THE EFFECTIVENESS OF A UNIVERSITY MENTORING PROJECT IN PERI-RURAL AUSTRALIA

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ABSTRACT

The Bradley report (2008) recommended that there be an increase in the percentage of young Australian's completing a university degree, with a subsequent target set by the Australian Federal Government to 40% of 25-34 years olds holding a first degree by 2025. As students who transition to university following completion of high school in medium-high social economic status urban areas is already often high (>90% in some cases), one obvious target for any increase is in peri-rural (distance from metropolitan areas approaching 80km) and rural areas (distance from metropolitan areas >80km in accordance with Jones, 2000).

In 2010, a youth mentoring project was initiated targeting year nine students in a peri-rural area school. The project sought to increase the interest of these students in attending university post high school graduation. The present paper presents the preliminary data for 18 students in the first round of the mentoring project. Participants were asked to rate their estimated percentage chance they would attend university following school completion, as well as to estimate how much contact they had with university mentors across several questionnaire items. Mentor contact items were averaged to give an overall measure of mentor contact. Measures of mentor contact were significantly correlated with participants estimates of the percentage chance they would attend university, $r = .59$, $p < .01$, $r^2 = .35$ as well as their self identification with university students as an 'in-group', $r = .75$, $p < .01$, $r^2 = .56$. Further, percentage chance participants would attend university was significantly correlated with students' self identification with university students as an 'in-group', $r = .60$, $p < .01$, $r^2 = .36$.

One potential pathway for this effect was that contact with mentors increased students 'in-group' identification with university students, which in turn increased their estimated chance of going to university. Concordant with this prediction, regression analysis indicated that the unique effect of mentor contact was reduced to non-significance when the effect of in-group identification was controlled for, R^2 change = .05. Similar findings were observed for participants' ratings of how much they liked university. The present results imply that if rural students can make meaningful contact among university students through pilot

programs such as the present one, then they are more likely to consider university as a viable option for themselves at high school completion. Follow up data will be able to confirm whether these student perceptions link with post graduation behaviour. Results are discussed with regard to their implications about higher education pathways in the university and vocational education sectors in rural Australia.

INTRODUCTION

In 2009 the Australian Federal government accepted the recommendation of Bradley, Noonan, Nugent and Scale (2008) to increase the percentage of 18-35 year old Australians who attain first degrees to 40%, setting a target date of the year 2025. Such a recommendation was made to ensure that Australia remains economically competitive as a member of the Organization for Economic Cooperation and Development (OECD). The increase to 40% represents a large rise in the number of people attending and completing university degrees within the relatively short time frame of less than 15 years.

University participation rates are already high for many medium-high Socio-Economic Status (SES) urban areas. In some cases, post-school university participation rates indicate that more than 90% of school completers pursue university study (Bradley, et al., 2008). However, university participation in regional areas has been in decline from 2002-2007 (Bradley, et al., 2008), which is only one example of typical urban-rural inequities (e.g., Ainley, 2010; Alloway, Gilbert, Gilbert, & Muspratt, 2004; Alston & Kent, 2003; Cocklin & Dibden, 2005; Drummond, Halsey, & van Breda, in press-a; OECD, 2009a, 2009b). Research indicates that to ensure equity between rural and urban areas, and to meet the targets of the Bradley report, an increase in university participation from rural and regional students is necessary (Bradley, et al., 2008; James, 2010; James, Bexley, & Maxwell, 2008; James et al., 1999).

Alloway, Gilbert, Gilbert and Muspratt (2004) indicate that while rural youth have interest in higher education in the form of university studies, that many of these students choose not to pursue these interests, opting instead to remain in their rural communities (see also, Alloway, et al., 2004; Alston & Kent, 2003; Bornholt, Gientzotis, & Cooney, 2004; Drummond, Halsey, & van Breda, in press-b; Godden, 2007; Halsey, 2009). Bornholt, Gientzotis and Cooney's (2004) results further indicate that many rural students who are accepted into urban universities choose to defer their studies or let their offers lapse, and often report distance being a reason for such a choice. Similar trends are present in the United States of America (Hektner, 1995; Ley, Nelson, & Beltyukova, 1996; McGranahan, 1994), the United Kingdom (Jamieson, 2000), and Canada (Bryant & Joseph, 2001), demonstrating the global nature of the present issue.

