



Adolescents' educational aspirations and expectations: the interaction between school experiences, region, and financial disadvantage

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Received: 29 October 2024 / Accepted: 23 June 2025 / Published online: 7 October 2025
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Abstract

Adolescents residing in regional areas, and those from more financially disadvantaged families, traditionally have worse academic outcomes relative to their counterparts in metropolitan communities. A key mechanism that may account for these differences is how far individuals would like to progress in the educational system (aspirations) and how far they actually think they will progress (expectations). These plans are shaped by social background and schooling experiences, which can either reduce or amplify educational inequalities. Using two large Australian samples, we found that adolescents from metropolitan and financially advantaged families reported higher aspirations (Study 1, $N=3,896$) and expectations (Study 2, $N=3,956$) than their regional and more disadvantaged peers. In both studies, the school environment moderated the effects of family financial background on educational plans. School satisfaction (Study 1) and belonging (Study 2) amplified socioeconomic disparities, with gaps in educational future plans widening among students who felt more positive about school. These findings suggest that positive school environments may also inadvertently reinforce structural inequalities when broader barriers remain unaddressed.

Keywords Educational aspirations · Educational expectations · Financial stress · Material deprivation · Socioeconomic status · Region · Rural · School environment · School belonging · School satisfaction

1 Introduction

Educational aspirations and expectations are critical determinants of young people's life courses, influencing their academic trajectories and future success (Fray et al., 2020). However, decisions about one's future are not made in a vacuum. Rather, they are shaped by cumulative experiences within young peoples' evolving social environments (Archer et al., 2014). Young peoples' socioeconomic background and their communities play a role in making further education both desirable and practical, as do school environments (e.g., Geagea et al., 2017). Understanding how these social forces shape aspirations and expectations, and their interplay, is therefore important for educators and policymakers aiming to support students' educational journeys. In this paper, we present two Australian studies that investigate how financial disadvantage and living in regional areas shape educational aspirations and expectations, focusing on the moderating role of the schooling environment. Study 1 is a cross-sectional study on educational aspirations (also known as idealistic aspirations), while Study 2 longitudinally explores educational expectations (also known as realistic aspirations). Together, these studies provide crucial insights into the varying effects of the school environment on future educational outcomes across different geographic settings and experiences of financial constraints.

1.1 How socioeconomic and geographic factors shape adolescents' plans of educational progression

Decades of research confirms that socioeconomic background plays a critical role in shaping young people's educational aspirations and expectations (Fray et al., 2020; Sewell & Shah, 1968). Young people who live, learn, and play in financially disadvantaged homes, communities, and schools are less likely to want to attend university. Many theoretical developments have been advanced to articulate mechanisms through which these inequities emerge. We focus on two foundational models relevant to our study: the Wisconsin Model of Status Attainment (Haller & Portes, 1973; Jencks et al., 1983; Sewell et al., 2003) and Values-Expectancy Theory (Eccles & Wigfield, 2002, 2020). Figure 1 illustrates our attempt to integrate key features of these frameworks to explain how structural and social factors shape educational aspirations and expectations.

In summary, structural constraints, including cultural capital and material resources available to the household, as well as living in a metropolitan or regional area, can influence both a young person's potential for academic achievement, their family's and teachers' expectations, and their own aspirations and expectations. The Wisconsin model emphasises the role of socioeconomic background, typically measured through parental education, in shaping the attitudes of key socialisation agents (e.g., parents, teachers, and peers). Social norms and processes, including parental encouragement and pressure, peer comparisons, and school culture, subsequently shape individuals' beliefs about what is achievable or desirable in their educational journeys. The Expectancy-Value model similarly contends that socioeconomic factors shape the beliefs, attitudes, and pressures applied by key 'socialisers' in the lives of young people. However, this later theory also incorporates psychological factors

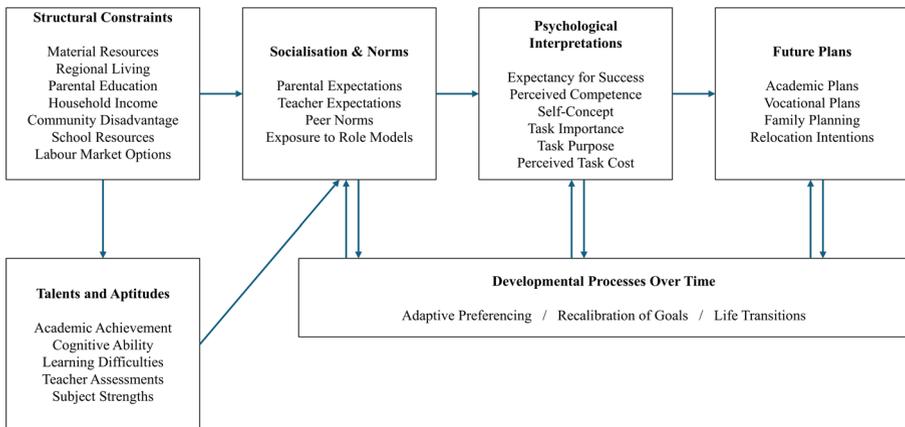


Fig. 1 A summary of theoretical processes that explain why adolescents in financially deprived, low-socioeconomic-status, and regional contexts may report lower educational expectations and aspirations Source: Authors' conceptualization, combining expectancy–value theory and the Wisconsin status-attainment model

into their explanation as social influences that are internalised as expectancy beliefs (perceptions of competence and likelihood of success) and subjective task values (importance, utility, and cost of pursuing further education). Both theories contend that cognitive abilities and the young person's aptitudes sit independent of structural disadvantages and equally shapes educational plans. Yet, evidence challenges this separation, demonstrating that cognitive abilities and brain development themselves are shaped by the outcomes associated with early socioeconomic conditions, including birthweight, early childhood learning environments, maternal wellbeing, and diet (Embleton et al., 2021; Gu et al., 2017; Han et al., 2023; Soares et al., 2024). Accordingly, Fig. 1 illustrates a direct link between socioeconomic factors and cognitive factors that are not present in either of these seminal theories.

In our work, we draw on these theoretical frameworks to examine the association between two key risk factors—financial disadvantage and regional living—and adolescents' plans for educational progression, namely aspirations and expectations. Both risk factors have consistently been linked to lower academic plans during adolescence. Unlike broader socioeconomic indicators such as household income or parental education, financial disadvantage captures the immediate, everyday pressures families face in meeting basic needs (Wilson et al., 2023). These pressures can directly influence young people's educational planning by fostering instability, a heightened need to contribute to family finances earlier in life, and reduced confidence in their ability to afford further education. In countries with high tertiary education costs, such as the United States, financial barriers alone can limit students' plans to attend university (Napolitano et al., 2014). However, the constraints are not purely financial. Adolescents from financially disadvantaged households are more likely to leave the family home earlier, increasing the pressure to enter the workforce immediately after school (Cobb-Clark & Ribar, 2012). Young people from disadvantaged backgrounds are also less likely to express hope for fulfilling careers in adulthood (Thompson et al., 2017; Wake & O'Donnell, 2024), which may reduce their motiva-

tion to invest in long-term educational pathways. Cross-national evidence further shows that economic downturns are associated with lower adolescent educational expectations, as young people adjust their goals to align with perceived economic realities (Salazar et al., 2020). Money, then, is clearly important in shaping adolescents' plans.

Regional differences in adolescent expectations and aspirations are also well established. It is consistently observed in nations like Australia (Vernon et al., 2018) and Canada (Andres & Looker, 2001) that young people in regional areas are less likely to aspire to attend university relative to their metropolitan counterparts. This gap is observed independent of other known determinants of educational expectations, like socioeconomic status (Echazarra & Radinger, 2019; O'Donnell et al., 2022). Perceptions of what is available and feasible may shape young people's educational aspirations (Andres & Looker, 2001; Gibson et al., 2022). Technological advancements have improved access to universities in regional areas. Nevertheless, compared with students in metropolitan areas, students in regional areas have more limited access to educational and employment possibilities (Australian Universities Accord Review Panel, 2024; White & Lee, 2020). In turn, vocational career pathways that align with the industries and economic conditions of the local area are more commonly pushed by parents and schools (Stokes et al., 2006; Vernon et al., 2018). As summarised by Kilpatrick and colleagues (2019), youth in regional areas have fewer 'archives of experience' navigating education and more limited means to 'find a way' of overcoming barriers. Moreover, socialisation processes and opportunities at school are known to be different. In Australia, for example, there is often limited access to cultural activities in regional areas (O'Donnell et al., 2022).

1.2 The school environment and adolescents' plans of educational progression

While the literature consistently demonstrates that socioeconomic factors strongly predict educational aspirations and expectations, it would be unrealistic to assume that this relationship is uniform across all students. Despite persistent inequities in higher education enrolment and graduation rates across regions and financial backgrounds, young people from disadvantaged and geographically isolated backgrounds do pursue university education (Reay et al., 2010). Understanding why this might be the case requires examination of the factors that either promote or constrain aspirations and expectations within disadvantaged groups. We argue that the schooling environment may be one such factor.

There is considerable evidence that young peoples' experiences in the classroom and school yard shape their studying intentions (Cunninghame et al., 2020). These schooling experiences are often examined within a broader cluster of psychological constructs, including school satisfaction (student's appraisal of the quality of their school life, Baker & Maupin, 2009), and how integrated students are in their school community (often termed belonging, connection, and identification, Goodenow, 1993; Reynolds et al., 2017). Although these constructs are theoretically distinct, our key argument is simple enough to be applied across schooling indicators. Namely, young people who enjoy school and feel welcomed will report higher educational aspirations.

A large scale, longitudinal study conducted in Australia found that school satisfaction was reliably correlated with expectations to attend University across each school year (Geagea et al., 2017). A more recent study from Hong Kong found both student-teacher relationships and school belonging predicted educational expectations (Wong et al., 2019). Research from Israel (Israelashvili, 1997), South Africa (Reddy & Fadji, 2020), England (Katsantonis, 2024), the United States (Hernández et al., 2016), and with Syrian refugees resettled in Türkiye (Mammadova & Aypay, 2023) all demonstrate associations between positive relationships at school and subsequent expectations or aspirations for higher education. We can therefore conclude that across national contexts and settings, a positive school environment characterised by enriching social relationships and a sense of satisfaction is reliably linked to a desire to continue studying.

While structural disadvantages create significant barriers and positive schooling experiences may promote ongoing educational plans, we can reasonably ask if these effects operate in isolation. Stated differently, we question whether these benefits of a positive school environment are equally distributed across socioeconomic and geographic groups. That is, in what way does the school environment moderate the association between a student's background and their educational plans? It is possible that schools act as sites of social reproduction, reinforcing disadvantage by limiting opportunities and expectations for more disadvantaged students (Lareau, 2011). On the other hand, it is also possible that schools could act as equalising institutions, providing the support and encouragement needed to overcome structural barriers (Downey et al., 2004).

1.2.1 The schooling environment exacerbates socioeconomic inequities

Rather than levelling the playing field, educational institutions often reinforce existing class structures. This occurs not only through curriculum and resources but through the social messages schools convey about post-school pathways. Schools have many functions, and advancing students on to higher education is not always a priority. Rather, schools operate to prepare young people for their life as adults which necessitates careful alignment of skills, interests, capacity, and social expectations (Calarco, 2011; Lareau, 2011; Willis, 2017).

