe's outline, cognizant that the actual data analysis may require adjustment dependent on findings from Phase 1 following the "pragmatist approach" (p. 139) often applied in interpretivist research.

3.8.1 Quantitative data analysis

The literature reviewed revealed that the quality of the curriculum and the school climate influenced a student's school experiences in the affective, behavioral and cognitive domains and that this was evident in course scores, which influenced student aspirations (as shown in Figure 3-1: Facilitators, Influences and Outcomes of Virtual Learning Courses that Affect Aspirations). Some studies such as Li et al. (2017) and Perales et al. (2023) proved a causal relationship between school climate and student achievement. Agger et al. (2023), Corbett (2016), Fray et al. (2020), Kenway and Hickey-Moody (2011), and Tieken and San Antonio (2016) found that students' aspirations and expectations were consequential of students' school and academic experiences. The quantitative data collected in Phase 1 aimed to understand the relationship of these variables, such as school belonging, persistence and academic buoyancy on academic achievement which could be used to predict student aspiration. Broad data, such as the national datasets descriptions, was used as a starting point for the research explaining the geographical, historical, economic and societal features of the research sites and, in comparison with other data sources, proceeded to look for evidence of cause and effect relationships in the quantitative data.

Having produced a description of the profile of the data for each of the four schools, the analysis centered on looking for patterns and relationships in the data, specifically looking for connections between curriculum quality, school climate and experiences with aspirations. This data analysis was used to determine which of the independent variables had the greatest influence associated with aspirations. The results informed the interview guide for students and principals in Phase 2 to confirm or disconfirm the results and explain outliers and influential cases that may have skewed the results.

3.8.2 Qualitative data analysis

The purpose of the qualitative data analysis was to use the responses given in interviews to explain the observed behaviors and findings from the quantitative data. The analysis of the qualitative data collected from principals ($n = 4$) and students ($n = 10$) adhered to the “fitness for purpose” (Cohen et al., 2011, p. 537) or pragmatic principle meaning that “the justification for the choice of any specific strategy must depend on having a clear vision of the particular purpose for which it is being used” (Denscombe, 2010, p. 5). The researcher used a reflexive approach, recognizing that the data analysis plan could change as the research evolved. The data analysis used an iterative and inductive approach in this research design, predominantly concerned with the analysis of talk and text from the interviews with students and principals. It emphasized a narrative analysis that “depict[s] constructions of personal identity and social worlds” (Denscombe, 2010, p. 280) as aspirations are a psychological construct (Cuervo, Corbett, et al., 2019) which emerge through the reporting of experiences, dramatic events and the activities and behavior of people over time.

Cohen (2011) claimed that narratives convey this information and bring it to life, so the researcher chronologically identified textual units in the narrative that linked to students’ school

and academic experiences, for example key decisions, critical events, themes, behaviors, actions, people, places and experiences. Computer assisted qualitative data analysis was undertaken for the quantitative analysis and attribute coding to look for relationships between the codes. In presenting the narrative analysis, verbatim quotations have been used, while maintaining confidentiality of participants, together with biographical data and significance of place. This avoided presenting a disembodied text, respecting the narratives as powerful, human and integrated qualitative data.

3.8.3 Interpretivist approach

Cross-case comparisons of the aggregated quantitative and qualitative data were made in the third phase of the mixed methods explanatory sequential research. Through this lens, rich insights were uncovered into the complex interplay of meanings within the study's context, allowing for a more comprehensive understanding of how the Virtual Learning Collaborative had influenced students' postsecondary aspirations.

Table 3-4 provides a summary of the three phases of data collection and the method and approaches used for each phase.

Table 3-4: Summary of methods and approaches used in the three-phase research design

<i>Phase</i>	<i>Method</i>	<i>Data sources</i>	<i>Analysis approach</i>
Phase 1: Quantitative	Descriptive and correlational analysis	National data sets, school surveys, participant surveys and questionnaires, course reports, grades and course scores	Descriptive statistics, Pearson correlation analysis, academic buoyancy calculations, pattern identification across variables
Phase 2: Qualitative	Narrative analysis and thematic coding	Interviews with principals ($n=4$) and students ($n=10$); course review surveys	Iterative and inductive coding; narrative analysis of participant experiences using Cope and Kalantzis (2017) affordances of e-Learning
Phase 3: Merged data	Cross-case comparative analysis	Combined qualitative and quantitative data	Cross-case synthesis; theory confirmation/disconfirmation

3.10 VALIDATION PLAN

Dawadi et al. (2021) suggested that a mixed methods design “offers the best chance of answering research questions by combining two sets of strengths while compensating at the same time for the weaknesses of each method” (p. 27). Consequently, this mixed methods design offered a more valid picture about the research issue than a single method, which Denscombe (2010) described as a “methodological triangulation” (p. 346). The explanatory sequential design emphasized that findings could be corroborated or questioned using different methods.

The research design also incorporated within-methods comparisons that provided a check on findings. For example, teachers’ reporting on student work habits was corroborated by the

Microsoft Teams Insight data on engagement and attendance in the quantitative data. When similar results were present, it was reasonable to assume that the data sets were an accurate reflection of learner characteristics. The use of longitudinal data from student responses and course scores also supported validation. Overall, data triangulation was comprehensively integrated into the research design as the validity of the findings could be checked by using multiple sources such as interview transcripts and survey responses.

A critical design element was the inclusion of different researchers:

- the independent facilitator for interviews with students
- the external expert researcher
- member-checking to review findings.

This supported consistency and confidence in the findings as the researcher consulted and debated with different researchers and participants to generate meaning, classify and order the units of meaning and interpret the data. The theoretical framework informed the mixed methods research design privileging context and the social construction of meaning and the impact on students' social capital.

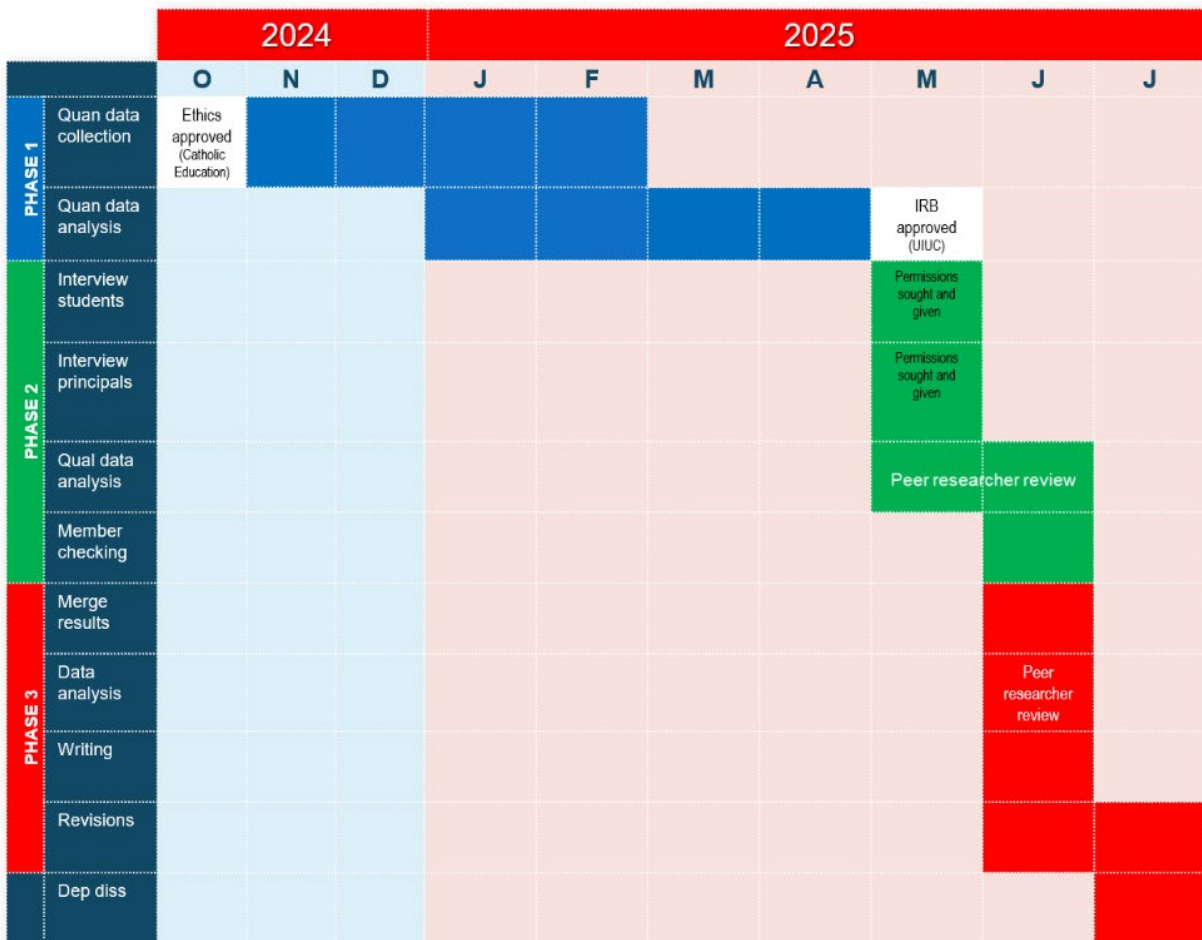
3.11 TIMELINE

The schedule outlining the major steps in the research project are shown below in Table 3-5: Phases of the Research Process and in Figure 3-8: Timeline for Research Process.

Table 3-5: Phases of the research process

Phase	Started	Completed
Phase 1: <i>Quantitative data collection and analysis to create profiles of the 4 sites and inform interview guide</i>	November 2024	February 2025
Phase 2: <i>Qualitative data collection – interviews; data analysis</i>	May 2025	May 2025
Phase 3: <i>Cross-case comparison and interpretation</i>	May 2025	June 2025
Writing and reporting – initial findings presentation to principals and system leaders	June 2025	June 2025
Revise findings using feedback	June 2025	July 2025

Figure 3-8: Timeline for research process



3.12 CONCLUSION

The abundance of data and methods in this research design supported providing valid and reliable findings. While the number of data sources and instruments represented a challenge, the integration of computer-assisted technologies to establish statistically significant relationships and code the data relieved some of the more onerous dimensions of the data analysis, such as multiple regression and coding. Introducing independent secondary researchers, explicit directions for creating audit trails and a reflexive journal supported the transparency of the research, contributing to the reliability of and confidence in the findings. There were limitations on the generalizing of the findings for the study given the relatively small sample sizes, but this is a reality in a rural and regional area. As a response to this constraint on the findings, the breadth of data situated the study within the context of existing wider research. The exhaustive literature reviewed connected the study with ideas, arguments and research as well as established theories in the field of rural education research as the basis for this study. The theoretical framing also embedded different perspectives from cyber, social and ecological constructs supporting an appreciation for the complexity of education in rural and regional areas.

CHAPTER 4: RESULTS AND FINDINGS

4.1 INTRODUCTION

This explanatory sequential mixed methods study investigated the impact of the Virtual Learning Collaborative on students' postsecondary aspirations, course achievement, and Higher School Certificate attainment and identified the features and nature of the model that had contributed to those outcomes. The breadth of data instruments was informed by an ecological understanding of the research sites and underpinned a systematic and transparent approach for data collection and analysis. Data instruments included publicly available national data sets to ground the research using Green and Reid's (2021) Rural Social Space framework and other more specific instruments available in the Appendices, which included: surveys (Appendix B: EPOCH Measure of Adolescent Well-being; Appendix D: Destinations and Expectations Survey), interviews with students (Appendix J: Interview questions for students), interviews with principals (Appendix L: Interview questions and protocol for principals), and questionnaires (Appendix M: Virtual Learning Collaborative course review for students). The small number of participants in the qualitative data (four principals, two assistant principals and ten students) represented the pragmatic reality of the Virtual Learning Collaborative.

Data instruments were designed and used to interrogate the research questions shown below and to prove or disprove the hypotheses foregrounded by the literature reviewed. The first research question interrogated students' postsecondary aspirations, course achievement outcomes and Higher School Certificate completion to establish if students had improved their education outcomes while studying a course in the Virtual Learning Collaborative. The second research question focused on the findings to identify specific characteristics of the virtual learning model

that may have contributed to improved educational outcomes. The research questions that drove the purpose of the study were:

- What is the impact of the virtual learning collaborative on rural and regional students' postsecondary aspirations, course achievement and attainment of their school exit credential?
- What are the features and nature of the virtual delivery mode in the networked Virtual Learning Collaborative multi campus model that could contribute to improving rural and regional students' education outcomes and postsecondary aspirations?

This chapter presents the results and findings from the case study of the Virtual Learning Collaborative at four rural and regional schools and their communities. Following the study's procedural order, quantitative data from national datasets, surveys, and historical records were first analyzed and summarized, then shared with principals during second-phase interviews. The chapter is organized into three sections:

- (1) key quantitative findings that informed the principal interviews,
- (2) data findings on the impacts on postsecondary aspirations, course achievement, and course completion (addressing the first research question), and
- (3) data findings on the features and nature of the virtual learning model that contributed to these outcomes (addressing the second research question).

The qualitative interview data from principals and students has been interpreted using Cope and Kalantzis' (2017) affordances of e-Learning framework.

4.2 THE RESEARCH SITES: KEY DATA FINDINGS

The data collected in the first phase of the sequential mixed methods case study informed the second phase of data collection of interviews with principals and students. This section of the analysis reports on the key data that informed the four unique School on a Page Profiles (see Appendix P) that were shared with each of the principals during the interviews. Following recommendations in the literature reviewed to engage in ruraling the research to give a “deep and careful understanding of rural social space” (Green & Reid, 2021, p. 43), data were accessed from the Breaking Down Barriers Community Profiles (Ananyev et al., 2023), the Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024), and the My School website (Australian Curriculum, Assessment and Reporting Authority, 2024) for each of the communities where schools were located. This was to avoid homogenizing all other-than-urban spaces by examining area-specific characteristics according to demographic, economic and geographical factors. It also demonstrated ecological validity as it included characteristics and factors that were unique to each research site in the analysis. School profiles were created from these data sources that addressed the following question: What are the significant geographical, historical, economic and societal considerations of a place?

The Breaking Down Barriers Community Profiles used data from the Housing, Income and Labour Dynamics in Australia survey (HLIDA) (Melbourne Institute, 2024) from 2010-2019. The Australian Digital Inclusion Index used data from the Australian Internet Usage Survey conducted between June and December 2022, with 5,132 respondents and the My School website used 2024 national school profile and population data. While time triangulation was not possible, diachronic reliability was evident over two to three year periods.

In addition to these broader sociocultural data sources, school and district data were analyzed for the school profiles. This included previously collected data from:

- Tell Them From Me surveys (The Learning Bar, 2024),
- historical reporting data on course outcomes for students from the four schools in the case studies,
- course review survey responses based on the National Standards for Online Teaching and Learning (shown in Appendices A, E and M),
- student responses to the questionnaire, Destinations and Expectations (shown in Appendix D), and
- the EPOCH Measure of Adolescent Well-being survey (shown in Appendix B)

To validate the findings, school data from the Tell Them From Me surveys (The Learning Bar, 2024) were cross-referenced with the EPOCH Measure of Adolescent Well-being (Kern et al., 2016) (see Appendix B) and the Destinations and Expectations survey (see Appendix D) data to map patterns in student engagement and calculate academic buoyancy across the four schools. This analysis and the national data sets provided a narrative for the school profiles which was organized into the social-cyber-ecological dimensions as informed by Green and Reid's (2012) Rural Social Space framework and Bronfenbrenner's (1995) Ecologic Systems Theory. Table 4-1 is an overview of the four schools' profile data.

Table 4-1: School Profile Data Overview

Metric	National averages	Golden Plains	Mountain View	Blue Water	Orchard Hills
School type		K-12	K-12	K-12	7-12
Classification		Outer Regional	Inner Regional	Outer Regional	Inner Regional
Index of Community Socio-Economic Advantage	1000 (major metropolitan centers sit around 1065)	1010	1003	1032	1005
Australian Digital Inclusion Index	NSW: 73 ACT: 78	65.3	71.3	67.1	67.5
School population		282	459	685	423
Bachelor's degrees in the population (%)	30.6% (major metropolitan centers)	15.2%	15%	19.3%	14.8%

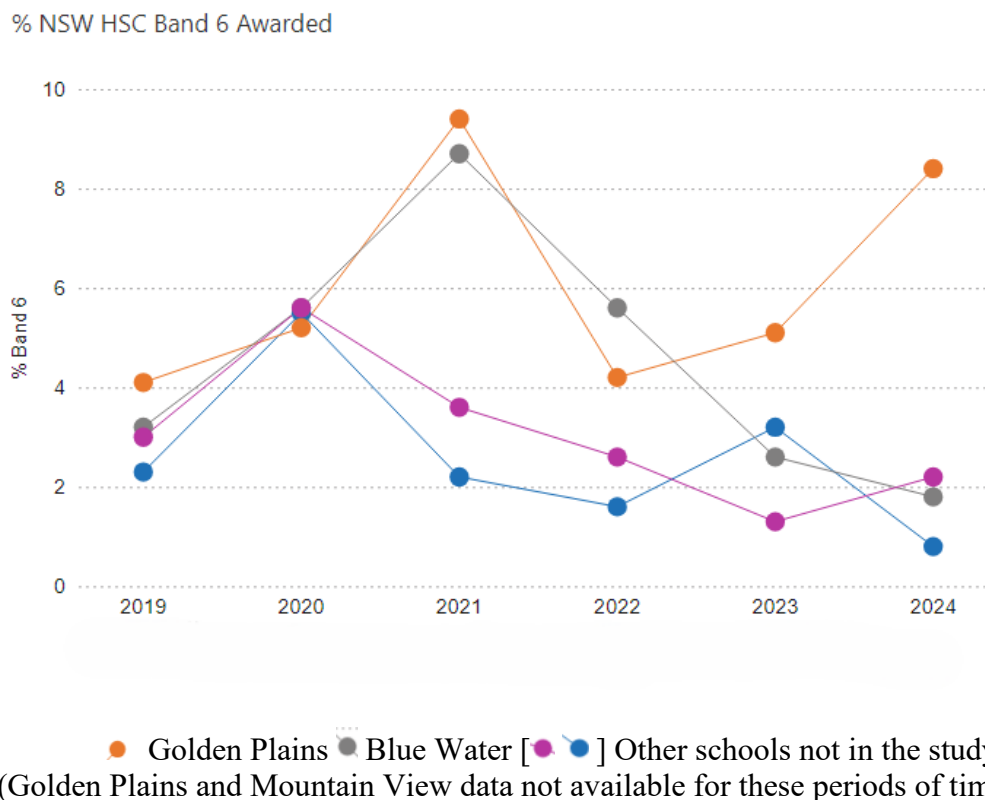
Key data relating to community contextual influences for the four schools is shown in Table 4-1: School Profile Data Overview, including the school type, the classification of the area according to the Australian Bureau of Statistics (2022), the Index for Community Socio-Economic Advantage used by the MySchool website (Australian Curriculum, Assessment and Reporting Authority, 2024), the Australian Digital Inclusion Index (ARC Centre of Excellence for Automated Decision-Making and Society, 2024) and the percentage of bachelor's degrees or higher in the population (Ananyev et al., 2023). National averages were included to provide points of comparison with major metropolitan areas. Of significance to the analysis was the disconnect between socio-economic advantage, digital infrastructure and support and the

percentage of the population with a bachelor's degree or higher between these school communities and major metropolitan centers. For example, the four schools were situated in areas that experienced lower levels of digital literacy, infrastructure, support and access compared with major metropolitan sites located within 150 miles travel distance to these rural and regional towns. Also significant in the data for these rural and regional school communities was the disproportionately lower proportion of the population who had a bachelor's degree or higher. This data confirmed the findings in the literature reviewed that stubborn structural environmental barriers to improving education outcomes exist for rural and regional communities.

The purpose of the school profiles was to show patterns and relationships in the data, specifically the connections between curriculum quality, school climates and students' aspirations. These were shared with principals during the interviews in Phase 2 of the research project to confirm or disconfirm the findings and build understanding around the impact of the Virtual Learning Collaborative and its features and nature that had improved education outcomes. These data informed the interview questions for principals (see Appendix L). Granular data relevant to each research site is available on the Schools on a Page artefacts available in Appendix P: Schools on a page profiles.

In framing the dialogue with principals in the interviews, longitudinal data of exemplary achievement was also shared with principals, in particular the number of highest grades, known as Band 6s, awarded to students in New South Wales (Australia) colleges in the Archdiocese (shown in Figure 4-1: Percentage of Band 6s Awarded in NSW).

Figure 4-1: Percentage of band 6s awarded in New South Wales Colleges in the Archdiocese of Canberra Goulburn (Australia) 2019-2024

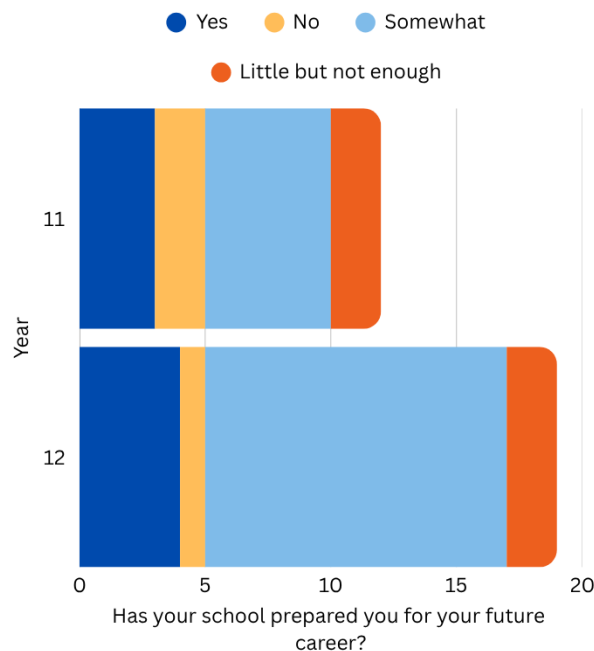


This longitudinal data showing the percentage of Band 6s awarded to high achieving students prompted discussion of long-standing influences on student achievement across all schools from a system perspective. Two schools in the study, Golden Plains and Mountain View, did not have senior cohorts prior to 2023 as those schools did not offer the Higher School Certificate until after that time so their data does not appear in the graph. Blue Water and Orchards Hills' results are shown along with two other schools in the Archdiocese not included in the study. Principals recognized the convergence of data in 2020 for the senior colleges in the Archdiocese of Canberra Goulburn where all schools were awarded a similar number of Band 6s to high achieving students. The divergence of data points after 2020 was acknowledged by principals as a cause for concern that reflected trends, not cohort characteristics, and foregrounded a rich dialogue around school culture and leadership considerations for improving

student outcomes (discussed in the section below on the features and nature of the virtual learning model). The Assistant Principal at Orchard Hills suggested that the 2020 results were linked to focused learning opportunities for motivated students during remote learning in the global pandemic. Principals stated that the Virtual Learning Collaborative mirrored those circumstances enabling independent learning which could be contributing to improved student results.

In priming the discussion with principals during the interviews centered on students’ postsecondary aspirations, student response data from the “Destinations and Expectations” survey (Appendix D) was made available to principals. Shown here in Figure 4-2: Students’ Perceptions of School career Preparation is the response to one of the questions on the survey: “Has your school prepared you for your future career?”.

Figure 4-2: Students' perception of school career preparation

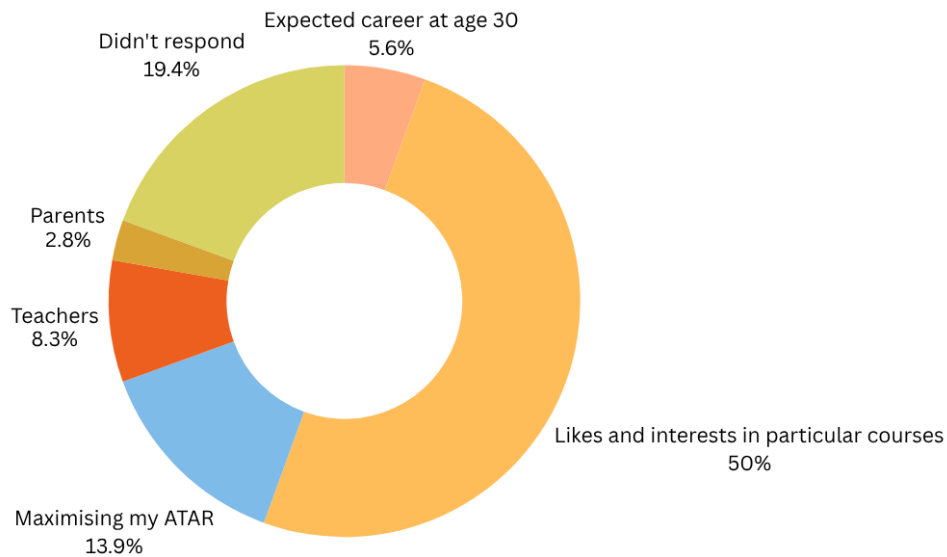


As shown in Figure 4-2: Students’ Perception of School Career Preparation, students

across the four schools were ambivalent about their experience of career preparation with most of the students answering “Somewhat” to the question, “Has your school prepared you for your future career?”. Less than a third of the total respondents ($n=33$) indicated that they had received specific advice about the kinds of jobs that they could investigate and only eight respondents said they had developed a plan about their future study and work options with a staff member at their school. Principals acknowledged that students perceived a lack of curriculum career relevance which was a factor contributing to student disengagement in senior years (also highlighted in the Tell Them From Me whole school data) and motivational issues underlying student well-being concerns.

