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A UNIVERSITY EXPERIENCE PROGRAM ADDRESSING A NATIONAL CONCERN ON DECLINING INTEREST IN UNIVERSITY PARTICIPATION

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Abstract

Young people living in regional and remote Australia are under-represented in the Australian university system and, consequently, efforts have been made to encourage these students to consider attending university. A regionally based university campus is ideally placed to reach out to potential students in its locality. The article reviews such a university experience program for Year 10 students. The program aimed to provide information, learning experiences, interaction with current students and staff, familiarity with facilities, to develop planning and goal-setting, and to raise participants' educational aspirations. The results of an evaluation of the program, measured via Likert scores of professional and personal aspiration at 3 time points, were equivocal. However, some positive trends emerged, students generally had high aspiration levels prior to the program activities, and showed a modest increase (statistically significant but perhaps not clinically significant or meaningful) in aspiration post-program. The program was found very effective for students from a remote area school and had less impact for students from regional schools. The results may indicate that the program should be refocussed for regional schools, but there were many benefits of the current design that were not measured. It is recommended that these students be followed up to determine whether the benefits were sustainable.

Introduction

There is sufficient proof that higher education improves people's lives, allows for a more profitable economy, and contributes to a more equitable society (Baum, Ma, & Payae, 2013). Higher education offers many advantages such as: the provision of a rich cultural and social milieu; opportunities to extend social networks, study an area one is avidly interested about; and increase earning capacity. Also, a Bachelor's degree is necessary for some careers, and tertiary study helps students develop

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graduate qualities, potentially increasing opportunities for employment (Skills to succeed: Reach Higher, n.d.). Education promises better economic perspectives and is a necessity in today's world (Strawinski, 2011). As attendance at university impacts on socioeconomic status, including employment, income, education and economic wellbeing, and the ability to access services, it has been associated with health and wellbeing.

However, the opportunity to pursue university is neither equal nor equitable. There are pockets in society that are not able to participate in university. The Bradley Review of Australian Higher Education notes that participation in higher education by some groups, namely, the Indigenous people, people with low socio-economic status, and those from regional and remote areas, has been static or decreasing (Commonwealth of Australia, 2008). Students' access and participation in higher education are influenced by many factors. Among the principal barriers include: economic, sociocultural, and educational factors (Lynch & O'Riordan, 1998; Ashby & Schoon, 2010), family income (Maani, 2006), social background (Maaz & Watermann, 2007), and family structure variables and gender differences (Andres & Adamuti-Trache, 2008). Wilks and Wilson (2012) report their comprehensive findings recently on the impact of multiple factors of demographics, finances, geographic location, and cultural and social capital in relation to the formation of students' perceptions and decisions about university.

Our University has a strong commitment to providing equal opportunities for students to study at university. It is particularly interested in increasing opportunities for university participation for rural and remote students. There exists differences in accessibility to education (Strawinski, 2011), and the most obvious is in rural and remote regions which are associated with low economic profiles. The University of South Australia's (UniSA) teaching and learning framework (Lee, 2007, p. 3) highlights its "[commitment of] access to, equity within and quality throughout its programs". The teaching and

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learning academic standard framework states that the University is committed to provide tertiary education to the wider community and ensure pathways are available for all cohorts and meet "the needs of those who have faced educational disadvantage" (UniSA, 2009, p.1).

With this mission and core values in mind, a team at the Whyalla campus has been conducting the UniSA regional experience program for the past six years in order to cater for those community members who might be disadvantaged (Penman & Sawyer, 2013). The goals of the team were linking students from the local high schools and those farther afield with the regional university campus and local employers, boosting student aspirations to attend university and their capacity to succeed at study and in career planning. In 2014 specifically, 98 local Year-10 students self-selected for the two-week three-hour per week or two-day program (depending on where the students were coming from), attending UniSA's Whyalla campus, accompanied on campus by teachers and assisted by undergraduate student mentors. The program included an orientation, information on pathways to university study, sessions with education, engineering, nursing, social work, and foundation studies, inspirational speeches from past graduates, sessions with employers, and a celebration at the program's conclusion (Penman & Goel, 2013).

It is important for regional universities to conduct university experience programs such as what is illustrated in this paper in order to increase university aspirations of local students. The purpose of this paper are fourfold: 1) to describe the regional experience program delivered at the Whyalla campus; 2) to report the pre- and post-evaluation of the programs conducted; 3) to examine the impact of the program on students' personal, professional and university aspirations; and 4) to explore ways by which the program might be improved to better assist students in planning for their future career.