In more affluent, metropolitan schools, university is typically positioned as the default option. Higher education is embedded in curriculum, reinforced by teacher expectations, and supported through structured guidance (Doyle et al., 2023). This is perhaps more the case in Australia, where concentration of students by social class in schools is high by OECD standards (OECD, 2019). In these contexts, a positive school environment comprised of academic support and strong teacher-student relationships can align with and promote university aspirations. In contrast, schools serving financially disadvantaged or regional communities may have different priorities. Career guidance is often limited, inconsistently delivered, or reliant on external providers (Billett et al., 2022; Houghton et al., 2021). Qualitative studies suggest that upward mobility often hinges on rare, chance events that grant access to dominant forms of capital (e.g., exposure to mentors, Archer et al., 2023). These moments of "luck" are unevenly distributed and cannot be reliably engineered by schools (Archer

et al., 2023; Lareau, 2015). As a result, school environments may encourage different futures depending on students' background and location, and may be unable to reliably increase university aspirations in a consistent way.

1.2.2 The schooling environment attenuates socioeconomic inequities

An alternative argument suggests that schools are 'the great equalisers' and offer compensatory mechanisms that reduce educational inequities (Downey et al., 2004). Drawing on the Compensatory Advantage Theory (Bernardi, 2014), high income and advantaged students are generally more resilient to negative experiences, meaning positive school experiences may be less influential for them because they have additional familial and financial resources that support educational persistence (Bernardi & Triventi, 2020; Heiskala et al., 2021). Thus, it is possible that connection to school is not a relevant driver of future educational plans amongst more advantaged young people who are likely to pursue higher education regardless of what happens in their adolescent years. In this case, the effect of schooling experiences on aspirations and expectations would be stronger amongst financially disadvantaged and regional young people.

This reasoning sits counter to the notion that idiosyncratic and luck-based mechanisms drive more aspirational plans amongst socioeconomically disadvantaged young people (Archer et al., 2023). Rather, this argument suggests that teacher support, positive peer influences, and school belonging can serve as universally protective factors that foster educational motivation among all students (Mann et al., 2024), but it is simply those from disadvantaged and more regional areas who are most likely to benefit. Young people living in cities and with more financial means are 'protected' from the adverse effects of poor belonging (Berkowitz et al., 2015). Similar arguments have been made about other school-based protective influences, including extracurricular activities (O'Donnell et al., 2022). This suggests that while socioeconomic disadvantages and regional living create real barriers, positive schooling environments can function as sites of upward mobility when they actively counteract the constraints imposed by economic and social background.

1.2.3 Competing theories, inconclusive data

Despite the clarity of these competing theories, empirical evidence remains limited. Accordingly, we argue that the relationship between school experiences and socioeconomic status remains under-examined. Theoretically, it is unclear whether school belonging or school satisfaction exacerbate or attenuate educational inequalities. Empirically, we are unaware of any study that explicitly tests our assertions. Moreover, it is possible that these factors do not interact in meaningful ways. Allen and colleagues (2022), for example, explored whether socioeconomic status moderated the link between school belonging and bullying. Their study used similar logic to ours, in that both exacerbating and buffering effects were plausible. Their findings revealed no interactions. A similar outcome is possible here: School belonging and socioeconomic status may exert additive, rather than interactive, effects on educational plans.

1.3 The current studies

There is clear evidence that financial disadvantage and living in regional areas contribute to lower educational aspirations and expectations. Likewise, there is clear evidence that school belonging, and satisfaction predicts these same outcomes. Theoretically, we can form defensible arguments that schooling environments can either exacerbate or attenuate the link between these risk factors and both aspirations and expectations. Moreover, there is limited prior research to confidently state which hypothesis is likely to be supported.

Outlined below, we provide two related studies exploring the association between socioeconomic factors and future educational plans, and the potential moderating influence of the school environment. We test our broad research questions using established data sources. These studies were therefore not explicitly designed to test our research hypotheses. Nonetheless, their public availability and high quality present an excellent opportunity to advance a novel line of inquiry to test our largely exploratory research questions. Across the two studies, we draw upon theoretically distinct but clearly overlapping psychological constructs and family demographic variables to test our hypotheses. We also rely on different analytical techniques to reflect the cross-sectional (Study 1) and longitudinal (Study 2) designs. An overview of these differences is found in Table 1. The differences in measurements between Study 1 and Study 2 are discussed as appropriate throughout; however, these variations also present a valuable opportunity to triangulate our findings and offer conceptual explanations.

Both studies were conducted in Australia, providing a suitable context for testing these associations. Despite having one of the largest landmasses in the world, Australia's population is highly city-centric, with over two-thirds of residents living in just eight major urban centers (Australian Bureau of Statistics, 2025). Accordingly, 'region' in Australia is defined broadly, including both large regional hubs and isolated communities (classified as 'remote'). The country's low population density, expansive outback regions, and the concentration of universities in capital cities create distinct educational environments that vary significantly between metropolitan and regional areas (Fray et al., 2020). There is a notable gap in both educational

Table 1 An overview of the methodology and measures available in Study 1 and Study 2

	Study 1	Study 2
Study Details		
Study Name	Australian Child Wellbeing Project	Longitudinal Study of Australian Children
Study Year(s)	2015	2011 (T1), 2013 (T2), 2015 (T3)
Age	Grade 8 Students	12/13 (T1), 14/15 (T2), 16/17 (T3)
Sample Size	3,896	3,956
Variables Analysed		
Region	Residing in a City (population $\geq 100,000$)	Residing in a Major Capital City (population approx. $\geq 1,000,000$)
Financial Disadvantage	Child Reported Family Affluence	Parent Reported Financial Stress
School Experiences	School Satisfaction	School Belonging
Outcome	Educational Aspirations	Educational Expectations

performance (Smith et al., 2019) and university attendance (Australian Universities Accord Review Panel, 2024; Ferguson, 2022; Parker et al., 2016) between regions and socioeconomic groups in Australia that have persisted despite repeated attempts by policy to address these inequities.

2 Study 1: a cross-sectional study of educational aspirations

Using data from a nationally representative sample of Australian youth (the Australian Child Wellbeing Project, ACWP), we examined the cross-sectional relationships between school satisfaction and educational aspirations. Moreover, we also considered the moderating role of region and financial disadvantage. In doing so, we aimed to contribute a deeper understanding of how educational environments shape students' future goals and aspirations, particularly in settings where resources and opportunities vary widely. In line with our theoretical perspectives and reasoning, we hypothesise that:

- (1) adolescents residing in regional communities would report lower educational aspirations than those in metropolitan areas;
- (2) financially disadvantaged adolescents (measured by a family affluence scale) would report lower educational aspirations than more advantaged adolescents;
- (3) school satisfaction would be positively associated with educational aspirations; and.
- (4) school satisfaction would moderate the associations between adolescent risk factors (region and financial disadvantage) and educational aspirations, such that greater school satisfaction could either exacerbate or attenuate these associations. The nature of these interactions, including the pattern of simple slopes, was examined as an exploratory follow-up.

3 Method

3.1 Openness and transparency

ACWP data is publicly available (Redmond et al., 2018). The project was not pre-registered, but all code and outputs are available online (<https://osf.io/83w67/>). In line with American Psychological Association guidelines, we acknowledge the use of generative artificial intelligence in the writing of this manuscript (Open AI, n.d.). AI was employed to generate a first draft of the introduction and discussion with specific prompts from the lead author in line with their theoretical understanding of the field and the articles identified during an initial literature search. This content was then reviewed and edited by all authors who take responsibility for the contents of this paper.

3.2 Participations and procedure

Conducted in 2014, the ACWP was a nationally representative and child-centred investigation of young people in Australia. The survey instrument was built collaboratively with a group of 97 young people, who were originally asked what they consider to be a good life. Following survey design and a field trial, schools were stratified within states and sectors to create a representative sample of Australians in Years 4, 6 and 8 (ages ranging from 9 to 14). The current study draws upon the adolescent responses of participants in Year 8 or age 14 ($N=3,896$). Participants mostly spoke English at home (92.9%), 3.5% identified as Aboriginal or Torres Strait Islander, and 79.9% attend a co-educational school. There was an approximately equal proportion of males (50.2%) and females.

3.3 Measures

3.3.1 Educational aspirations

Students were asked a single question about their plans following Year 12. Responses were coded into an ordinal variable reflecting increasing levels of educational aspiration. Participants intending to leave school before completing the compulsory period were coded as 1 (Year 10, $N=59$; Year 11, $N=38$). Those planning to complete high school (Year 12, $n=396$) were coded as 2. Vocational training aspirations, including trade qualifications ($N=204$) and TAFE certificates ($N=265$), were grouped and coded as 3. Participants who aspired to attend university were coded as 4 ($N=2916$).

3.3.2 School satisfaction

The School Satisfaction Scale (originally developed for the Longitudinal Surveys of Australian Youth, Marks, 1998) was derived from six items (e.g., My school is a place where I feel safe and secure). Responses ranged from 1 (strongly disagree) to 4 (strongly agree). Responses demonstrated high internal consistency ($\alpha=0.90$, $\omega=0.90$). As outlined in the online supplementary materials, an exploratory factor analysis (EFA) confirmed that the scale was unidimensional, with all items loading strongly on a single factor (see Table 2 for descriptive statistics).

3.3.3 Financial disadvantage

A material wellbeing score was calculated with the Family Affluence Scale (FAS), validated and used by the Health Behaviour in School Aged Children (Hartley et al., 2016). Young people responded to six items, asking them if they had their own bedroom, if they had a dishwasher in their home (0=no, 1=yes), how many cars their family owned (0, 1, 2), how many holidays had been on in the previous year, the number of computers in their home, and bathrooms (0, 1, 2, 3 or more). In line with other research (Redmond et al., 2024), we summed these items together forming a composite score ranging from 0 to 13, with higher scores representing lower disadvantage. The measure performs lower than expected on standard indicators of

Table 2 Descriptive statistics for our main outcome and predictor variables across Study 1 and Study 2

	Study 1	Study 2		
		Time 1	Time 2	Time 3
Aspirations/Expectations				
Leave School Early	2.3%	3.5%	1.9%	1.1%
Complete High School	10.9%	23.8%	16.5%	15.2%
Trade or vocational training	12.5%	18.4%	16.6%	16.9%
Complete University	74.4%	54.2%	65.1%	66.9%
School Satisfaction/Belonging				
Mean (SD)	2.83 (0.64)	3.96 (0.69)	4.08 (0.62)	3.98 (0.63)
Range	1 to 4	1 to 5	1.37 to 5	1.12 to 5
Financial (Dis)advantage				
Mean (SD)	9.61 (2.12)	0.29 (0.72)		
Range	0 to 13	0 to 4		
% Least with Least Disadvantage	6.33%	83.19%		
Region				
Major Capital City		63.4%		
City	71.53			
Inner Regional	28.47%	22.1%		
Other Regional and Remote		14.5%		

reliability ($\alpha = 0.49$, $\omega = 0.50$). Nonetheless, a subsequent EFA confirmed a single factor solution (see online supplementary materials).