Equity of access to tertiary education is an important issue. Godden (2007) indicated that almost unanimously, rural residents consider access to higher education

facilities a human right (see also, United Nations, 1948). Similarly, Alloway et al. (2004) suggest that many rural residents may choose to access higher education if it were available locally. While James et al. (1999) concur that the pull of the local community can also be a significant factor in rural students failing to undertake university courses, they also note that access to facilities is not the sole solution, and that the aspirations to use these facilities must be fostered, or access will not solve the fundamental urban-rural inequity in higher education participation rates.

One method for increasing rural participation in university education may be to increase rural school student interest in attending university. Despite research indicating that student intentions are important (Khoo & Ainley, 2005), little research has been conducted upon the issue of student intentions prior to pathway selection. Khoo and Ainley (2005) suggest a moderate to strong correlation between student intentions to pursue higher education, and students' actual behaviour of later attending such higher education. Such a finding is indicative that student intentions predict behaviour, and implies that if student aspirations were increased such that a greater number of rural students intended to attend university, that rural student enrolments in university may also increase. One limitation of Khoo and Ainley's (2005) data was that they measured student intentions as a categorical yes or no decision. A finer grain scale which examines students' perceived chances of attending university may allow for a more comprehensive analysis and understanding.

The effects of proactively modifying student intentions to pursue higher education have remained largely unexamined. Gale et al. (2010) found 26 university programs operating 59 outreach programs. Gale et al. (2010) suggest that many of these programs were aimed at year 10 students, and that many were one-off events. The present research seeks to evaluate the effectiveness of a long-term intervention beginning in year 9. Little empirical evidence is available as to whether student intentions can be modified to increase their academic ambition. The present project seeks to understand what effect on student intentions structured mentoring and university campus visits might have, and specifically whether student intentions to attend university following high school graduation can be increased by such programs.

There are a range of factors that may influence rural students' intentions to attend university. It has often been established that participants identification with peers as an in-group produces robust effects on their intentions, attitudes and behaviours (e.g., Mosbach & Leventhal, 1988; Terry & Hogg, 1996). The present project sought to investigate whether the in-group identification of school students would be affected by contact with university mentors, and whether this in turn would affect their intentions to attend university following high-school graduation. Further, students' group identification with vocational education programs, and their intention to attend vocational education following high school completion were investigated.

In order to discriminate between the effects of mentoring, and to examine the robustness of external social pressures on students, the present study also sought to investigate the social expectations on students to attend university or vocational education and the effects these pressures have on students' intentions. Theoretically, since mentoring programs were not targeting teachers, principals or parents, these external factors should not be affected, and thus their unique influence may be examined.

Research has shown that a major barrier to university attendance for rural youth is the distance required to travel to attend on campus courses (Bornholt, et al., 2004). While reduction in actual distance is impossible unless students move locations, recent research has demonstrated that more desirable locations are perceived as closer to people than undesirable ones (Alter & Balcetis, 2011). By increasing the desirability of university, the perceived, or cognitive distance between the students' location and the university, may be reduced. A second aim of the present research was to investigate whether implementing structured campus visits of an enjoyable and educational nature might reduce the cognitive distance between students' residential locations and a university campus, by increasing the desirability of the university location. Cognitive distance to vocational educational facilities was also measured.

It was predicted that contact with university mentors would be positively correlated with intention to attend university. Further, identification with university students as an in-group was expected to positively correlate with both of these variables, and mediate the relationship between mentor contact and intention to attend university. Identification with vocational education students (referred to by students as TAFE) as an in-group was predicted to positively relate to intention to pursue vocational education. Finally, as attending university and attending TAFE are often dichotomous options, intention to pursue vocational education was predicted to negatively relate to intention to pursue university education.

METHOD

Participants

Eighteen Year 9 students (14 male, 4 female) aged between 14 and 15 years (M = 14.5 years, SD = 0.5 years) participated in the study. Participants attended a peri-rural (a school that approached but did not exceed the 80km distance from a metropolitan region [Jones, 2000]) area school in South Australia.