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Background

Despite higher education availability in Australia, the socioeconomically disadvantaged are under-represented in the tertiary sector (Department of Education, Employment and Workplace Relations (DEEWR), 2009; McMillan, 2000). DEEWR (2009) reports that parental levels of educational attainment and income levels, family and student attitudes and aspirations are also important determinants in participation in higher education. Other factors such as proximity, access, and availability of courses and support, student dissatisfaction and low achievement present themselves as barriers for Australian school students (Polesel, 2002). The personal and social obstacles for rural students' aspirations and expectations according to Alloway and Dalley-Trim (2009) include: availability of finance; apprehension and fear; attachment to home; work opportunities, and educational opportunities. However, for rural students, lower socioeconomic background is the major deterrent in attaining a bachelor's degree (Byun, Meece, & Irvin, 2012).

Educational aspirations present different theoretical perspective for future behaviour (Strawinski, 2011). The sociological theory of status attainment is the dominant model which states that aspirations as a cognitive state drives young people to strive for academic success (Khoo & Ainsley, 2005). In this theory, the parents are considered most significant in shaping aspirations because they provide the opportunities, encouragement and support (Grag, Kauppi, Lewko, & Urajnik, 2002). From an economic model, however, it is theorised that students make judgements after a rational assessment of economic and social situations. For instance, a decision to pursue university is arrived at in order to avoid unemployment and also to have the potential to earn well in the future. Strawinski (2011) elaborates on the background (i.e. gender, socioeconomic status, family structure), personal (i.e. attributes, self-perception), and environmental factors (i.e. social support, parental involvement) that help form educational aspirations.

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A number of strategies at various levels have been developed to increase educational aspirations and improve participation in higher education. The state government's First Generation Program directed at students whose parents have not attended university (First taste, 2009), and outreach programs to attract disadvantaged people to university (Healy, 2010), are concrete examples of these strategies. There are early intervention programs which aim to debunk the myths about university life and study, help students explore opportunities matching their interests and skills, assist students identify university and career pathways, and examine career options (First taste, 2009). The above intervention strategies break down boundaries between schools and university, and give school students encouragement to pursue university.

The UniSA regional experience program that has been conducted for several years now was an early intervention program which was designed to assist students in planning for their future, identify goals to achieve this future, and increase university aspirations. It is an interactive student-centred program, purposely created to provide school-to-work pathways through university, targeting secondary students whose family members have never attended university and other disadvantaged groups. To our knowledge, this initiative was the first concrete attempt to raise educational aspirations of school students in rural and regional South Australia.

The 2014 program

The Year 10 students from local schools at Whyalla engaged in weekly activities at the university's regional campus during a two week period. Another two schools from surrounding rural and regional areas sent Year 10 students to participate in a two-day university experience program.

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The Year 10 secondary school students were accompanied by their teachers while attending the 2.0 hour / 2-week or 2 day program on campus program. During these sessions students and teachers interacted with university staff and engaged in a structured program. Six undergraduate students volunteered to work alternately with the secondary school students during the programs – 4 programs were conducted separately. The undergraduate students had previously undertaken a mentoring workshop in preparation for their role and were supported by a university academic staff member.

The secondary school students were requested to actively participate in all sessions - lecture, tutorial and laboratory activities to experience different areas of learning. The structured program began with an induction in which the Year 10 students, teachers and mentors were introduced to the program by a facilitator. This was followed by students learning about the four discipline areas and academic staff from each of the areas provided interactive learning activities in which students engaged. They also considered how university career pathways might fit in to their Personal Learning Plans. Students documented their reflections each session and the reflections were analysed, questions were answered. Students completed an evaluation of the program at the conclusion of the activity.

Methodology

Letters of invitation were coursed through school principals who encouraged their students to participate in the program to be held at the Whyalla Campus. Specifically these students were from the South Australian regional centres of Whyalla, Port Augusta, and Roxby Downs; the regional high schools on these localities agreed to participate in the program. The Year 10 students who self-selected by expressing their interest to participate were provided further instructions in order to meet participation requirements.

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In order to measure any change in the educational aspirations of school students, the Foster and Lawrence's (2001) evaluative tool called Young People's Questionnaires was used. The survey form had 16 statements which participants were to agree or disagree about, each as a Likert item with 7 levels of response. The first 4 statements on the form addressed personal aspirations (thoughts/plans about the future, qualifications, career path, and jobs), while the next 12 statements addressed professional aspirations (working hard at school, getting better grades, good idea of future plans, understanding thoughts and feelings, confidence of career path, feeling of control over career choices, plans for the future, including plans for going to university).