3.3.4 Region

The region of residence was classified as metropolitan or non-metropolitan based on school location. This classification was derived from school-level information. In the current study, the study administrators adopted a binary classification in which metropolitan regions included schools located in state capital city areas or major urban centres with populations over 100,000 (Lietz et al., 2015). All other areas (including regional and remote communities, alongside small regional hubs) were coded as regional. In our sample, 72.1% of students were classified as residing in metropolitan areas.

3.3.5 Covariates

Four covariates were included: sex (male, female), community socioeconomic status, disability status, and subjective academic performance. Community socioeconomic status (SES) was an indicator of the affluence of the suburb where the student's school was located and was obtained using the Index of Relative Socioeconomic Disadvantage derived using aggregated information from the Australian Census (Australian Bureau of Statistics, 2018). Data were recoded by the study administrators to represent low SES (1, 18%), middle SES (2, 36.1%), and high SES (3, 45.9%). Student disability status was based on self-identification in the survey (10.4%). Finally, we included a measure of self-reported academic achievement (1 = *Below Average* to 4 = *Very Good*).

3.4 Analytical strategy

Logistic regression was conducted in Mplus (v8.4, Muthén & Muthén, 2017) treating educational aspirations as an ordered categorical variable. Maximum likelihood estimation with robust standard errors (MLR) was used. Participants were clustered into schools, thereby allowing the MLR estimation to adjust the standard errors for non-independence. A weight was also applied to ensure the results reflected the population (for more information about the weighting variable, see Lietz et al., 2015). Financial advantage, region, and school satisfaction were entered as predictors of educational aspirations in the analysis alongside the covariates and two interaction terms (region x school satisfaction; financial advantage x school satisfaction). A significant interaction was probed using simple slope analysis (Cohen et al., 2002) comparing the strength of the relationship between region and educational aspiration for students at mean levels of school satisfaction, and both one standard deviations above (high) and below (low) the mean.

4 Results

The results from the moderated regression analysis (Table 3) indicated that adolescents who attended schools in more affluent communities and reported higher subjective academic performance had significantly higher educational aspirations. Additionally, females reported higher aspirations than males. School satisfaction, region, and family advantage were also significant predictors: students who were

Table 3 Moderated regression analysis exploring the relationship between school satisfaction and educational aspirations

	b [CI _{95%}]	p	Odds Ratio [CI _{95%}]	β
Gender ^a	0.54 [0.23 to 0.85]	<0.001	1.72 [1.26 to 2.33]	0.26
Socioeconomic Status	0.37 [0.14 to 0.61]	0.002	1.45 [1.15 to 1.83]	0.18
Disability Status ^b	-0.14 [-0.56 to 0.27]	0.504	0.87 [0.57 to 1.31]	-0.07
Subjective Academic Performance	0.50 [0.34 to 0.66]	<0.001	1.64 [1.40 to 1.93]	0.24
School Satisfaction	0.49 [0.29 to 0.68]	<0.001	1.62 [1.34 to 1.97]	0.23
Family Affluence	0.17 [0.10 to 0.24]	<0.001	1.18 [1.10 to 1.27]	0.08
Region ^c	-0.87 [-1.27 to -0.47]	<0.001	0.42 [0.28 to 0.62]	-0.42
Family Affluence x School Satisfaction	0.10 [0.01 to 0.19]	0.023	1.10 [1.01 to 1.21]	0.05
Region x School Satisfaction	0.06 [-0.26 to 0.37]	0.731	1.06 [0.77 to 1.45]	0.03

^a 0=Male, 1=Female; ^b 0=No Medical Condition, 1=Medical Condition

^c 0=Metropolitan, 1=Regional

more satisfied with school reported greater access to material resources, lived in capital city areas, and had significantly higher educational aspirations.

Crucially, there was a significant interaction between family advantage and school satisfaction. The strength of the association between family advantage and aspirations varied according to students' satisfaction with school. At high levels of school satisfaction ($+1$ *SD*), family advantage was more strongly associated with aspirations ($OR=1.26$), indicating a 26% increase in the odds of higher aspirations per unit increase in family advantage. At low levels of school satisfaction (-1 *SD*), this association was weaker ($OR=1.11$), reflecting an 11% increase in odds. These findings, although small in magnitude, suggest that positive school experiences may amplify the advantages conferred by material resources, while low school satisfaction may dampen this effect. There was no evidence that school satisfaction significantly moderated the association between region and educational aspirations.

To assess the robustness of our findings, we conducted seven sensitivity analyses (summarised in Table 4). These analyses varied our handling of missing data, the estimation methods employed, and the coding of key variables. Of note, we reran the analyses using the original six-category aspirations variable, as well as a dichotomised version distinguishing students who aspired to attend university from all other respondents. We also re-coded indicators of family disadvantage into binary variables reflecting the absence of material resources. Across all seven sensitivity tests, the direction and significance of both main effects and interaction terms remained consistent, supporting the stability of our findings. All sensitivity analyses have been shared online.

5 Discussion

Study 1 examined how adolescents' educational aspirations are shaped by their geographic location, family socioeconomic background, and experiences at school. Based on existing theory, we anticipated that students from metropolitan areas, more advantaged family backgrounds, and those who were more satisfied with school would report higher educational aspirations. Our findings supported each of these hypotheses. Students living in capital cities and those from households with greater access to material resources were more likely to aspire to university, as were students who reported higher school satisfaction. These main effects reflect persistent and well-documented inequalities in educational outlook (Fray et al., 2020; Johnson & Hitlin, 2017; Laurin et al., 2024). The fact that they continue to emerge across multiple datasets and studies reinforces the urgency of understanding the structural and contextual factors that shape young people's aspirations. In line with this urgent need, we also explored whether these effects might interact in ways that either reinforce or mitigate existing inequalities.

We hypothesised that the schooling environment would interact with both regional location and financial disadvantage, though the direction of these interactions was theoretically uncertain. While some perspectives suggest that positive school experiences can buffer educational disadvantages associated with socioeconomic factors (Berkowitz et al., 2015), other perspectives align with advantaged students leverag-

Table 4 Summary of 20 sensitivity tests conducted for studies 1 and 2, highlighting key methodological variations from the primary analyses and whether their results replicated those reported in the main text

Sensitivity Test Categories	Specific Sensitivity Analyses	Study 1		Study 2	
		Main Effects ^a	Interactions ^b	Main Effects ^a	Interactions ^b
Approach to Missing Data	Multiple Imputation	✓	✓	✓ [◇]	✗
	Listwise Deletion	✓	✓	✓ [◇]	✗
Estimator	Bayesian	✓	✓	✓ [♦]	✓
	WLSMV	✓	✓	-	-
Outcome Measures	Original Aspirations Scale (1 to 6)	✓	✓	-	-
	Dichotomised (Uni vs. Other)	✓	✓	✓ [◇]	✗
Socioeconomic Indicators	Recoded Total Family Disadvantage	✓	✓	-	-
	Dichotomised Financial Stress (0/1)	-	-	✓ [◇]	✗
	Financial Stress Windorised to 2	-	-	✓ [◇]	✗
	Financial Stress Windorised to 3	-	-	✓ [♦]	✓
	Financial Stress Windorised to 5	-	-	✓ [♦]	✓
	Full Financial Stress Scale (0 to 6)	-	-	✓ [♦]	✓
	Full PSSM Scale (inc. negative qs.)	-	-	✓ [♦]	✓
School Environment Cognitive Ability	Subjective Academic Performance	-	-	✓ [♦]	✓
	Executive Functioning, Attention	-	-	✓ [♦]	✓
	Executive Functioning, Working Memory	-	-	✓ [♦]	✓

^a Denotes if the associations between the financial, regional, and schooling indicators with aspirations (Study 1) and the slope of expectations (Study 2) is the same direction and significance as those reported in our intext analyses

^b Denotes whether the interaction terms in the sensitivity test is of the same direction and significance as those reported in our intext analyses

♦ Financial stress is positively and significantly associated with slope of educational expectations (replicating main analysis).

◇ The main effects of region are replicated; however, financial stress is not positively associated with the slope of educational expectations

ing a better position to capitalise on supportive environments (Lareau, 2011). Our findings on financial advantage supported the latter: school satisfaction amplified the association between family advantage and aspirations, with material advantage conferring the greatest benefits when paired with a positive school experience. In contrast, school satisfaction did not moderate the effect of geographic location, implying that regional disparities in aspirations may stem from broader structural constraints that school climate alone cannot alter. For example, qualitative evidence highlights the complexity of decision-making in regional areas, where young people often

weigh the desire to stay in their community against the need to relocate for further education (Evans, 2016).

While these findings are compelling, the cross-sectional nature of the data limits our ability to draw meaningful conclusions about temporal precedence. For example, it is possible that aspirations shape students' perceptions of school, or that unmeasured third variables shape both. Longitudinal research can help address these issues.

6 Study 2: educational expectations over time

Building on the findings from Study 1, we extend our investigation into how school environments shape young people's educational outlooks by using longitudinal indicators of slightly different constructs (see Table 1). While our measures differ, our key theoretical premise remains as we continue to explore how experiences at school interact with financial and geographic based risk factors shape how students envision their future selves over time.

In this study, we shift our focus from educational aspirations to expectations. Although closely related, aspirations and expectations represent distinct constructs. Aspirations reflect what young people hope to achieve, while expectations reflect their judgments about what is realistically attainable (Harrison & Waller, 2018). Drawing on Markus and Nurius' (1986) idea of possible selves, expectations fall between ideal selves and likely outcomes. This distinction takes on particular importance when considering both developmental processes (see Fig. 1) and the financial and geographic background of young people.

Changes in educational expectations vary considerably depending on the study context and the developmental window observed. For example, studies from Finland (Tynkkynen et al., 2012) and the UK (McCulloch, 2017) found that the vast majority of adolescents maintained stable expectations, with roughly equal numbers reporting increases and decreases. In contrast, a recent study from China observed slight upward shifts in expectations, from college to university, during pre-adolescence (He et al., 2023). Other evidence from the U.S. suggests that younger generations may be scaling back their expectations over time, albeit from a starting position of historically high preferences for post-school education (Park et al., 2015). Looking at these average rates of change can obscure meaningful differences within any given cohort of young people. In an era when higher education costs more, limits workforce participation, and can require living with parents for longer, it is reasonable to suggest that expectations will deviate from aspirations amongst low income and regionally located young people. Indeed, empirical evidence clearly documents falling expectations amongst the most disadvantaged young people (McCulloch, 2017), and a widening gap between aspirations and expectations (Boxer et al., 2011). The concept of adaptive preference captures this dynamic, whereby expectations are gradually recalibrated in response to structural constraints and prevailing social norms (Hu et al., 2022; Kraus & Stephens, 2012).

Our key predictor variables, although conceptually aligned with those used in Study 1, were also different. Conducting secondary data analysis on previously established data sources, these differences reflect the indicators available within each data-

set that most clearly map onto our key theoretical argument. In Study 2, we examine school belonging, defined as students' sense of fit, inclusion, and connection to teachers and peers within their school community (Goodenow, 1993; Reynolds et al., 2017), as a counterpart to the school satisfaction measure used in Study 1. In place of the material possessions index used in Study 1 to represent financial advantage, Study 2 includes parent-reported financial stress, defined as the burden of meeting basic expenses and offers an alternative lens on socioeconomic disadvantage. While the measures differ in form, they are conceptually related and allow us to explore consistent patterns across studies using nationally representative samples.