Mentors

Mentors were recruited from Flinders University as part of the Inspire Peer Mentoring program. Mentors all had a current police check, and underwent a training program to ensure they were able to be effective mentors.

Mentoring

Participants had contact with university mentors on average once a week for two school terms of eleven weeks each. Mentoring sessions consisted of approximately a half day each on average. Mentors spent their time answering questions about university, forming friendships with students, relating their personal experiences of university to students, helping students with applicable areas of work, and mentoring students on career possibilities. Mentoring was performed in small groups, which may have resulted in different amounts of mentor contact for individual students. The questionnaire assessed individual student-mentor contact with self-report scales.

Campus Visits

Participants visited the university campus and engaged in structured activities twice (once per school term). The first occasion consisted of a scavenger hunt, which involved a series of tasks wherein students were required to explore the university in an attempt to increase knowledge of, and enjoyment of the environment. The second campus visit included structured teaching tasks undertaken by university staff, involving learning the rules and playing in a physical education activity/game, and making origami cubes by following simple mathematical rules under the guidance of a lecturer in mathematics education.

Questionnaire

The questionnaire assessed participants' contact with mentors via a self-report scale with response options ranging from 1-7. Seven point Likert-type scales were selected as they have been found to have optimal reliability and validity, while remaining highly preferred by participants (Preston & Colman, 2000). Ten items on the questionnaire assessed participants' in-group identification with questions such as "University students are just like me" and "People at TAFE are friendly", which were assessed on a scale of Strongly Disagree (1) to Strongly Agree (7). Responses to in-group identification items were averaged to form the university in-group scale, and those for items assessing vocational education in-group identification were averaged to form the vocational education in-group scale. Cognitive distance related to university and TAFE was assessed on a visual analogue scale (VAS), with participants marking a point on a 100mm line from closer to further in response to the questions "How close is university to where you live?" and "How close is TAFE to where you live?" Previous research has shown these scales to be highly sensitive and robust in various settings (Carlsson, 1983; Harvey, Kemps, & Tiggemann, 2005; Hill, Weaver, & Blundell, 1991; Price & McGrath, 1983), and importantly, have been shown to be accurately used by children over the age of 5.6 years (Shields, Palmero, Powers, Grewe, & Smith, 2003). Several items also assessed how much contact participants had with university mentors while in the program. A range of items sought information on the perceived influence of external social factors such as friends, parents and teachers on student decisions, as well as whether the student

had any relatives who had attended university. Outcome measures were participants' estimated percentage likelihood they would attend university, from 0 to 100% in 10% increments, percentage chance participants would attend vocational education, from 0 to 100% in 10% increments, and how much participants liked university and TAFE on a scale of 1 (not at all) – 7 (a lot).

RESULTS

University Measures

Estimated percentage chance of attending university

Mentor contact items were averaged to give an overall measure of mentor contact. Measures of mentor contact were significantly correlated with participants' estimates of the percentage chance they would attend university, $r = .59$, $p < .01$, $r^2 = .35$, $p < .01$. A further correlation revealed that the estimated percentage chance participants would attend university was significantly correlated with students' self identification with university students as an 'in-group', $r = .60$, $p < .01$, $r^2 = .36$, $p < .01$. This correlation is plotted in Figure 1.

