2008

Social capital renewal and the academic performance of international students in Australia

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Publication Details

Neri, F. V. & Ville, S. (2008). Social capital renewal and the academic performance of international students in Australia. Journal of Socio-Economics, 37 (4), 1515-1538.

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Keywords
australia, students, capital, renewal, performance, social, academic, international, ERA2015

Disciplines
Business | Social and Behavioral Sciences

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JEL classification: F22 international migration; D85 network formation; I2 education general

Without friends no one would choose to live, though he had all other goods.

Aristotle, *(384 BC - 322 BC) Nichomachean Ethics.*

1. Introduction

As the above quote makes clear, the importance of social relationships has long been recognised, at least by philosophers and social observers. In more recent times, economists and sociologists have also recognised the importance of social relationships, which is one dimension of what is more commonly referred to as social capital. Related dimensions include trust (both general and particular), volunteering, and organisational and club involvement. Whilst not unanimous, much research suggests that social capital is positively associated with economic growth, international trade, macroeconomic stability, political and civic involvement, crime prevention, health and happiness. Of particular interest to us are suggestions in the literature that social capital impacts positively and significantly on the academic achievement of secondary school students[1].

If social relationships are important for academic success then do international students, who leave their home country to study in a foreign educational and cultural setting, attempt to rebuild their social capital and, if so, are those more effective at doing so also academically more successful? In this paper, the first of its kind that we know of, we investigate this question by reporting on the nature and extent of the social capital renewal and academic performance for a sample of over 150 international students deriving from 27 countries of origin studying at a medium sized regional university in Australia. The growth in the number of international students

[1] On the positive association between social capital and economic growth see, for example, Knack and Keefer (1997), Quentin Grafton, Knowles and Dorian Owen (2004) and Beugelsdijk and van Schaik (2005), although for a contrary view, see Casey and Christ (2005). On the relationship between social capital and trade, stability, political and civic involvement, crime, health and happiness see, for example, Bjornskov (2003) and Berggren and Jordahl (2006). On the impact of social capital on secondary school achievement see, for example, Beaulieu *et al.* (2001) which we discuss below.

and their share of total enrolments has been one of the key features of the Australian higher education landscape for at least a decade. It has provided financial windfalls for universities, an enriched and more diverse cultural experience on campuses, and a range of economic and social benefits for the local community. For the international students themselves, it has yielded the opportunity to study in a new country and obtain a degree from a highly-regarded and mature university system. However, many newly-arriving international students are distant from their support system of family, friends and networks, and so it is reasonable to assume that, on average, they land in Australia largely deprived of the close relationships and social networks that presumably contributed to their academic success back home. Hence we are interested in international students because their behaviour in re-establishing social relationships in a foreign and unfamiliar cultural and academic environment may shed light on the nature and extent of their social capital renewal and whether such investments are positively associated with academic performance.

The remainder of the paper is organized as follows. Section 2 examines the challenges facing international students within the context of the social capital literature. Section 3 presents background data on international students in Australia. Section 4 discusses our survey methodology and the resultant data on social capital renewal by a sample of international students studying in Australia. Section 5 reports our empirical findings on the relationship between social capital renewal and academic performance. Finally, section 6 summarizes the main findings of this study and offers some concluding comments, in particular on whether the findings have any broader policy implications.

2. Social capital and international students

International students face many challenges in crossing national borders to study. These are akin to the situation confronting newly arriving immigrants. They usually encounter an unfamiliar culture with a different set of behavioral standards, new institutions and rules, a foreign language, and an unfamiliar natural environment and climate. This 'culture shock', as it is commonly termed (Oberg 1960), can manifest itself in many forms including anxiety, insecurity, insomnia, loneliness, and a general sense of unhappiness (Church 1982, Rohrlich and Martin 1991).