Study 2 aimed to replicate and extend the hypotheses tested in Study 1 using a second nationally representative sample of Australian youth (the Longitudinal Study of Australian Children, LSAC). We hypothesised that:

- (1) adolescents residing in regional and remote areas would report decreasing educational expectations over time, relative to those in metropolitan areas;
- (2) adolescents with higher financial disadvantage (measured with financial stress) would report decreasing educational expectations over time, relative to their peers in more advantaged families;
- (3) school belonging would predict higher (intercept) and increasing (slope) educational expectations; and.
- (4) school belonging would moderate the association between financial stress and change in educational expectations, such that higher belonging would amplify the association between financial disadvantage and expectations. Based on findings from Study 1, we did not predict interactions involving region in Study 2.

To analyse these longitudinal data, we employ latent growth curve modelling (LGCM), an ideal approach for this type of investigation. LGCM allows us to isolate the initial levels of educational expectations from their rates of change over time (Duncan & Duncan, 2009). This method provides a sophisticated means of understanding how trajectories of educational expectations unfold. Through these longitudinal models, we can address the limitations of our first cross-sectional study and provide a more comprehensive view of the developmental trajectory of educational expectations among Australian adolescents.

7 Method

7.1 Openness and transparency

LSAC data is publicly available for suitably qualified researchers (Department of Social Services et al., 2023). Previous use of this data have explored regional differences in educational expectations, albeit using a different analytical approach and while exploring the influence of extracurricular activities (O'Donnell et al., 2022). Analyses were not preregistered, and the outputs are available online (<https://osf.io/83w67/>).

7.2 Participations and procedure

Commencing in 2004, LSAC recruited new births (B-cohort) and children eligible for kindergarten (K-cohort) from a government-based health system that recorded almost all Australian births (Sanson et al., 2002). With data collection occurring every second year, the current study uses responses from the K-cohort when they were aged 12/13 (LSAC wave 5, T1, $N=3,956$), 14/15 (LSAC wave 6, T2, $N=3,526$), and 16/17 (LSAC wave 7, T3, $N=3,048$). In our first timepoint, 96.1% of participants were born in Australia, 2.9% reported identifying as Aboriginal and/or Torres Strait Islander, and most participants were attending a government school (52.5%) with comparable number of young people attending Catholic (24.2%) and independent (22.5%) schools. There was an approximately equal distribution of males (51.1%) and females. Surveys were conducted across time using in home and computer-assisted interviewing techniques.

7.3 Measures

7.3.1 Educational expectations

Educational expectations were assessed with a single-item ordinal measure. Adolescents were asked, "How far do you believe you will go in your education?" Response options were coded as 1 = *leave school before finishing*, 2 = *complete high school*, 3 = *complete a certificate or vocational training*, and 4 = *complete a university degree*.

7.3.2 School belonging

The Psychological Sense of School Membership scale, developed by Goodenow (1993), presented participants with 12 positive and negative statements about school. Items included "*People here notice when I'm good at something*" and "*The teachers here respect me.*" Responses were recorded on a 5-point scale, ranging from 1 (Not at all true) to 5 (Very true). Although the full scale is regularly used (O'Donnell et al., 2024), the PSSM has been criticised for method effects, with factor analyses regularly observing a two factor solution defined by positively and negatively worded questions (Ye & Wallace, 2014, e.g., "*Sometimes I don't feel like I belong here*"). In our study, an initial exploratory factory analysis on the PSSM at Time 1 similarly revealed a two-factor solution defined by method effects. Subsequently, we removed the four negatively worded items and validated a single factor longitudinally during confirmatory factor analysis, ultimately establishing partial scalar invariance across time (see our online materials for a full description of our factor analyses). The final scale was internally consistent across time (T1: $\alpha=0.81$; $\omega=0.81$; T2: $\alpha=0.83$; $\omega=0.83$; T3: $\alpha=0.83$; $\omega=0.82$). To conduct our main analyses, an average was calculated, with higher scores indicating a greater sense of connection to school.

7.3.3 Financial disadvantage (stress)

Parents were provided with a list of 6 different behaviours (e.g. *Could not pay the mortgage or rent payments on time*) that could arise due to financial hardship and asked if they had occurred in the previous 12 months (1 = *Yes*, 0 = *No*). Responses were summed to form a composite score. As few parents reported experiencing 5 ($N=8$) or 6 ($N=3$) financial stressors, responses were windorised to form a 0 to 4 scale in line with previous research (O'Donnell et al., 2023). The measure had poor internal consistency ($\alpha = 0.61$, $\omega = 0.63$) but was validated as a single factor following an EFA (see online supplementary materials).

7.3.4 Region

Participants' residential areas was categorised using the Accessibility/Remoteness Index of Australia (ARIA+, Glover & Tennant, 2003), which quantifies remoteness by measuring road distances to the nearest service centres (e.g., healthcare, education) in population-defined localities. Localities with larger populations are assumed to provide a greater range of services. The Australian Bureau of Statistics (2021) uses this information to create remoteness areas, categorised as Major Cities, Inner Regional, Outer Regional, Remote, and Very Remote. Only five Australian capital cities are designated as Major cities, each with populations greater than 1 million. To account for the categorical nature of the remoteness index while preserving interpretability, we created two dummy-coded variables. The first identified participants living in Inner Regional areas (coded 1; all others = 0), while the second grouped those in Outer Regional, Remote, and Very Remote areas together (coded 1; all others = 0). Participants in Major City areas were coded as 0 in both variables, allowing for comparison against this category.

7.3.5 Covariates

Five variables were included as covariates, largely mapping onto the approach taken in Study 1. In addition to age and gender, we controlled for community socioeconomic status measured with the Index of Relative Socioeconomic Disadvantage (Australian Bureau of Statistics, 2018). With raw scores available, we used a continuous indicator of SES whereby 0 represented the average Australian community and higher scores denoted less disadvantage. Next, disability status was derived from a single item addressed to the parent (typically the child's mother) "Does the study child have a medical condition or disability that has lasted for 6 months or more?" Using this approach, 4.6% of the sample was identified as having a disability (O'Donnell et al., 2023a, b). Academic performance was measured with a standardised test. The National Assessment Program, Literacy and Numeracy (NAPLAN) is a nationwide assessment conducted annually in Australia for students in Years 3, 5, 7, and 9. It measures core skills in reading, writing, language conventions (spelling, grammar, and punctuation), and numeracy, providing a snapshot of students' progress against national educational standards. We used NAPLAN scores from Year 7, linked by the

data custodians following parental consent (Daraganova et al., 2013). An average of each test score was created and included as a covariate.

7.4 Analytical strategy

Initially, bivariate correlations and descriptive statistics were inspected. Unconditional latent growth curve models were then independently estimated for school belonging and educational expectations. These analyses provide an indication of within-person change over time via an intercept (i.e., starting point) and slope coefficient (i.e., the magnitude and direction of change over time; Duncan & Duncan, 2009). A subsequent model tested for parallel growth and evidence for bi-directional influence via the covariance of the slope coefficients and the inclusion of the intercepts as predictor variables, respectively (Wickrama et al., 2021). A relationship between the intercept of one construct and the slope of another would suggest the presence of a temporal effect, whereby changes in the outcome variable across adolescence is dependent upon participant's initial response on another construct. Region, financial stress, and all other covariates were concurrently entered as predictors of the slopes and intercepts, where appropriate. Educational expectations were treated as ordered categorical (rank) measures.

In addition, three interaction terms were computed using the approach by Klein and Moosbrugger (2000). These interactions tested if school belonging moderated the relationship between (1) financial stress, (2) the first dummy coded region variable, and (3) the third dummy coded region variable, with the slope of educational expectations. Congruent with Study 1, significant interactions were probed using simple slopes. A sandwich estimator accounted for the clustering of multiple participants within specific schools in Mplus. Missing data analyses on our longitudinal variables indicated that attrition resulted in patterns of missingness that were not completely random, $\chi^2(103)=415.14, p<.001$ (Little, 1988). To address this, full information maximum likelihood (FIML) estimation was used, as it provides unbiased parameter estimates under the assumption that data are missing at random. The default Mplus settings apply FIML to missing data on outcome variables only. Cases with missing data on predictors or covariates are excluded from the analysis. The LSAC weighting variable (Cusack & Defina, 2013) ensured our results were still generalisable and nationally representative.

8 Results

8.1 Unconditional latent growth curves: intraindividual growth in school belonging and educational expectations

An unconditional growth curve model indicated that, on average, participants reported a strong sense of belonging to their school (*intercept*=3.99, $p<.001$). Overall, there was no significant change in school belonging over time at the group level (*slope* = -0.001, $p=.940$). However, the significant variance in the slope (*variance*=0.03, $p=.002$) suggests meaningful individual differences in trajectories, inferring that at

least some young people in our sample experienced increases or decreases across the study period. This model provided adequate model fit, $\chi^2(1) = 105.86$, $p < .001$; $SRMR = 0.07$; $CFI = 0.91$, $RMSEA = 0.16$. In contrast, participant's educational expectations increased as participants progressed through their schooling years ($slope = 0.16$, $p < .001$), $\chi^2(3) = 30.77$, $p < .001$; $SRMR = 0.01$; $CFI = 0.99$, $RMSEA = 0.05$. At T1, 54% of adolescents expected to complete a university degree, rising to 67% by T3 (Table 2).

8.2 Moderated parallel growth curve model

Initially, a parallel growth curve model was estimated without interaction terms to assess model fit for the theorised main effects. The model demonstrated good fit to the data: $\chi^2(28) = 48.02$, $p = .011$; $SRMR = 0.07$; $CFI = 0.99$; $RMSEA = 0.01$. Interaction terms were then entered into the model.

When modelled in parallel (Table 5), the intercepts of school belonging and educational expectations were significantly and positively associated ($\phi = 0.19$, $p < .001$), indicating that adolescents who reported a stronger sense of school belonging at baseline also reported higher educational expectations. However, there was no evidence of concurrent change over time: increases in school belonging were not significantly associated with changes in educational expectations ($\phi = 0.02$, $p = .165$). The intercept of school belonging did, however, significantly predict steeper increases in educational expectations over time, suggesting that those who began with stronger school connections were more likely to increase their expectations during adolescence. No other intercept-level associations were significant.

Academic performance was positively associated with initial levels of school belonging. No other covariates were significantly associated with school belonging at baseline, though this model did not include region or financial stress as direct predictors due to their inclusion in interaction terms. In terms of educational expectations at baseline, significant positive predictors included being female, residing in a high-SES community, higher academic performance, living in a major city (relative to an inner regional area), and experiencing lower financial stress.

Few longitudinal predictors were significant. However, male students, those residing in high-SES communities, and those living in inner regional areas (compared to major cities) were more likely to report increasing school belonging over time. In contrast, females reported steeper increases in educational expectations. Unexpectedly, financial stress was positively associated with the slope of educational expectations. However, this finding must be interpreted alongside its negative main effect on the intercept: while adolescents experiencing financial stress began with lower expectations, they showed slightly more growth over time. It is also worth noting that when interaction terms were removed from the model, this association became negative and non-significant. Similarly, the association was not statistically significant in five of our sensitivity tests (Table 4), suggesting that the positive slope effect may be contingent on the interaction and is unreliable.