Another key data point from the “Destinations and Expectations” survey (Appendix D) shared with principals in exploring the impact of the Virtual Learning Collaborative on students’ aspirations was the students’ reasons for enrolling in a virtual learning course. Figure 4-3: Influences on Choosing a Virtual Learning Course provides a breakdown of those responses and indicates that half of the respondents chose a virtual learning course because of their likes and interests of the subject matter studied in that course.

Figure 4-3: Influences on choosing a virtual learning course



Just over ten per cent of the responses indicated that their major influence was from parents and teachers, which was not a significant indicator. Principals stated that students were choosing their courses based on peer influences more than career directions and that this could be a short-sighted rational decision to fit in or belong in their cohort. They suggested that based on this information, more directed personalized career planning could benefit students' long-term acquisition of skills and knowledge which would improve engagement and achievement at school and offer better long-term outcomes for their students.

4.3 IMPACT ON EDUCATION OUTCOMES

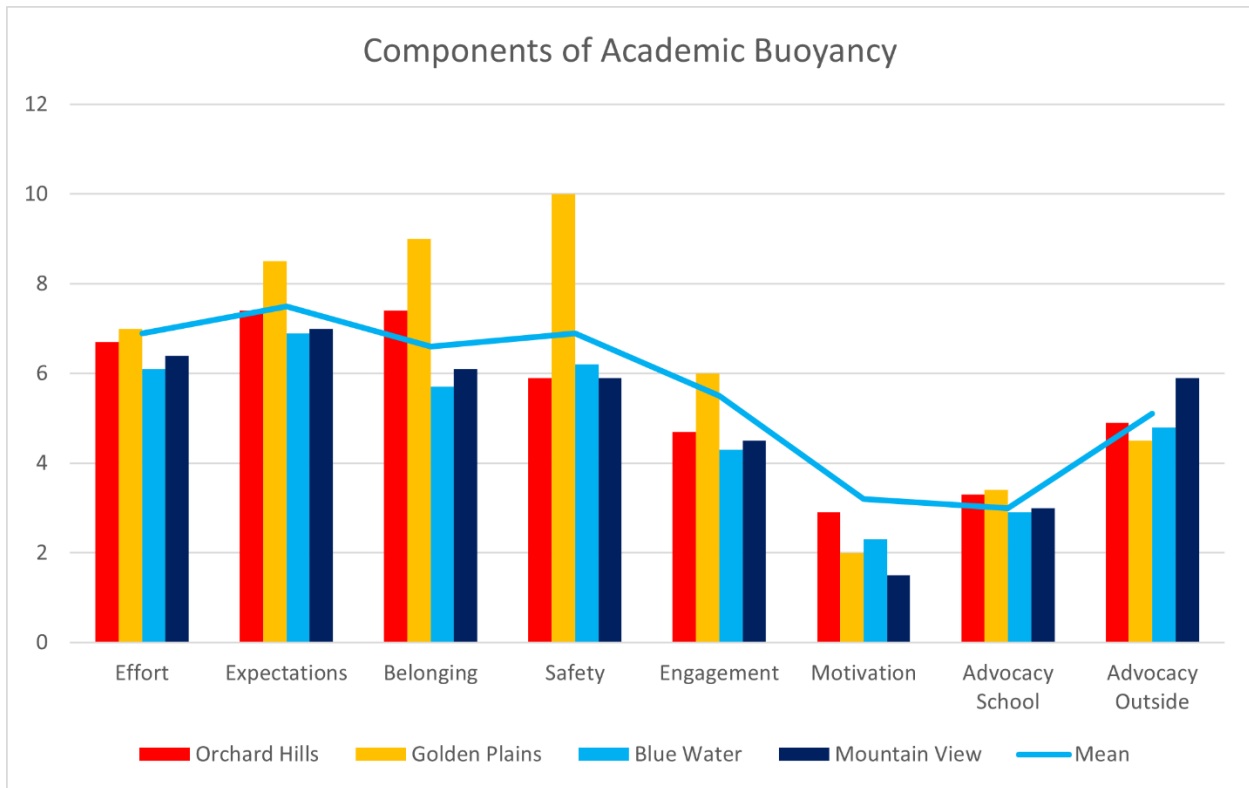
This section presents the key results and findings from the study that address the first research question related to the impact of studying a course in the Virtual Learning Collaborative on students' aspirations, achievement and attainment of their school exit credential. It uses the quantitative data from the Tell Them From Me (The Learning Bar, 2024) school data, the results

from the “Destinations and Expectations” (Appendix D) survey responses, the EPOCH Measure of Adolescent Well-being (Appendix B) survey and historical course reporting data on students’ grades and attitudes, including final external examination results from the Higher School Certificate. Highlighted in the data analysis is a comparison of the impact on academic buoyancy of students participating in virtual learning courses compared with whole school populations. Results from the qualitative data from interviews with students and principals are also presented relating to the impact on student outcomes from participating in a virtual learning courses. The qualitative data was collected from four principals, two assistant principals and ten students during April and May 2025.

Academic buoyancy

Martin and Marsh (2008) defined academic buoyancy as students’ ability to successfully deal with academic setbacks, challenges, and pressures in the typical course of school life. Using Bostwick et al.’s (2022) data modelling of academic buoyancy, data was examined relating to the key components of academic buoyancy from the four schools’ Tell Them From Me reports to approximate academic buoyancy measures for schools in the study. The results are shown below in Figure 4-4: Components of Academic Buoyancy.

Figure 4-4: Components of academic buoyancy from the Tell Them From Me survey (The Learning Bar, 2024)



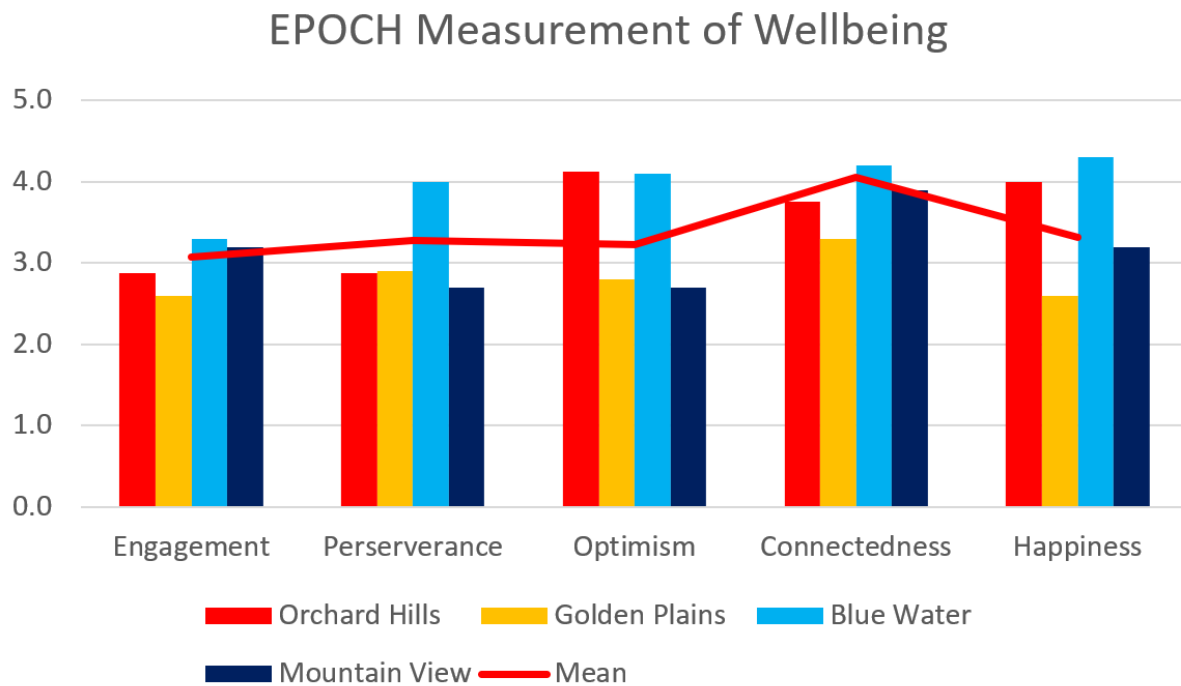
A weighted combination of the average of the Year 11 and Year 12 data for 2023 ($n=174$ responses) was used for each school to calculate a composite measure of academic buoyancy, except for Mountain View. That school had too few responses for Year 11 and 12 so an average of all secondary students' responses (Year 7-10) ($n=128$) was used to approximate the components listed. The components are shown in Figure 4-4: Components of Academic Buoyancy from the Tell Them From Me whole school data (The Learning Bar, 2024) and the measure for each school is shown in Table 4-2. Bostwick et al.'s (2022) research established that these broader metrics for academic buoyancy were generally stable over time so generalizing these scores for all year levels as an approximate proxy for school climate was appropriate. The mean shown was calculated from all schools across New South Wales (Australia) from which the Tell Them From Me data was collected (The Learning Bar, 2024).

The weighted measures used to calculate overall academic buoyancy are shown below and follow Bostwick et al.'s (2022) calculations using the Tell Them From Me survey data:

1. Effort (20% weight) – Students' persistence and effort in schoolwork
2. Expectations for Success (15% weight) - School expectations and academic self-efficacy
3. Sense of Belonging (15% weight) – Students' connection to the school
4. Safety at School (10% weight) – Students' sense of physical/emotional safety
5. Intellectual Engagement (15% weight) - Academic engagement levels
6. Interest and Motivation (15% weight) - Intrinsic interest in learning
7. Advocacy at school (10% weight)
8. Advocacy outside of school (5% weight)

Students in the Virtual Learning Collaborative were invited to anonymously respond to a survey based on the EPOCH Measurement of Adolescent Well-being (see Appendix B). The results of that survey are shown below in Figure 4-5: EPOCH Measurement of Well-being.

Figure 4-5: EPOCH Measurement of Adolescent Well-being for students in the Virtual Learning Collaborative across the four schools in the study



From September 2024 to March 2025 there were 31 responses (two from Orchard Hills, nine from Blue Water, seven from Mountain View, four from Golden Plains and nine from other schools not in the study). The number of responses represented the pragmatic reality that class sizes were small, which is recognized as a limitation on the study’s findings. Responses are shown for schools in the study and the mean was calculated across all schools in the Virtual Learning Collaborative, as shown in Figure 4-5: EPOCH Measurement of Adolescent Well-being for students in the Virtual Learning Collaborative across the four schools in the study.

Academic buoyancy scores for the virtual learning students were calculated using the EPOCH (Engagement, Perseverance, Optimism, Connectedness, Happiness) framework data with the following weighted components:

1. Perseverance (30% weight) - equivalent to “Effort” in Tell Them From Me

2. Engagement (20% weight) - equivalent to “Intellectual engagement” in Tell Them From Me
3. Optimism (20% weight) - equivalent to “Expectations for success” in Tell Them From Me
4. Connectedness (20% weight) - combines “Belonging” and “Safety” from Tell Them From Me
5. Happiness (10% weight) - additional component in EPOCH framework

All scores were normalized to a 0-10 scale to match the Tell Them From Me academic buoyancy calculations. Table 4-2 shows the schools’ general population academic buoyancy for each of the four schools using Tell Them From Me survey data from 2023 and the virtual learning students’ academic buoyancy using the EPOCH Measurement of Adolescent Well-being survey data (2024-2025).

Table 4-2: Academic buoyancy for the general population and the Virtual Learning Collaborative

School	Academic Buoyancy		Difference
	General population	Virtual Learning Collaborative	
Orchard Hills	5.6	7	+1.4
Blue Water	5.0	7.9	+2.9
Mountain View	4.5	6.5	+2.0
Golden Plains	5.5	5.9	+0.4
Average difference			+1.7

In the original calculations, all schools except Golden Plains showed a statistically relevant difference in the academic buoyancy of students enrolled in the Virtual Learning Collaborative with the general population of their schools. The responses used in the original analysis for Golden Plains relied on only ten responses to calculate academic buoyancy for the senior students, which was unreliable. When the school mean was used for the categories of

effort, expectations for success, belonging, safety, engagement, motivation and advocacy, the recalculated measure for Golden Plains' academic buoyancy was 5.5 ($n = 76$). This revised calculation presented a more reliable measure. With the revised calculation for Golden Plains as a more representative metric of academic buoyancy, Table 4-2: Academic Buoyancy for the General Population and the Virtual Learning Collaborative summarizes the results showing that all subset populations of virtual learning students at each school had a higher score for academic buoyancy than the general populations at their respective schools.

The quantitative finding that Virtual Learning Collaborative students demonstrated higher academic buoyancy scores (+1.7 on average) than their general school populations gained deeper meaning when viewed through students' reported subjective experiences of resilience-building in virtual learning environments. In the interviews with students, they consistently described developing what they recognized as improved persistence and self-regulation through their virtual learning experiences. Students reported a fundamental shift in their reflexive ability to persist through challenges independently. The students' subjective accounts revealed how they experienced the Virtual Learning Collaborative as building their capacity to manage academic setbacks and pressure. Students also described experiencing increased confidence in their ability to handle academic challenges. The narrative in the qualitative data illustrated how students experienced virtual learning as boosting their academic self-efficacy. They reported that they had developed confidence not just in their ability to learn content, but in their capacity to navigate academic challenges independently.

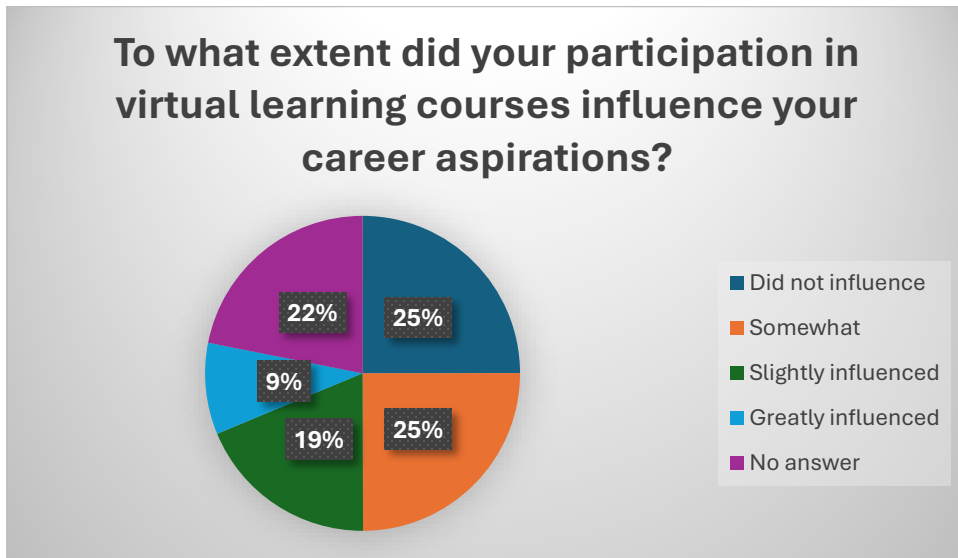
Principals described the academic buoyancy of Virtual Learning Collaborative students as evidence of transformational skill development that extended beyond academic content. The Assistant Principal at Golden Plains explained, "I feel with these VL (virtual learning) students,

they're getting those skills... to be able to do online courses, to be organized, to self-motivate, to build a relationship with someone that is not actually there all the time.” This perspective revealed how principals viewed the Virtual Learning Collaborative as systematically building the persistence and adaptability that contributed to these students’ academic confidence and academic buoyancy. The principals connected academic buoyancy to postsecondary success, with the Principal at Orchard Hills specifically remarking that former Virtual Learning Collaborative students recognized “there wasn’t a teacher there standing over me saying you need to get this done” and had successfully applied these self-regulation skills at university. This revealed how principals understood that academic buoyancy was not a temporary adaptation to virtual learning but was a transferable capacity that supported long-term educational success and students’ postsecondary aspirations. As a counterpoint, students did not explicitly mention the influence of teachers or teachers’ expectations as a critical influence on their decisions to pursue further study; instead, they linked their aspirations with their own persistence and effort, akin to academic buoyancy, in managing their coursework and the quality of the curriculum materials.

Postsecondary aspirations

In a Kahoot poll circulated to students between September 2024 and March 2025, asking them about their experience in a virtual learning course and its impact on their post-school planning, (see Appendix D: Destinations and Expectations Survey) students were asked how their participation in a virtual learning course had influenced their career aspirations. The results for that question are shown below in Figure 4-6: Students’ Reported Perception of the Influence of Virtual Learning on their Career Aspirations.

Figure 4-6: Students' reported perception of the influence of virtual learning on their career aspirations



There were 33 responses from Year 11 and Year 12 students attending one of the colleges in the research study. 31 responses had completed all relevant sections and these were analyzed for any patterns and insights regarding students' self-reported perceptions of the impact of virtual learning on their career aspirations. Most of the responses came from Year 12 students ($n=23$) who reported an average influence of 2.24 on the Likert scale of: 1-did not influence, 2-somewhat influenced, 3-slightly influenced, 4-greatly influenced. Students who declined to answer and those who said "Did not influence" provided nearly half of the total responses as shown in Figure 4-6: Students' Reported Perception of the Influence of Virtual Learning on their Career Aspirations.

Of the 33 responses to Destinations and Expectations Survey, students who planned to study for a bachelor's degree (15 respondents) had the highest average influence score of 2.77 and 60% of those students indicated that virtual learning "slightly" or "greatly" influenced their career aspirations. This group showed the strongest positive influence from virtual learning. Students pursuing a certificate or diploma or who planned to secure full-time employment after school reported that virtual learning did not influence their career aspirations. Figure 4-6 shows

that over 50% of students who responded to the survey identified that participating in the virtual learning courses had somewhat to greatly influenced their career aspirations. While the number of responses to the poll was small ($n=33$), it was representative of the number of students in the study ($n=56$) which was a 59% response rate. Other data such as interview data needed to be considered wholistically, however, to generalize the findings and draw reliable conclusions.

The interview data from principals and students confirmed key findings from the quantitative data analysis that the Virtual Learning Collaborative had a significant but differentiated impact on students' postsecondary aspirations, with the effect strongly correlated to students' further study and career directions. In the interviews with students pursuing a tertiary pathway, they stated that the access to virtual learning courses supported and strengthened their aspirations as it gave them access to specialized academic subjects with expert teachers that aligned with their career directions. The Assistant Principal at Blue Water offered this observation on students studying Economics that they "really appreciate the opportunity to be doing a subject that they are really passionate about and I believe all, if not most of them, will be looking at tertiary education". Orchard Hill's Principal was unequivocal about the importance of the Virtual Learning Collaborative, stating it was "absolutely key for those kids because they needed that pathway and that was the only way to get that pathway." She specifically highlighted Mathematics students who "needed strong Mathematics for their careers," noting that "VL (virtual learning) was imperative in getting the results that they got."

Students emphasized how virtual learning provided access to courses not otherwise available at their schools and said, "I feel like (this) is pretty crucial, as like a building block for what I do in uni." All the students who were interviewed or provided responses in the questionnaire were pursuing further study and acknowledged the criticality of the virtual learning

course for acceptance into a postsecondary course which supported their aspirations. Nine of the ten students who were either interviewed or completed the questionnaire were applying or studying for a bachelor's degree. This was a greater proportion of students than reported for all school leavers in 2023 of 38% in the Centre for Education Statistics and Evaluation (2025) Post-School Destinations and Experiences Survey Annual Report. One of the students, who was interviewed for the study, had parents who had both completed a bachelor's degree and one other student's parents had both finished school but had not pursued any further study. For the remaining eight students, their mothers had completed a bachelor's degree, and their father had completed Year 10 or Year 12 as well as an apprenticeship and was working full-time in a trade. The maternal education level appeared in this sample group to be more influential than paternal education in predicting educational aspirations for tertiary study.

Principals commented that the impact of the Virtual Learning Collaborative was more complex for students who were looking at vocationally-orientated post-school pathways. Overall, the student data showed that regardless of a students' aspirations, as they progressed with their virtual learning experience, their self-efficacy increased. This growth significantly broadened their aspirations to include study, even if they originally indicated they were looking at full-time work after finishing school. In particular, at Golden Plains, the data from the Destinations and Expectations survey (Appendix D) revealed that when a student had a pathway that did not involve becoming a professional at the age of 30 years old, and they were not looking at a tertiary pathway post-school, virtual learning did not influence their post-school aspirations but supported them to complete school. The Principal at Mountain View stated that offering courses through the Virtual Learning Collaborative was critical, explaining that

“providing them with Year 11 and 12 here at this school, providing them with subjects that interested them and prepared them for their pathways, really saved them from what I would've predicted, would've been a pretty disastrous end of their education”.

The Principal at Golden Plains shared that the Virtual Learning Collaborative provided flexibility for students who wanted to stay in their community but still wanted further education and this was the tertiary study experience of some students post-school.

The rural and regional students' narratives in this study consistently described how they understood their virtual learning achievements as proof of their ability and readiness to leap towards their career goals and to engage in further study. For these students from communities with lower tertiary education rates (14.8-19.3% with bachelor's degrees) when compared to the national average of 33% (Australian Bureau of Statistics, 2024), credentialled attainment through virtual learning provided evidence that ambitious educational goals were achievable from their geographical starting points. This was particularly significant for aspirational development, as students could consider completing tertiary credentials without abandoning their connections to their home communities.

The Principal at Mountain View related the experience of a student who was working and planning to study at a regional university. The principal explained that student would be a first-in-family to attend university and that the opportunity to attain a Higher School Certificate, made possible through the integration of virtual learning courses, was integral to them aspiring to go to university and developing the independence and self-confidence that required. The Principal reported that the student's academic identity grew through participating in the virtual learning course and that this had supported ambitious postsecondary planning.

The literature reviewed found that students in rural contexts often experienced geographical and resource limitations as barriers to ambitious career goals (Beswick et al., 2023). The qualitative data from the interviews with students suggested that the Virtual Learning Collaborative interrupted that narrative of constraint. For example, one student explained, "I

wouldn't have been able to do Legal Studies or Economics because there's no one at this school that could have taught them." This acknowledgement revealed the profound aspirational constraint that students experienced before virtual learning access. The meaning of virtual learning was rooted in a liberation from geographical determinism because students could pursue career relevant coursework regardless of their location. It also extended beyond course access to include temporal flexibility that accommodated rural students' diverse responsibilities. Students could engage in coursework around family obligations, part-time employment, and other school commitments that might otherwise interfere with educational progress. Students reported that this flexibility was crucial for credential completion and success across all their coursework beyond virtual learning courses.

Virtual learning had a minimal impact on students who were planning to directly enter the workforce. Students pursuing higher education showed the strongest influence from virtual learning on their career aspirations, particularly those planning to pursue bachelor's degrees. Students with clear career goals (especially in professional fields) reported more influence from virtual learning compared to those who were unsure about their future careers.