Students participating in the regional experience program completed the questionnaire at three time-points; (1) pre-training 1, a mean of 3 months prior to the training; (2) pre-training 2, immediately before training activities; and (3) post-training, immediately after completion of training activities. The study hypothesised that after the program, participants would show an increase in their educational aspirations.

Measurement of responses at 3 time points made this a longitudinal study, which required particular techniques for valid statistical analysis. A fixed effects linear model was used to account for the correlation between an individual student's responses at the 3 time points, and for the correlation in responses between students within individual schools. Built-in commands from STATA implemented the analysis.

Approval from the university ethics committee was obtained prior to the conduct of the program. Parental consent was sought for each participating student. The participants were informed about the

voluntary nature of their participation in the evaluations and were assured of the confidentiality of information provided. Participation in the evaluation was taken as consent.

Results

Student and School characteristics

Ninety-eight school students participated in the program with the majority (55%) being female. One school, making up 9% of numbers, was from a remote area (classification according to the Australian Statistical Geographical Standard (ABS, 2011)), while the remaining schools were in outer regional Australia in towns with populations greater than 13,000.

Brief codes to refer to the participating schools were:

RGNL1 – Outer regional Australian High School 1

RGNL2 – Outer regional Australian High School 2

RGNL3 – Outer regional Australian High Schools 3 (Students from two schools attended the program as a combined group.)

REMOTE – Remote Australian School

A summary of the characteristics of students attending the program is presented in Table 1.

Table 1
Characteristics of participating students

School	No. of students attending	No. of surveys completed (3 time points)	Females	Males
RGNL1	9	9	2	7
REMOTE	9	9	4	5

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RGNL2	44	20	26	17
RGNL3	36	14	21	11
Totals	98	52 (53% of students)	53	40

Within the larger schools, at every time point, a few students failed to write their names on the survey forms, and a very few failed to return forms. In combination, the number of identified individuals with a full set of 3 surveys completed was 53% of the number participating in the program. It is assumed that failure to submit the form or to put a name on a completed form occurred randomly, so that results from the analysis could be considered to apply to all participants. Of the full survey sets available for analysis, 56% were by female students, suggesting that this subset was representative of the larger cohort. Unidentified students could not be classified as female or male so that totals of these categories (Table 1) were less than the total number of students.

Personal and Professional aspirations

The survey form had 16 questions, each as a Likert item with 7 levels of response from “Not at all” to “Totally agree”. The first 4 questions (group A) were about personal aspirations while the next 12 (group B) asked about the status of occupational or professional aspirations. The Likert items in each group were combined to form a Likert score for overall and for individual aspirational foci. Students were asked to fill out the survey form at 3 time points; the questions were directed and no open-ended questions or comments were sought, thus the data collected were quantitative only. Figures 1 to 3 displayed mean response at the three survey times to the grouped survey questions. Mean response at the first time point provided a baseline against which to measure any change in aspiration. Small variations from the baseline values were detected at time point 2, perhaps due to in-school promotion of personal and professional development activities. The university would like to see significant increases in aspiration at time point 3, the survey conducted at the conclusion of the program. The overall response (shown in Figure 1) indeed showed an increase in mean aspiration by the students