A significant interaction emerged between starting levels of school belonging and financial stress in predicting change in educational expectations. Simple slopes analysis showed that at low levels of school belonging, financial stress was positively,

Table 5 A parallel growth curve model exploring the relationship between the school belonging at the age of 12 and 13 on the trajectory of educational expectations across regions and financial disadvantage

	School Belonging				Educational Expectations			
	Intercept		Slope		Intercept		Slope	
	<i>b</i> [CI _{95%}]	β	<i>b</i> [CI _{95%}]	β	<i>b</i> , [CI _{95%}]	β	<i>b</i> [CI _{95%}]	β
Gender ^a	0.02, <i>p</i> = .395 [-0.03 to 0.07]	0.04	-0.05, <i>p</i> < .001 [-0.07 to -0.02]	-0.29	0.21, <i>p</i> = .042 [0.01 to 0.41]	0.09	0.21, <i>p</i> = .005 [0.06 to 0.36]	0.34
Age	-0.03, <i>p</i> = .249 [-0.08 to 0.02]	-0.06	0.01, <i>p</i> = .540 [-0.02 to 0.04]	0.06	0.05, <i>p</i> = .622 [-0.14 to 0.23]	0.02	-0.07, <i>p</i> = .343 [-0.22 to 0.08]	- 0.12
Community Socioeconomic Status	0.17, <i>p</i> = .307 [-0.16 to 0.50]	0.36	0.31, <i>p</i> = .004 [0.10 to 0.51]	1.95	1.84, <i>p</i> = .019 [0.30 to 3.38]	0.83	0.94, <i>p</i> = .110 [-0.21 to 2.10]	1.54
Disability Status ^b	-0.10, <i>p</i> = .110 [-0.23 to 0.02]	-0.22	0.03, <i>p</i> = .421 [-0.04 to 0.10]	0.19	-0.22, <i>p</i> = .361 [-0.70 to 0.25]	-0.10	-0.03, <i>p</i> = .894 [-0.39 to 0.34]	- 0.04
Academic Performance	0.18, <i>p</i> < .001 [0.14 to 0.23]	0.39	-0.02, <i>p</i> = .379 [-0.06 to 0.02]	-0.12	2.22, <i>p</i> < .001 [1.98 to 2.46]	1.01	0.16, <i>p</i> = .247 [-0.11 to 0.42]	0.26
Region 1 (Major City vs. Mod Accessible)	-	-	0.04, <i>p</i> = .038 [0.002 to 0.07]	0.22	-0.49, <i>p</i> < .001 [-0.74 to -0.23]	-0.22	1.37, <i>p</i> = .091 [-0.22 to 2.95]	2.24
Region 2 (Major City vs. Mod Accessible)	-	-	0.02, <i>p</i> = .461 [-0.03 to 0.06]	0.10	-0.26, <i>p</i> = .075 [-0.55 to 0.03]	-0.12	-0.04, <i>p</i> = .960 [-1.78 to 1.67]	- 0.07
Financial Stress	-	-	0.01, <i>p</i> = .955 [-0.02 to 0.02]	0.01	-0.16, <i>p</i> = .033 [-0.31 to -0.01]	-0.07	0.91, <i>p</i> = .018 [0.16 to 1.67]	1.50
School Belong- ing Intercept	-	-	-0.08, <i>p</i> = .100 [-0.17 to 0.02]	-0.23	-	-	0.37, <i>p</i> = .029 [0.04 to 0.69]	0.28
Educational Expectations Intercept	-	-	0.01, <i>p</i> = .507 [-0.01 to 0.02]	0.08	-	-	-0.12, <i>p</i> = .067 [-0.25 to 0.01]	- 0.43
Region 1 x School Belong- ing Intercept	-	-	-	-	-	-	-0.36, <i>p</i> = .079 [-0.75 to 0.04]	- 0.28

Table 5 (continued)

	School Belonging				Educational Expectations				
	Intercept		Slope		Intercept		Slope		
	<i>b</i>	β	<i>b</i>	β	<i>b</i> , [CI _{95%}]	β	<i>b</i>	β	
Region 2 x School Belong- ing Intercept	-	-	-	-	-	-	-0.03, <i>p</i> = .892 [-0.47 to 0.41]	-	0.02
Financial Stress x School Belonging Intercept	-	-	-	-	-	-	-0.25, <i>p</i> = .011 [-0.44 to -0.06]	-	0.19

^a 0 = Male, 1 = Female; ^b 0 = No Medical Condition, 1 = Medical Condition

though not significantly, associated with educational expectations ($b = 0.09$, $p = .245$). At average levels of school belonging, this association was negative but still not significant ($b = -0.08$, $p = .151$). At high levels of school belonging, however, financial stress was significantly and negatively associated with expectations ($b = -0.24$, $p = .008$). This suggests that for adolescents who felt more connected to school, financial stress may have had a stronger dampening effect on the development of educational expectations over time, contributing to greater inequities between students from families with differing resources.

Our subsequent sensitivity analyses (Table 4) largely confirmed our findings, with some exceptions. Contrary to our main findings, the interaction between financial stress and school belonging was not statistically significant when using alternative approaches to missing data (both multiple imputation and listwise deletion). Nonetheless, FIML remains the most common and highly recommended approach to address missingness under most circumstances (Xiao & Bulut, 2020), providing confidence in our key conclusions. Similarly, our key findings were not replicated when we recoded the financial stress variable to have a reduced scale. Rather than undermine our key conclusions, these sensitivity tests provide important information on the boundaries of our findings, demonstrating that the magnitude of social inequities grows as multiple financial hardships compound into more far-reaching types of stressors. Notably, our findings were replicated when the upper limit of the financial stress measure ranged from 3 to 6. The LSAC study is a rich data source, providing different indicators of cognitive and academic abilities. We therefore also tested our model with different covariates, including a measure of subjective academic performance that is comparable to Study 1 (*I'm good at most school subjects*, 1 = *Strongly Agree* to 4 = *Strongly Disagree*). We also used executive functioning measures from the well validated CogState cognitive testing battery, including indicators of attention and working memory (see Yu & Daraganova, 2017 for an overview of the measure and scoring). Our findings were replicated. Finally, we used the full school belonging measure prior to our removal of items following the factor analysis (outlined in the method). Again, our key findings were replicated.

9 Discussion

In our second study, we built upon the cross-sectional findings from Study 1 by examining longitudinal associations between school belonging and educational expectations. Our hypothesised main effects, designed to explore differences in how educational expectations change across adolescence, were largely unsupported. Although educational expectations typically increased as adolescents approached the end of secondary school, this positive trajectory was largely unconstrained by financial stress and those residing outside of major cities. This is largely inconsistent with past research (e.g., McCulloch, 2017), but may reflect the importance of initial educational expectations. The majority of young people expected to move onto further education after high school in our study, but these earlier expectations occur against a background of persistent socioeconomic disparities (see Park et al., 2015). Specifically, living in an inner regional area (compared to a major city) and experiencing greater financial stress were associated with lower initial expectations, indicating early structural disadvantages. It is therefore possible that the effects of financial stress and region on expectations occur early in life and are more difficult to compensate for at a later age, despite the developmental processes and adaptive preferencing we theorized would occur during adolescence. Interestingly, we did not observe a similar baseline disparity for students living in remote areas, possibly due to small sample sizes or the unique contextual factors of remote communities not captured by our broad geographic classifications.

Most notably, we found a significant interaction between school belonging and financial stress over time. Rather than buffering the negative influence of financial hardship, higher levels of school belonging appeared to magnify the disparities in educational expectations, resulting in shallower increases for financially disadvantaged adolescents. This finding mirrors our earlier cross-sectional results and underscores a critical point: although school belonging is broadly beneficial, its positive impacts can inadvertently reinforce existing socioeconomic inequities when structural barriers remain unaddressed. Taken together, our findings highlight the need for targeted strategies to ensure that efforts to enhance school environments equitably support students across diverse socioeconomic and regional contexts.

10 General discussion

Drawing on two large, nationally representative Australian samples, we examined the role of school satisfaction and belonging on future educational plans, with a focus on how these school-based factors interact with structural disadvantages such as region and financial disadvantage. Across both studies, we found that positive school experiences were associated with higher aspirations and expectations, but these benefits were not equally distributed. Instead, they appeared to differentially support those with greater financial advantage, suggesting that supportive school environments may amplify, rather than compensate for, existing inequalities in further education.

10.1 Findings and implications

In Study 1, we found that living outside of capital cities and reporting fewer material resources was associated with lower educational aspirations. In Study 2, these patterns were observed at time 1, with regional residence and financial stress predicting the intercept of educational expectations. Their relationship with the slope of expectations was not indicative of a large longitudinal influence, however. These findings reflect the combined insights of values-expectancy theory and the Wisconsin model of status attainment (Eccles & Wigfield, 2002; Jencks et al., 1983). Both frameworks emphasise how social norms, shaped by local opportunity structures, inform young people's goals. In regional areas, where university attendance is less normative and vocational pathways are more visible and valued, the perceived utility of higher education may be lower (Vernon et al., 2018). Financial disadvantage also reduces the feasibility of university study, particularly when it requires upfront costs, delays entering the workforce, and may not appear welcoming (Napolitano et al., 2014; Rubin et al., 2019). According to both theories, young people weigh the expected benefits of education against perceived costs and likelihood of success. When resources are scarce and higher education seems distant or risky, aspirations and expectations are calibrated downward in response to structural constraints.

Notably, we observed interactions between financial disadvantage with our school environment indicators in both studies. Rather than buffering the effects of hardship, strong school connections appeared to raise expectations only among more advantaged students, thereby exacerbating inequity. Schools, far from being neutral spaces, may play an active role in reproducing social inequalities. Such a conclusion has long been advanced by scholars, but is a notion that has also been contested (Bourdieu & Passeron, 1977; Edgerton & Roberts, 2014; MacKenzie et al., 2022; Nash, 1990). Nonetheless, our findings suggest that positive school experiences may reinforce existing class-based trajectories. Even when adolescents feel connected to school, financially disadvantaged students may not receive formal guidance supporting university attendance (Billett et al., 2022). Teachers are often more critical of low socioeconomic status students (Doyle et al., 2023), while upwards social mobility is dependent upon opportunities for acquiring cultural capital that are far from guaranteed in schools (Archer et al., 2023; Lareau, 2015). In these contexts, feeling highly connected to one's school may inadvertently reduce interest in higher education, amplifying social inequities. In contrast, more advantaged students, whose schools and families often align in promoting higher education, are likely to interpret school satisfaction as confirmation that they are "on track" toward university, with institutional support reinforcing this trajectory.

In addition, we did not find evidence in either study that school environments moderate the relationship between geographic region and students' aspirations or expectations. This may reflect the unique structural challenges faced by young people in regional areas. For many, pursuing higher education involves moving away from home, incurring significant financial and emotional costs, and leaving behind established support networks (Fray et al., 2020; Gibson et al., 2022). This perspective aligns with policy discussions about the so-called "grass ceiling" (Graham, 2024), referring to barriers faced by students in regional areas when accessing higher educa-

tion. These critical personal decisions may be driven more by complex factors than school processes, including family circumstances, community ties, peer influences, and individual values and goals. While remaining in one's local community is not inherently negative, disparities in educational expectations often translate to broader inequities in health, employment, and long-term wellbeing (Lee et al., 2012; Zajacova & Lawrence, 2018).