Australia presents particular challenges for international students. It is geographically isolated and since most of its international students derive from Asian nations there is the addition of significant cultural and linguistic distance. Moreover, there are differences that relate specifically to education including philosophies, practices, and systems. Understanding different behavioral patterns in the classroom and the organizational structure of educational institutions are examples of this adjustment process (Patron 2004). It seems highly likely, therefore, that overcoming culture shock is a major challenge for many international students. Indeed, a recent longitudinal study of first year domestic and international students in Australia found that international students had more difficulty understanding course material than domestic students and felt greater discomfort participating in class discussions (DEST 2005c). Not surprisingly, then, almost half were receiving lower grades than they had expected. Also of interest was evidence that international students were much less likely to find orientation programs helpful, suggesting that many were not sufficiently settled to take advantage of the type of official assistance that should offer them the greatest benefit. Responses to questions on social integration shed further light on this problem – compared to domestic students, fewer felt a sense of belonging or of

being a part of a group committed to learning. In another survey, this time of the social and economic security of international students, two-thirds of respondents had experienced periods of loneliness or isolation (Deumert *et al*. 2005)

Whilst differences in personality traits are likely to be important, the extent to which international students form new relationships and develop new social networks may also impact on the length and severity of the transition. Other things equal, we expect the building of new friendships, networks and support systems to impact positively on academic performance. Directly, such connections are likely to boost communication skills and help to generate a better understanding of the workings and expectations of the educational system. Indirectly, via enhanced happiness and wellbeing, such connections may have additional positive spillover effects on academic performance. Universities are aware of these possibilities, some taking steps to smooth the transition by providing mentoring and friendship programs ('Momentum Mentor Project' 2006, Westwood and Barker 1990).

Many studies, particularly in the social sciences, use the term social capital to describe these relationships[2]. Specifically, it is the idea of shared trust-based norms that foster cooperative behavior, particularly in the form of goodwill and reciprocity. These shared norms vary from simple friendships to a complex set of values and doctrines. They may be shared through a bilateral relationship but are more commonly associated with a group or network of individuals. Networks may be informal in nature, for example based upon kinship, neighborhood, or co-working, or they may be more formalized such as through a community organization. Organizations can include, for example, religious denominations, fraternal societies, trade unions, political parties, professional societies, sporting clubs, and environmental groups.

[2] See, for example, Dasgupta (2005) for a recent survey of the economics literature on social capital.

For our purposes, the central insight of the social capital literature is to view social capital as a means of enhancing the rate of human capital accumulation (Coleman 1988). Students immersed in a social capital rich environment are subjected to high expectations and aspirations but are also provided with substantial personal support, trust, and knowledge sharing both within the home and the broader school and community environment. Some studies of high school students suggest that a social capital rich environment such as this is positively associated with educational performance. For example, Beaulieu *et al*. (2001) investigated those factors in the home, school and community that contribute to reading and math ability for a sample of eighth grade students in the USA. They concluded, consistent with the results in Coleman (1988), that family social capital variables such as parental education, parental willingness to discuss school matters with their children, and parental aspirations for their children are particularly important. Nurturing teachers and greater civic and political involvement were also found to be important social capital attributes within schools and the broader community, respectively.

At a broader and more historical level of analysis, Goldin and Katz (2001) linked social capital to the very establishment of extensive compulsory education in the USA. They investigated the extremely rapid rise of publicly funded secondary schooling in many US states between 1910 and 1940, which was somewhat surprising because whilst the pecuniary returns to increased years of education were mainly privately captured, most of the capital and recurrent funding was publicly provided. The authors concluded that this willingness on the part of the public represented an intergenerational loan which was facilitated by social capital, and especially in small towns and villages where the push for increased universal schooling was greatest. "The areas of the country with the greatest tangible wealth and seemingly the greatest

intangible wealth, or social capital, witnessed the earliest and the most rapid diffusion of the high school movement" (p.330)[3].

However, Pong, *et al*. (2005) sound a cautionary note. The authors investigated the impact of parenting style and a range of social capital variables on the academic performance of ethnic and immigrant students in the USA. Contrary to Beaulieu *et al*. (2001), the authors concluded that whilst socioeconomic status is an important determinant of the performance gap between minority and white students, "…parenting styles and forms of social capital do not moderate any ethnic-generational differences" (p.928).