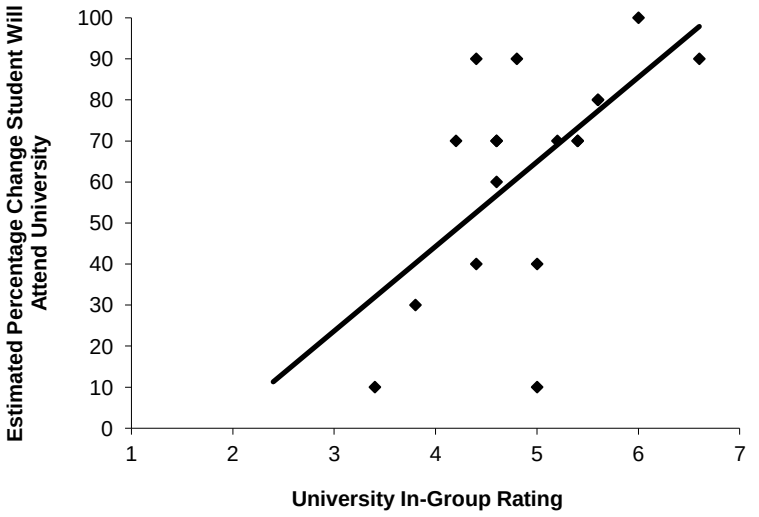

Figure 1: Correlation between university in-group ratings and the students' estimated percentage chance they will attend university.

Estimated liking of university

The results of participants' estimated liking of university were similar to the observed results in students' estimated percentage likelihood they would attend university. Significant correlations were observed between mentor contact measures and students liking of university, $r = .68$, $p < .01$, $r^2 = .46$. Further, a significant correlation was observed between participants' identification with university

students as an 'in-group' and their liking ratings for university, r = .84, $p < .01$, $r^2 = .71$. This correlation is plotted in Figure 2.

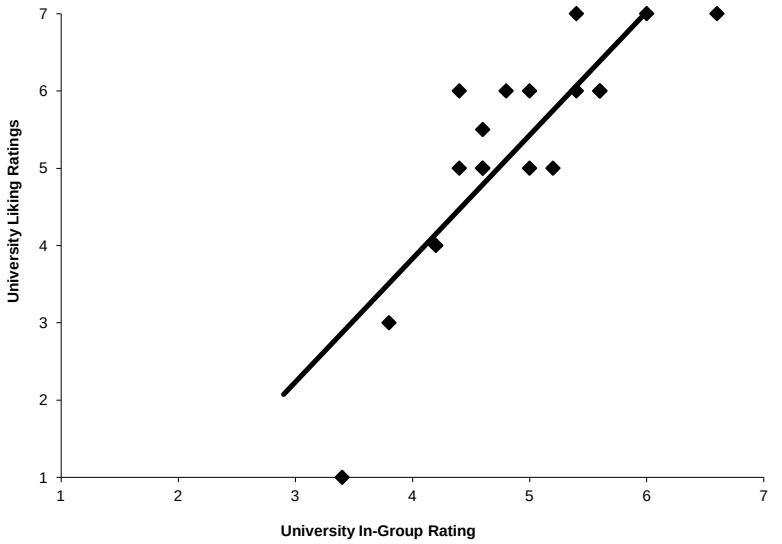

Figure 2: Correlation between university in-group ratings and the students' liking ratings for university.

Mentor in-group mediation

Mentor contact measures were significantly correlated with students' self identification with university students as an 'in-group', r = .75, $p < .01$, $r^2 = .56$, $p < .01$. This correlation is depicted in Figure 3. One potential pathway for the relationship between mentor contact and estimated chance participants would attend university was that contact with mentors increased students' 'in-group' identification with university students, which in turn increased their estimated chance of going to university and perceived liking of university. Concordant with this prediction, regression analysis indicated that the unique effect of mentor contact was reduced to non-significance when the effect of in-group identification was controlled for, R^2 change = .05, F (1, 15) = 1.156, $p = .30$. The same mediation was observed for participant's ratings of how much they liked university, with the unique variance of mentor contact reduced to non significance when the effect of university in-group identification was controlled for, R^2 change = .01, F (1, 15) = 1.156, $p = .61$. This mediation is represented in Figure 4.