Course achievement

Using the Pearson correlation coefficient (Pearson's r) the dataset of reports on course achievement for the 22 course results from 17 students who had completed their Higher School Certificate in 2024 was analyzed to measure the linear relationship between continuous variables, in particular the attitudes to learning, school assessments and Higher School Certificate results. There were four sets of reports that included Year 11 and Year 12 longitudinal data for those students. Using a statistical package, the following formula was used to analyze the data:

$$r = \frac{\sum[(X_i - \bar{X})(Y_i - \bar{Y})]}{[\sqrt{\sum(X_i - \bar{X})^2} \times \sqrt{\sum(Y_i - \bar{Y})^2}]}$$

Where:

- X_i and Y_i are individual data points
- \bar{X} and \bar{Y} are the means of the variables
- Σ represents summation

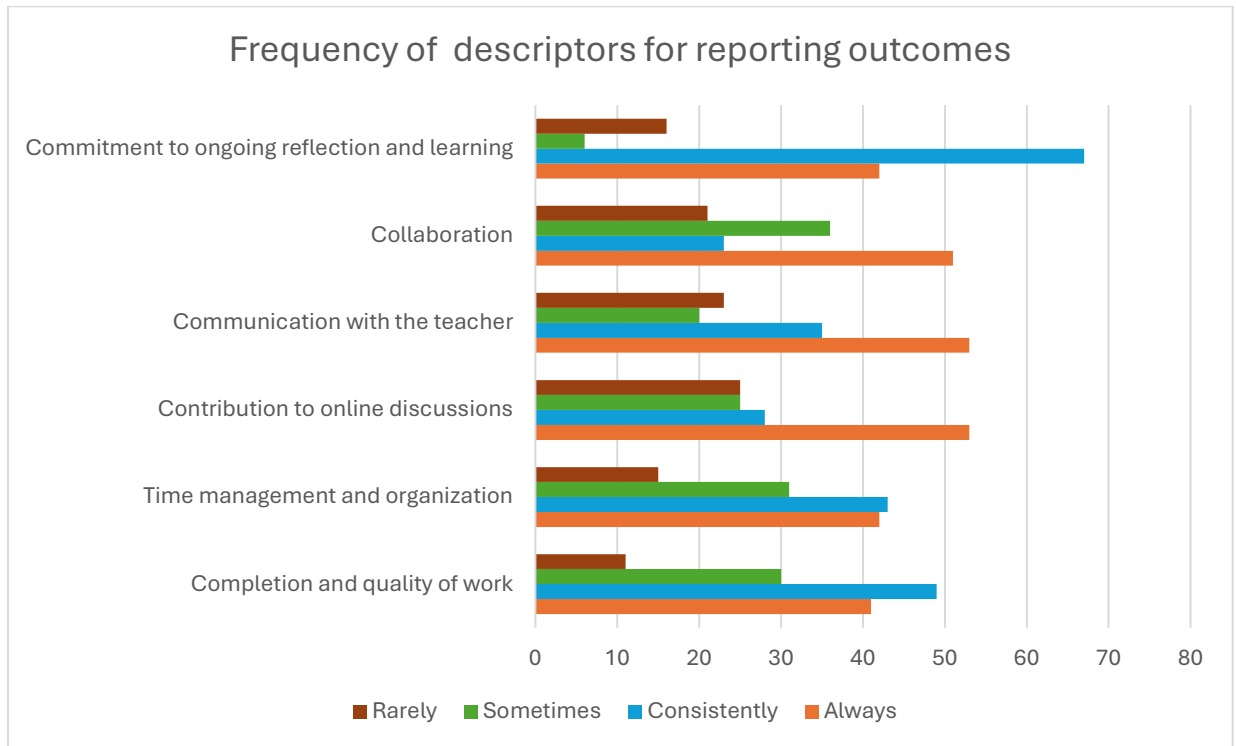
The strength of correlations was categorized using these thresholds:

- $|r| > 0.7$: Strong correlation
- $0.4 < |r| < 0.7$: Moderate correlation
- $0.2 < |r| < 0.4$: Weak correlation
- $|r| < 0.2$: Very weak correlation

There was a very strong positive correlation (0.93) between school assessments and Higher School Certificate results, indicating that school assessments were generally good predictors of Higher School Certificate performance. School assessments were slightly lower than Higher School Certificate results by about 0.95 marks, indicating that teachers in the Virtual Learning Collaborative may have been somewhat conservative in their assessments overall.

Figure 4-7: Frequency of Descriptors for Reporting Outcomes for Students Studying a Virtual Learning Course (2023-2024) shows the distribution of teachers' reports on Year 11 and Year 12 students' attitudes to learning using the descriptors of "Always", "Consistently", "Sometimes" and "Rarely".

Figure 4-7: Frequency of descriptors for reporting outcomes for students studying a virtual learning course (2023-2024)



Overall, teachers were more likely to describe an aspect of students’ behavior as occurring “Always” followed by “Consistently”. Several students with lower school assessments outperformed expectations on the Higher School Certificate, particularly those with attitude ratings of “Sometimes”. For students with ratings of “Sometimes” across attitude metrics, school assessments were consistently lower than actual Higher School Certificate results. A negative correlation was found between reported ratings for “Commitment to ongoing reflection and learning” and Higher School Certificate results.

Students rated “Sometimes” on reflection averaged 69.00 on their Higher School Certificate (much higher than their school assessment of 59.25), while those rated “Consistently” averaged just 58.00. This unexpected inconsistency could be explained by several factors, including that teachers might have rated struggling students higher on reflection if they perceived them to be trying hard or simply the reflection rating captured something different than intended.

Communication with the teacher had a moderate positive correlation (0.62) with Higher School Certificate results which indicated that effectively communicating with teachers improved students' understanding of the material.

There were 131 Year 11 and 12 student reports for 2023 and 2024 that were accessed from the four schools in the study. These reports to parents showed grades and attitudes to learning recorded by virtual learning teachers. Figure 4-8 shows the grade distribution (A-E) for all students in 2023-2024 in the Virtual Learning Collaborative case study schools, while Figure 4-9 breaks these down into individual schools. B was the most frequently awarded grade and Orchard Hills recorded the highest number of B grades.

Figure 4-8: Grade distribution (A-E) across all students in 2023-2024 in the Virtual Learning Collaborative case study schools

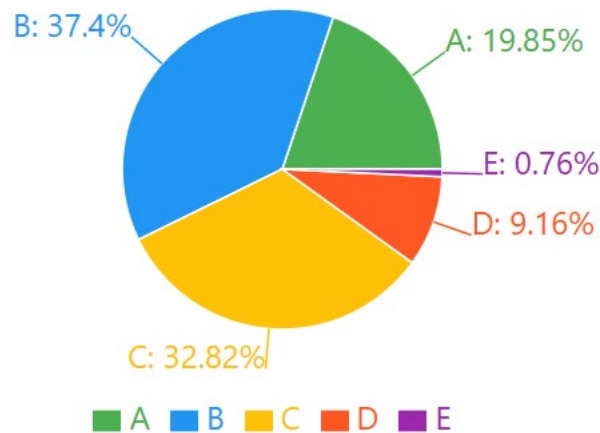
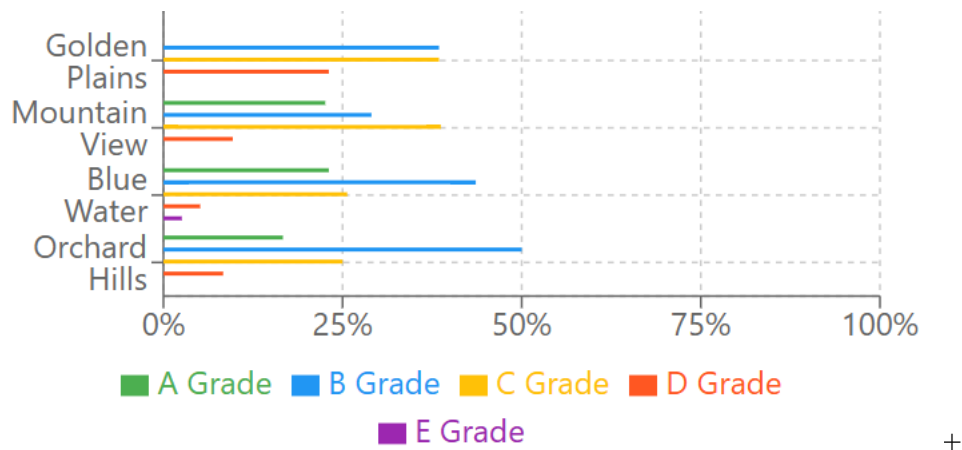


Figure 4-9: Grade distribution (A-E) by school in 2023-2024 in the Virtual Learning Collaborative case study schools



Mountain View had the highest percentage of C grades of all the schools and a higher proportion of C grades than B. Blue Water had a strong B grade performance while Orchard Hills had the highest concentration of B grades. Golden Plains students did not record any A grades and had the highest percentage of D grades. Year 12 Advanced Mathematics (with enrolled students from Orchard Hills) recorded a B grade for over 80% of the students. Year 12 Biology had the highest number of C grades in that Year 12 cohort. In the 131 reports, “Always” ratings for “Completion and Quality of Work” corresponded strongly with A grades (31.71%) and B grades (58.54%) and “Rarely” ratings showed a strong correlation with lower grades: D (36.36%) and E (9.09%). “Communication with Teacher” was a significant predictor of success as over 73% of students rated “Always” in this category received A or B grades, while 65% students rated “Rarely” received C or lower grades. “Time Management and Organisation” was a critical factor for high achievement as “Always” ratings correlated strongly with A grades (33.33%) and B grades (54.76%). While “Rarely” ratings in any category strongly predicted D and E grades, “Completion and quality of work” appeared to be a better predictor of A grades than other attitude categories. The analysis indicated a clear correlation between positive attitude descriptors and higher grades across all schools and courses, with time management and quality

of work being particularly important factors for success. There were significant variations, however, across schools in grading patterns, suggesting different grading approaches or expectations.

The findings across the four colleges in the case studies showed that specific learning behaviors and attitudes, particularly work completion, time management, and commitment to reflection, appeared to be more directly predictive of academic outcomes than other descriptors in the reports. The student response data from the Destinations and Expectations survey (Appendix D) and the Virtual Learning Collaborative Evaluation (Appendix E) together with the interview data indicated that virtual learning courses positively contributed to student well-being when they were aligned with career aspirations and when students valued the flexibility and independence that virtual learning courses offered. This pointed to the importance of framing virtual learning opportunities in terms of career relevance and helping students develop the self-regulation skills needed to benefit from the autonomous learning environment.

The interview data from principals and students revealed that the effectiveness of the Virtual Learning Collaborative was moderated by school-specific factors, such as student support structures rather than simply by learner characteristics, family background, digital access or geographic remoteness. The data supported the proposition that virtual learning was an important tool for educational equity in rural and regional areas to ensure course achievement, although its impact varied with its implementation and school context. This finding was particularly significant in the case study of Blue Water as that school data showed that virtual learning courses had a substantial impact on academic outcomes and career development even in an Outer Regional setting where digital learning could face greater challenges. It also reinforced that effective implementation may be more important than geographic location or digital inclusion

indices in determining virtual learning's influence on student outcomes, especially for postsecondary aspirations.

Higher School Certificate completion

In the Virtual Learning Collaborative in 2023 and 2024 there were 62 enrollments in ten virtual learning courses with 56 Year 11 and Year 12 students attending one of the four schools in the study. In 2024, the Year 12 students ($n=22$) graduated with their Higher School Certificate. The Higher School Certificate virtual learning courses were Biology, Business Studies, Economics, Advanced Mathematics and Extension 1 Mathematics. In the Higher School Certificate for 2024 there were 1,463 All-round Achievers (students who achieved the highest possible band in 10 or more units in their current study) (NSW Education Standards Authority, 2024). 231 of these students attended a systemic Catholic school in New South Wales (Australia), similar to the four schools in the study. Only eight of the 231 All-round Achievers, however, attended a Catholic school whose Index of Community Socio-Educational Advantage was in the same range as the schools in this study (998-1032). Of those eight students, only two were in an Inner Regional location (none were from an Outer Regional area). One of these two All-round Achievers was a student who had studied Extension 1 Mathematics through the Virtual Learning Collaborative. That exceptional achievement confirmed the quality of instruction in virtual learning courses in the Virtual Learning Collaborative as this result was a rare event in the schools in the study.

The data analysis provided preliminary evidence that virtual learning students showed higher academic buoyancy, higher Year 12 completion expectations and slightly higher university aspirations than the general school populations in the study. In the interviews, students and principals cited numerous examples that the asynchronous self-directed virtual learning

environment, nestled in academic communities of engagement, had supported students to successfully graduate with their Higher School Certificate and achieve at a standard that opened access to their preferred postsecondary pathway. Given this relationship, the data indicated that students in virtual learning environments generally demonstrated higher academic persistence and completion expectations than their peers in traditional classroom settings, although that experience may not be universal.

4.4 FEATURES AND NATURE OF THE VIRTUAL LEARNING COLLABORATIVE

The data analysis of the features and nature of the virtual learning model used the quantitative data collected from student surveys and the qualitative data from interviews with principals and students. It referenced Cope and Kalantzis' (2017) seven affordances of e-Learning to make sense of the students' experiences and principals' perceptions of the Virtual Learning Collaborative's impact on aspirations.

Findings from student surveys

From July until September 2024 students completing a course offered by the Virtual Learning Collaborative were invited to anonymously provide feedback on their course using the National Standards for Online Programs (Quality Matters et al., 2024) (see Appendix M: Virtual Learning Collaborative Course Review for Students). There were 61 responses and 37 of these were student feedback for Higher School Certificate courses. This was a 52% response rate. 20 students commented on their Year 11 course and 17 students contributed feedback for the Year 12 courses. Students used a Likert scale (1 for "Never" to 5 for "Always") to respond to different statements about the course design and instruction. Both Year 11 and Year 12 students responded very positively to the statements "Your teacher believes that you can learn a lot"

(4.45, 4.31 respectively) and “Mandatory documents are available and accessible including assessment schedules” (4.15, 4.35 respectively). “Time allocation for activities is generally appropriate” received the lowest average for both Year 11 (2.85) and Year 12 (3.59) indicating that the pace of work expected by teachers was incompatible with students’ expectations.

Higher ratings by students for virtual learning course content organization, notably that content was covered in sufficient depth, learning intentions were linked clearly to the content and success criteria were appropriate, correlated with better academic performance in those courses. Student ratings for technical courses such as Mathematics and Economics demonstrated a criticality in balancing challenge with support, indicating students preferred modelled responses for Mathematics and Biology and more collaborative opportunities for students in Economics and Business Studies. Averaging all areas, Year 12 students rated courses more highly (3.98) than Year 11 students (3.67). In particular, the Year 12 students’ average rating of 4 or higher was evident from more than half of the statements provided in the survey. Year 11 students’ average ratings for 15 of the possible 19 statements ranged between 3.25 and 3.90. The students identified areas such as scaffolding, checks for understanding, challenging activities and collaborative learning opportunities as areas for improvement. Students’ comments reflected these shortfalls in their expectations of the course design and offered the following remarks for stronger student-teacher relationships and engagement:

“I would like to see more lessons with the teacher, and more direction provided.”

“The teacher was very knowledgeable and made the content easier to understand. The only aspect that could be improved is more time with the teacher.”

“I would have preferred to have more online meetings.”

“I learn best when I have a teacher in front of me. I would have liked to see more teamwork.”

“I learn best when my teacher explains/steps through how to answer questions.”

Students’ responses in the evaluations (see Appendix E: Virtual Learning Collaborative Evaluation for the questions) indicated that the quality of the curriculum and instruction was

reasonably good, although not exceptional, and that the students may have benefited from stronger, more personalized support from their teachers. The data analysis indicated that the cognitive aspects of the students' virtual learning experiences were met but the affective (or emotional) and behavioral dimensions (the physical behaviors such as time allocations and workplace) were only marginally met for the majority of students.

The affordances of e-Learning

As described in Data Collection Instruments (see Chapter 3.7), Phase 2 of the research design collected qualitative data from interviews with principals and assistant principals ($n=6$) and students ($n=10$). This section of the reported results and findings from those interviews used an iterative and inductive coding using Cope and Kalantzis' (2017) affordances of e-Learning to present a narrative of the participants' experiences. The analysis is organized by the nominated affordance of e-Learning as theorized by Cope and Kalantzis.

Ubiquitous learning

The interview data revealed that the Virtual Learning Collaborative had opened access to specialized courses that aligned with students' tertiary pathways which addressed fundamental equity issues. The Principal of Mountain View articulated this most clearly, stating that regardless of "the post code or the enrollment of a student... they should have as much opportunity as any other student." This sentiment was echoed by the other three principals. The e-Learning affordance of ubiquitous learning extended beyond course access to include flexibility in learning arrangements. Golden Plains' Assistant Principal highlighted that the Virtual Learning Collaborative provided options for students who "don't want to leave [the area]," noting one student who "left for a year. Didn't want to be away from home, is now doing

the course online.” Students acknowledged that virtual learning transcended the physical limitations of the school environment.

Students identified some of the pitfalls of ubiquitous learning, which reflected Haniya and Rusch’s (2017) identification of online safety, teacher under-preparedness and the digital divide as key challenges, but the students noted they were not overly concerned about these drawbacks. One student reflected on the differences between remote learning during the global pandemic and her virtual learning experience:

Student: I remember during COVID, that's obviously not (a proper virtual course)... Like, it was a virtual course, but it was meant to be a physical course. If you're constantly like struggling to connect to the internet, and, you have to get on all the time, that's a bit demoralizing. But it was not what you expected. If you go into a course online, then, it increases your confidence and increases your focus, rather than detracting from it. A lot of people worry (about virtual courses) having (had) the COVID experience.

Interviewer: Yeah, absolutely. Did... did you have any of those problems in terms of internet connections and, you know, those technical problems?

Student: Uh, not really too much. After the first few weeks, it was, like, sort of more like, I can't find the work. Oh, it was this button on the sidebar I didn't know to click, or like... I mean, I don't know. The school Wi-Fi's pretty reliable normally. It was more just trying to find spots to take Zoom calls, or if we're all doing a Zoom call in the same room on a computer next to each other, you'd have to mute to try and avoid feedback and stuff.

The interview data from principals and students revealed that when students could learn unencumbered by spatial and temporal dimensions, it had directly impacted their postsecondary aspirations.

Active knowledge production

The analysis of student course reporting data found that “Completion and quality of work” had the strongest correlation with grades which indicated that active engagement with course content underpinned academic achievement. This correlated with active knowledge production which also appeared in principals’ descriptions as engagement behaviors and

assessment results. The interview data from principals and students corroborated student feedback that active knowledge production was closely tied to curriculum relevance to students' career directions. Students articulated in the interviews that when they were studying a virtual learning course that they perceived as critical to their enrollment in a tertiary course that qualified them for their preferred career, they reported higher engagement with the course work and teacher. All four schools' Tell Them From Me survey data identified a need for greater curriculum relevance connected to personalized career directions to support students' postsecondary pathways.

In the interviews students reported that when they felt successful in completing their virtual learning courses they expressed this as an improved academic self-concept and self-efficacy. This was connected to active knowledge production as they referred to completing the work as the catalyst for a sense of achievement. A student who had taken a virtual learning course on an accelerated pathway reflected that, "I did feel, like, quite capable doing it and stuff, and, you know, it was very self-driven". She added that "being able to do a course fully online definitely does increase your self-confidence". Students said that while learning was scaffolded and direct instruction was offered on a just-in-time basis, "the teacher wasn't there all the time" but active learning was occurring because students reported they became more disciplined, motivated and organized as they became more independent.

Multimodal meaning

Multimodal communication and presentation were inherent in the virtual learning model in this study. However, this affordance of e-Learning was not explicitly addressed in the interviews by principals. The Assistant Principal at Blue Water said that "students can easily manage the platform to know what they need to do". She also noted that "students generally

know that they can get help easily from their teachers and don't typically raise concerns about content issues". There were also comments and indications from principals that varying approaches to content presentation influenced student engagement and learning. At Golden Plains, the Assistant Principal noted that when a new Business Studies teacher started, student satisfaction increased, "I'm finding them a lot less stressful... since they've got K, they seem to be very happy, and they know exactly what they're doing and they're interactive." The Assistant Principal explained that the way content was presented with greater relevance to that community's settings and how interactions were structured around student need had significantly changed under the new teacher. The four principals who were interviewed made little explicit mention of how digital tools were leveraged to present content in varied forms beyond the basic utility of the virtual learning environment structure.

Students, on the other hand, offered a different perspective in the interviews coming from the user experience and clearly articulated how their digital skills and literacy had developed. They made explicit reference to their digital production skills and technologies, highlighting their technical skill acquisition, summarized in this comment by one student who said:

I feel like navigating around the computer, that can be Google, OneNote or anything, it's a good skill to have. Right now, for my assignment, we have to create an online resource, which can be a website, an article or something. And I haven't really done a website before. So that's a problem I'm starting to run into right now. But yeah, once I'm done, I'm sure I'll be able to know how to do the basics, how to make a website.

Course design using multimodal features was shown to be critical in the data as evidenced in the case of a demanding Mathematics course, where the principal said,

"The quality of those two teachers, we were so fortunate because they were both outstanding teachers. And they knew what they were doing. They knew the standards and those kids respected them and they wanted to work hard for them."

Those teachers' ability to compose learning, sequence experiences and enable students' autonomy and agency was known and consequential for improving student outcomes but there

were reports of a teacher who had difficulty in designing and guiding students in virtual learning. Johnson et al. (2023) claimed that designing instruction to support multimodal meaning demanded a shift in teachers' dispositions and while this was broadly evident in the interview data from principals and students it was not universal for the teachers in the Virtual Learning Collaborative.

Recursive feedback

Students reported that they appreciated intentionally designed scaffolds and quizzes that provided meaningful feedback on their learning. One student commented,

“I feel like in the lessons (there) is always a daily review. It touches on what you've done either last week or the lesson before, and it checks if you know you're understanding what you've learned, and if you don't, you can always go back, revise, and do it again.”

The interviews with principals suggested that recursive feedback was closely tied to relationship building in the virtual learning environment. At Blue Water, the Principal observed “very strong positive interaction” when a virtual learning teacher visited, noting that “the conversation was relational.” Similarly, principals recognized that face-to-face components like the Virtual Learning Camp were identified as important for establishing the relationships that facilitated effective feedback loops. Students also made these observations in the survey data. The principals highlighted the importance of timely, targeted feedback, with evidence suggesting recursive feedback was particularly critical for maintaining engagement and progress in virtual settings.

Students reported that sometimes the teacher was not available immediately for assistance so they would sometimes reach out to peers. Principals observed this created a productive collegial dynamic that supported a community of learners. The principals stated that this was beneficial for students and that students would regularly act on feedback from peers.

Students viewed these experiences as valuable preparation for tertiary education. A student mentioned that navigating this way of learning and relying on self and peer feedback would be advantageous for university applications:

“If I am doing a degree online... Or if I do it on campus, showing I’ve done a subject like that... and I did it early... and I was self-directed enough to have completed to, like, a high standard and everything, is important for uni.”

Collaborative intelligence

In the interviews with principals, they reported that when virtual learning classes consisted of students with similar aspirations, it reinforced their goals and created mutual support systems for students who were struggling with their career direction. The Principal at Orchard Hills emphasized that having a critical mass of students was crucial: “It wasn’t like they were the only one doing it... they could talk to each other about it... So they formed a cohesive little group.” This directly mirrored findings from other schools about the protective effects of motivated peer groups as shared by principals and students in surveys and interviews. Analyzing the merged data, collaborative intelligence extended beyond just student-to-student interactions to include broader school communities. At Mountain View, the Principal described creating a sense of belonging for students to multiple communities: “I belong to Mountain View, I belong to Year 11 or I belong to Year 12 and I belong to the Virtual Learning Collaborative.” The findings indicated that collaborative intelligence significantly influenced postsecondary aspirations by creating a community of practice oriented toward specific pathways.

In discussing the influence of these networks of connections, students and assistant principals stressed that reporting and assessment schedules in the Virtual Learning Collaborative needed to be more effectively integrated into school processes and calendars. Principals also said that students who had participated in training sessions and had met their virtual teachers prior to starting the course had benefitted from these participatory alliances compared with other cohorts.

Principals and students recognized how meaningful exchanges to improve students' digital literacy had strengthened peer-to-peer relationships, self-efficacy and communication with teachers, but it required intentional planning and more cooperative schedules that enabled students to effectively collaborate.

Metacognition

Metacognition is typically described as thinking about thinking which Blanken-Webb, (2017) described as composed of knowledge (self-knowing) and regulation (self-monitoring). In the interviews, all four principals identified the development of self-regulated learning skills as a crucial outcome of participation in virtual learning courses. The Assistant Principal from Golden Plains explained: "I feel with these VL (virtual learning) students, they're getting those skills... to be able to do online courses, to be organized, to self-motivate, to build a relationship with someone that is not actually there all the time." Self-regulation only partly explained students' achievements, as voiced by this student:

"I studied Maths via virtual learning and this subject is critical for engineering. I needed to get a good mark in maths and VL (virtual learning) was my primary teacher for the content. **However, it was me who put in the work to be able to get into the course I got into**".