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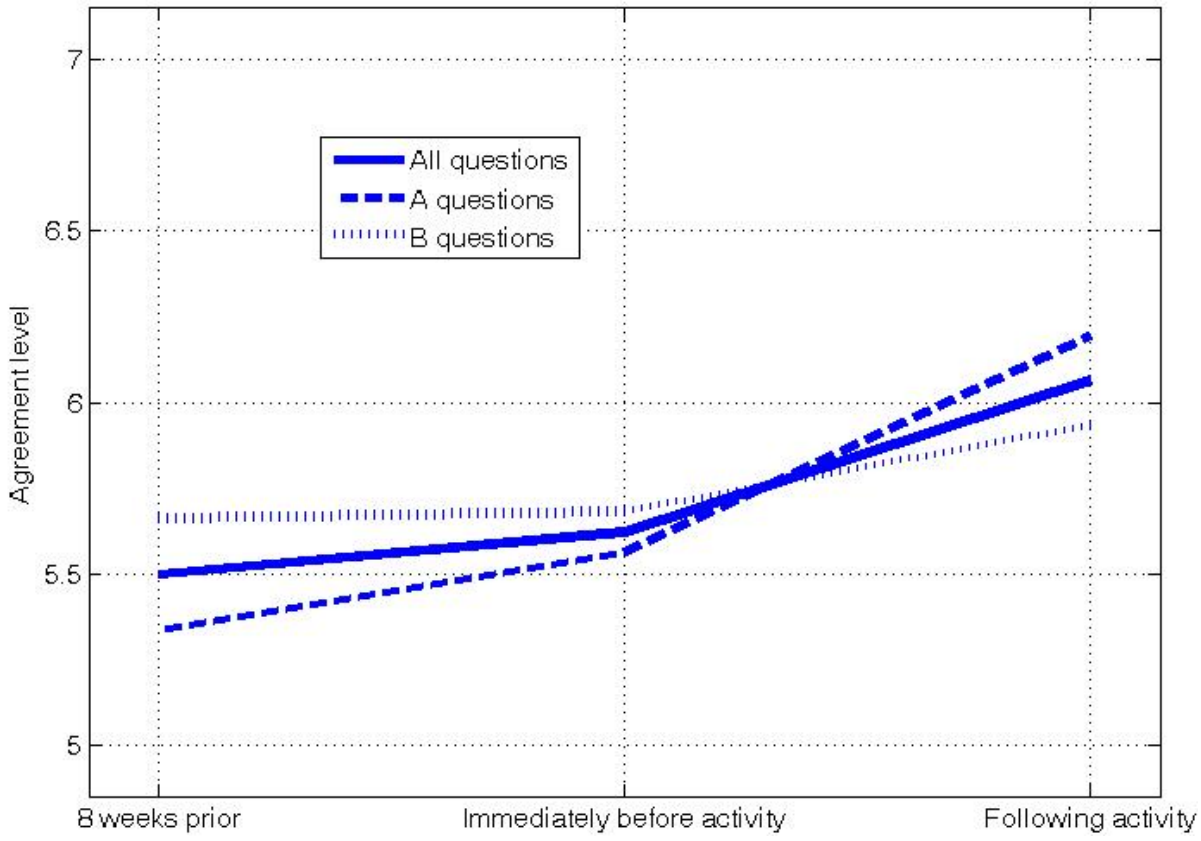
participating in the activity for each focus; personal and professional aspirations, but the increase was modest.

Figure 1. Mean Likert score at 3 time periods for students from the 5 schools participating in the program to all (groups A and B) questions, and to group A and group B questions individually



Note: Students were surveyed at 3 discrete time periods, not continuously as the lines might suggest. The lines are inserted to clearly show trends in mean response over the duration of the program.

Figure 2. Mean response at 3 time periods to group A questions by school

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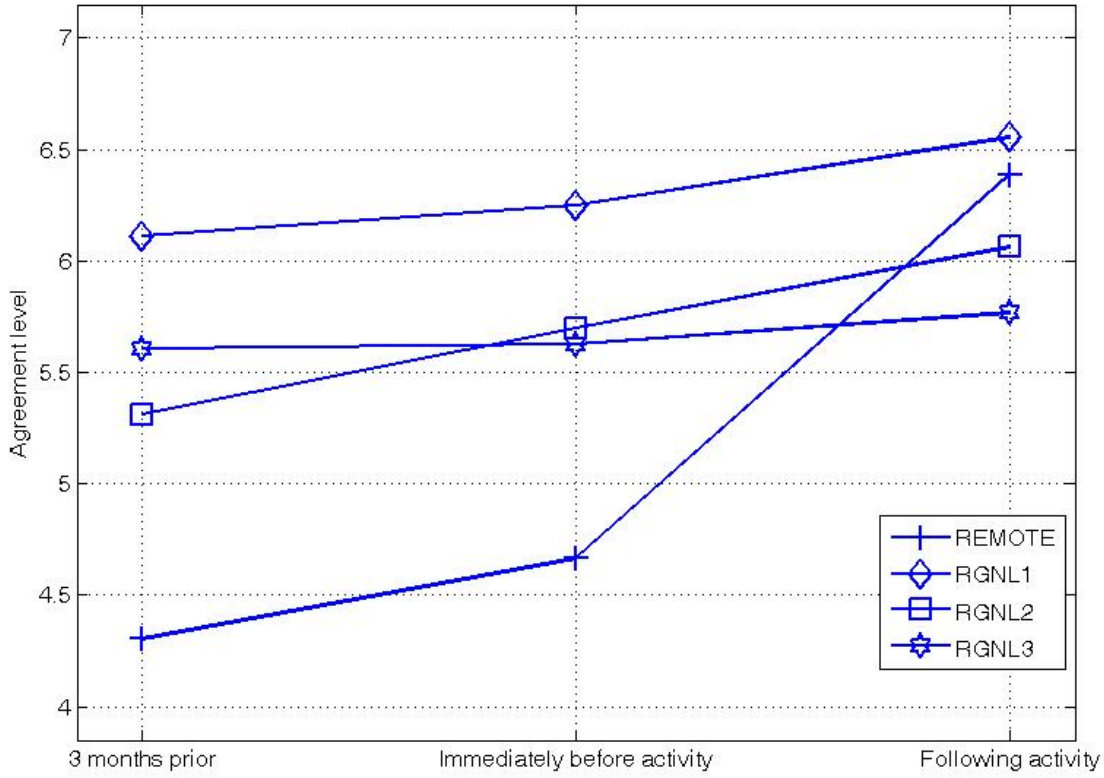