These findings have implications for policy and practice. School belonging and satisfaction are widely recognised as beneficial (Allen et al., 2022a, b). Indeed, across studies, positive feelings towards school are consistently associated with improved wellbeing, academic engagement, and educational outcomes (Allen, Jamshidi et al., 2022; Korpershoek et al., 2020; O'Donnell et al., 2024). Although our study is observational and cannot establish causal effects, the association we observe between the school environment and educational plans is consistent with this robust corpus of research demonstrating that fostering a sense of connection to school yields benefits (Mammadova & Aypay, 2023; Wong et al., 2019). Moreover, given that young people spend many of their waking hours in educational settings, we argue it is a societal imperative that schools cultivate environments in which students feel valued and engaged.

Implementing strategies to improve school belonging are easily justified. Yet it is critical to recognise that, in our studies at least, a positive connection to school was more strongly associated with aspirations and expectations amongst the most financially advantaged students. In practice, rolling out belonging focused programs without an explicit equity framework may risk widening existing socioeconomic gaps in educational aspirations. Any effort to enhance belonging should therefore be designed, implemented, and evaluated while ensuring that young people from less advantaged backgrounds receive the targeted support they need to benefit equally. We are hardly the first scholars to make this point (Galindo et al., 2022). Indeed, policy discussions and agendas from around the world (including Australia) advocate for additional and place-based support for students from disadvantaged backgrounds (Kenway, 2013). Our research provides another example of why this is important.

10.2 Strengths, limitations, and future directions

The current paper comprised two studies focused on related, albeit distinct, constructs to examine previously untested theoretical assertions. These studies were not originally designed with our specific research questions in mind, which could be viewed as a limitation. However, we see this variation as a notable strength. That two conceptually related but operationally distinct studies converged on a consistent pattern of findings emboldens confidence in the robustness and generalisability of our conclusions. The use of two nationally representative samples of Australian youth further enhances the relevance and applicability of our findings across diverse educational contexts.

One major limitation of our work is that the data were collected more than a decade ago. Since then, technology, cost-of-living pressures, and global shocks may have reshaped how young people think about their post-school futures. Crucially, the study predates COVID-19. The pandemic has profoundly impacted educational systems,

labour markets, and social norms, potentially altering the factors that influence young people's educational aspirations and expectations. Online education became the only option during stay-at-home lockdown orders (Chen et al., 2024; Stuart et al., 2022) and has remained an entrenched component of higher education. Consequently, the patterns observed in our pre-pandemic data might not generalise to today's cohort of students underscoring the need for ongoing research on educational inequities.

Future studies should also probe the school-level processes that shape how educational pathways are promoted and perceived, particularly in disadvantaged settings. To date, evidence that schools can reproduce social inequities has come primarily from qualitative work (e.g., Archer et al., 2023; Lareau, 2015) and theory. These works illustrate the importance of idiosyncratic and unique experiences that can drive positive outcomes for some individuals. In contrast, our quantitative investigation has reported broad trends suggesting increased inequities that can derive from increased satisfaction or belonging at school. More fine-grained measures of school climate and career guidance practices are therefore needed to understand how school belonging and satisfaction are shaped, and how they in turn predict aspirations and expectations.

Finally, the nationally representative samples may mask important variation in educational contexts and resources in very remote areas. Our samples were nationally representative, ensuring that the number of participants in major cities (72% Study 1, 63% Study 2) were in line with Australian census data. Indeed, 66% of Australians live in just 8 cities, despite having a land mass making it one of the largest countries on the planet (Australian Bureau of Statistics, 2022). Rates of university graduation are markedly lower in remote communities, relative to regional ones (Australian Universities Accord Review Panel, 2024). Because remote communities are too small to sustain permanent providers, they often depend on "fly-in, fly-out" services, whereas regional centers usually have enough population density to maintain local services (Carey et al., 2018). Future research focusing exclusively on young people in remote and very remote areas is therefore essential to capture their distinctive experiences, which can differ markedly from those of adolescents in more populated regional hubs.

11 Conclusion

Using two nationally representative samples, our findings reveal pronounced inequities in educational aspirations and expectations across both geographic and financial lines. Positive school environments, reflected by students' satisfaction and sense of belonging, were also strongly associated with higher aspirations. Yet these gains accrue disproportionately to those from more affluent families, risking a widening of socioeconomic gaps. Our study underscores both the promise of enhancing school environments and the necessity of addressing underlying financial and geographic disparities to achieve truly equitable educational outcomes.

Acknowledgements The research undertaken for this paper was supported by the Australian Research Council (Project DP190100247). We would like to acknowledge the contribution and ideas of Dr. Bright Opoku Ahinkorah on a previous version of this manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions

Declarations

Competing interests The authors have no conflicts of interest to report.

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References

- Allen, K. A., Cordoba, B. G., Parks, A., & Arslan, G. (2022a). Does socioeconomic status moderate the relationship between school belonging and school-Related factors in australia?? *Child Indicators Research*, 15(5), 1741–1759. <https://doi.org/10.1007/s12187-022-09927-3>
- Allen, K. A., Jamshidi, N., Berger, E., Reupert, A., Wurf, G., & May, F. (2022b). Impact of school-Based interventions for Building school belonging in adolescence: A systematic review. *Educational Psychology Review*, 34(1), 229–257. <https://doi.org/10.1007/s10648-021-09621-w>
- Andres, L., & Looker, E. (2001). Rurality and capital: Educational expectations and attainments of rural, urban/rural and metropolitan youth. *Canadian Journal of Higher Education*, 31(2), 1–45. <https://doi.org/10.47678/cjhe.v31i2.183387>
- Archer, L., DeWitt, J., & Wong, B. (2014). Spheres of influence: What shapes young people's aspirations at age 12/13 and what are the implications for education policy? *Journal of Education Policy*, 29(1), 58–85. <https://doi.org/10.1080/02680939.2013.790079>
- Archer, L., Francis, Becky, H., Morag, Holmegaard, Henriette, Macleod, Emily, Moote, Julie, and, & Watson, E. (2023). Get lucky? Luck and educational mobility in working-class young people's lives from age 10–21. *British Journal of Sociology of Education*, 44(5), 843–859. <https://doi.org/10.1080/01425692.2023.2211234>
- Australian Universities Accord Review Panel (2024). *Australian Universities Accord Final Report*. <https://www.education.gov.au/australian-universities-accord/resources/final-report>
- Australian Bureau of Statistics (2018). *Socio-Economic Indexes For Areas (SEIFA) 2016* (No. 2033.0.55.001). <https://www.abs.gov.au/ausstats/abs@.nsf/mf/2033.0.55.001>
- Australian Bureau of Statistics (2021). *Australian Statistical Geography Standard (ASGS) Edition 3*. <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/latest-release>
- Australian Bureau of Statistics (2022). *Location: Census, 2021*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/people/people-and-communities/location-census/latest-release>
- Australian Bureau of Statistics (2025). *Regional population, 2023-24 financial year*. <https://www.abs.gov.au/statistics/people/population/regional-population/latest-release>
- Baker, J. A., & Maupin, A. N. (2009). School satisfaction and children's positive school adjustment. In R. Gilman, E. S. Huebner, & M. Furlong (Eds.), *Handbook of positive psychology in schools*. Routledge. <https://doi.org/10.4324/9780203884089>
- Berkowitz, R., Glickman, H., Benbenishty, R., Ben-Artzi, E., Raz, T., Lipshtat, N., & Astor, R. A. (2015). Compensating, mediating, and moderating effects of school climate on academic achievement gaps in Israel. *Teachers College Record*, 117(7), 1–34. <https://doi.org/10.1177/016146811511700703>
- Bernardi, F. (2014). Compensatory advantage as a mechanism of educational inequality: A regression discontinuity based on month of birth. *Sociology of Education*, 87(2), 74–88. <https://doi.org/10.1177/0038040714524258>

- Bernardi, F., & Triventi, M. (2020). Compensatory advantage in educational transitions: Trivial or substantial? A simulated scenario analysis. *Acta Sociologica*, 63(1), 40–62. <https://doi.org/10.1177/0001699318780950>
- Billett, S., Dymock, D., Hodge, S., Choy, S., & Le, A. H. (2022). Shaping Young People's Decision-Making About Post-School Pathways: Institutional and Personal Factors. In S. Billett, B. E. Stalder, V. Aarkrog, S. Choy, S. Hodge, & A. H. Le (Eds.), *The Standing of Vocational Education and the Occupations It Serves* (pp. 103–136). SpringerLink. https://link.springer.com/chapter/https://doi.org/10.1007/978-3-030-96237-1_6
- Bourdieu, P., & Passeron, J. C. (1977). *Reproduction in education, society and culture*. Sage. https://www.academia.edu/download/51199871/Pierre_Bourdieu_Jean-Claude_Passeron-Reproduction_in_Education_Society_and_Culture-Sage_Publications_1990.pdf
- Boxer, P., Goldstein, S. E., DeLorenzo, T., Savoy, S., & Mercado, I. (2011). Educational aspiration–expectation discrepancies: Relation to socioeconomic and academic risk-related factors. *Journal of Adolescence*, 34(4), 609–617. <https://doi.org/10.1016/j.adolescence.2010.10.002>
- Calarco, J. M. (2011). I need help! Social class and children's Help-Seeking in elementary school. *American Sociological Review*, 76(6), 862–882. <https://doi.org/10.1177/0003122411427177>
- Carey, T. A., Sirett, D., Wakerman, J., Russell, D., & Humphreys, J. S. (2018). What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. *Australian Journal of Rural Health*, 26(3), 146–156. <https://doi.org/10.1111/ajr.12425>
- Chen, S., Cárdenas, D., Zhou, H., & Reynolds, K. J. (2024). Positive school climate and strong school identification as protective factors of adolescent mental health and learning engagement: A longitudinal investigation before and during COVID-19. *Social Science & Medicine*, 348, 116795. <https://doi.org/10.1016/j.socscimed.2024.116795>
- Cobb-Clark, D., & Ribar, D. (2012). Financial stress, family relationships, and Australian youths' transitions from home and school. *Review of Economics of the Household*, 10(4), 469–490. <https://doi.org/10.1007/s11150-011-9133-6>
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2002). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (3rd ed.). Routledge. <https://doi.org/10.4324/9780203774441>
- Cunningham, I., Vernon, L., & Pitman, T. (2020). To be seen and heard: Enhancing student engagement to support university aspirations and expectations for students from low socioeconomic status backgrounds. *British Educational Research Journal*, 46(6), 1487–1506. <https://doi.org/10.1002/berj.3659>
- Cusack, B., & Defina, R. (2013). *Wave 5 Weighting & Non Response*. <https://www.ssrn.com/abstract=3857985>
- Daraganova, G., Edwards, B., & Siphthorp, M. (2013). *Using National Assessment Program– Literacy and Numeracy (NAPLAN) data in the Longitudinal Study of Australian Children (LSAC)* (Technical Paper No. 8). Australian Institute of Family Studies. <https://aifs.gov.au/growing-australia/data-use-documentation/using-national-assessment-program-literacy-and-numeracy>
- Department of Social Services, Australian Institute of Family Studies, & Australian Bureau of Statistics (2023). *Growing Up in Australia: Longitudinal Study of Australian Children (LSAC) Release 9.1 C2 (Waves 1-9C)* (Version 4) [Dataset]. ADA Dataverse. <https://doi.org/10.26193/QR4L6Q>
- Downey, D. B., von Hippel, P. T., & Broh, B. A. (2004). Are schools the great equalizer?? Cognitive inequality during the summer months and the school year. *American Sociological Review*, 69(5), 613–635. <https://doi.org/10.1177/000312240406900501>
- Doyle, L., Easterbrook, M. J., & Harris, P. R. (2023). Roles of socioeconomic status, ethnicity and teacher beliefs in academic grading. *British Journal of Educational Psychology*, 93(1), 91–112. <https://doi.org/10.1111/bjep.12541>
- Duncan, T. E., & Duncan, S. C. (2009). The abc's of LGM: An introductory guide to latent variable growth curve modeling. *Social and Personality Psychology Compass*, 3(6), 979–991. <https://doi.org/10.1111/j.1751-9004.2009.00224.x>
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53(1), 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Eccles, J. S., & Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and Sociocultural perspective on motivation. *Contemporary Educational Psychology*, 61, 101859. <https://doi.org/10.1016/j.cedpsych.2020.101859>
- Echazarra, A., & Radinger, T. (2019). Learning in rural schools: Insights from PISA, TALIS and the literature. *OECD*. <https://doi.org/10.1787/8b1a5cb9-en>