That student recognized that cognitive knowledge had facilitated cognitive regulation, but it was their beliefs and understanding that had given them an epistemological framework to facilitate their way of knowing. Students repeatedly stated that they had gained greater self-discipline and independent learning skills in this virtual learning environment, shared in the following excerpts from the transcripts:

"It's **more discipline**, and because I do work, a bit of work at school. But I work at home. It's not something I usually do, but **this course has taught me to do that**".

"They **taught me a lot of discipline**, because I found out that if... the work wasn't being done properly and on time, I was falling behind and then it created more work and stress later on".

"Making sure I have all my books, making sure I've got somewhere organized for calls... **making sure I have all the work done**".

Principals identified how this metacognitive development appeared to transfer to postsecondary settings in that they recognized past students had successfully applied these skills at university.

A dominant theme that emerged in the interview and questionnaire data was that as students became more aware of their learning processes, they developed strategies to manage their education independently. Principals indicated that metacognitive skills development required intentional support. At Golden Plains, there was a recognition that teachers “need to put more effort into the explicit instruction about the expectations.” Similarly, at Blue Water, staff identified a need for “looking at how to develop the type of self-management skills that they [students] need for VL (virtual learning).” Students and principals did not directly link metacognitive reflection with postsecondary aspirations but they viewed it as a sustaining outcome from the virtual learning environment that had enabled students to make independent metacognitive leaps.

Differentiated learning

Findings from the interview data revealed that the Virtual Learning Collaborative’s capacity for differentiated learning served different student needs in distinct ways. For rural and regional students pursuing a tertiary pathway post-school, the Virtual Learning Collaborative provided access to advanced courses that aligned with specific career aspirations. The Principal at Orchard Hills highlighted Mathematics students who “needed strong mathematics for their careers,” while at Blue Water, the Principal described how virtual learning offered “extension to that student... Someone who needed it and we don’t have a good extension program here at school.” For students not bound for tertiary education, the Virtual Learning Collaborative offered different benefits. The Principal at Mountain View remarked that for some students, the Virtual Learning Collaborative was critical to completing their schooling, “providing them with

flexibility and choice and support”, and emphasized that “that’s better than Band 6s and, you know, 99 ATARs. It’s about that individual.”

This differentiation, it was revealed, extended to learning pace and style. At Golden Plains, the Assistant Principal described how students appreciated “that flexibility” where “if you have another assessment that you need to get done you can use your VL (virtual learning) time,” allowing students to manage their own learning priorities. The interviews also revealed challenges in matching students to appropriate virtual learning experiences. The Assistant Principal at Blue Water noted concerns that there were “students probably not at this stage of being able to manage themselves independently,” suggesting that differentiated preparation for virtual learning might be needed.

Students reported that while the content was not differentiated in the asynchronous learning environment, the routines and processes could be customized for students with additional learning needs. One student suggested that for students with mobility issues, virtual learning relieved them from having to transport their learning materials across school campuses which could be beneficial for their continuity of learning. Another student identified that students experiencing complex trauma such as anxiety in social settings may feel that virtual learning offered them a refuge, providing a peaceful, calm environment without the attendant behavioral issues from disengaged students. Another student noted that for students with additional learning needs that there could be better individualized support in virtual learning environments:

“There’s a lot of people around, and if they’re trying to get help from their support teacher, it’s kind of hard, because it’s a lot of people, a lot of talking and chatter. Yeah. But in the virtual learning course they could. It’s just them and their support teacher. They could learn better”.

Students generally reported that they recognized that the autonomy and agency afforded them in a virtual learning environment delivered a differentiated experience, summed up here in this student’s comment:

“I can spend time on stuff that I don’t understand yet, like when you’re in a class, you are kind of forced to go with what teacher says like you have to do. You have to watch this video. But if I already understand it, I can just skip it”.

Relationships

The data from the interviews with principals and students, supported by the students’ course review evaluations revealed the significance of relationships between teachers and students, and between virtual learning teachers and school communities was a protective factor against disengagement. The four principals observed that there was a shift in the balance of agency between the teachers and Virtual Learning Collaborative students and that this encouraged student-to-student problem-solving approaches when facing academic challenges. Rather than seeking immediate teacher intervention, it was reported that these students developed strategies for working through difficulties collaboratively with peers. The Principal from Blue Water said this created “a productive dynamic, a community of learners,” indicating this was both individually beneficial and community-building. This was distinguished from collaborative intelligence as it represented the qualitative or emotionally invested aspects of the relationships that had supported students’ well-being.

The findings reflected that when a student felt supported across affective, behavioral and cognitive dimensions, and they could access quality curriculum materials, then that student’s academic self-concept and social life world benefited. Analyzing the findings from the merged data, relationships as social capital appeared to reinforce a feedback loop between self-knowing and self-monitoring and were beneficial for students in the Virtual Learning Collaborative. The quality of relationships across the e-Learning ecology of the Virtual Learning Collaborative appeared significant in building social capital that supported individuals to learn and achieve.

4.5 SUMMARY OF FINDINGS

The results and findings of the study reported on student, teacher, and principals' experiences in four rural and regional schools in New South Wales (Australia) with concomitant societal perspectives. The data revealed that the Virtual Learning Collaborative significantly impacted students' education outcomes primarily through:

- Expanding access to specialized courses aligned with tertiary pathways (ubiquitous learning).
- Developing self-regulated learning skills that transferred to postsecondary settings (metacognitive reflection).
- Creating communities of practice with peers who shared similar aspirations (collaborative intelligence).
- Providing flexible pathways that accommodated diverse career goals (differentiated learning).

Using an interpretive approach, the data revealed the following findings:

Research Question 1 (Impact of the Virtual Learning Collaborative):

- Rural and regional students participating in the Virtual Learning Collaborative demonstrated increased postsecondary aspirations, particularly those pursuing tertiary pathways, compared to baseline rural and regional student aspiration patterns.
- Students in the Virtual Learning Collaborative achieved successful course outcomes as measured by completion rates, grade distributions, and Higher School Certificate performance, and this had supported their postsecondary pathway goals.

- The Virtual Learning Collaborative supported rural and regional students' attainment of their Higher School Certificate by providing access to required courses that would otherwise have been unavailable in-person at their schools.

Research Question 2 (Features and Nature of the Virtual Learning Model):

- The e-Learning affordances were observable and influential on student outcomes in the Virtual Learning Collaborative.
- As a consequence of the virtual learning experience, students reported improved persistence, problem-solving and independent work habits and measured as academic buoyancy.
- The quality of relationships between virtual learning teachers and students was a critical influence on students' 1 course engagement and achievement.
- The school climate, through the level of support and advocacy, moderated the effectiveness of the Virtual Learning Collaborative on educational outcomes at each school site.

Limitations and challenges in the model

Students identified barriers they had overcome in completing their courses in the Virtual Learning Collaborative. For example, a student shared that “the downside, obviously, is that, if you’re not self-motivated, you can just... ignore stuff a lot easier... And you just can’t get help quite as... quickly.” Another student said, virtual learning “is definitely not for everyone” and it required self-discipline that “negatively impacts a lot of kids... who don’t have the discipline or they don’t realize the need to do what needs to be done.” The student participants in this research had all persisted with their courses for at least two years so their observations regarding the need

to self-regulate reflected their own experiences and their observations of peers over that time, including those who had unenrolled from or discontinued virtual learning courses.

The findings also revealed problems with implementation and instructional designing of the coursework. In the course reviews and evaluations, students expressed frustration with workload management, with multiple comments requesting “more time with the teacher” and better pacing of activities. This indicated that course designers had underestimated the additional time students needed to process content independently or may have failed to account for the competing demands these students faced. Even though students recognized what they had gained from working independently, they consistently identified inadequate direct instruction and teacher availability as problems they needed to overcome to achieve well in their course. The research found that while cognitive aspects of learning were adequately addressed, the affective (emotional) and behavioral (physical behaviors such as time allocations) aspects were sometimes only marginally met for students.

The research revealed that many students initially lacked the self-regulation skills necessary for successful virtual learning. This indicated a systemic failure to adequately prepare some students for the demands of virtual learning environments before enrollment, leading to struggles with time management, organization, and independent learning. There were also comments implying some variation in teaching effectiveness within the Virtual Learning Collaborative, which indicated inconsistent teacher preparation and pedagogical approaches, with some teachers lacking the skills necessary for effective virtual instruction.

The research found that the impact of the Virtual Learning Collaborative was more complex for students who were looking at vocationally-orientated post-school pathways. Students pursuing vocational pathways reported that virtual learning did not influence their

career aspirations, suggesting the model was primarily effective for university-bound students. This revealed a significant equity problem where the Virtual Learning Collaborative better served students with tertiary aspirations while providing limited benefit for students pursuing vocational careers. A student on a non-Australian Tertiary Admissions Ranking pathway suggested that virtual learning short courses aligned with a vocational and education training pathway could benefit a wider range of students from rural and regional students. Whilst intentions for university study is seen as a proxy for high aspirations, it is a value-laden judgement that ignores and devalues the aspirations of students pursuing a trade and other work that promotes social cohesion in rural and regional communities. The data indicated that the scope of offerings in the Virtual Learning Collaborative could cater more broadly for the cross-section of students in rural and regional schools.

The research revealed coordination problems between the Virtual Learning Collaborative and existing school systems, particularly around scheduling, assessment, and communication. These administrative challenges created additional burdens for students and may have undermined the potential benefits of virtual learning access. The research identified that effective virtual learning required intentional support and explicit instruction about expectations, but schools varied significantly in their capacity to provide this support. Golden Plains and Blue Water both identified the need for developing self-management skills in students, suggesting that schools lacked systematic approaches to student preparation. This indicated potential problems with scaling the Virtual Learning Collaborative model to schools with fewer resources or less administrative capacity.

The initial findings that the Virtual Learning Collaborative enabled and boosted students' aspirational reach was positive but, wholistically, the findings indicated that the Virtual Learning Collaborative required:

- more comprehensive support systems,
- better teacher preparation,
- more equitable design for diverse postsecondary pathways, and
- stronger integration with existing school systems to achieve its equity and access priorities for rural and regional students.

4.6 CONCLUSION

This study of the Virtual Learning Collaborative established a link between e-Learning affordances and academic buoyancy which supported students' intentions to pursue further study after school. Students who experienced success in managing the challenges of virtual learning began to view themselves as capable of handling the demands of tertiary education. As one student noted, virtual learning would "hold you in such good stead for university," revealing how students connected their gains in their academic buoyancy to their readiness for future educational challenges. In some cases, the virtual learning experience significantly boosted students' academic self-concept and those students had altered their aspirations for future academic endeavors as they felt better equipped to meet their new academic goals. There did not appear to be a gendered bias in these results but given the small sample size this finding may not be generalizable and would require further investigation.

Eight of the ten students who participated in the interviews or completed a questionnaire reported that they had formed their intentions to study at university while at school and the course they studied through the Virtual Learning Collaborative had somewhat to greatly

influenced their postsecondary pathway. Not all students linked the disciplinary knowledge they had gained through their virtual learning course as critical to their career direction but all identified that their improved capacity to navigate the coursework, critically discern priorities to move them on in their learning and to collaborate in the cyber-social network of the Virtual Learning Collaborative was transformative.

The majority of students in the Virtual Learning Collaborative reported they were working towards gaining an Australian Tertiary Admissions Rank to gain admission to a university so it is likely that they held academic-related intentions prior to including a virtual learning course in their senior school package and this predisposed them to feel competent, value school and aspire to future academic goals. Five of the ten student respondents who participated in the interviews or completed the questionnaires had graduated with their Higher School Certificate and reported that they were all studying at a university in their preferred course. This was contrary to Fray et al.'s (2020) findings that showed that while regional and remote students were more likely to receive university offers than their metropolitan peers, they were also more likely to defer or take no action when university offers are made. These students from the Virtual Learning Collaborative did not act in this typical way. The findings from this study indicated that the Virtual Learning Collaborative had enabled a reflexive pedagogy that opened up the affordances of e-Learning (Cope & Kalantzis, 2017), supported by authentic relationships and that this boosted students' academic intentions and persistence through gains in their academic buoyancy.

CHAPTER 5: DISCUSSION AND CONCLUSION

The purpose of this research was to understand how the Virtual Learning Collaborative impacted students' course achievement, Higher School Certificate attainment and postsecondary aspirations. Situated in schools in rural and regional New South Wales (Australia), the study also sought to identify the features and nature of the model used for the Virtual Learning Collaborative that underpinned these educational outcomes. This chapter provides a summary of the findings from the study and discusses the key results and implications, opening recommendations for further research and action that are especially focused on practice and policy considerations for rural and regional schools. It also outlines limitations on the study that are significant for the scalability of some of the recommendations for practice and the overall conclusions.

5.1 SUMMARY OF FINDINGS

The results from the study confirmed that students who completed or were continuing courses in the Virtual Learning Collaborative reported postsecondary aspirations for further study and that they were able to study courses that were critical for their postsecondary pathways. For students who finished their courses in 2024, historical reporting data indicated that they completed their schooling, attained their Higher School Certificate and achieved course scores that had enabled them to access their preferred course at university. For students continuing in their courses, they reported increased academic self-confidence and persistence, which raised their expectations to successfully complete their studies, which then supported and raised their postsecondary aspirations. The quantitative analysis also indicated they exhibited a higher academic buoyancy than their peers who did not study a course in the Virtual Learning Collaborative.

In the findings from the study, Cope and Kalantzis' (2017) affordances of e-Learning were observable as impactful on students' outcomes, especially ubiquitous learning, metacognitive reflection, recursive feedback and differentiated learning. Contextual factors at each of the four sites moderated the impact of these affordances. For example, student preparedness for working independently in virtual learning environments was not consistent across the sites, and similarly teacher competencies for designing virtual learning programs that provided relevant and personalized learning differed and these inconsistencies moderated student outcomes at each of the four sites. Structures that supported authentic relationships in communities of practice where teachers nurtured students' internal drives to engage in learning emerged as a critical factor that could delimit rural and regional students' education outcomes. These behaviors and outcomes can be described using Bourdieu's (1986, 2004, 2005) Social Capital Theory.

Bourdieu (2004) defined *habitus* as engendering the thoughts, perceptions and actions of people in an acquired system that unconsciously governs an individual's life strategy and tactics. In the *habitus* of schools in rural and regional New South Wales (Australia), students strategize to make sense of their place through social practices imbibed through the hidden persuasion of lower expectations, limited opportunities, fiscal constraints and cultural capital. The Virtual Learning Collaborative represented a new form of capital in the educational field of the rural and regional schools in this study and disrupted the immanent structure of their social world. Affording students the opportunity to study a course outside of their school offerings with others beyond their immediate network opened up a series of exchanges which transformed the economic capital of the employment of a teacher and resources into students' social capital. Bourdieu (2005) explained that established order reproduces itself in systems through "the

dialectic of the objective chances and the agents' aspirations" (p. 164). The Virtual Learning Collaborative pushed back the limits on students' aspirations and the symbolic violence of inequities in rural and regional education outcomes, establishing a new order.

5.2 IMPLICATIONS AND RECOMMENDATIONS BASED ON THE FINDINGS

Stubborn inequities in education outcomes for rural and regional students have been reported internationally (Echazarra & Radinger, 2019), in Australia (Sullivan et al., 2018) and in New South Wales (Australia) (Beswick et al., 2023). Policy-makers and system leaders often problematize the rural and regional student's learning experience through the demographic and geographic considerations of place (Tieken & San Antonio, 2016). The blunt instrument of the Index of Community Socio-educational Advantage (Australian Curriculum, Assessment and Reporting Authority, 2013) correlates with under-performance in rural and regional schools and has been misunderstood as the reason behind poor education outcomes for students. Shucksmith and Brown (2016) identified this as a modernist perspective, which the authors related to the observable data that poorer education outcomes generally increased with distance from major cities. This overreach of the data was referred to in the literature reviewed as a metro-normative perspective (Fuqua & Roberts, 2021; J.-A. Reid, 2021). This study of the Virtual Learning Collaborative moved away from that narrow focus by being grounded in the social reality of the research sites using an ecological framing based on Bronfenbrenner's (1995) Ecologic Systems Theory and privileging the unique economic, geographic and demographic characteristics of each community using Green and Reid's (2021) Rural Social Space framework.

This study revealed that through the integration of technologies, socio-economic factors in these rural and regional sites were inconsequential to supporting students completing their school exit credential and accessing postsecondary pathways to work and study. The students'

experiences of virtual learning through the affective, behavioral and cognitive dimensions of their communities boosted their academic confidence and academic buoyancy and enabled them to achieve in their course, attain their exit credential and access their post-school pathway. In the analysis, academic buoyancy emerged as the key mediating factor between virtual learning participation and improved outcomes and made a novel theoretical contribution to addressing the rural-urban education gap in a virtual learning environment.

The findings in this study highlighted salient factors to inform school practice that would enable the formation of academic intentions of rural and regional students and promote behaviors and motivations that endure in postsecondary contexts. The most effective features of the Virtual Learning Collaborative identified across all four schools included:

1. High-quality teaching with strong teacher-student relationships (supported by recursive feedback).
2. Structured physical environments that balanced independence with accountability (promoting active knowledge production).
3. Strategic grouping of students to create supportive peer communities (leveraging collaborative intelligence).
4. Development of self-regulation skills (developing metacognitive reflection).
5. Face-to-face components that supplemented virtual learning (strengthening recursive feedback and collaborative intelligence).
6. Alignment with school systems including assessment schedules and support structures (facilitating active knowledge production).

These features contributed to improved educational outcomes by:

- Providing access to courses otherwise unavailable (addressing equity concerns).

- Developing transferable self-regulation skills (preparing for postsecondary success).
- Creating supportive learning communities (increasing engagement and persistence).
- Offering flexibility in learning arrangements (accommodating diverse student needs).

The analysis indicated that maximizing the positive impact of the Virtual Learning Collaborative required conscious attention to all seven of Cope and Kalantzis' (2017) affordances of e-Learning, with particular emphasis on supporting ubiquitous learning, metacognitive reflection, facilitating collaborative intelligence, and ensuring robust recursive feedback mechanisms. When these affordances were effectively leveraged, the Virtual Learning Collaborative demonstrably improved educational opportunities for rural and regional students, supporting the attainment of their school exit credentials and strengthening their postsecondary aspirations and readiness.

Providing access to courses otherwise unavailable and developing students' self-regulation skills applicable to higher education enabled and boosted aspirations and removed or softened perceived barriers, such as financial considerations, to postsecondary pathways. It also moved away from the dualism often presented to students to either stay in their community or go, as virtual learning afforded students the possibility of learning anywhere, anytime. Finance was a dominant theme in the literature reviewed as overshadowing and limiting student aspirations (Fray et al., 2020). For example, Abbott-Chapman et al.'s (2017) study showed that rural and regional communities experienced financial risk more acutely, so these findings that the Virtual Learning Collaborative provided broader curriculum offerings and built academic buoyancy was significant for a distributive justice agenda. Addressing the criticisms of the program's implementation of needing stronger support systems for students and comprehensive professional learning for teachers could further strengthen its impact on students' aspirations.

5.3 POLICY IMPLICATIONS

The Virtual Learning Collaborative provided access to academic cultural capital and social networks previously unavailable in those rural and regional contexts. Applying Bourdieu's (1986) Social Capital Theory, the Virtual Learning Collaborative disrupted the structural determinism of the rural and regional *habitus* as it provided low-cost access to a high-value educational experience. It established new networks and relationships which moved beyond the geographical limitations and affected the students' academic buoyancy, increasing it beyond that of the general population at each of the four schools in the study. There are several implications for future research and practice stemming from this finding, noting that Bostwick et al. (2022) found that increasing academic buoyancy had long-lasting impacts for students. Students reported that they had identified academic adversity and in the absence of a teacher, they utilized peer networks and adapted their thoughts, behaviors and emotional responses to overcome that adversity. This increase in academic buoyancy was an unintended consequence of the program design. There is potential for this to become an explicit goal for students to develop psychological flexibility in order to promote greater academic buoyancy and alleviate stress by normalizing the experience of adversity by encouraging problem-solving capabilities. Highlighting to students the adaptations that virtual learning encourages through cognitive, affective and emotional responses that promote self-regulation would affect successful outcomes and optimize students' academic buoyancy over time. A policy response should also emphasize to students that critical in this development of academic buoyancy was contributing to cooperative peer networks (collaborative intelligence) and that while teacher support made explicit the learning goals, it established the primacy of student motivation as the decider in engaging in course work. Critical to this understanding was that the participants were senior

students and emerging adults with a growing appreciation for developing an independent and self-reliant approach to their life after school.

While the Virtual Learning Collaborative addressed equity concerns for tertiary-bound students by providing rigorous courses that supported academic pathways, it did not address the vocational pathway gap. Without careful consideration of equity considerations for all students in rural and regional schools, policies to develop the Virtual Learning Collaborative could unintentionally reproduce existing inequalities between vocational and tertiary-bound students. Wholistically, capital distribution should remain equitable in supporting student pathways regardless of a vocational or academic pursuit and the Virtual Learning Collaborative should be situated as part of a system approach to support improved education outcomes for all students in rural and regional areas.

In the quantitative analysis of Tell Them From Me (The Learning Bar, 2024) whole school data from the four schools in the study, senior students reported a decline in curriculum relevance in their studies. When this was reported in the interviews principals supported this finding that students needed to have access to more explicit and personalized information about career pathways. They also recommended that as the Virtual Learning Collaborative was able to operate across multiple schools, it was well-positioned to initiate a system-wide response to provide career relevant curriculum and assessment that reflected localized contexts. This correlated with earlier research, in particular Beswick et al.'s (2023) recommendations, which could be operationalized through the Virtual Learning Collaborative. A system-wide policy would include:

- Ensuring career advice includes a focus on local industry needs and locally available post-school options.

- Schools engaging with alumni to articulate their post-school pathways and provide role-models.
- Schools accessing university orientation programs that enable students to familiarize themselves with university, careers, and university life.

The findings from the study also revealed implications for policy development to support a targeted professional learning course for teachers that emphasized course design principles which explicitly integrate knowledge and understanding of Cope and Kalantzis' (2017) affordances of e-Learning. Also relevant to course design, students reported in the survey data and in the interviews that they would benefit from more direct contact with their virtual teacher and better coordination with schools which would support stronger student-teacher relationships and engagement.

The practice and system recommendations discussed above offer strategic changes that ensure the sustainability of the Virtual Learning Collaborative and its ability to support students in rural and regional areas. Establishing a Rural Education Research Center within the Catholic Archdiocese of Canberra Goulburn Education would broaden this focus beyond the Virtual Learning Collaborative. This would be a transformative initiative that could pilot programs testing new approaches to rural education delivery, enter into partnership models with universities and industry, provide tailored teacher professional learning for rural contexts and initiate community engagement strategies for raising aspirations. The Rural Education Research Center could specifically:

- Conduct rigorous research on rural Catholic education outcomes
- Develop and test evidence-based interventions for rural and regional contexts
- Inform state and federal rural education policy.

5.4 LIMITATIONS

While this research provided valuable insights into the impact of the Virtual Learning Collaborative on rural and regional students' educational outcomes, several important limitations must be acknowledged that constrain the generalizability and scope of the findings.

Sample size and representativeness

The qualitative component of this study relied on a relatively small sample of participants: four principals, two assistant principals and ten students across four schools. While this sample size was pragmatically determined by the Virtual Learning Collaborative's limited enrollment, it restricted the statistical power and generalizability of the findings. The quantitative data was more robust with 131 student reports and various survey responses but was still constrained by the small total population of Virtual Learning Collaborative participants ($n=56$ students across the four schools). This sample size limitation was particularly significant when attempting to draw conclusions about subgroups, such as students pursuing different postsecondary pathways or those from varying socioeconomic backgrounds.

Selection bias

A critical limitation of this study was the inherent selection bias toward academically successful students. All interviewed students and the majority of survey respondents were those who had persisted with and successfully completed their virtual learning courses. This created a significant bias as the study inadvertently focused on students who were already positioned for educational success, potentially possessing the cultural and social capital necessary to navigate virtual learning environments effectively. Through Bourdieu's (1986) Social Capital Theory lens, this limitation indicated that the research may have primarily captured the experiences of

students whose existing *habitus* aligned with the demands of autonomous, technology-mediated learning.

The finding that maternal education levels appeared more predictive of student success further underscores this limitation. The study sample may have over-represented students from families with higher levels of cultural capital, as evidenced by the fact that nine of ten interviewed students were pursuing bachelor's degrees which was significantly higher than the 38% reported in broader post-school destination surveys (Centre for Education Statistics and Evaluation, 2025). This bias limited the study's ability to understand how virtual learning might impact students from families with lower levels of educational capital or those whose cultural backgrounds may not align with the implicit expectations of virtual learning environments.