Figure 3. Mean response at 3 time periods to group B questions by school

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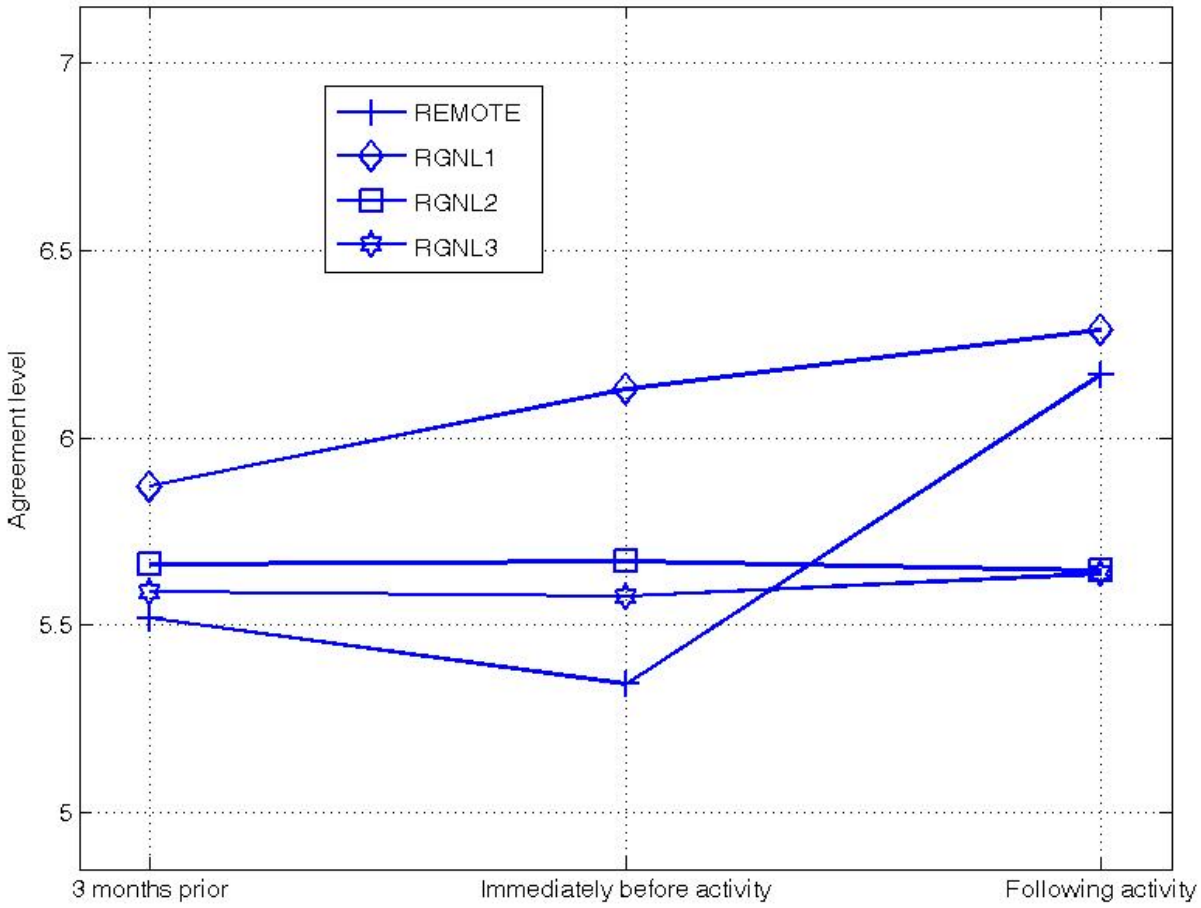

There were differences between the attending schools, shown in Figures 2 and 3. For each focus, RGNL1 students had the highest mean response value at every time point. The REMOTE students had the lowest mean response for each focus at the initial time point, and showed the greatest increase in mean aspiration at conclusion of the program. Mean responses by students from RGNL2 and RGNL3 schools were comparatively flat across the times of measurement.