- Edgerton, J., & Roberts, L. (2014). Cultural capital or habitus? Bourdieu and beyond in the explanation of enduring educational inequality. *Theory and Research in Education*, 12(2), 193–220. <https://doi.org/10.1177/1477878514530231>
- Embleton, N. D., Wood, C. L., Pearce, M. S., Brunskill, G., & Grahame, V. (2021). Early diet in preterm infants and later cognition: 10-year follow-up of a randomized controlled trial. *Pediatric Research*, 89(6), 1442–1446. <https://doi.org/10.1038/s41390-021-01368-y>
- Evans, C. (2016). Moving away or staying local: The role of locality in young people's 'spatial horizons' and career aspirations. *Journal of Youth Studies*, 19(4), 501–516. <https://doi.org/10.1080/13676261.2015.1083955>
- Ferguson, H. (2022). *Regional and remote higher education: A quick guide* (Australia) [Text]. https://www.waph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp2122/Quick_Guides/RegionalRemoteHigherEducation
- Fray, L., Gore, J., Harris, J., & North, B. (2020). Key influences on aspirations for higher education of Australian school students in regional and remote locations: A scoping review of empirical research, 1991–2016. *The Australian Educational Researcher*, 47(1), 61–93. <https://doi.org/10.1007/s13384-019-00332-4>
- Galindo, C. L., Brown, T. M., & Lee, J. H. (2022). Expanding an Equity Understanding of Student Engagement: The Macro (Social) and Micro (School) Contexts. In A. L. Reschly & S. L. Christenson (Eds.), *Handbook of Research on Student Engagement* (pp. 383–402). Springer International Publishing. https://doi.org/10.1007/978-3-031-07853-8_18
- Geagea, A., MacCallum, J., Vernon, L., & Barber, B. L. (2017). Critical links between arts activity participation, school satisfaction and university expectation for Australian high school students. *Australian Journal of Educational & Developmental Psychology*, 15, 53–65. <https://eric.ed.gov/?id=EJ1157110>
- Gibson, S., Patfield, S., Gore, J. M., & Fray, L. (2022). Aspiring to higher education in regional and remote australia: The diverse emotional and material realities shaping young people's futures. *The Australian Educational Researcher*, 49(5), 1105–1124. <https://doi.org/10.1007/s13384-021-00463-7>
- Glover, J. D., & Tennant, S. K. (2003). *Remote Areas Statistical Geography in Australia: Notes on the Accessibility/Remoteness Index for Australia (ARIA + version)*. Public Health Information Development Unit, the University of Adelaide. <https://digital.library.adelaide.edu.au/dspace/handle/2440/45471>
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *The Journal of Early Adolescence*, 13(1), 21–43. <https://doi.org/10.1177/0272431693013001002>
- Graham, L. (2024). The grass ceiling: Hidden educational barriers in rural England. *Education Sciences*, 14(2). <https://doi.org/10.3390/educsci14020165>
- Gu, H., Wang, L., Liu, L., Luo, X., Wang, J., Hou, F., Nkomola, P. D., Li, J., Liu, G., Meng, H., Zhang, J., & Song, R. (2017). A gradient relationship between low birth weight and IQ: A meta-analysis. *Scientific Reports*, 7(1), 18035. <https://doi.org/10.1038/s41598-017-18234-9>
- Haller, A. O., & Portes, A. (1973). Status attainment processes. *Sociology of Education*, 46(1), 51–91. <https://doi.org/10.2307/2112205>
- Han, J., Cui, N., Lyu, P., & Li, Y. (2023). Early-life home environment and child cognitive function: A meta-analysis. *Personality and Individual Differences*, 200, 111905. <https://doi.org/10.1016/j.paid.2022.111905>
- Harrison, N., & Waller, R. (2018). Challenging discourses of aspiration: The role of expectations and attainment in access to higher education. *British Educational Research Journal*, 44(5), 914–938. <https://doi.org/10.1002/berj.3475>
- Hartley, J. E. K., Levin, K., & Currie, C. (2016). A new version of the HBSC family affluence Scale - FAS III: Scottish qualitative findings from the international FAS development study. *Child Indicators Research*, 9, 233–245. <https://doi.org/10.1007/s12187-015-9325-3>
- He, S., Guo, X., Bi, T., Zhang, T., & Luo, L. (2023). Developmental trajectories of children's educational expectations in china: Contributions of academic achievement and maternal expectations. *Contemporary Educational Psychology*, 72, 102144. <https://doi.org/10.1016/j.cedpsych.2022.102144>
- Heiskala, L., Erola, J., & Kilpi-Jakonen, E. (2021). Compensatory and multiplicative advantages: Social origin, school performance, and stratified higher education enrolment in Finland. *European Sociological Review*, 37(2), 171–185. <https://doi.org/10.1093/esr/jcaa046>

- Hernández, M. M., Robins, R. W., Widaman, K. F., & Conger, R. D. (2016). School belonging, generational status, and socioeconomic effects on Mexican-Origin children's later academic competence and expectations. *Journal of Research on Adolescence*, 26(2), 241–256. <https://doi.org/10.1111/jora.12188>
- Houghton, A. M., Armstrong, J., & Okeke, R. I. (2021). Delivering careers guidance in english secondary schools: Policy versus practice. *British Journal of Educational Studies*, 69(1), 47–63. <https://doi.org/10.1080/00071005.2020.1734533>
- Hu, S., Hood, M., Creed, P. A., & Shen, X. (2022). The relationship between family socioeconomic status and career outcomes: A life history perspective. *Journal of Career Development*, 49(3), 600–615. <https://doi.org/10.1177/0894845320958076>
- Israelashvili, M. (1997). School adjustment, school membership and adolescents' future expectations. *Journal of Adolescence*, 20(5), 525–535. <https://doi.org/10.1006/jado.1997.0107>
- Jencks, C., Crouse, J., & Mueser, P. (1983). The Wisconsin model of status attainment: A National replication with improved measures of ability and aspiration. *Sociology of Education*, 56(1), 3–19. <https://doi.org/10.2307/2112300>
- Johnson, M. K., & Hitlin, S. (2017). Family (Dis)Advantage and life course expectations. *Social Forces*, 95(3), 997–1022. <https://doi.org/10.1093/sf/sow094>
- Katsantonis, I. (2024). Tracking adolescent students' educational pathways to university through school engagement, parental expectations, and student aspirations. *European Journal of Psychology of Education*, 40(1), 4. <https://doi.org/10.1007/s10212-024-00917-3>
- Kenway, J. (2013). Challenging inequality in Australian schools: Gonski and beyond. *Discourse: Studies in the Cultural Politics of Education*, 34(2), 286–308. <https://doi.org/10.1080/01596306.2013.770254>
- Kilpatrick, S., Katersky Barnes, R., Heath, J., Lovat, A., Kong, W. C., Flittner, N., & Avitaia, S. (2019). Disruptions and bridges in rural australia: Higher education aspiration to expectation of participation. *Higher Education Research & Development*, 38(3), 550–564. <https://doi.org/10.1080/07294360.2018.1556619>
- Klein, A., & Moosbrugger, H. (2000). Maximum likelihood Estimation of latent interaction effects with the LMS method. *Psychometrika*, 65(4), 457–474. <https://doi.org/10.1007/BF02296338>
- Korpershoek, H., Canrinus, E. T., Fokkens-Bruinsma, M., & de Boer, H. (2020). The relationships between school belonging and students' motivational, social-emotional, behavioural, and academic outcomes in secondary education: A meta-analytic review. *Research Papers in Education*, 35(6), 641–680. <https://doi.org/10.1080/02671522.2019.1615116>
- Kraus, M. W., & Stephens, N. M. (2012). A road map for an emerging psychology of social class. *Social and Personality Psychology Compass*, 6(9), 642–656. <https://doi.org/10.1111/j.1751-9004.2012.00453.x>
- Lareau, A. (2011). *Unequal childhoods: Class, race, and family life. In inequality in the 21st century*. Routledge.
- Lareau, A. (2015). Cultural knowledge and social inequality. *American Sociological Review*, 80(1), 1–27. <https://doi.org/10.1177/0003122414565814>
- Laurin, K., Engstrom, H. R., & Huang, M. (2024). What will my life be like when I am 25? How do children's social class contexts predict their imagined and actual futures? *Journal of Social Issues*, 80(4), 1433–1459. <https://doi.org/10.1111/josi.12650>
- Lee, J. O., Hill, K. G., & Hawkins, J. D. (2012). The role of educational aspirations and expectations in the discontinuity of intergenerational Low-Income status. *Social Work Research*, 36(2), 141–151. <https://doi.org/10.1093/swr/svs025>
- Lietz, P., O'Grady, E., Tobin, M., Murphy, M., Macaskill, G., Redmond, G., Dix, K., & Thomson, S. (2015). *Australian Child Wellbeing Project Technical Report*. Flinders University, the University of NSW and the Australian Council for Educational Research. https://research.acer.edu.au/well_being/3
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198–1202. <https://doi.org/10.1080/01621459.1988.10478722>
- MacKenzie, A., Chiang, T. H., & Thurston, A. (2022). New insights on the persistence and reproduction of educational inequality and injustice: Towards a synthesis of nussbaum's capabilities approach and bourdieu's theories. *International Journal of Educational Research*, 115, 102032. <https://doi.org/10.1016/j.ijer.2022.102032>