Temporal and geographical constraints

The research captured students' experiences at a specific point in their educational journey, with limited long-term follow-up on postsecondary outcomes and capital accumulation processes. While some 2024 graduates were tracked into their university experiences, the study lacked comprehensive longitudinal data to assess whether the observed gains in academic buoyancy and aspirations translated into sustained postsecondary success. This temporal limitation is particularly significant given Bourdieu's (1986) emphasis on the long-term processes of capital accumulation and *habitus* formation.

The research was conducted exclusively within the New South Wales (Australia) Catholic Archdiocese of Canberra Goulburn education system, limiting its applicability to other Australian states or international contexts with different educational structures, rural characteristics, or technological infrastructures. The four participating schools, while representing different levels of regional classification (Inner Regional and Outer Regional),

shared similar socioeconomic profiles with Index of Community Socio-Educational Advantage scores clustered around the national average (1003-1032). That narrow geographic and socioeconomic range limited the study's ability to understand how virtual learning might function in more diverse rural contexts or communities with significantly different capital configurations. Furthermore, all participating schools were systemic Catholic schools, which have specific organizational cultures, values, and support structures that influenced virtual learning implementation. The findings may not translate to government schools or independent schools with different organizational contexts and resource allocations.

Implications for interpretation

While the mixed methods approach provided valuable triangulation of data sources, several methodological limitations constrained the interpretation of findings. The academic buoyancy calculations, while grounded in established frameworks, required adaptation due to different survey instruments across schools and limited response rates in some categories. These limitations collectively indicated that the findings of this study are most applicable to academically oriented rural students who possessed sufficient cultural and social capital to succeed in autonomous learning environments. The research may have limited insights to offer about virtual learning's potential for students who do not fit this profile or who face more significant barriers to educational engagement.

Despite these constraints, the study's findings provided valuable insights into the mechanisms through which virtual learning can support educational aspirations and outcomes for rural and regional students. Future research, however, must address these limitations through more diverse sampling strategies, longer-term follow-up studies, and theoretical frameworks that better recognize the assets and forms of capital present in rural and regional communities. The

limitations also revealed the need for virtual learning programs to be designed with explicit attention to equity and inclusion, ensuring they do not inadvertently reproduce existing educational inequalities by favoring students who already possess the capital necessary for success in traditional academic contexts.

5.5 FUTURE RESEARCH DIRECTIONS

The findings of this study opened several critical avenues for future research that could address the identified limitations while advancing understanding of virtual learning's role in closing the rural-urban education gap.

These could include:

- longitudinal studies that track students through their postsecondary transitions to examine whether the observed gains in academic buoyancy and aspirations translate into sustained educational and career success, particularly for first-in-family university students navigating the complex process of capital conversion in higher education contexts.
- research specifically focused on students pursuing vocational pathways, employing Bourdieu's framework to understand what forms of capital virtual learning could build for vocational careers, and how program design might better serve students whose aspirations lie outside traditional academic trajectories.
- future studies which employ more diverse sampling strategies that intentionally include students from families with varying levels of cultural capital, those who discontinued virtual learning, and schools with different socio-economic profiles to better understand the conditions under which virtual learning reproduces, rather than disrupts, existing educational inequalities.

5.6 CONCLUSION

This study began with a fundamental question about providing equitable outcomes for rural and regional students compared with their metropolitan peers. The evidence from the research data demonstrated that virtual learning interrupted geographical structural determinism through the affordances of e-Learning (Cope and Kalantzis, 2017) and increased academic buoyancy, but it was not the panacea for addressing rural and regional education inequity. One of the significant findings was that authentic relationships between teachers and students, and among students themselves, served as protective factors against disengagement and were essential for building the social capital that supported learning and aspirational development. These relationships functioned differently from traditional classrooms in virtual learning environments requiring intentional design and ongoing cultivation. When students felt supported across affective, behavioral, and cognitive dimensions, their academic self-concept and well-being benefited, creating a positive feedback loop that reinforced their persistence and achievement.

This finding challenged common assumptions about virtual learning as an impersonal, technology-driven educational delivery mode. Instead, the research revealed virtual learning as fundamentally relational, requiring teachers to engage a reflexive pedagogy to build meaningful connections across digital spaces and create communities of practice that transcended geographical boundaries. The principals in this study reported that the success of the Virtual Learning Collaborative was dependent not on technology but the teachers who understood how to create engaging, supportive virtual learning environments and students who felt connected to both their virtual learning community and their local school context.

The findings for the study indicated that the question is not whether virtual learning can close the rural-urban education gap, but how it can be designed and implemented to serve all rural and regional students equitably. The Virtual Learning Collaborative showed that when virtual learning is purposefully designed, adequately supported, and embedded within resourced school communities, it can open new educational possibilities for rural and regional students. Realizing this potential, however, requires ongoing commitment to equity, relationships, and the recognition that rural and regional students need access to courses and career advice that align with their aspirations and their connections to place. Virtual learning, when implemented with attention to equity and relationships, presents a critical tool for democratizing education in rural and regional areas but more strategic partnerships with communities, universities and industry are needed to empower rural and regional students to pursue their aspirations.

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APPENDIX A: NATIONAL STANDARDS FOR QUALITY ONLINE PROGRAMS

Taken from National Standards for Quality Online Programs (Quality Matters et al., 2024).

<i>Standard</i>	<i>Descriptor</i>
A	Mission Statement
	A mission statement of a quality program clearly conveys its purpose and goals. It serves as the basis for the program’s day-to-day operations, as well as a guide for its strategic plans for the future. Communication between—and buy-in from—stakeholders is a critical component of a mission statement.
B	Governance
	A quality program will have a clear governance structure with transparent roles and responsibilities designed to ensure long-term success and sustainability.
C	Leadership
	The leadership of a quality online program is accountable to the program’s governance body and is responsible for setting and meeting the operational and strategic goals in support of the program’s mission and vision statements.
D	Planning
	A quality program engages in regular strategic planning in order to reflect upon and improve organizational effectiveness.
E	Organizational Staff
	A quality online program has appropriate levels of qualified, well-trained, and supported staff who have the resources needed to achieve personal and organizational goals.
F	Financial and Material Resources
	A quality online program plans for and expends financial and material resources using sound business practices to accomplish the organization’s mission and vision.
G	Equity and Access
	A quality online program’s policies and practices support students’ ability to access the program. Accommodations are available to meet a variety of student needs.
H	Integrity and Accountability
	In a quality online program, leadership is transparent in its management of the program, providing regular and timely information on progress towards attainment of goals, alignment with policies and standards, and achievement of student learning outcomes to all stakeholders.
I	Curriculum and Course Design
	A quality online program will adopt and implement instructional design methods that enable effective online instruction for both institutionally developed courses as well as licensed content from other sources.

<i>Standard</i>	<i>Descriptor</i>
<i>J</i>	Instruction A quality online program takes a comprehensive and integrated approach to ensuring excellent teaching for its students.
<i>K</i>	Assessment and Learner Performance A quality online learning program values positive learner outcomes and takes a comprehensive, integrated approach to measuring and monitoring progress toward defined learning objectives.
<i>L</i>	Faculty and Staff Support A quality online program supports faculty and staff by providing mentoring, technical assistance, and timely professional development.
<i>M</i>	Learner and Parent/ Guardian Support A quality online program provides learner and parent/guardian support services to address the various needs of learners at different levels within the organization. The levels of support are appropriate and adequate for learner success.
<i>N</i>	Program Evaluation A quality online program recognizes the value of program evaluation. Program evaluation is both internal and external and informs all processes that affect teaching and learning. Internal evaluations often are more informal in nature and may provide immediate feedback on a targeted area of inquiry. External program evaluations typically look at the entire program from an objective perspective that will bring additional credibility to the results.

APPENDIX B: EPOCH MEASURE OF ADOLESCENT WELL-BEING

The EPOCH Measure of Adolescent Well-being (Kern et al., 2016)

Measure Overview

In his 2011 book *Flourish*, Dr. Martin Seligman, Distinguished Professor of Psychology at the University of Pennsylvania and founder of the field of positive psychology, defined 5 pillars of well-being, PERMA (positive emotion, engagement, relationships, meaning, accomplishment). In applying this model to youth, Kern et al. (2016) adjusted the model to be developmentally appropriate. The resulting model consists of five different positive characteristics that together support higher levels of well-being: engagement, perseverance, optimism, connectedness, and happiness.

E = Engagement

Engagement refers to being absorbed, interested, and involved in an activity or the world itself. Very high levels of engagement are known as a state called “flow”, in which you are so completely absorbed in an activity that you lose all sense of time.

P = Perseverance

Perseverance refers to having the tenacity to stick with things and pursue a goal, despite any challenges that occur. You finish things that you start, even if it takes awhile. When the going gets tough, the tough get going.

O = Optimism

Optimism refers to having a sense of hope and confidence about the future. It involves generally taking a favorable view of things. Negative events are seen as temporary and specific to the situation – believing that things will work out in a good way.

C = Connectedness

Connectedness refers to feeling loved, supported, and valued by others. It’s more than simply having people in your life, but also feeling close to others.

H = Happiness

Happiness is a general feeling of happiness, cheer, and contentment with life. You might not feel happy all the time, but you tend to feel generally content with life.

Across domains, each item is scored on a 1 to 5 scale (almost never/ not at all like me = 1; almost always/ very much like me = 5). Scores are computed for each domain as the average of the four items, and results can be presented as a profile across domains (see sample image below).

That is:

Engagement =	mean (E1,E2,E3,E4)
Perseverance =	mean (P1,P2,P3,P4)
Optimism =	mean (O1,O2,O3,O4)
Connectedness =	mean (C1,C2,C3,C4)
Happiness =	mean (H1,H2,H3,H4)

Scoring EPOCH

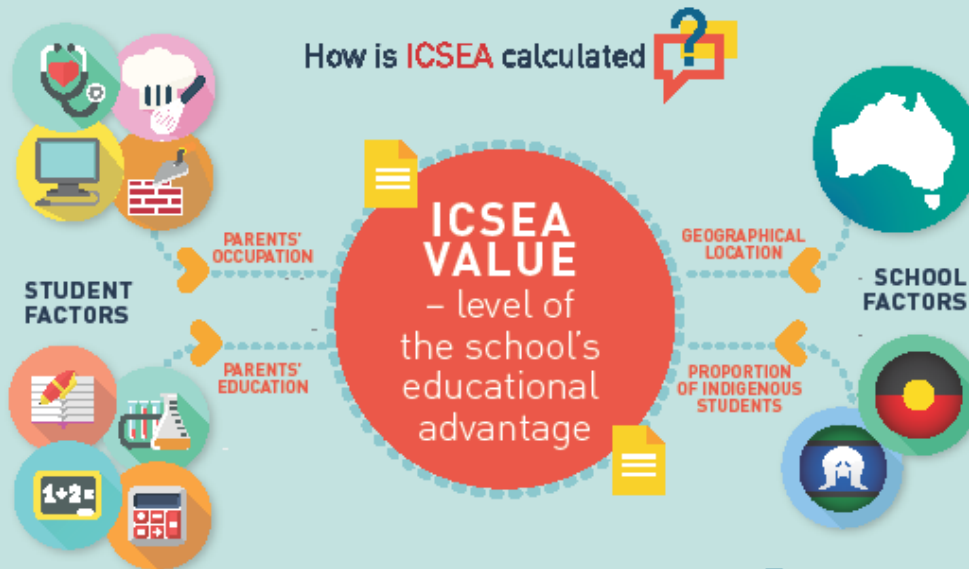
ITEM	QUESTION
C1	When something good happens to me, I have people who I like to share the good news with.
P1	I finish whatever I begin.
O1	I am optimistic about my future.
H1	I feel happy.
E1	When I do an activity, I enjoy it so much that I lose track of time.
H2	I have a lot of fun.
E2	I get completely absorbed in what I am doing.
H3	I love life.
P2	I keep at my schoolwork until I am done with it.
C2	When I have a problem, I have someone who will be there for me.
E3	I get so involved in activities that I forget about everything else.
E4	When I am learning something new, I lose track of how much time has passed.
O2	In uncertain times, I expect the best.
C3	There are people in my life who really care about me.
O3	I think good things are going to happen to me.
C4	I have friends that I really care about.
P3	Once I make a plan to get something done, I stick to it.
O4	I believe that things will work out, no matter how difficult they seem.
P4	I am a hard worker.
H4	I am a cheerful person.

WHAT DOES THE **ICSEA** VALUE MEAN?

ICSEA is a scale which allows for fair and reasonable comparisons among schools with similar students. ICSEA stands for the Index of Community Socio-Educational Advantage.

ICSEA provides an indication of the socio-educational backgrounds of students; it has nothing to do with the staff, school facilities or teaching programs at the school. ICSEA isn't a school rating.

How is **ICSEA** calculated?



What does the **ICSEA** value mean for you?

The lower the ICSEA value, the lower the level of educational advantage of students who go to this school.

ICSEA is set at an average of 1000. You can use this value as an ICSEA benchmark.

The higher the ICSEA value, the higher the level of educational advantage of students who go to this school.



For more information, see our comprehensive guide to understanding ICSEA on our website www.myschool.edu.au.



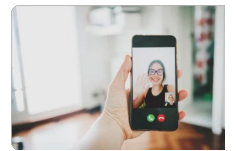
Destinations and Expectations

How has virtual learning influenced what you want to do when you finish school?



1 - Poll

Which school do you belong to?



2 - Poll

What is your gender?



3 - Poll

Which year of school are you in?



4 - Poll

What are your plans after school?



5 - Poll

What kind of career or job do you expect to have when you are about 30 years old?



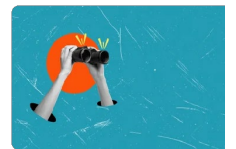
6 - Poll

What kind of career or job do you expect to have when you are about 30 years old? (additional choices)



7 - Poll

Has your school prepared you for your future career?



8 - Poll

Which specific career advice did you receive while at school?



9 - Poll

Will you obtain an Australian Tertiary Admission Rank (ATAR)?



10 - Poll

Which influenced you most in choosing your VL course?



11 - Poll

To what extent did your participation in virtual learning courses influence your career aspirations?



12 - Poll

How did virtual learning courses affect your understanding of potential career paths?



13 - Poll

Did VL courses help you develop any specific skills that you believe will be valuable in your future career?



14 - Poll

Has doing a VL course helped you move towards your career goals?



15 - Poll

Would you like to tell me more about what you're planning after school?



APPENDIX E: VIRTUAL LEARNING COLLABORATIVE EVALUATION

This form, available at <https://forms.office.com/r/ycyRQJE9U7>, uses the information published at <https://www.nsqol.org/the-standards/quality-online-programs/>

Instructions published to participants:

Thank you for agreeing to complete this evaluation. The data you contribute will be treated confidentially and will potentially benefit the quality of virtual learning for students.

The purpose of this evaluation is to establish how the Virtual Learning Collaborative aligns with the National Standards for Online Programs (Quality Matters, 2024). This data will be used to inform the interview guide for principals and students when finding out how the Virtual Learning Collaborative has influenced students' postsecondary aspirations. Research findings from the study may lead to enhancements in the virtual learning program, ultimately benefiting students and schools and could influence educational policy and practice beyond your immediate context.

In completing the questions, please use the guide, “National Standards for Quality Online Programs” (2019), available at <https://www.nsqol.org/the-standards/quality-online-programs/> and in hard copy which provides further information about each of the standards and the set of indicators, providing explanations and examples.

For each indicator listed under the Standard, choose from “Fully Met”, “Partially” or “Not Evident” to reflect your observation and/ or experience. If you have not observed or experienced any of the indicators listed for a standard, leave it unchecked.

If you have any problems or concerns in completing the evaluation, please contact me at wendyam2@illinois.edu

1. STANDARD A: MISSION STATEMENT

A mission statement of a quality program clearly conveys its purpose and goals. It serves as the basis for the program's day-to-day operations, as well as a guide for its strategic plans for the future. Communication between— and buy-in from—stakeholders is a critical component of a mission statement.

A1 The mission statement gives the purpose of the program or organization, is clear and concise in articulating who the program or organization is, what it does, and whom it serves.

A2 The mission statement indicates that learning is the focus of the program or organization.

A3 The mission statement demonstrates a commitment to measurable quality and accountability to stakeholders.

A4 The mission statement is made available to the public.

A5 The mission statement is reviewed periodically by program leadership.

2. STANDARD B: GOVERNANCE

A quality program will have a clear governance structure with transparent roles and responsibilities designed to ensure long-term success and sustainability.

B1 Governance members are knowledgeable about K-12 online learning.

B2 Governance members ensure the program or organization is adequately resourced through securing and/or approving resource allocations in a manner that aligns with the mission, vision, and strategic goals of the program or organization.

B3 Programmatic or organizational bylaws clearly define the unique roles of the governance and leadership teams. Each of these groups works within the established guidelines.

B4 Governance members collaborate with the leadership team who implements the policies and procedures that are in compliance with state educational statutes and/or regional accrediting agencies.

B5 The program bylaws articulate the organization to which it belongs, the roles and responsibilities of its board and leadership, and comply with all state and federal regulations.

3. STANDARD C: LEADERSHIP

The leadership of a quality online program is accountable to the program's governance body and is responsible for setting and meeting the operational and strategic goals in support of the program's mission and vision statements.

C1 The leadership team establishes annual program or organizational goals, implements action plans designed to meet or exceed goals, and monitors and communicates progress on goals to stakeholders.

C2 The leadership team maintains a disciplined knowledge of trends in its educational and business environment in order to inform budget projections.

C3 The leadership team provides a productive collaborative environment for learning and work.

C4 The leadership team verifies that measures are in place to ensure the quality, integrity, and validity of information.

C5 The leadership team develops and implements program or organizational policies and procedures that are reviewed and updated regularly.

4. STANDARD D: PLANNING

A quality program engages in regular strategic planning in order to reflect upon and improve organizational effectiveness.

D1 A strategic plan is developed and updated regularly to address long-term actions.

D2 The strategic plan addresses the requirements for resources that effectively and efficiently serve their learners and faculty, including curriculum, technology, academic support, professional development, and fiscal viability.

D3 Organizational goals are aligned to the approved strategic plan and updated annually.

D4 Organizational goals are shared and supported throughout the organization.

5. STANDARD E: ORGANIZATIONAL STAFF

A quality online program has appropriate levels of qualified, well-trained, and supported staff who have the resources needed to achieve personal and organizational goals.

E1 Sufficient qualified professional, administrative, and support staff are provided to achieve the organization's mission and annual goals.

E2 Sufficient organizational staff are provided to oversee the instructional learning environment.

E3 Ongoing training and support are provided to the staff to carry out the mission, vision, and goals of the program.

E4 Clearly defined individual and team roles and responsibilities are evident to help create a collegial team that provides effective delivery of quality education.

E5 Evaluations of staff and faculty occur on a regularly scheduled basis.

6. STANDARD F: FINANCIAL AND MATERIAL RESOURCES

A quality online program plans for and expends financial and material resources using sound business practices to accomplish the organization's mission and vision.

F1 Resources are managed in a responsible manner according to local, state, and/or federal budget regulations and accounting principles.

F2 Resources are adequate and allocated to help ensure sustainability over time, according to the organization's strategic plan, mission, and vision.

7. STANDARD G: EQUITY AND ACCESS

A quality online program's policies and practices support students' ability to access the program. Accommodations are available to meet a variety of student needs.

G1 Policies clearly state learner eligibility requirements for the program and are communicated to stakeholders.

G2 Program faculty and staff work with students and families to personalize programs and adhere to accommodations as dictated by local policies and laws.

G3 All learners are ensured equitable access to the program.

8. STANDARD H: INTEGRITY AND ACCOUNTABILITY

In a quality online program, leadership is transparent in its management of the program, providing regular and timely information on progress towards attainment of goals, alignment with policies and standards, and achievement of student learning outcomes to all stakeholders.

H1 Accurate information is disclosed to prospective and current stakeholders.

H2 The program meets or exceeds industry standards related to course rigor and diploma-completion requirements.

9. STANDARD I: CURRICULUM AND COURSE DESIGN

A quality online program will adopt and implement instructional design methods that enable effective online instruction for both institutionally developed courses as well as licensed content from other sources

- I1** The program has clearly stated educational goals.
- I2** The program clearly organizes course offerings in a way that stakeholders can easily navigate.
- I3** Courses included in the program integrate quality instructional materials to enable and enrich student learning.
- I4** Courses offered through the program utilize regularly evaluated technology that supports the learning goals and enhances the learning experience.
- I5** Courses included in the program contain content that aligns with appropriate learning standards and includes provisions for both intervention and accelerated learning opportunities.
- I6** Courses included in the program provide opportunities for interaction that support active learning.
- I7** Courses included in the program provide a variety of activities that include options for in-depth learning through authentic problem-solving and experience.
- I8** Courses offered through the program meet content copyright law and fair use guidelines.
- I9** Courses offered through the program are designed using research-based design principles, such as Universal Design for Learning (UDL), that improve access to learning for all participants.
- I10** Courses offered through the program include opportunities for both asynchronous and synchronous learning.

10. STANDARD J: INSTRUCTION

A quality online program takes a comprehensive and integrated approach to ensuring excellent teaching for its students.

- J1** The program adopts clear expectations for curriculum design and teaching practices that align with its stated vision, mission, principles, or values.
- J2** Instruction is guided by evidence-based practices.
- J3** Teachers incorporate a process of continual self-assessment, using learning analytics to inform changes in pedagogy and instructional practices.
- J4** Instruction is inherently inclusive for all learners.
- J5** The program implements strategies to ensure the academic integrity of course assignments and assessments in order to increase student accountability.

11. STANDARD K: ASSESSMENT AND LEARNER PERFORMANCE

A quality online learning program values positive learner outcomes and takes a comprehensive, integrated approach to measuring and monitoring progress toward defined learning objectives.

- K1** The program uses multiple methods to assess the degree to which stated learning goals are met.
- K2** Formative assessments are included that provide data for targeted remediation or intervention when needed.
- K3** Assessments are aligned to learning objectives.
- K4** The program provides standards for timely, effective feedback as an integral role of assessment.

12. STANDARD L: FACULTY AND STAFF SUPPORT

A quality online program supports faculty and staff by providing mentoring, technical assistance, and timely professional development.

- L1** The program provides and encourages participation in induction and mentoring programs.
- L2** Teachers are provided regular feedback regarding their performance and student achievement/progress.
- L3** The program provides a wide variety of professional development opportunities to faculty and staff, which are aligned to the National Standards for Quality Online Teaching.
- L4** The program provides professional development opportunities to guidance staff focused on student needs unique to online learning and the network of services available to support online learning.
- L5** The program provides teachers and staff with timely and effective technical support.

13. STANDARD M: LEARNER AND PARENT/GUARDIAN SUPPORT

A quality online program provides learner and parent/guardian support services to address the various needs of learners at different levels within the organization. The levels of support are appropriate and adequate for learner success.

M1 Learners are provided with an orientation to online learning technologies and successful online learning practices.

M2 The program provides academic services and academic advising to address learners' academic and developmental needs.

M3 The program provides accessibility support services that comply with special education policies and procedures.

M4 The program provides access to the learning management system(s), as well as all appropriate learning and assessment content.

M5 The program establishes standards for teacher communications with learners and parents/guardians.

M6 The program establishes standards for timely, effective technical support for learners.

M7 The program has guidance services and academic advising to support learners and parents/guardians to ensure the success of the online program from the decision-making process through the renewal process or graduation for all educational goals to be met.

APPENDIX F: CHECKLIST FOR THE USE OF INTERVIEWS

This checklist will be used by the independent facilitator for interviewing students and the researcher for interviewing principals. It is taken from Denscombe (2010, p. 195)

Checklist for the use of interviews	
When conducting interviews you should feel confident about answering 'yes' to the following questions: <input checked="" type="checkbox"/>	
1	Is it clear which type of interview is being used and why (structured, semi-structured or unstructured)? <input type="checkbox"/>
2	Is it clear whether the research is based on one-to-one interviews, group interviews or focus groups? <input type="checkbox"/>
3	Have field notes been written to provide supplementary information about the interaction during the interview? <input type="checkbox"/>
4	Have relevant details been collected about the context within which the interviews took place (location, prior events, ambience, etc.)? <input type="checkbox"/>
5	Has consideration been given to the effect of the recording equipment on the openness with which informants replied? <input type="checkbox"/>
6	During the interviews was the discussion monitored appropriately in terms of: <ul style="list-style-type: none">• informants' key points? <input type="checkbox"/>• reading between the lines of what was said? <input type="checkbox"/>• trying to identify any inconsistencies? <input type="checkbox"/>• being aware of the 'fob-off' answer? <input type="checkbox"/>• looking for boastful or exaggerated answers? <input type="checkbox"/>• looking for answers intended simply to please the interviewer? <input type="checkbox"/>
7	During the interviews were prompts, probes and checks used to gain worthwhile, detailed insights? <input type="checkbox"/>
8	Has consideration been given to the way the researcher's self-identity might have affected: <ul style="list-style-type: none">• the interaction during the interview? <input type="checkbox"/>• the interpretation of the data? <input type="checkbox"/>
9	In the case of interviews conducted via the Internet, has consideration been given to the impact of Internet research in terms of: <ul style="list-style-type: none">• the loss of visual clues during the interaction? <input type="checkbox"/>• the use of non-real-time communication? <input type="checkbox"/>

© M. Denscombe, *The Good Research Guide*. Open University Press.