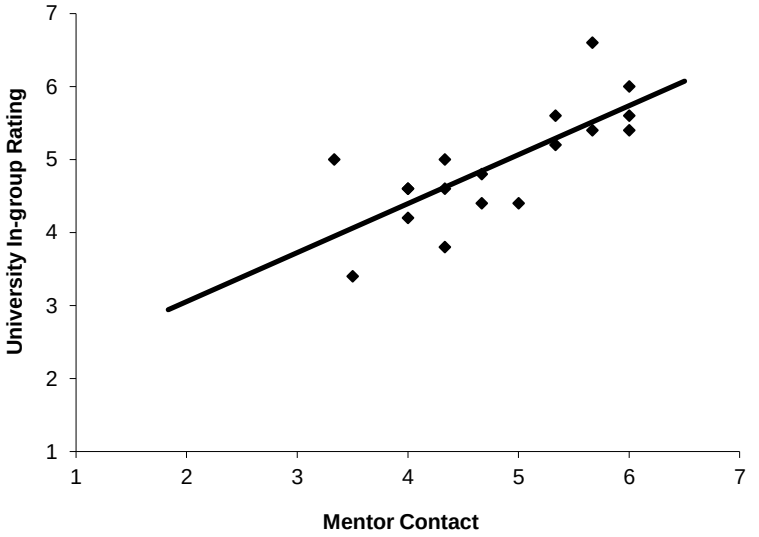

Figure 3: Correlation between mentor contact ratings and the students' perceived in-group identification with university students.

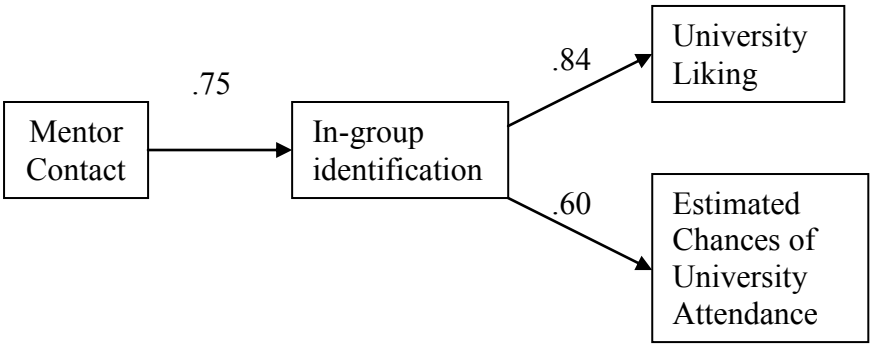

Figure 4. Proposed mediation pathway for mentor contact correlations.

Vocational Measures

Pearson's correlations between Vocational Education in-group measures and estimated percentage chance participants would attend vocational education were significantly correlated, r = .64, $p < .01$, $r^2 = .41$, $p < .01$, as were vocational 'in-group' measures and participants ratings of how much they liked TAFE, r = .72, $p < .01$, $r^2 = .52$, $p < .01$.

Additional Analysis

No correlation was observed between cognitive distance of university measures and the usefulness of the campus visits measures. Further, no correlation between the usefulness of campus visit measures and the estimated percentage likelihood participants would attend university was observed. No correlations were observed between perceived external social factors and estimated chance of attending university. No correlations were observed for vocational education distance

measures and vocational education liking or attendance estimations. Contrary to predictions, estimated chances that participants would attend university were not significantly correlated to the estimated chance participants would attend vocational education.

An independent samples t-test between students who identified someone else in their family who had attended university and those students without such relatives revealed no significant differences on intentions to attend university.

DISCUSSION

The present study sought to investigate the potential effects of mentoring and structured campus visits on the intentions for students to attend university and vocational education. The present results are indicative of higher intentions to attend university facilities following graduation based on participants reported contact with the university mentors. Campus visits did not appear to have similar effects. The present preliminary data indicates that mentoring of rural high school students by university undergraduates may be one method to potentially increase rural students' interest in participating in university education. Such a finding may be of implied benefit to increasing rural participation in university programs, and meeting the targets set by Bradley et al. (2008).

These preliminary results indicate that it is likely that the observed correlation between mentor contact and intention to attend university may be explained by participants' contact with mentors resulting in increased in-group identification with university populations generally, and this may have resulted in the increased intentions to attend university. This is supported by the data on vocational education in the present data set, which also demonstrates a correlation between in-group identification with vocational education students and student intention to attend vocational education following graduation.

The effects of in-group identification is well examined in the literature, and in-group identification can be used as an effective method for attitudinal and behavioural change (e.g., Mosbach & Leventhal, 1988; Terry & Hogg, 1996). Perhaps for many rural students it is common to see university students as members of an out-group. If this is the case then the university itself may be classified in a negative manner similar to that of a typical out-group (Bigler, Jones, & Lobliner, 1997). The present preliminary data indicates that the changes in behaviour observed in other fields may extend to student intentions to pursue higher education. One important consideration is the fact that many rural areas do not have an ideology that strongly encourages university study (James, et al., 1999), and mentoring is one potential method to help redress this issue.