Table 2 shows an increase in mean Likert score at each time point, with lower variability in scores at the first time point. That temporal pattern was consistent for female and male participants, however females showed greater increase in variability of score across time. The differences in mean scores for females and males at each time point were less than one standard error.

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Table 2
Mean value, standard deviation and range of Likert scores at each time point for all students, and for female and male students separately

	All participants			Females (n=29)			Males (n=23)		
Time point	mean	stdev	range	mean	stdev	range	mean	stdev	Range
1	5.58	0.58	2.56	5.53	0.65	2.56	5.64	0.47	1.75
2	5.65	0.73	3.19	5.59	0.83	3.19	5.73	0.58	2.06
3	5.92	0.71	3.94	5.82	0.81	3.94	6.03	0.52	2.25

Responses were statistically assessed in a mixed effects linear regression which had mean response as the outcome and time as the predictor. School and student appeared as two hierarchical levels within the model so that variance in the model could be apportioned in 3 ways; variability between students in the same school, variability between schools, and to general model error. Table 3 shows intercept and slope values for the regression.

Table 3
Regression coefficients for all schools

mean Likert score to	Intercept p value	Slope p value	Half Standard deviation
all questions	5.36 < 0.0005	0.20 0.006	0.585

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A questions	4.85	0.42	0.611
	< 0.0005	0.01	
B questions	5.53	0.11	0.558
	< 0.0005	0.04	

The regression fitted a line across the 3 time points such that the intercept was the mean response at time point 1 (3 months prior), and the slope of the line was the change in mean response per time point over the subsequent time points. For example, the regression for group B questions had an intercept close to 5.5 (half way between the categories of "Somewhat agree" (=5) and "Agree" (=6)), and the mean response at time point 3 (following the activity) saw an increase in mean aspiration of 2 x 0.11 = 0.22, somewhat less than one quarter of the distance between categories.

The regression coefficients were statistically significant ($\alpha = 0.05$) for all groupings of questions and the slope coefficients were positive. The increase in mean aspiration per time point for the personal focus was 4 times that for the professionally focussed questions. Thus the analysis showed a statistically significant increase in aspiration for each focus (the sample size was relatively large), however, the size of the increase might not be a meaningful or clinically significant change in aspiration.

A literature review did not reveal specific guidelines on what change in Likert score value constitutes a meaningful difference. We were not able to conduct a pilot study to estimate an effect size. A rule of thumb for this situation (Sloan, Symonds, Vargas-Chanes, & Fridley, 2003) is that the minimal clinically important difference is half the standard deviation of the data (this heuristic was assessed on a 7 point Likert scale as was used in this program). Standard deviations shown in Table 3 are for the difference in response values at time point 1 and at time point 3. The average increases in aspiration over 2 time periods estimated by the regression model were 0.40 (all questions), 0.84 (group A questions) and 0.22 (group B questions). In comparison, half the standard deviations for these data were 0.59, 0.61 and 0.56 respectively, indicating that the observed increases in overall and

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professional aspirations were not large enough to be a meaningful change, while the increase in personal aspiration achieved by our program could have been meaningful.

The analysis was repeated separately for female and male students; results documented in Table 4 below. There was no difference in mean responses between female or male students.

Table 4
Regression coefficients for all schools, students classified by gender

mean Likert score to	Intercept		Slope (p values)	
	female	male	female	male
all questions	5.41		0.20 (<0.0005)	
		5.36		0.15 (<0.0005)
A questions	4.87		0.46 (<0.0005)	
		4.97		0.33 (<0.0005)
B questions	5.59		0.11 (0.06)	
		5.49		0.09 (0.16)

Note: regression coefficients for group B questions are not significant ($\alpha = 0.05$).

There were clear differences in mean response between the schools although these were not assessed statistically because of the few data available for two of the schools and the subsequent unreliability of conclusions. Figure 4 displays the changes in mean survey response for students from the remote school, compared to those from the 3 outer regional schools.