APPENDIX G: PARENTAL PERMISSION

Parental Permission Document

Principal Investigator Name and Title: Professor William Cope

Department and Institution: Department of Education Policy, Organisation and Leadership at the College of Education, University of Illinois, Urbana-Champaign, IL, USA

Contact Information: Wendy Mockler Giles (m 0432 029 457 or wendyam2@illinois.edu)

KEY INFORMATION

This letter explains what this research involves so that you can opt-out if you would not like your child to participate:

1. Consent is being sought for research, and participation is voluntary.
2. We would like to interview students for 30 minutes to learn more about how virtual learning has influenced their life plan.
3. There are minimal risks.
4. This research could help future students in rural and regional schools.

BACKGROUND

Students are being asked to take part in a research study. Before that happens with your informed consent, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you want your child to take part in this study. If you do not want your child involved, please sign and return the consent on the last page.

We are asking students to be in this research study because we want to learn more about how virtual learning has influenced their life plan. We want students to be in this study because they can tell us firsthand about their experiences studying in the VLC and give us some honest and important feedback.

STUDY PROCEDURE

If you and your child agree to be in this research study, this is what will happen:

- We will interview your child.
- We will ask them to tell us about their plans for after school and their experiences as a student in the VLC.
- We will look at their answers to find out what has influenced them in deciding where they want to go after school.
- They will be in the study for 30 minutes.

RISKS

The risks of this study are minimal. Students may feel upset thinking about or talking about personal information related to school and their choices for after school. These risks are similar to those they may experience when discussing personal information with others. If they feel upset from this experience, they can tell the researcher, and she will tell them about resources available to help.

BENEFITS

We cannot promise any direct benefit for taking part in this study. However, we hope the information we get from this study may help develop a greater understanding of what students in rural and regional areas need in the future.

HOW WILL THE RESEARCHERS PROTECT MY INFORMATION?

All personal information will be kept secure and confidential. The recording and transcription from interviews will not be shared and will be stored separately from the rest of the research data on the researcher's computer. Only de-identified transcripts of interviews/focus groups, etc. will be shared with other researchers.

WHO WILL HAVE ACCESS TO THE INFORMATION COLLECTED DURING THIS RESEARCH STUDY?

Efforts will be made to limit the use and disclosure of your child's personal information, including research study records, to people who have a need to review this information. We cannot promise complete secrecy.

There are reasons why information about your child may be used or seen by other people beyond the research team during or after this study. Examples include:

- ***University officials, government officials, study funders, auditors, and the Institutional Review Board may need access to the study information to make sure the study is done in a safe and appropriate manner.***

If we learn about current or ongoing child abuse or neglect, we may be required or permitted by law or policy to report this information to authorities.

HOW MIGHT THE INFORMATION COLLECTED IN THIS STUDY BE SHARED IN THE FUTURE?

We will keep the information we collect about your child during this research study for study recordkeeping. Your child's name and other information that can directly identify them will be stored securely and separately from the rest of the research information we collect from your child.

De-identified data from this study may be shared with the research community, with journals in which study results are published, and with databases and data repositories used for research. We will remove or code any personal information that could directly identify your child before the study data are shared. Despite these measures, we cannot guarantee the anonymity of your child's personal data.

PERSON TO CONTACT

If you have questions, complaints or concerns about this study, you can contact Wendy Mockler Giles at 0432 029 457. If you feel you have been harmed as a result of participation, please call Wendy who may be reached during business hours.

Institutional Review Board: If you have any questions about your rights as a research subject, including concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 217-333-2670 or e-mail OPRS at irb@illinois.edu. If you would like to complete a brief survey to provide OPRS feedback about your experiences as a research participant, please follow the link [here](#) or through a link on the OPRS website: <https://oprs.research.illinois.edu/>. You will have the option to provide feedback or concerns anonymously or you may provide your name and contact information for follow-up purposes.

VOLUNTARY PARTICIPATION

Research studies include only people who choose to take part. You can tell us that you don't want your child to be in this study. They can start the study and then choose to stop the study later. This will not affect their or your relationship with the investigator.

CONSENT

By signing this consent form, I confirm I have read the information in this parental permission form and have had the opportunity to ask questions, and **I DO NOT CONSENT** to my child participating in the research.

Printed Name of Child

Printed Name of Parent/Guardian

Parent/Guardian's Signature

Date

WENDY MOCKLER GILES

Printed Name of Person Obtaining Consent



May 11, 2025

Signature of Person Obtaining Consent

Date

APPENDIX H: ASSENT FORM FOR STUDENTS

Assent to Participate in a Research Study

Who are we and what are we doing?

Wendy Mockler, the Virtual Learning Coordinator, is conducting research for her Doctor of Education through the University of Illinois, Urbana-Champaign, U.S. The study is about understanding how the Virtual Learning Collaborative (VLC) affects what rural and regional students want to do after school.

Why are we asking you to be in this research study?

We are asking you to be in this research study because we want to learn more about how virtual learning has influenced your life plan. We want you to be in this study because you can tell us firsthand about your experiences studying in the VLC and give us some honest and important feedback.

What happens in the research study?

If you decide to be in this research study and your parent or guardian agree, this is what will happen:

- We will interview you.
- We will ask you to tell us about your plans for after school and your experiences as a student in the VLC.
- We will look at your answers to find out what's influenced you in deciding where you want to go after school.
- You will be in the study for 30 minutes.

Will any part of the research study hurt you?

The topic is not likely to be upsetting or uncomfortable. However, if anything related to the questions does make you feel upset, you can stop taking part at any time. The school can also help by contacting your parents, teachers or counsellors in the school, or by giving them the names of other people to talk to such as Kids Helpline.

Will the research study help you or anyone else?

We do not know for sure if being in this research study will help you. It is possible that we could learn something to help other students living in rural and regional areas someday.

Who will see the information about you?

Only the researchers or others who are doing their jobs will be able to see the information about you from this research study. A summary (academic progress and survey information) will be shared with your school, Catholic Education Canberra Goulburn, and the University of Illinois Urbana-Champaign. The information collected during the study might also be shared and used for secondary research purposes to evaluate whether the analysis of the data is valid.

We will not tell anyone else that you are in the study, and we will talk about this information with you.

What if you have any questions about the research study?

It is okay to ask questions. If you don't understand something, you can ask Wendy Mockler. We want you to ask questions now and anytime you think of them. If you have a question later that you didn't think of now, you can email Wendy on wendyam2@illinois.edu or ask us the next time we see you.

Do you have to be in the research study?

You do not have to be in this study if you don't want to. Being in this study is up to you. No one will be upset if you don't want to do it. Even if you say yes now, you can change your mind later and tell us you want to stop.

You can take your time to decide. You can talk to your parent or guardian before you decide.

Agreeing to be in the study

If you voluntarily agree to be part of this study you need to read this information and sign your name below.

I was able to ask questions about this study. Signing my name at the bottom means that I agree to be in this study. My parent or guardian and I will be given a copy of this form after I have signed it.

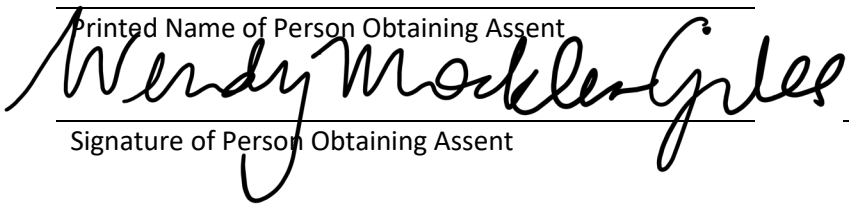
Printed Name

Sign your name on this line

Date

WENDY MOCKLER GILES

Printed Name of Person Obtaining Assent



April 27, 2025

Signature of Person Obtaining Assent

Date

The following should be completed by the study member conducting the assent process if the participant agrees to be in the study. Initial the appropriate selection:

_____ The participant is capable of reading the assent form and has signed above as documentation of assent to take part in this study.

_____ The participant is not capable of reading the assent form, but the information was verbally explained to him/her. The participant signed above as documentation of assent to take part in this study.

APPENDIX I: CONSENT FORM FOR STUDENTS WHO HAVE GRADUATED

Consent Document

Principal Investigator Name and Title: Professor William Cope

Department and Institution: Department of Education Policy, Organisation and Leadership at the College of Education, University of Illinois, Urbana-Champaign, IL, USA

Contact Information: Wendy Mockler Giles (m 0432 029 457 or wendyam2@illinois.edu)

KEY INFORMATION

This letter explains what this research involves so that you can provide informed consent if you would like to participate:

5. Consent is being sought for research, and participation is voluntary.
6. We would like to interview you for 30 minutes to learn more about how virtual learning has influenced your life plan.
7. There are minimal risks.
8. This research could help future students in rural and regional schools.

BACKGROUND

You are being asked to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you want to volunteer to take part in this study.

We are asking you to be in this research study because we want to learn more about how virtual learning has influenced your life plan. We want you to be in this study because you can tell us firsthand about your experiences studying in the VLC and give us some honest and important feedback.

STUDY PROCEDURE

If you decide to be in this research study and your parent or guardian agree, this is what will happen:

- We will interview you.
- We will ask you to tell us about your plans for after school and your experiences as a student in the VLC.
- We will look at your answers to find out what's influenced you in deciding where you want to go after school.
- You will be in the study for 30 minutes.

RISKS

The risks of this study are minimal. You may feel upset thinking about or talking about personal information related to school and your choices for after school. These risks are similar to those you experience when discussing personal information with others. If you feel upset from this experience, you can tell the researcher, and she will tell you about resources available to help.

BENEFITS

We cannot promise any direct benefit for taking part in this study. However, we hope the information we get from this study may help develop a greater understanding of what students in rural and regional areas need in the future.

HOW WILL THE RESEARCHERS PROTECT MY INFORMATION?

Your information will be kept secure and confidential. The recording and transcription from your interview will not be shared and will be stored separately from the rest of the research data on the researcher's computer. Only de-identified transcripts of interviews/focus groups, etc. will be shared with other researchers.

WHO WILL HAVE ACCESS TO THE INFORMATION COLLECTED DURING THIS RESEARCH STUDY?

Efforts will be made to limit the use and disclosure of your personal information, including research study records, to people who have a need to review this information. We cannot promise complete secrecy.

There are reasons why information about you may be used or seen by other people beyond the research team during or after this study. Examples include:

- ***University officials, government officials, study funders, auditors, and the Institutional Review Board may need access to the study information to make sure the study is done in a safe and appropriate manner.***

HOW MIGHT THE INFORMATION COLLECTED IN THIS STUDY BE SHARED IN THE FUTURE?

We will keep the information we collect about you during this research study for study recordkeeping until the completion of the study. After that it will be permanently deleted.

De-identified data from this study may be shared with the research community, with journals in which study results are published, and with databases and data repositories used for research. We will remove or code any personal information that could directly identify you before the study data are shared. Despite these measures, we cannot guarantee the anonymity of your personal data.

The results of this study could be shared in articles and presentations but will not include any information that identifies you.

PERSON TO CONTACT

If you have questions, complaints or concerns about this study, you can contact Wendy Mockler Giles at 0432 029 457. If you feel you have been harmed as a result of participation, please call Wendy who may be reached during business hours.

Institutional Review Board: If you have any questions about your rights as a research subject, including concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 217-333-2670 or e-mail OPRS at irb@illinois.edu. If you would like to complete a brief survey to provide OPRS feedback about your experiences as a research participant, please follow the link [here](#) or through a link on the OPRS website: <https://oprs.research.illinois.edu/>. You will have the option to provide feedback or concerns anonymously or you may provide your name and contact information for follow-up purposes.

VOLUNTARY PARTICIPATION

Research studies include only people who choose to take part. You can tell us that you don't want to be in this study. You can start the study and then choose to stop the study later. This will not affect your relationship with the investigator.

CONSENT

By signing this consent form, I confirm I have read the information in this consent form and have had the opportunity to ask questions. I will be given a signed copy of this consent form. I voluntarily agree to take part in this study.

Printed Name of Participant

Signature of Participant

Date

WENDY MOCKLER GILES

Printed Name of Person Obtaining Consent

Wendy Mockler Giles

Signature of Person Obtaining Consent

April 27, 2025

Date

APPENDIX J: INTERVIEW QUESTIONS FOR STUDENTS.

Opening the Interview:

- Student and school name
- Time and date of the interview
- Where the interview took place
- Length of the interview (planned time is 30-45 minutes)
- Where the digital recording is kept and the data safeguards in place (on MS Teams; deleted when the research is published)
- Introduction and purpose of the interview: *To provide information about how the Virtual Learning Collaborative impacts students' post-school destinations and aspirations.*
- Ensure the Consent form is understood.
- Ask for permission to record.

A. Current status	
<p>Interviewer note:</p> <p>These interview questions include questions for both 2024 Y12 completers and 2024 Y12 continuers (Y11). In some cases, you will need to ask the relevant question for the student you are addressing, for example Y12A1a is targeted at 2024 Y12 continuers (Y11) while Y12A1b is relevant for 2024 Y12 completers.</p>	
Y12A1a	<p>The first few questions are about what you're planning this year. To begin, do you expect to complete Year 12 this year?</p> <ol style="list-style-type: none"> 1. Yes 2. No, I will leave school before completing Year 12 3. No, I am doing the International Baccalaureate (IB) 4. No, I'm going to study somewhere other than school 5. Not sure 6. Prefer not to say
Y12A1b	<p>The first few questions are about what you've been doing since leaving school. To begin, did you complete Year 12 last year?</p> <ol style="list-style-type: none"> 1. Yes 2. No, I left school before completing Year 12 3. No, I am doing the International Baccalaureate (IB) 4. No, I'm still studying at school 5. Not sure 6. Prefer not to say

Y12A2a	<p>Are you currently looking/ plan to look for work?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say
Y12A2b	<p>Do you currently have/ plan to get a paid job?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say
<p>Interviewer note to respondent:</p> <p>Paid work includes apprenticeships, traineeships, self-employment, family business or farm, as long as work is paid. Casual, intermittent work is also included.</p>	
Y12A2c	<p>Is/ will your paid job (be) part of an apprenticeship or traineeship?</p> <ol style="list-style-type: none"> 1. Yes, apprenticeship 2. Yes, traineeship 3. No/ neither 4. Not sure 5. Prefer not to say
Y12A2d	<p>Are you currently/ plan to be enrolled in further study including a traineeship or apprenticeship or at TAFE or university?</p> <ol style="list-style-type: none"> 1. Yes, currently studying 2. Yes, enrolled but not yet started (including deferred/ gap year) 3. No 4. Not sure 5. Prefer not to say
<p>Interviewer note:</p> <p>Should respondent indicate that they are doing ‘on the job’ training or similar, clarify whether the training contributes to a qualification (indicating that they may be enrolled in a traineeship). If not, code as ‘No’.</p>	

Interviewer note:

For these next questions (Sections B-F) choose the relevant section based on the respondent's previous responses in Section A. For example, if the respondent answers 2. *No* for Y12A2b and 1. *Yes, currently studying* for Y12A2d, continue to Section F.

B. Employment

If the respondent indicated they have a paid job, ask these questions:

Y12B1

Earlier you mentioned that you currently have a paid job. The next few questions are all about your current/ planned job. How many hours on average a week do you work in your job?

1. <Indicated hours>
2. Not sure
3. Prefer not to say

Interviewer note to respondent:

If you are working more than one job, please provide the total hours worked in paid employment.

Y12B2

Would you prefer to be working more hours?

1. Yes
2. No
3. (Not applicable)
4. Not sure
5. Prefer not to say

Y12B3

What is your main job?

1. Bar attendant/ barista
2. Café worker
3. Checkout operator
4. Kitchen hand
5. Sales assistant (general)
6. Storeperson
7. Waiter
8. Private tutors and teachers
9. Other job
10. Not sure
11. Prefer not to say

Interviewer note to respondent:

The main job is the one in which you work the most hours at in an average week.

Y12B4	<p>What is your main job?</p> <ol style="list-style-type: none"> 1. Full title of main job 2. Not sure 3. Prefer not to say
<p>Interviewer note: Record the full job title and tasks and duties and probe for as much detail as possible.</p>	
<p style="text-align: center;">C. Employment (Apprenticeship)</p> <p>If the respondent indicated they have an apprenticeship, ask these questions:</p>	
Y12C1	<p>Earlier you mentioned that you currently have/ plan to get an apprenticeship. The next few questions are all about your job. How many hours on average a week do/ will you work in your job?</p> <ol style="list-style-type: none"> 4. <Indicated hours> 5. Not sure 6. Prefer not to say
<p>Interviewer note to respondent: If you are/ will be working more than one job, please provide the total hours worked in paid employment.</p>	
Y12C2	<p>What apprenticeship are/ will you (be) doing?</p> <ol style="list-style-type: none"> 1. Bricklayer and stonemason 2. Cabinetmaker 3. Carpenter and joiner 4. Chef 5. Electrician 6. Hairdresser 7. Metal fitter/ turner/ machinist 8. Motor mechanic 9. Plumber 10. Other 11. Not sure 12. Prefer not to say
<p>Interviewer note: If the job title is not on the list, record the full title and tasks and duties and probe for as much detail as possible.</p>	

D. Employment (Traineeship)	
If the respondent indicated they have a traineeship, ask these questions:	
Y12D1	<p>Earlier you mentioned that you currently/ plan to have a traineeship. The next few questions are all about your traineeship. How many hours on average a week do you/ expect to work in your job?</p> <ol style="list-style-type: none"> 1. <Indicated hours> 2. Not sure 3. Prefer not to say
<p>Interviewer note to respondent: If you are/ will be working more than one job, please provide the total hours worked in paid employment.</p>	
Y12D2	<p>What traineeship are you doing?</p> <ol style="list-style-type: none"> 1. Childcare 2. Bar attendant/ barista 3. Café worker 4. Secretary 5. Office administration (general clerk) 6. Retail operation (sales assistant (general)) 7. Accountant 8. Other 9. Not sure 10. Prefer not to say
<p>Interviewer note to respondent: The main job is the one in which you work the most hours at in an average week.</p>	
Y12D3	<p>What is your main job?</p> <ol style="list-style-type: none"> 4. Full title of main job 5. (Not sure/ prefer not to say)
<p>Interviewer note: Record the full job title and tasks and duties and probe for as much detail as possible.</p>	

E. Not Employed	
Y12E1	<p>Earlier you mentioned that you do not currently have a paid job and that you are not looking for work. What would you say is/ will be your main activity?</p> <ol style="list-style-type: none"> 1. Unpaid work 2. Home duties 3. Looking after child/ children 4. Travel or holiday/ gap year 5. Illness/ unable to work 6. Pregnant/ preparing for birth 7. Study/ training 8. Carer for another person 9. Waiting for course to start/ looking to enrol 10. Unemployed and looking for work 11. Recreational activities (such as socialising, hobbies, playing sport or video games) 12. Doing nothing 13. Other (please specify) 14. Not sure 15. Prefer not to say
F. Study	
If the respondent indicated they are studying/ are enrolled to study, ask these questions:	
Y12F1a	<p>Earlier you mentioned that you are currently studying or enrolled or plan to study. The next few questions are all about your studies. What level of study is it?</p> <ol style="list-style-type: none"> 1. Bachelor's degree 2. Advanced diploma/ associate degree/ diploma 3. Certificate IV 4. Certificate III 5. Certificate II 6. Certificate I 7. Apprenticeship 8. Traineeship 9. Other (please specify) 10. Not sure 11. Prefer not to say
<p>Interviewer note to respondent: We're interested in the highest level qualification you are currently studying or enrolled or plan to study. This includes apprenticeships, traineeships or study at TAFE.</p>	

Y12F2	<p>What type of education institution do you attend/will you be attending?</p> <ol style="list-style-type: none"> 1. TAFE or government VET provider 2. Private training college or adult and community education provider 3. University 4. Other (please specify) 5. Not sure 6. Prefer not to say
Y12F3	<p>Have you moved/ will you move to study?</p> <ol style="list-style-type: none"> 1. Yes, interstate 2. Yes, intrastate 3. No, I can study while I'm still at home 4. Not sure 5. Prefer not to say
<p>Interviewer note: Record the name of the institution and the student's home postcode and probe for as much detail as possible as to why the student chose that institution.</p>	
Y12F4	<p>Are you/ will you be studying full-time or part-time?</p> <ol style="list-style-type: none"> 1. Full-time 2. Part-time 3. Not sure 4. Prefer not to say
<p>Interviewer note to respondent: If you expect to complete all the course work in time it typically takes to complete the course, respond full-time. If you are taking fewer subjects/ units and taking longer than the typical time to complete the course, respond part-time.</p>	

Y12F1b	<p>These next questions are for students planning to or enrolled in or currently studying at university.</p> <p>Are you undertaking a double degree?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say
Y12F6a	<p>What field of education is the closest match to your first degree/ degree/ course or area of study?</p> <p>If you are undertaking a double degree, please indicate your other field of education in the next question.</p> <ol style="list-style-type: none"> 1. Natural and physical sciences such as statistics, astronomy, chemistry, earth sciences, zoology, marine science, microbiology, pharmacology 2. Information technology such as computer graphics, system analysis 3. Engineering and related technologies 4. Architecture and building 5. Agriculture, environmental an related studies 6. Health such as medicine, nursing 7. Education such as teaching 8. Management and commerce such as accounting, marketing, banking and finance 9. Society and culture such as law, political science, police studies, librarianship, philosophy, religious studies, sports coaching 10. Creative arts such as graphic design, performing arts, journalism, photography, floristry, jewellery making 11. Food, hospitality and personal services such as a butcher, baker, hospitality 12. Mixed field programmes such as employment skills, general education, social skills programming 13. Other (please specify) 14. Not sure 15. Prefer not to say
<p>Interviewer note to respondent: If you are studying an arts degree but have not yet chosen a major, please select ‘Society and culture’.</p>	

Y12F6b	<p>What field of education is the closest match to your second degree?</p> <ol style="list-style-type: none"> 1. Natural and physical sciences such as statistics, astronomy, chemistry, earth sciences, zoology, marine science, microbiology, pharmacology 2. Information technology such as computer graphics, system analysis 3. Engineering and related technologies 4. Architecture and building 5. Agriculture, environmental and related studies 6. Health such as medicine, nursing 7. Education such as teaching 8. Management and commerce such as accounting, marketing, banking and finance 9. Society and culture such as law, political science, police studies, librarianship, philosophy, religious studies, sports coaching 10. Creative arts such as graphic design, performing arts, journalism, photography, floristry, jewellery making 11. Food, hospitality and personal services such as a butcher, baker, hospitality 12. Mixed field programmes such as employment skills, general education, social skills programming 13. Other (please specify) 14. Not sure 15. Prefer not to say
G. Early entry offers	
The next few questions are about early entry offers you may have applied for or received from universities.	
Y12G1	<p>How many university early entry offers did/ will you apply for?</p> <ol style="list-style-type: none"> 0. None 1. 1 2. 2 3. 3 4. 4 5. 5+ 6. Not sure 7. Prefer not to say

Y12G2	<p>How many early entry offers did you receive or expect to receive?</p> <ol style="list-style-type: none"> 0. None 1. 1 2. 2 3. 3 4. 4 5. 5+ 6. Not sure 7. Prefer not to say
Y12G3	<p>How many early entry offers did you accept? (Y12 2024 only)</p> <ol style="list-style-type: none"> 1. None 2. 1 3. 2 4. 3 5. 4 6. 5+ 7. Not sure 8. Prefer not to say
Y12G4a	<p>Did you accept an early entry offer for the course you most preferred? (Y12 2024 only)</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 4. Refused
Y12G4b	<p>For the next questions, please think about the best offer you accepted (Y12) or would accept (Y11). Please select the conditions that you need/ed to meet to enrol in the course (tell us all that apply).</p> <ol style="list-style-type: none"> 1. Completing the HSC 2. Minimum ATAR 3. Specific subject band(s) 4. Selecting the early entry offer course as your first preference in your UAC application 5. Other specific university criteria (please specify) 6. Not sure 7. Prefer not to say