Interestingly, student aspirations to attend university and aspirations for vocational education do not appear to be related in the present data set. Such a finding has important applied and theoretical implications. Specifically, from a theoretical

perspective, it appears that the psychological mechanisms underpinning aspirations and higher education choices are not representative of the dichotomous choice they result in. Specifically, students may be interested in either (or both) vocational education and university education despite the eventual necessity to choose one of these two. It may be that students make decisions based on the higher-level aspirations at the time of enrolment, rather than their choice representing interest in only one form of eduction. From an applied perspective, students have varied interests that might be developed in both pathways by appropriate mentoring. Further data will allow for understanding of the change of such aspirations over time and to draw stronger conclusions.

It is important to note that there were no correlations between mentor contact and vocational education aspirations, which indicates that the mentoring program in place selectively targeted students' intentions to attend university and not further education generally. Once again, such a finding speaks to the diverse nature of vocational education and university education aspirations, as it appears that they not only operate from different psychological mechanisms, but the present data indicates that they may be selectively affected by mentoring programs that build peer relationships with students. It is likely that similar mentoring projects for vocational education may produce similar results for vocational education aspirations.

One interesting question is whether these student intentions will translate into behaviour. If the increased intention to attend university translates into action, then mentoring may be one method to increase rural participation in university. Conversely, if the increased intention does not correspond to behaviour, mentoring programs may instead create a larger imbalance between student aspirations and participation, resulting in rural students becoming further disenfranchised. It may be that the increase in intention to attend university might lead to increased rural applicants, and then an increase in the already high number of rural student deferrals or offer-lapses (Bornholt, et al., 2004). The key to ensuring that rural students with university aspirations have equity in education is ensuring appropriate access (see, for discussion, Drummond, et al., in press-b). The combination of equity in access and fostering of academic intention are likely to be important in achieving the Bradley et al. (2008) recommendations, and reducing the inequity described by James et al. (1999).

Interestingly, the present data, although preliminary, does not indicate that participants experienced a reduction in cognitive distance to university based on their experiences on campus, nor did their desire to attend university appear to be increased as a result of their campus visits. The lack of a reduction of cognitive distance may relate to the abstract multi-locational nature of university studies. That is, in the present day, there are many campuses available to study at, and some universities also offer comprehensive external education options. This may explain why, for the present sample, distance measures did not detect any differences, as

participants may not have been intending to attend the same campuses, or indeed maybe intending to attend university as external students.

One interesting finding is that student ratings of campus visits were not related to student intentions to attend university. It appears that while having a high degree of face validity, the large effort required to engage students with an on-campus visit to a university does not result in a perceived benefit from the student in terms of their intentions to attend a university in the future. Follow up data may inform whether despite this perception, students are more likely to attend a university following a campus visit. Nonetheless, the current data, although preliminary, suggests that schools, universities, teachers and academics should strongly consider whether campus visits are an economic and time-effective method of student engagement, given that mentors appear to have a more reliable effect for less economic and human resources.

It is important to note that the data presented is preliminary, and has several limitations. First, the data represents a relatively small number of students, which may compromise the generalisability of the present sample. It is impossible to know from the small number of students in the present sample, whether the effects would generalise to other populations. Nonetheless, as a pilot project the initial data is promising. Continued research into wider mentoring projects is required to ensure that these effects are robust. Secondly, it is important to recognise the correlational nature of the data. Follow up data will allow a comparison of student aspirations over time, and this will allow more direct causal conclusions.

The present data is indicative that, like many intentions, higher education aspirations can be shaped by friendships and in-group identification. Mentoring youth with active members of the university community appears to be beneficial for student aspirations for university education, and may be one critical mechanism for rectifying the inequity in university participation rates for rural students. Follow up data will allow for continued analysis of mentoring programs to examine their potential as aspiration changing projects.

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