Figure 4. Changes in mean Likert score, schools classified by ASGS accessibility remoteness index

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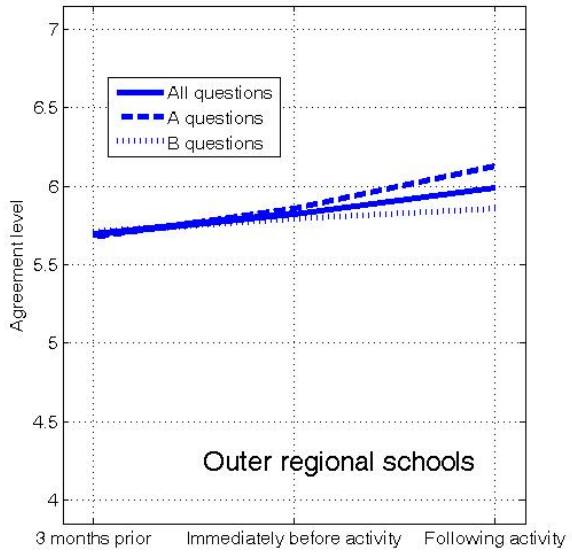

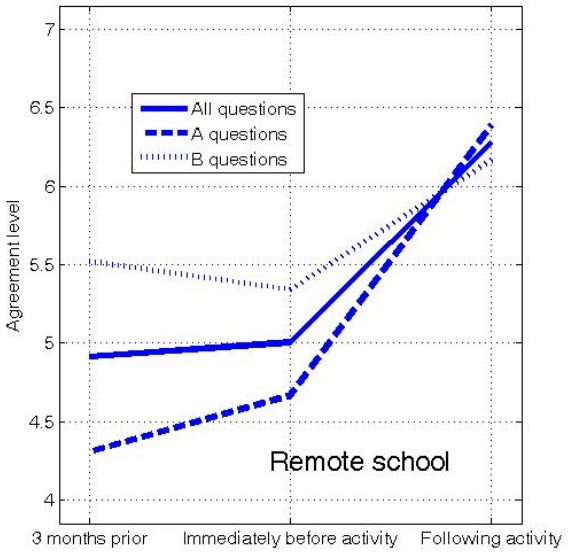

Discussion

The aim of this study was to review the effectiveness of a program conducted at the regional campus of a university to increase educational aspirations amongst Year 10 students from schools in outer regional and remote Australia. Such students were typically from lower socioeconomic backgrounds than city counterparts, and traditionally were less likely to pursue university qualifications. The main findings of the study were that students in our sample had high educational aspirations, and that our program achieved a modest increase in aspiration, with interesting differences in responses between students from outer regional or from remote schools.

We demonstrated a statistically significant but marginally meaningful increase in aspirations from Year 10 students after they attended our university exposure program. Note that mean response values to the survey of aspiration were relatively high before the on-campus activities, for example, mean response in professional aspiration before the program activity was measured at over 5.5 (halfway between “Somewhat agree” and “Agree”). A possible explanation for this was that the participants self-selected, hence, the likelihood that they were motivated at the outset. Also, the high starting level

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of aspiration may reflect parental support for tertiary education amongst these outback communities, or promotion of further education by teachers in the schools. Levels of educational aspiration in Year 10 students in regional Australia may be no different to those of urban students of similar socioeconomic status (James, 2002). Attainment of those goals may differ due to the practicalities of attending university for regional students. Following the activity, mean aspiration for all questions increased by 4 tenths of a survey category; professional aspiration increased on average by more than 8 tenths of a category. The overall increase might not show a meaningful improvement in aspiration however participants did attain a level of consensus (a mean response slightly higher than 6 on a 7 point scale) consistent with the aims of the program.

It was evident (Figures 1 to 4) that REMOTE students showed markedly increased aspirations following their participation in the program. It should be noted that there were differences in the presentation of the activities of the program to students from RGNL1 and REMOTE. Their program was conducted as an intensive, with the students (in smaller numbers than the local schools) away from home for two days, staying, eating and attending the program on university premises as well as touring the town, perhaps building a more social and personal connection and subsequent response to the university and the raising aspirations program. Students from RGNL2 and RGNL3 attended the university as a regular one-day-a-week afternoon program in two consecutive weeks. The practicalities of attending university and forging a professional career is perhaps more familiar to students from the outer regional schools (with their cities hosting regional university campuses), possibly reducing the impact of the program on these participants. While the current activities of the program were effective for students from remote schools, this analysis suggests that changes in the content of the program are required to achieve a significant increase in aspiration from the outer regional school students.