Y12G5	<p>How did the course(s) you completed through the Virtual Learning Collaborative likely to/ contribute to your getting accepted in the course you are currently studying/ will be studying?</p> <ol style="list-style-type: none"> 1. A lot, it gave me an introduction to my degree 2. Somewhat, (please specify) 3. A little (please specify) 4. Not at all 5. Not sure 6. Prefer not to say
<p>Interviewer note: Record the Virtual Learning course and the university course and probe for as much detail as possible about any perceived links between the university course choice and virtual learning courses.</p>	
Y12G6a	<p>On a scale of 0 to 10 where 0 is not stressed at all and 10 is extremely stressed, how stressed are/ were you about/ regarding your studies ...</p> <ol style="list-style-type: none"> a) Before receiving this offer b) After receiving this offer c) After accepting this offer <ol style="list-style-type: none"> 0. Not stressed at all 1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 Extremely stressed 11. Not sure 12. Prefer not to say

Y12G6b	<p>On a scale of 0 to 10 where 0 is extremely low and 10 is extremely high, what is/ was your effort level regarding your studies ...</p> <p>a) Before receiving this offer b) After receiving this offer c) After accepting this offer</p> <p>0. Extremely low 1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 Extremely high 11. Not sure 12. Prefer not to say</p>
<p>Interviewer note to respondent: When you think about the scores you've chosen, what influenced you most? Can you tell me why you have chosen these scores?</p>	
<p>H. Destinations and expectations</p>	
<p>The next few questions are about how you decided what you would like to do when you finished school.</p>	
Y12H1	<p>Earlier on you told us what you were doing now/ planning to do after school. When did you decide that you would like to do this?</p> <p>1. I've known for a long time 2. When I was at school (please specify when – early/mid/late secondary) 3. After I finished school 4. Other (please specify) 5. Not sure 6. Prefer not to say</p>

Y12H2	<p>What were the main influences on your decision? Tell us all that apply.</p> <ol style="list-style-type: none"> 1. Believed could succeed and it aligned with personal interests 2. Expected salary, job security and good employment prospects 3. Role models and social influences such as family expectations, friends 4. Previous internship and career-focussed programs 5. Teacher (s) 6. Institutional support and guidance such as career counselling and academic advising 7. Other (please specify) 8. Not sure 9. Prefer not to say
Y12H3	<p>How did the course you completed through the Virtual Learning Collaborative contribute to where you are now?</p> <ol style="list-style-type: none"> 1. A lot, (please specify) 2. Somewhat, (please specify) 3. A little (please specify) 4. Not at all 5. Not sure 6. Prefer not to say
<p>Interviewer note to respondent: We're interested in what got you into your chosen area of work and/ or study, and if the virtual learning course was significant or useful for your next steps after school.</p> <p>What would have happened if you couldn't study the course offered through the Virtual Learning Collaborative?</p>	

Y12H4	<p>On a scale of 0 to 10 where 0 is extremely low and 10 is extremely high, how important was it to study the course offered in the Virtual Learning Collaborative to get you to where you are now?</p> <ul style="list-style-type: none"> 0. Extremely low 1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 Extremely high 11. Not sure 12. Prefer not to say
<p>Interviewer note to respondent:</p> <p>We're interested in what you now reflect on about the skills you gained, if any, from doing the virtual learning course. You may have gained technical skills or attitudes and beliefs that influenced your work and/or study choices and decisions. Tell us what you think.</p>	
<p>I. Demographics</p>	
<p>The next few questions are about you. This is important for us to know so that we can understand what people from similar backgrounds are doing after leaving school. Remember this information will never be connected with your name. You will be anonymous in all the data.</p>	
Y12I1	<p>How do you describe your gender?</p> <ul style="list-style-type: none"> 1. Man/ male 2. Woman/ female 3. Non-binary 4. I use a different term (please specify) 5. Prefer not to say

Y12I2	<p>Are you of Aboriginal or Torres Strait Islander origin?</p> <ol style="list-style-type: none"> 1. Aboriginal 2. Torres Strait Islander 3. Both Aboriginal and Torres Strait Islander 4. No – neither 5. Not sure 6. Prefer not to say
Y12I3	<p>Do you speak a language other than English at home?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say
<p>Interviewer note: Record the language spoken at home if it is not English.</p>	
Y12I4a	<p>Do you have any disabilities or additional learning needs?</p> <p>This includes mental health, behavioural or emotional issues. We are particularly interested in those that have lasted, or are likely to last, 6 months or more.</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say
Y12I4b	<p>If you answered Yes, what disability or additional learning needs do you have? Select all that apply.</p> <ol style="list-style-type: none"> 1. Autism 2. Learning or intellectual disability 3. Speech or language impairment 4. Physical disability/ injury 5. Deaf 6. Hearing impairment/ hard of hearing 7. Blind or low vision 8. Sensory 9. Mental health issues 10. Behavioural issues 11. Emotional issues 12. Other (specify) 13. Not sure 14. Prefer not to say

Y12I4c	<p>How do you think the virtual learning course impacted students with additional learning needs' learning?</p> <ol style="list-style-type: none"> 1. A lot (specify) 2. Somewhat (specify) 3. A little (specify) 4. Not at all (specify)
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Interviewer note to respondent:
 This is a general question about how virtual learning enables and/or acts as a barrier to students learning effectively, whether they have an identified need for additional support or not. As a student you see your peers and can share your perspective, and we want to hear about these factors. For example, not being in a classroom allows you to access learning materials any time, anywhere and this can either be positive or negative in developing your knowledge and skills.

J. Parental SES

Now we are coming to the last section of the survey. We are going to ask some routine questions about your background. Remember that all your answers remain confidential.

We ask these questions so that we can get an idea of the backgrounds of different groups of people.

The next few questions are about your parents or guardians.

When answering the following questions please think about your family situation. If you have a blended or mixed family, please think about your parents or stepparents living in the same household. If your family is separated and you live with one parent, please answer in relation to that parent and the parent who does not live with you.

- Interviewer notes:**
- If blended or mixed families, ask about the parents or stepparents living in the same household.
 - If separated family where the qualifying respondent lives with one parent in the same household, ask about both parents even if one is not in the same household.
 - If parent deceased, information may still be collected but requires some sensitivity. Can otherwise skip through.
 - If no parent, but there is a female guardian or male guardian ask about the guardians.
 - If, for example, there is no father figure in life at any time, record as such (will skip remaining father questions).
 - For Aboriginal students, 'aunties', 'uncles' or 'grandparents' maybe the relevant guardian.

Y12J1a	<p>What was the highest year of school your mother or female caregiver completed? If your two main carers are male, what is your first male caregivers' highest year of school?</p> <ol style="list-style-type: none"> 1. Primary schooling only 2. Started high school but left before year 10 3. Finished you 10 4. Finished year 12 5. No schooling 6. No mother or female guardian figure in life at any time slash I have not had contact with my mother or a female guardian 7. Not sure 8. Prefer not to say
Y12J1b	<p>What is the highest post-school qualification your mother or female caregiver has completed, if any?</p> <ol style="list-style-type: none"> 1. Apprenticeship or trade certificate/ TAFE certificate I-IV/ VET certificate I-IV 2. VET diploma/ advanced diploma 3. University undergraduate degree/ bachelor's degree/ honours degree/ graduate diploma 4. Post graduate degree/ master's/ doctoral degree/ PhD 5. Some other qualification (please specify) 6. No post-school qualification 7. Not sure 8. Prefer not to say
Y12J1c	<p>What is your mother's or female caregiver's occupation? If your two main carers are male, what is your first male caregivers' occupation?</p> <ol style="list-style-type: none"> 1. Currently employed 2. Retired 3. Unemployed or unable to work due to illness injury or disability 4. Home duties 5. Never had a job 6. Not sure 7. Prefer not to say
<p>Interviewer notes:</p> <ul style="list-style-type: none"> • If your mother or female first caregiver is deceased, please think about what they were doing before they passed away. • Avoid part time or hobby jobs in retirement. Ensure that the respondent understands question is about occupation not industry. If respondent says doesn't have a job because disabled or injured, then code to 3. 	

Y12J2a	<p>What was the highest year of school your father or male caregiver completed?</p> <ol style="list-style-type: none"> 1. Primary schooling only 2. Started high school but left before year 10 3. Finished you 10 4. Finished year 12 5. No schooling 6. No mother or female guardian figure in life at any time slash I have not had contact with my mother or a female guardian 7. Not sure 8. Prefer not to say
Y12J2b	<p>What is the highest post-school qualification your father or male caregiver has completed, if any?</p> <ol style="list-style-type: none"> 1. Apprenticeship or trade certificate/ TAFE certificate I-IV/ VET certificate I-IV 2. VET diploma/ advanced diploma 3. University undergraduate degree/ bachelor's degree/ honours degree/ graduate diploma 4. Post graduate degree/ master's/ doctoral degree/ PhD 5. Some other qualification (please specify) 6. No post-school qualification 7. Not sure 8. Prefer not to say
Y12J2c	<p>What is your father or male caregiver's occupation? If your two main carers are male, what is your first male caregivers' occupation?</p> <ol style="list-style-type: none"> 1. Currently employed 2. Retired 3. Unemployed or unable to work due to illness injury or disability 4. Home duties 5. Never had a job 6. Not sure 7. Prefer not to say
<p>Interviewer notes:</p> <ul style="list-style-type: none"> • Express gratitude for the respondent's time and valuable contributions. • Remind them about confidentiality and that their data will be protected under MFA. • Explain that we will get back to them in the next 6 weeks to review their transcript and they will be invited to read the findings when they are completed. • Give them my email should they have questions or concerns later. • Explain their right to withdraw at any time before the findings are released. • Ask if they have any final questions or comments 	

Here's a sample closing script:

Thank you sincerely for participating in this interview and sharing your experiences. Your insights are extremely valuable to this research. As a reminder, all the information you've provided will remain confidential. Within 6 weeks, I'll provide you with a transcript of this interview for your review if you wish. If you have any questions or concerns after today, please contact Wendy Mockler. You maintain the right to withdraw your participation until the findings are published. Do you have any final questions or comments before we conclude?

APPENDIX K: STUDY APPROVAL (PRINCIPALS)

Consent Document: Principals

Principal Investigator Name and Title: Professor William Cope

Department and Institution: Department of Education Policy, Organisation and Leadership at the College of Education, University of Illinois, Urbana-Champaign, IL, USA

Contact Information: Wendy Mockler Giles (m 0432 029 457 or wendyam2@illinois.edu)

KEY INFORMATION

This letter explains what this research involves so that you can provide informed consent if you would like to participate:

1. Consent is being sought for research, and participation is voluntary.
2. We would like to interview you for 30-45 minutes to learn more about how virtual learning has influenced students' plans for after school.
3. There are minimal risks.
4. This research could help future students in rural and regional schools.

BACKGROUND

You are being asked to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you want to volunteer to take part in this study.

We are asking you to be in this research study because we want to learn more about how virtual learning has influenced students' learning and post-school opportunities. We want you to be in this study because you can tell us firsthand about your school's experiences studying in the VLC and give us some honest and important feedback.

STUDY PROCEDURE

If you decide to be in this research study, this is what will happen:

- We will interview you.
- We will ask you to tell us about students' experiences in the VLC and where they are planning to go after school.
- We will look at your answers to find out what has influenced them in deciding where they want to go after school.
- You will be in the study for 30-45 minutes.

RISKS

The risks of this study are minimal.

BENEFITS

We cannot promise any direct benefit for taking part in this study. However, we hope the information we get from this study may help develop a greater understanding of what students in rural and regional areas need in the future.

HOW WILL THE RESEARCHERS PROTECT MY INFORMATION?

Your information will be kept secure and confidential. The recording and transcription from your interview will not be shared and will be stored separately from the rest of the research data on the researcher's computer. Only de-identified transcripts of interviews/focus groups, etc. will be shared with other researchers.

WHO WILL HAVE ACCESS TO THE INFORMATION COLLECTED DURING THIS RESEARCH STUDY?

Efforts will be made to limit the use and disclosure of your personal information, including research study records, to people who have a need to review this information. We cannot promise complete secrecy.

There are reasons why information about you may be used or seen by other people beyond the research team during or after this study. Examples include:

- ***University officials, government officials, study funders, auditors, and the Institutional Review Board may need access to the study information to make sure the study is done in a safe and appropriate manner.***

HOW MIGHT THE INFORMATION COLLECTED IN THIS STUDY BE SHARED IN THE FUTURE?

We will keep the information we collect about you during this research study for study recordkeeping until the completion of the study. After that it will be permanently deleted.

De-identified data from this study may be shared with the research community, with journals in which study results are published, and with databases and data repositories used for research. We will remove or code any personal information that could directly identify you before the study data are shared. Despite these measures, we cannot guarantee the anonymity of your personal data.

The results of this study could be shared in articles and presentations but will not include any information that identifies you.

PERSON TO CONTACT

If you have questions, complaints or concerns about this study, you can contact Wendy Mockler Giles at 0432 029 457. If you feel you have been harmed as a result of participation, please call Wendy who may be reached during business hours.

Institutional Review Board: If you have any questions about your rights as a research subject, including concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 217-333-2670 or e-mail OPRS at irb@illinois.edu. If you would like to complete a brief survey to provide OPRS feedback about your experiences as a research participant, please follow the link [here](#) or through a link on the OPRS website: <https://oprs.research.illinois.edu/>. You will have the option to provide feedback or concerns anonymously or you may provide your name and contact information for follow-up purposes.

VOLUNTARY PARTICIPATION

Research studies include only people who choose to take part. You can tell us that you don't want to be in this study. You can start the study and then choose to stop the study later. This will not affect your relationship with the investigator.

CONSENT

By signing this consent form, I confirm I have read the information in this consent form and have had the opportunity to ask questions. I will be given a signed copy of this consent form. I voluntarily agree to take part in this study.

Printed Name of Participant

Signature of Participant

Date

WENDY MOCKLER GILES

Printed Name of Person Obtaining Consent

Wendy Mockler Giles

Signature of Person Obtaining Consent

MAY 12, 2025

Date

APPENDIX L: INTERVIEW QUESTIONS AND PROTOCOL FOR PRINCIPALS

Basic information about the interview

- Principal and school name
- Time and date of the interview
- Where the interview took place
- Length of the interview (planned time is 30-45 minutes)
- Where the digital recording is kept and the data safeguards in place

Introduction

- Introductions and discussion of the purpose of the interview: *To understand how, if at all, the Virtual Learning Collaborative impacts students' post-school destinations and aspirations.*
- Ensure the Consent form is understood. Emphasize that privacy and anonymity is protected.
- Outline the benefit of the research is to inform system strategies that could potentially benefit education outcomes for students in the principal's school.
- Ask for permission to record and explain that the transcript will be provided for member checking.
- Outline the general structure of the interview.
- Remind the respondent that if they wish to add to any points at a later stage, they can contact the interviewer and deliver the extra information orally or by email.
- Ask the principal if they have any questions.

Opening question

- How did you become a principal and how have your experiences influenced your leadership style?
- What motivated you to become a part of the Virtual Learning Collaborative?

Content questions

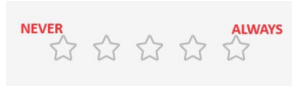
- What are the significant geographical, historical, economic and societal considerations of <name of school community>?
- How does <name of the school> focus on developing cognition, behavior, and emotion management systems or psychological flexibility?
- (Give principal the National Standards for Online Programs) How does the Virtual Learning Collaborative **align** with the *National Standards for Online Programs* (Quality Matters, 2024)?
- To what extent do students **perceive** the Virtual Learning Collaborative as *impactful* in forming their postsecondary pathway aspirations?
- To what extent do students **perceive** themselves as *persistent* in their schoolwork? (Generally for the school and specifically for the VL courses)
- What *knowledge and skills* do teachers **recognize** that students have acquired during their VL coursework?

- How are students **learning and achieving** in courses in the Virtual Learning Collaborative?
- To what extent do students **attribute** their learning in the Virtual Learning Collaborative to:
 - the *guidance and mentoring* of the teachers in the Virtual Learning Collaborative?
 - the *learning materials* provided in their Virtual Learning Collaborative course?
 - the *interaction* with peers, the Virtual Learning Advisor, the Virtual Learning Coordinator and other school-based staff while studying in the Virtual Learning Collaborative?
- In what way, if any, do students and/or their families **observe** how the students have shown or shared their postsecondary aspirations?
- What is the **impact** of the Virtual Learning Collaborative on enrolled students' postsecondary *aspirations, course achievement and attainment* of their school exit credential?
- What are the **features and nature** of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that could contribute to *improving rural and regional students' education outcomes and postsecondary aspirations*?

Closing instructions

- Thank the principal for their time.
- Remind the respondent that if they wish to add to any points at a later stage, they can contact the interviewer and deliver the extra information orally or by email.
- Ask the principal if they have any questions.
- Assure them of the confidentiality of the interview.
- Ask if I can follow-up with another interview if I need to clarify any points.
- Explain that they will be invited to review the initial findings before the final analysis of the data and that an independent reviewer will also review the data.
- Explain that the findings will be published later, and I will provide them with an e-copy of the dissertation and/ or send them an abstract of the final study.

APPENDIX M: VIRTUAL LEARNING COLLABORATIVE COURSE REVIEW FOR STUDENTS



2024 Virtual Learning Collaborative Course Review for Students

This is an anonymous form; your name and details are not collected with your responses.
Please answer honestly so that we can improve the course design and structure in the Virtual Learning Collaborative.

This review will provide feedback to the relevant teacher about the content and design of their virtual learning course, against the criteria below. Comments after each response are optional and you are asked to provide an overall comment at the end. The rating scale is shown at the top of this form.

Mandatory NESAs/BSSS course documents are provided in the <i>Start Here</i> section. Assessment Schedule and tasks are available in the <i>Assessment channel</i> . You can find most of the documents most of the time that tell you about the course requirements.
Content is organised logically and you can find the weekly coursepack and all the resources you need to do that work every week. The teacher posts a link to the weekly coursepack in the weekly post in the General channel.
Content is covered in sufficient depth and you can usually explain clearly what you have understood and how it is connected to the coursework overall.
The learning intentions link clearly to the content covered in the lessons every week. New material is presented in small steps and the teacher regularly provides modelled answers, and for more difficult tasks, they provide a scaffold.
Success criteria are provided for appropriate activities. You know what you have to do for the activities in Class Notebook. If you don't, you can ask questions and the teacher will explain what you need to do.
The resources, such as learning apps, links to open education resources, textbooks and other files provided, are related to what you are learning, and all of the course links are active. If there is a broken link, when you ask the teacher, they repair it.
The lesson activities enable you to achieve the course outcomes. There is a high rate of success in your class because the work is at an appropriate level of challenge and you get the opportunity to practice your responses for accuracy and feedback.
Time allocation for activities is generally appropriate.
The workload expected of students is reasonable.
Daily and weekly reviews are included in each week's lessons and they help you check your understanding. When you haven't understood, the teacher re-teaches or provides more practice.
There is a good balance between gaining new knowledge and showing what you have learned. For example the teacher helps you learn the foundations such as important terminology, and then provides you with the opportunity to apply that new knowledge, gives you feedback and then more challenging questions to help you learn.
The weekly coursepacks are organised in manageable chunks. Your teacher maps out what they need you to learn and the lessons and activities are broken up in chunks so that you build your understanding gradually over the lessons, the weeks and the units or topics..
Checks for understanding are evident. When a task has been completed, you can self-review, and check if your responses are correct, complete, accurate and finished to a high standard as the teacher has provided modelled answers and/ or teacher feedback.
Modelling is evident, where appropriate. Worked examples are provided to help you learn independently.
Scaffolding is evident, where appropriate. For more difficult tasks, such as assessment tasks, the teacher provides anonymous work samples that help you understand what is expected for the higher grades.
Challenging independent learning activities are available. There are activities that you feel confident completing without teacher assistance after you have mastered the basic concepts and course material.
Collaborative learning opportunities are regularly included in the course instruction, outside of the Teams call, where students can support each other and share information and strategies, as well as provide trusted feedback for each other.
Your teacher believes that you can learn a lot.
Overall comment for the teacher of the virtual learning course. You can use these sentence starters: I learn best when ... I would like to see more ...

APPENDIX N: IRB APPROVAL



Project IRB24-1885 - Exempt Determination

From IRBOnline <IRBOnline@illinois.edu>

Date Tue 5/13/2025 11:34 AM

To Cope, William <billcope@illinois.edu>; Mattingly, Stuart <stuartm3@illinois.edu>; Mockler Giles, Wendy <wendyam2@illinois.edu>



Office for the Protection of Research Subjects
Institutional Review Board
irb@illinois.edu
(217) 333-2670

IRB Number: [IRB24-1885](#)

PI: William Cope

Study Title: The Impact of Virtual Learning on Students' Aspirations in Rural and Regional NSW (Australia)

Date: 5/12/2025

The above-referenced protocol has received an IRB exemption determination and may begin the research procedures outlined in the University of Illinois Urbana-Champaign IRB application and supporting documents.

EXEMPTION DOCUMENTATION

Review Type: Exempt Review

Exemption Category(ies): Category 1

Federal Exemption Categories defined in 45 CFR 46.104(d)

Exemption Date: 5/12/2025

You must adhere to all requirements for exemption described in University of Illinois Urbana-Champaign IRB policy in ([Research Guidance Document, Exempt Research](#))

- All research involving human subjects must be approved or determined exempt by the IRB before the research is conducted.

- All research activities must be conducted in accordance with the Belmont Report and must adhere to principles of sound research design and ethics.
- Orderly accounting and monitoring of research activities must occur.

ONGOING SUBMISSIONS FOR EXEMPT PROJECTS

- **Continuing Review:** Since this determination is not an approval, the study does not expire or need continuing review. This determination of exemption from continuing IRB review only applies to the research study as submitted to the IRB. You must follow the protocol as proposed in this application.
- **Annual HRPP Progress Updates:** For studies that do not receive formal continuing review, an Annual HRPP Progress Update must be submitted in order to keep the study open and active with the University of Illinois Urbana-Champaign IRB and HRPP: <https://oprs.research.illinois.edu/research-topics/annual-hrpp-progress-updates>
- **Amendment Applications:** Substantive changes to this project require an amendment application to the IRB to secure either approval or a determination of exemption. **Investigators should contact the OPRS Office if there are questions about whether an amendment consists of substantive changes.** Substantive changes include, but are not limited to:
 - Changes to study personnel (to secure Conflict of Interest review for all personnel on the study)
 - Changes that increase the risk to participants or change the risk:benefit ratio of the study
 - Changes that affect a participant's willingness to participate in the study
 - Changes to study procedures or study components that are not covered by the Exemption Category determined for this study (listed above)
 - Changes to the study sponsor
 - Changes to the targeted participant population
 - Changes to the stamped consent document(s)
- **Report Forms:** Exempt studies must adhere to the University of Illinois Urbana-Champaign IRB reporting requirements for unanticipated problems and deviations: <https://oprs.research.illinois.edu/research-topics/report-forms>

- **Final Project Reports for Study Closure:** Exempt studies must be closed with the IRB once the research activities are complete:
<https://oprs.research.illinois.edu/researchtopics/final-project-reports>

Click <https://irbonline.research.illinois.edu/project/IRB24-1885> to view the application.

APPENDIX O: STUDY APPROVAL FROM CATHOLIC EDUCATION CANBERRA
GOULBURN EDUCATION OFFICE



Record No: R691357
Container No: 2014/60

Wendy Mockler
19 Malmani Lane
Kanoona NSW 2550

Via email: wendyam2@illinois.edu wendy.mockler@cg.catholic.edu.au

Dear Wendy,

I write in response to your request to Catholic Education Archdiocese of Canberra Goulburn to undertake your research *'The impact of virtual learning on students' aspirations in rural and regional NSW'*, specifically at Lumen Christi Catholic College Pambula Beach, St Anne's Catholic College Temora, McAuley Catholic College Tumut, and Hennessy Catholic College, Young.

Your request has been approved by Catholic Education Canberra Goulburn. Your research approval is subject to the following conditions:

1. Each Principal of any school nominated in your research application has the discretion to approve external research being undertaken in his/her school.
2. This letter of approval should accompany your approach to schools when inviting participation.
3. Your invitation to participate must make clear that this research is for your own academic research distinct from your work with Catholic Education Canberra Goulburn. Additionally, the research must be undertaken in personal time and not during your CECG work hours.