- Mammadova, N., & Aypay, A. (2023). Syrian refugee students' sense of school belonging and educational aspirations. *International Journal of Educational Development*, 102(102876). <https://doi.org/10.1016/j.ijedudev.2023.102876>
- Mann, M. J., Kristjansson, A. L., Smith, M. L., Lilly, C. L., Thrisdottir, I. E., & Havlicak, A. (2024). Beyond school climate: Conceptualizing the school as a protective factor approach. *Journal of School Health*, 94(11), 1095–1104. <https://doi.org/10.1111/josh.13490>
- Marks, G. (1998). *Attitudes to School Life: Their Influences and their Effect on Achievement and Leaving School*. Australian Council for Educational Research. https://www.lsay.edu.au/_data/assets/pdf_file/0023/181526/LSAY_lsay5.pdf
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41(9), 954–969. <https://doi.org/10.1037/0003-066X.41.9.954>
- McCulloch, A. (2017). Educational aspirations trajectories in England. *British Journal of Educational Studies*, 65(1), 69–85. <https://doi.org/10.1080/00071005.2016.1197883>
- Muthén, L., & Muthén, B. (2017). *Mplus User's Guide* (8th ed.). Muthén & Muthén. <https://www.statmodel.com/html Ug.shtml>
- Napolitano, L. J., Pacholok, S., & Furstenberg, F. F. (2014). Educational aspirations, expectations, and realities for Middle-Income families. *Journal of Family Issues*, 35(9), 1200–1226. <https://doi.org/10.1177/0192513X13479334>
- Nash, R. (1990). Bourdieu on education and social and cultural reproduction. *British Journal of Sociology of Education*, 11(4), 431–447. <https://doi.org/10.1080/0142569900110405>
- O'Donnell, A. W., Redmond, G., Thomson, C., Wang, J. J. J., & Turkmani, S. (2022). Reducing educational disparities between Australian adolescents in regional and metropolitan communities: The compensatory effects of extracurricular activities. *Developmental Psychology*, 58(12), 2358–2371. <https://doi.org/10.1037/dev0001434>
- O'Donnell, A. W., Redmond, G., Arciuli, J., Robinson, S., Skattebol, J., Raghavendra, P., Thomson, C., Wang, J. J. J., & Emerson, E. (2023a). The association between parental educational expectations and school functioning among young people with disabilities: A longitudinal investigation. *Exceptional Children*, 89(1), 60–78. <https://doi.org/10.1177/00144029221087392>
- O'Donnell, A. W., Redmond, G., Skattebol, J., Allen, J., Thomson, C., & MacDougall, C. (2023b). The relationship between financial hardships and the development of Risk-Taking behaviors: The protective role of extracurricular activities. *Youth & Society*, 55(5), 895–923. <https://doi.org/10.1177/0044118X221127724>
- O'Donnell, A. W., Redmond, Gerry, G., Alex, A., Wang, Joanna, J. J., and, & Mooney, A. (2024). Extracurricular activity participation, school belonging, and depressed mood: A test of the compensation hypothesis during adolescence. *Applied Developmental Science*, 28(4), 596–611. <https://doi.org/10.1080/10888691.2023.2260745>
- OECD. (2019). Balancing school choice and equity. *OECD Publishing*. <https://doi.org/10.1787/2592c974-en>
- Open AI. (n.d.). *ChatGPT* (Version 4o) [Computer software]. Retrieved July 12 (2024). from <https://chatgpt.com>
- Park, S., Wells, R., & Bills, D. (2015). Changes in educational expectations between 10th and 12th grades across cohorts. *Social Psychology of Education*, 18(3), 561–583. <https://doi.org/10.1007/s11218-015-9302-1>
- Parker, P. D., Jerrim, J., Anders, J., & Astell-Burt, T. (2016). Does living closer to a university increase educational attainment??? A longitudinal study of aspirations, university entry, and elite university enrolment of Australian youth. *Journal of Youth and Adolescence*, 45(6), 1156–1175. <https://doi.org/10.1007/s10964-015-0386-x>
- Reay, D., Crozier, G., & Clayton, J. (2010). Fitting in' or 'standing out': Working-class students in UK higher education. *British Educational Research Journal*, 36(1), 107–124. <https://doi.org/10.1080/01411920902878925>
- Reddy, V., & Fadji, A. W. (2020). Learners' educational aspirations in South africa: The role of the home and the school. *South African Journal of Education*, 40(2), 1–13. <https://doi.org/10.15700/saje.v40n2a1712>
- Redmond, G., Skattebol, J., Saunders, P., Thomson, S., Andresen, S., & Bradshaw, J. (2018). Australian child wellbeing project, 2014 [Dataset]. *ADA Dataverse*. <https://doi.org/10.26193/MGM2TM>
- Redmond, G., Main, G., O'Donnell, A. W., Skattebol, J., Woodman, R., Mooney, A., Wang, J., Turkmani, S., Thomson, C., & Brooks, F. (2024). Who excludes? Young people's experience of social exclusion. *Journal of Social Policy*, 53(1), 236–259. <https://doi.org/10.1017/S0047279422000046>

- Reynolds, K. J., Subasic, E., Lee, E., & Bromhead, D. (2017). School climate, social identity processes and school outcomes: Making the case for a group-level approach to Understanding schools. In K. Mavor, M. Platow, & B. Bizumic (Eds.), *Self and social identity in educational contexts*. Routledge. <https://doi.org/10.4324/9781315746913-ch3>
- Rubin, M., Evans, O., & McGuffog, R. (2019). Social Class Differences in Social Integration at University: Implications for Academic Outcomes and Mental Health. In J. Jetten & K. Peters (Eds.), *The Social Psychology of Inequality* (pp. 87–102). SpringerLink. https://doi.org/10.1007/978-3-030-28856-3_6
- Salazar, L., Cebolla-Boado, H., & Radl, J. (2020). Educational expectations in the great recession: Has the impact of family background become stronger? *Socio-Economic Review*, 18(2), 465–491. <https://doi.org/10.1093/ser/mwy046>
- Sanson, A., Nicholson, J., Ungerer, J., Zubrick, S., Wilson, K., Ainley, J., Berthelsen, D., Bittman, M., Broom, D., Harrison, L., Rodgers, B., Sawyer, M., Silburn, S., Strazdins, L., Vimpani, G., & Wake, M. (2002). *Introducing the Longitudinal Study of Children*. Australian Institute of Family Studies - Commonwealth of Australia. <https://aifs.gov.au/growing-australia/data-use-documentation/introducing-longitudinal-study-australian-children>
- Sewell, W. H., & Shah, V. P. (1968). Social class, parental encouragement, and educational aspirations. *American Journal of Sociology*, 73(5), 559–572. <https://doi.org/10.1086/224530>
- Sewell, W. H., Hauser, R. M., Springer, K. W., & Hauser, T. S. (2003). As we age: A review of the Wisconsin longitudinal study, 1957–2001. *Research in Social Stratification and Mobility*, 20, 3–111. [https://doi.org/10.1016/S0276-5624\(03\)20001-9](https://doi.org/10.1016/S0276-5624(03)20001-9)
- Smith, C., Parr, N., & Muhidin, S. (2019). Mapping schools' NAPLAN results: A Spatial inequality of school outcomes in Australia. *Geographical Research*, 57(2), 133–150. <https://doi.org/10.1111/1745-5871.12317>
- Soares, P. S. M., de Barros, A. J. D., dos Santos, I., Matijasevich, A., Wehrmeister, F. C., Menezes, A. M. B., Gonçalves, H., & Hartwig, F. P. (2024). Maternal mental health and offspring's IQ: Evidence from two Brazilian birth cohorts. *Journal of Affective Disorders*, 351, 151–157. <https://doi.org/10.1016/j.jad.2024.01.164>
- Stokes, H., Stacey, K., & Lake, M. (2006). *Schools, vocational education and training, and partnerships: Capacity-building in rural and regional communities*. National Centre for Vocational Education Research. <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/schools,-vocational-education-and-training,-and-partnerships-capacity-building-in-rural-and-regional-communities>
- Stuart, J., O'Donnell, A. W., Scott, R., O'Donnell, K., Lund, R., & Barber, B. (2022). Asynchronous and synchronous remote teaching and academic outcomes during COVID-19. *Distance Education*, 43(3), 408–425. <https://doi.org/10.1080/01587919.2022.2088477>
- Thompson, M. N., Nitzarim, R. S., Her, P., Sampe, M., & Diestelmann, J. (2017). Financial stress and work hope beliefs among adolescents. *Journal of Career Assessment*, 25(2), 254–267. <https://doi.org/10.1177/1069072715621517>
- Tynkkynen, L., Tolvanen, A., & Salmela-Aro, K. (2012). Trajectories of educational expectations from adolescence to young adulthood in Finland. *Developmental Psychology*, 48(6), 1674–1685. <https://doi.org/10.1037/a0027245>
- Vernon, L. A., Watson, S., & Taggart, A. (2018). University aspirational pathways for metropolitan and regional students: Implications for supporting School-university outreach partnerships. *Australian and International Journal of Rural Education*, 28(1). <https://doi.org/10.47381/aijre.v28i1.167>
- Wake, A., & O'Donnell, A. W. (2024). Longitudinal relationships between financial stress, career related optimism, and psychological distress during emerging adulthood in Australia. *Youth & Society*, 56(7), 1336–1363. <https://doi.org/10.1177/0044118X241232997>
- White, P. M., & Lee, D. M. (2020). Geographic inequalities and access to higher education: Is the proximity to higher education institution associated with the probability of attendance in England?? *Research in Higher Education*, 61(7), 825–848. <https://doi.org/10.1007/s11162-019-09563-x>
- Wickrama, K., Lee, T. K., O'Neal, C. W., & Lorenz, F. (2021). *Higher-Order Growth Curves and Mixture Modeling with Mplus: A Practical Guide* (2nd ed.). Routledge. <https://doi.org/10.4324/9781003158769>
- Willis, P. (2017). *Learning to labour: How working class kids get working class jobs*. Routledge. <https://doi.org/10.4324/9781351218788>
- Wilson, S., Hastings, C., Morris, A., Ramia, G., & Mitchell, E. (2023). International students on the edge: The precarious impacts of financial stress. *Journal of Sociology*, 59(4), 952–974. <https://doi.org/10.1177/14407833221084756>

- Wong, T. K. Y., Parent, A. M., & Konishi, C. (2019). Feeling connected: The roles of student-teacher relationships and sense of school belonging on future orientation. *International Journal of Educational Research*, 94, 150–157. <https://doi.org/10.1016/j.ijer.2019.01.008>
- Xiao, J., & Bulut, O. (2020). Evaluating the performances of missing data handling methods in ability Estimation from sparse data. *Educational and Psychological Measurement*, 80(5), 932–954. <https://doi.org/10.1177/0013164420911136>
- Ye, F., & Wallace, T. L. (2014). Psychological sense of school membership scale: Method effects associated with negatively worded items. *Journal of Psychoeducational Assessment*, 32(3), 202–215. <https://doi.org/10.1177/0734282913504816>
- Yu, M., & Daraganova, G. (2017). *Executive functioning– Use of Cogstate measures in the Longitudinal Study of Australian Children* (LSAC Technical Paper No. 19; p. 30). Department of Social Services; Australian Institute of Family Studies. <https://aifs.gov.au/growing-australia/data-use-documentation/executive-functioning-use-cogstate-measures-longitudinal>
- Zajacova, A., & Lawrence, E. M. (2018). The relationship between education and health: Reducing disparities through a contextual approach. *Annual Review of Public Health*, 39, 273–289. <https://doi.org/10.1146/annurev-publhealth-031816-044628>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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