The university experience program had strengths in raising personal aspirations (group A), so improvements in the program would focus on raising professional aspirations (group B), where mean responses for two of the regional schools were notably flat across the survey period. A case in point is

providing a program that encouraged students to identify their interests, skills and goals, and, from the information students provided, envisage a plan for action to achieve those goals. The regional localities concerned were and are based around heavy industries, although with increasing service employment opportunities, and to obtain a step change in professional aspirations may require initiatives at family, community and school levels over longer periods. The part played by the university in raising professional aspirations may be enhanced by identifying approaches and resources that have been successfully applied in other places (e.g. disadvantaged urban regions), with such ideas and the results of this report fed back to participating staff. Ideas currently proposed include: identifying and targeting undecided students, enabling undergraduates to interact with interested school students, allowing students to make extended visits to the campus.

The cohort of students from RGNL1 had a similar experience to those from REMOTE but did not show the marked change in response. It was noted earlier that RGNL1 students gave the highest scores at all time points, with 5 out of 6 of their mean responses (for group A and B questions) located between the categories of “Agree” and “Totally agree”. Teachers accompanying the students mentioned that the RGNL1 students self-selected for the program, and that they had already expressed an interest in attending university in the future.

A contributing factor to the modest increase in aspiration generated by the program could be that the program acted as a reality-check for the Year 10 students participating, providing a glimpse of what was required to be successful at university. The program provided a university experience, with interactions with current university students available, presentations on the degree programs offered and the pathways into such programs including any mandatory school-level courses required. Providing accurate and realistic expectations that university learning may commence by preparation in final school years, and that the training potentially stretched out years ahead might be daunting to students.

While surveys of the educational aspirations of school students might be expected to show higher expectations by female students (James, 2002; Strawinski, 2011), there was no difference detected in this study.

There is a need to continue genuine conversations between schools and the university about widening participation activities, especially in regional areas. This is because regional underrepresentation in higher education will remain a continuing problem unless these students perceive higher education as a realistic option. However, far more than conversation is required. There is a need for concrete, local interventions through partnerships that seek to change negative attitudes towards university, increase academic motivation, and increase participation in higher education in regional areas. The program described in this paper represents one way of widening participation interventions that have been shown to impact on school students' attitudes towards higher education (Penman & Goel, 2013; Penman & Sawyer, 2013).

Many South Australian regional students were not aware of the regional university campus and what it could offer, nor were they aware of academic programs available in Whyalla. This initiative could fill some of those knowledge gaps. In addition, there were opportunities to engage with students, build partnerships with schools and community organisations, meet and talk to staff, mentors and key people, and become familiar with campus facilities.

Regional communities offer unique opportunities for the university experience and the limitations in these areas could actually provide the drive for student learning (Van Hofwegen, Kirkham, & Harwood, 2005). The initiative could counteract the concept of 'urban advantage', which was associated with greater access to schools for students in urban areas (Mugisha, 2006). As this initiative showed, there was an opportunity to increase aspirations and encourage achievement, as well as boost the self-perception of rural students, all of which were factors influencing participation rates in higher education (Watts & Bridges, 2006).

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It is recommended that the future directions of this research would be to conduct a follow-up of this cohort of students to determine if the benefits were sustained over time and also to ascertain whether the experience translated to actual enrolments to tertiary education. Note that a post-training survey to be conducted 3 months after the program was initially designed to be undertaken. This was abandoned however because of very poor return of questionnaire.

Several limitations of this study were observed in conducting and reporting the analysis. A larger sample size would have been readily available if forms had been filled out fully. Levels of aspiration were self-reported; teachers may be able to report these levels with potentially less bias. Educational aspiration is influenced by many factors, including parental, teacher and peer support, also self-esteem and psychological well-being. No information on these factors was collected. The persistence of raised aspirations was of interest to the designers of the program however there were considerable logistic difficulties encountered in attempting to conduct the survey again in a subsequent school year.

Conclusion

Young people living in regional and remote Australia are under-represented in the Australian university system and are consequently considered a priority group for intervention. The design and content of such a program should develop from evidence of effective strategies. In contributing to robust evaluation of motivational programs, this paper described a regional campus's university experience program, with participants from outer regional and remote schools, and the analysis of survey data on the impact of the program. Aspirations arise from personal qualities and goals, and the program was moderately successful in its aims of raising aspirations to higher education.

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