4. Confidentiality of findings and anonymity of students must be adhered to. The research must comply with the requirements of the Privacy Act 1988.
5. Upon completion of your research copies of your final report must be forwarded to research@cg.catholic.edu.au.
6. As schools participating in your research are located in NSW, the researcher must have a NSW *Working with Children* clearance prior to conducting the research.



55 Franklin Street, Manuka ACT 2603 | 02 62345455
PO Box 3317 Manuka ACT 2603 | www.cg.catholic.edu.au
ABN 47 824 127 996

I am to be contacted immediately should your research differ in any way from that proposed and approved.

My contact details are:

Telephone: 0447 720 475

Email: brenda.foley@cg.catholic.edu.au

Yours sincerely,



Brenda Foley
Senior Officer | School and Family Services

16 October 2024



Blue Water

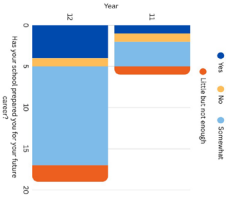
Wendy Mockler Giles, The impact of the VLC on students' post-school aspirations.
Department of Education Policy, Leadership & Organization, College of Education, University of Illinois, Urbana-Champaign

APPENDIX P: SCHOOL ON A PAGE PROFILES

You are the Light of the World. Shine Your Light.

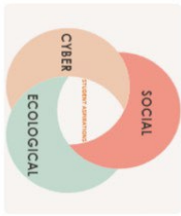
Leading in the Virtual Learning Collaborative
Since the VLC was established in 2023, LCCC has offered 10 courses, providing 51 places for students to study a course not usually offered or available to them from their home school.

School profile
The profile examines three key perspectives: **social** (focusing on school belonging, behavior, and emotional management), **cyber** (examining curriculum quality, student academic performance, and digital inclusion), and **ecological** (analyzing the economic, demographic, and geographic contexts of each school's region).



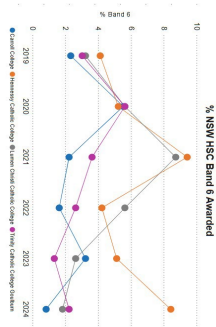
RESEARCH QUESTIONS

- What is the impact of the Virtual Learning Collaborative on rural and regional students' postsecondary aspirations, course achievement and attainment of their school exit credential?
- What are the features, nature and impact of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that could contribute to improving rural and regional students' education outcomes and postsecondary aspirations?



SOCIAL DIMENSION

LCCC demonstrates a significant improvement in students' sense of belonging and relationships as they progress from Year 11 to Year 12. This suggests effective social integration strategies that build community over time. The substantial jump in positive relationships (14% increase) indicates that the school may have strong peer mentoring or community-building activities between the senior years. The school maintains excellent behavior standards, though there appears to be a challenge with maintaining engagement with academic habits like homework as students progress through senior years. There is a decrease in valuing schooling outcomes and motivation in the final year, which contrasts with the school's overall positive social environment, it may need to address student engagement strategies, particularly for Year 12 students.



CYBER DIMENSION

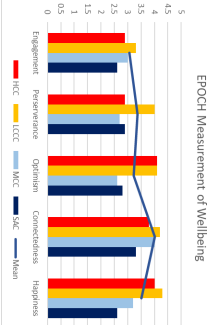
The Bega Valley has an Australian Digital Inclusion Index (ADII) of 67.1. This score indicates moderate digital inclusion relative to other regional areas in Australia. As an outer regional school, LCCC may face more challenges with consistent internet access and technology integration compared to metropolitan schools. The moderate scores for curriculum relevance that decrease in Year 12 align with the declining motivation metrics, suggesting a potential opportunity to enhance curriculum relevance, especially for senior students preparing for post-school pathways. In the VLC, LCCC has the highest proportion of high grades (4+)'s at 68.29%, but the lowest sense of belonging in Year 11 (53%) and the lowest teacher-student relation score (6.1). LCCC showed the strongest connection between VL and career aspirations, with 87.5% reporting some level of influence and 100% reporting skill development.

ECOLOGICAL DIMENSION

Geographical context:
Location classification: Outer Regional, approximately 470 km south of Sydney. The area is known for its coastal environment, beaches, and proximity to national parks. The outer regional classification presents both challenges and opportunities. The coastal location offers unique environmental learning opportunities but may also present challenges for student access to broader educational and cultural experiences available in metropolitan areas.

- **Demographic Profile:**
 - School population: 685 students
 - ICSEA (Index of Community Socio-Educational Advantage): 1092
 - Bachelor degree or higher in the population: 19.3%
- The ICSEA score slightly above the national indicates a student population with moderately advantaged socio-educational backgrounds. The higher-than-average tertiary education rate among the population (19.3%) suggests a community that values education, which may support the school's academic focus.

Economic Context:
The Bega Valley economy relies significantly on manufacturing, particularly Bega Cheese, tourism, hospitality, and service industries. Seasonal employment patterns may affect family circumstances for students. The region has seen growth in retiree populations, which impacts both local economy and community services. The tourism-based economy may present both opportunities (industry partnerships, real-world learning contexts) and challenges (seasonal employment affecting family stability) for the school community.



7 out of 8 LCCC students said that VL courses had had some influence on their career aspirations. Most students across all schools said that VL had broadened career path understanding (65.5%) and their skills.

CONCLUSIONS

LCCC shows strong social metrics but declining academic engagement in Year 12, with moderate digital inclusion (ADII: 67.1) and the highest socio-educational advantage (ICSEA: 1092) among the NSW Colleges.

- **Strong Predictors of Academic Performance:**
 - Completion and quality of work shows the strongest correlation with grades
 - Time management and organisation" is also highly correlated with performance
 - Commitment to ongoing reflection and learning" demonstrates a clear step-wise relationship with grades

Predictive Value of Ratings:
Students rated "Always" in key categories typically scored 0.4-1.1 grade points higher than those rated "Sometimes", with consistent patterns across schools.

The analysis suggests that while school belonging is important for student wellbeing, its relationship with behavioral performance is complex. Specific learning behaviors and attitudes, particularly work completion, time management, and commitment to reflection, appear to be more directly predictive of academic outcomes.

FINDINGS

1. Need to establish a collaborative network to maintain Y11 and 12 engagement and develop shared resources for curriculum relevance in regional centres
2. VL courses appear to particularly support students aspiring to higher education pathways, with stronger influence reported among those planning university study.
3. The data and literature supports VL as an important tool for educational equity through its impact, as mediated by its implementation and school context.

DATA SOURCES

Breaking Down Barriers Community Profiles (HLDA 2010-2019) [National release!](#)
Destinations and Escapes! (2024-2025) (Kathari) Tell Them From Me (2021) [Survey data](#)
VLC Course Review (2024)
VLC Reporting data for NSW courses (2023-2024)
Youth Wellbeing Survey (EPOCH, 2024-2025)

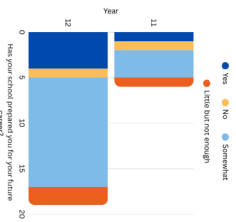


UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

Live Spiritually, Learn Dynamically and Act Justly ... inspiring futures of hope.

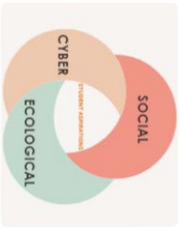
Supporting the Virtual Learning Collaborative
 In 2024, 7 students from HCC enrolled in 3 courses offered by the VLC and HCC offered 1 course for 11 students at MCC.

School profile
 The profile examines three key perspectives: **social** (focusing on school belonging, behavior, and emotional management), **cyber** (examining curriculum quality, student academic performance, and digital inclusion), and **ecological** (analyzing the economic, demographic, and geographic contexts of each school's region).



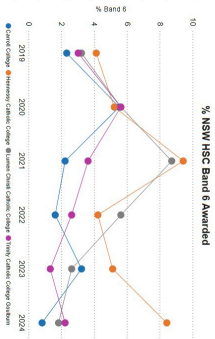
RESEARCH QUESTIONS

- What is the impact of the Virtual Learning Collaborative on rural and regional students' post-secondary aspirations, course achievement and attainment of their school exit credential?
- What are the features, nature and impact of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that could contribute to improving rural and regional students' education outcomes and postsecondary aspirations?



SOCIAL DIMENSION

In the TTPM survey, HCC demonstrated strong and consistent school belonging metrics across the senior years. The high positive relationships percentages suggest an effective community-building approach. The extremely high positive behavior scores indicate a very effective behavior management system and school culture. The decreasing trends in valuing school outcomes and homework behaviors suggest some disengagement in academic habits as students progress through senior years. The results may be unreliable, however, given the sample size and provide an exploratory perspective not a definitive one.



CYBER DIMENSION

The moderate Australian Digital Inclusion Index (ADII) score (7.6) suggests reasonable but not exceptional digital access, affordability, and digital literacy in the Young region.

The findings in the data for HCC show a consistent alignment between belonging and wellbeing and these stable metrics suggest a consistent school environment. Student responses to questionnaire virtual learning courses are mixed; however, with student HCC forced adoption leading to a decline in wellbeing. Given the academic outcomes of a particularly strong performance, the VL learning experience overall at HCC, was effective.

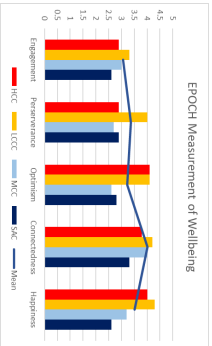
The findings across NSW Colleges suggest that how virtual learning is implemented and integrated plays a role in overall student wellbeing beyond the simple metrics of school belonging. The data suggests that VL courses can positively contribute to student wellbeing when they align with career aspirations and when students value the flexibility and independence they offer. This points to the importance of framing VL opportunities in terms of career relevance and helping students develop the self-regulation skills needed to benefit from the autonomous learning environment.

ECOLOGICAL DIMENSION

Geographical context:
 Location classification: Inner Regional, approximately 370 km west of Sydney. The area is predominantly agricultural, particularly horticultural. The Inner Regional classification provides better access to services than other regional areas.

Demographic Profile:
 • School population: 423 students
 • CSEEA (Index of Community Socio-Educational Advantage): 1005
 • Bachelor degree or higher in the population: 14.8%
 • The moderate school size allows for a balance between community feeling and curriculum breadth. The CSEEA slightly above national average suggests moderate socio-educational advantage. The lower tertiary education rate may reflect the stronger Vocational orientation of the regional economy.

Economic Context:
 Young's economy is diverse within the agricultural sector, with significant cherry and stone fruit production, viticulture, and mixed farming. Food processing and agricultural services provide additional employment. The region experiences seasonal employment patterns related to harvest times. The diverse agricultural economy provides varied contexts for applied learning and potential industry partnership opportunities. Seasonal employment patterns may affect student family circumstances and potentially school attendance patterns.



The data shows relatively strong scores for effective learning time and maintains consistent curriculum rigor through Y11 and 12. This was evident in the 2024 HSC data of 57 Distinguished Achievers and 1 All Rounder. 2024 results were also the second-best Band 6 performances, after 2021.

CONCLUSIONS

Strong Predictors of Academic Performance:
 • "Completion and quality of work" shows the strongest correlation with grades
 • "Time management and organisation" is also highly correlated with performance
 • "Commitment to ongoing reflection and learning" demonstrates a clear step-wise relationship with grades

Predictive Value of Ratings:
 Students rated "Always" in key categories typically scored 0.4-1.1 grade points higher than those rated "Sometimes," with consistent patterns across schools.

The analysis suggests that while school belonging is important for student wellbeing, its relationship with academic performance is complex. Specific learning behaviors and attitudes, particularly work completion, time management, and commitment to reflection, appear to be more directly predictive of academic outcomes.

HCC uses successful strategies that maintain intellectual engagement despite declining motivation, and these practices could be shared with other schools.

FINDINGS

1. Need to establish a collaborative network to maintain Y11 and 12 engagement and develop shared resources for curriculum relevance in regional contexts.
2. VL courses appear to particularly support students aspiring to higher education pathways, with stronger preference reported among those planning university study.
3. The data and literature supports VL as an important tool for educational equity through its impact mediated by its implementation and school context.

DATA SOURCES

Briefing Document: *Barriers Community Profiles* (HILDA 2020-2019) [National Census]
 Detailed Report: *Barriers Community Profiles* (2021-2025) (Kilchoo)
 Data: *The Farm Me* (2021) [School survey data]
Tell Thee From Me (2021) [School survey data]
 VLC Course Review (2024) [Survey]
 VLC Reporting data for NSW courses (2023-2024)
 Youth Wellbeing Survey (EPOCH; 2024-2025)



Mountain View

Wendy Mockler Giles, The impact of the VLC on students' post-school aspirations.
Department of Education Policy, Leadership & Organisation, College of Education, University of Illinois, Urbana-Champaign

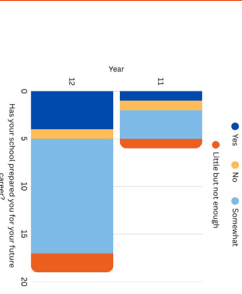
Believe, Strive, Achieve.

Supporting the Virtual Learning Collaborative

Since the VLC was established in 2023, MCC has offered 7 courses, providing 53 places for students to study a course not usually offered or available to them from their home school.

School profile

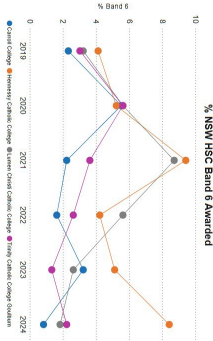
The profile examines three key perspectives: **social** (focusing on school belonging, behavior, and wellbeing), **cyber** (examining curriculum quality, student academic performance, and digital inclusion), and **ecological** (analyzing the economic, demographic, and geographic contexts of each school's region).



SOCIAL DIMENSION

There was limited data in the 7779V survey available for MCC's specific social indicators. In the *Youth Wellbeing Survey* distributed to students in the VLC, MCC showed a relative strength in social connections despite moderate overall wellbeing, suggesting strong peer support even as other wellbeing domains lag (see EPOCH Measurement of Wellbeing).

Student responses were strongest in social connection, but they struggled with optimism. This was a small sample size however, which indicates these findings are exploratory rather than definitive.



CYBER DIMENSION

The Australian Digital Inclusion Index (ADII) for the Inner Regional area of Tinnart is 71.3. This score indicates better digital inclusion relative to other NSW Colleges. The relatively high ADII score suggests that MCC is likely to have better access to digital resources and infrastructure compared to the other NSW Colleges. This advantage may translate to enhanced technology integration in teaching and learning.

Reporting data from 2023 and 2024 shows moderate academic performance but the limited data on behavioral metrics made correlation analysis difficult. In a survey across NSW Colleges, 16 of 20 respondents were from MCC. Half of these students indicated they planned to complete a Bachelor degree, with 37.5% indicating they saw themselves entering a profession post-study. Despite having the highest ADII, MCC showed moderate VL impact on students' career plans, suggesting other factors may be affecting VL delivery.

Career motivation is common and beneficial. Students who chose VL (even due to constraints) reported better wellbeing than those who felt forced. Students who valued the independence of VL learning reported high levels of happiness. When VL opportunities are framed in terms of career relevance and emphasize student choice and autonomy it improves the quality of the learning experience.

ECOLOGICAL DIMENSION

Geographical context:

Location classification: Inner Regional, approximately 40 km southwest of Sydney. The area is known for its proximity to Kosciuszko National Park and the Snowy Mountains. The inner regional classification indicates better connectivity than outer regional areas, which may benefit educational access.

Demographic Profile:

- School population: 459 students
- ICSEA (Index of Community Socio-Educational Advantage): 1003

Bachelor degree or higher in the population: 15%
The ICSEA score slightly above the national average indicates a student population with moderately advantaged socio-educational backgrounds. The tertiary education rate among the population (15%) suggests potentially varied career aspirations and pathways in the community.

Economic Context:

The Tinnart region's economy is diverse, with significant sectors including forestry, timber processing, agriculture, and tourism. The nearby Snowy Hydro scheme also provides employment opportunities. The region faces challenges typical of inland regional areas including youth retention and economic diversification. The diverse economic base may provide varied work-based learning opportunities for students but may also mean the school needs to prepare students for either local employment or migration to larger centres for certain career paths.

CONCLUSIONS

Strong Predictors of Academic Performance:

- Completion and quality of work: Shows the strongest correlation with grades
- "Time management and organisation" is also highly correlated with performance
- "Commitment to ongoing reflection and learning" demonstrates a clear step-wise relationship with grades

Predictive Value of Ratings:

Students rated "Always" in key categories typically scored 0.4-1.1 grade points higher than those rated "Sometimes," with consistent patterns across schools.

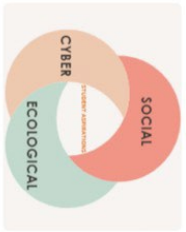
The analysis suggests that while school belonging is important for student wellbeing, its relationship with academic performance is complex. Specific learning behaviors and attitudes, particularly work completion, time management, and commitment to reflection, appear to be more directly predictive of academic outcomes. The effectiveness of VL appears to be moderated by school-specific factors affecting student perseverance, rather than just digital access.

FINDINGS

1. Need to establish a collaborative network to maintain Y11 and 12 engagement and develop shared resources for curriculum relevance in regional contexts.
2. VL courses appear to particularly support students aspiring to higher education pathways, with stronger influence reported among those planning university study.
3. The data and literature supports VL as an important tool for educational equity though its impact is mediated by its implementation and school context.

DATA SOURCES

- *Breaking Down Barriers Community Profiles* (HILDA 2010-2019) [National dataset]
- *Destinations and Expectations* (2024-2025) (Kahoot!)
- *Tell Them From Me* (2024) [School survey data]
- *VLC Course Review* (2024) [Survey]
- *VLC Reporting data for NSW courses* (2023-2024)
- *Youth Wellbeing Survey* (EPOCH, 2024-2025)



RESEARCH QUESTIONS

- What is the impact of the Virtual Learning Collaborative on rural and regional students' postsecondary aspirations, course achievement and attainment of their school exit credential?
- What are the features, nature and impact of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that could contribute to improving rural and regional students' education outcomes and postsecondary aspirations?

68% of MCC students said VL had helped them with their career goals and 50% reported skill development through the VL courses



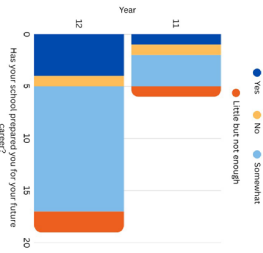
Golden Plains

Wendy Mockler Giles, The impact of the VIC on students' post-school aspirations.
Department of Education Policy, Leadership & Organization, University of Illinois, Urbana-Champaign

Forever Faithful.

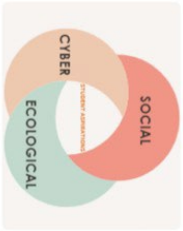
Supporting the Virtual Learning Collaborative
Since the VIC was established in 2023, St Anne's has had 15 students enrolled in 4 courses:

School profile
The profile examines three key perspectives: **social** (focusing on school belonging, behavior, and emotional management), **cyber** (examining curriculum quality, student academic performance, and digital inclusion), and **ecological** (analyzing the economic, demographic, and geographic contexts of each school's region).



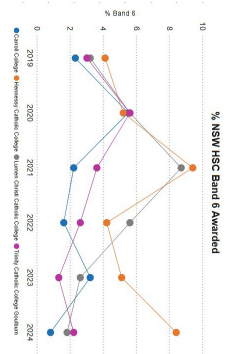
RESEARCH QUESTIONS

- What is the impact of the Virtual Learning Collaborative on rural and regional students' postsecondary aspirations, course achievement and attainment of their school exit credential?
- What are the features, nature and impact of the virtual delivery mode in the networked Virtual Learning Collaborative multi-campus model that could contribute to improving rural and regional students' education outcomes and postsecondary aspirations?



SOCIAL DIMENSION

In the *777M* survey, St Anne's students demonstrated exceptionally strong metrics for school belonging and safety, suggesting a highly supportive and inclusive school culture. This included good teacher-student relationships. In a localized survey based on the EPOCH Wellbeing survey, however, students scored very low on happiness suggesting a disconnect between social connection but struggled with optimism. Data indicated highly effective behavior management at St Anne's and high effort but low motivation. This suggests that students are compliant and work hard but are not intrinsically motivated by the curriculum content.



CYBER DIMENSION

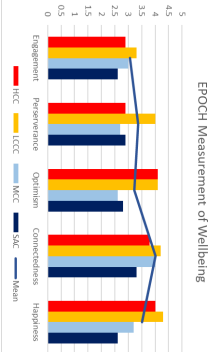
The Australian Digital Inclusion Index (ADII) for Temora is 65.3. This is the lowest among the NSW Colleges. It highlights challenges with digital access, affordability and digital literacy. In the *777M* there were strong scores for effective learning time, suggesting good classroom management and use of time. Curriculum relevance and rigor scores were moderate. St Anne's had the highest teacher-student relation score (7.6) but the lowest high-grade percentage (8.4%). There was a substantial disconnect between high belonging and low wellbeing which merits further investigation. There are limitations on sample size, however, so these initial findings are exploratory, not definitive for the *Youth Wellbeing Survey*. Students indicated that they chose a course for ATAR maximization but scored poorly on perseverance and engagement metrics (small sample size may also have contributed to a lower reliability). They reported high aspirations in the *Destinations an Expectations* survey, but this was not evident in the academic outcomes. Data suggests the need to strengthen VL and career connections to increase the perceived relevance of the virtual courses.

ECOLOGICAL DIMENSION

Geographical context:
Location classification: Outer Regional, approximately 420 km west of Sydney. The area is predominantly agricultural with a significant aviation heritage. The Outer Regional classification presents challenges for educational access and opportunities. The strong agricultural context likely influences curriculum offerings and student career aspirations.

- **Demographic Profile:**
 - School population: 282 students
 - ICSEA (Index of Community Socio-Educational Advantage): 1010
 - Bachelor degree or higher in the population: 15.2%
- The smaller school size allows for a more intimate learning community but may limit curriculum breadth. The ICSEA is slightly above the national average suggesting moderate socioeconomic educational advantage. The tertiary education rate suggests potentially varied career aspirations and pathways and a stronger vocationally orientated community.

Economic Context:
Temora's economy is heavily agricultural, particularly wheat, canola and sheep production. The aviation sector, that is the museum and aerodrome, provides some tourism and specialised employment. The region faces challenges common to rural areas including population sustainability and service provision. The predominantly agricultural economy likely influences school curriculum, work experience opportunities, and student career pathways. The school may have strong connections to local agricultural industries and related vocational pathways.



The St Anne's data shows a disparity between high effort and low motivation. It also showed the need to develop strategies that foster intrinsic motivation that complements the strong compliance and work ethic. Stronger alignment to career aspirations could feed into intrinsic motivation and improve intellectual engagement.

CONCLUSIONS

Strong Predictors of Academic Performance:

- Completion and quality of work: Shows the strongest correlation with grades
- "Time management and organisation" is also highly correlated with performance
- Commitment to ongoing "reflection and learning" demonstrates a clear step-wise relationship with grades

Predictive Value of Ratings:
Students rated "Always" in key categories typically scored 0.4-1.4 grade points higher than those rated "Sometimes," with consistent patterns across schools.

The analysis suggests that while school belonging is important for student wellbeing, its relationship with academic performance is complex. Specific learning behaviors and attitudes, particularly work completion, time management, and commitment to reflection, appear to be more directly predictive of academic outcomes.

The data suggests that when students select courses based on personal interests rather than strategic considerations, they experience higher wellbeing and perceive greater career influence from those courses.

FINDINGS

1. Need to establish a collaborative network to maintain Y12 engagement and develop shared resources for curriculum relevance in regional contexts.
2. VL courses appear to particularly support students aspiring to higher education pathways, with stronger influence reported among those planning university study.
3. The data and literature supports VL as an important tool for educational equity though its impact is mediated by its implementation and school context.

DATA SOURCES

- *Breaking Down Barriers Community Profiles* (HILDA 2010-2019) [National dataset]
- *Destinations and Expectations* (2024-2025) (Kahoot!)
- *Tell Them From Me* (2024) [School survey data]
- *VL Course Review* (2024) [SVW surveys] (2023-2024)
- *VL Course Reporting data for NSW courses* (2023-2024)
- *Youth Wellbeing Survey* (EPOCH, 2024-2025)

SCHOOL ON A PAGE