Whilst much of this research focuses on high school students, no existing research that we are aware of investigates whether social capital is important for the academic achievement of international university students. This paper is a first attempt at addressing this deficiency. A significant empirical literature concludes that Australia is, and has been, well endowed with stocks of social capital (BTRE 2005, Keen 1999, Evans 2003, Ville 2005). This suggests a munificent environment for international students seeking to replace friendships and support networks lost due to the process of migration. While studies such as those cited above have drawn attention to the culture shock experienced by international students, none has attempted to document social capital renewal. In this paper, we analyze international student behavior in relation to rebuilding social capital and investigate whether those investments had a positive academic payoff.

As we are focusing on adult university students living away from home in an unfamiliar cultural and educational environment, we expect the types of social capital most likely to impact positively on academic performance to take the form of

[3] In this case, the relevant social capital variables identified by the authors were ethnic, religious and income homogeneity of residents and a community made stable by a strong presence of older people.

friendships and club and related associational activities[4]. Such networks are likely to provide moral and emotional support to students at a time when they are most needed. They are also likely to be a source of important information, on the workings and expectations of an unfamiliar educational system in particular, and on an unfamiliar social and cultural environment more generally. However, anecdotal evidence suggests that international students are involved in, and influenced by, a range of other activities. Many contribute to meeting their course fees and living expenses by undertaking a substantial amount of paid employment. Many encounter considerable accommodation instability. Some are also involved in voluntary work. In short, international students are exposed to a wide range of influences and effects that may impact on their well being in general and their academic performance more specifically. This study is a first attempt at determining whether, among this myriad of influences, social capital renewal has an academic payoff.

3. International Students in Australia

Relative to GDP, total student enrolments and population size, Australia is the largest provider of higher education to international students, who constitute a large and expanding share of enrolments at Australian universities (OECD 2006, Harman 2004)[5]. In 2004, 228555 international students attended Australian higher education institutions,[6] either onshore or offshore, representing 24 per cent of total enrolments. Our particular interest lies with onshore international students, whose numbers increased from about 108000 in 2001 to 165000 by 2004. Significantly, this growth

[4] The social capital stocks of an international student may have played an important role in the development of her 'abilities' in general, and her demonstrated educational achievements in particular. Hence social capital building in the home country in previous years will likely also have a significant impact on academic performance in the current period.
[5] Other important destinations included the USA, the UK, France and Germany.
[6] That is the 39 'Table A' higher education providers which are eligible for all grants under the Higher Education Support Act (2003).

coincided with a decline in new enrolments of domestic students such that onshore international students constituted 23 per cent of all commencing students by 2004. International students came predominantly from the Asian continent (82 per cent), chiefly China, Malaysia, India and Singapore, and the main fields of study were management and commerce (46 per cent) and information technology (15 per cent) (DEST 2005a and 2005b).

This growing number of international students has provided an increased cultural diversity reflected, for example, in the languages spoken and the range of student organizations and national cuisines available on campus. Whilst long term benefits of this cross cultural fertilization, such as enhanced mutual understanding and increased future trade, may be difficult to quantify, we can be more precise about short term benefits. The provision of educational services to international students generates export earnings. Their share of total Australian university income in 2004 was 15 per cent ($1.95bn, DEST 2005d, Kenyon and Koshy 2003). Over the last decade or so, universities have used international student income to substantially expand capital works, thus enhancing their asset values and their ability to generate additional income from these facilities.

In addition to educational services, international students are significant consumers of accommodation, groceries, transport, telephone, entertainment and health. For example, McKay and Lewis (1995) concluded that international student fees and expenditures summed to A$1b nationally in 1992. A more recent survey (UQSRC 2005) upgraded this estimate to A$6.65b which is equivalent to 0.8 per cent of GDP and 4.4 per cent of exports (ABS 2006a and 2006b). Hence, it is clear that international students make a substantial contribution to Australian universities and

the national economy, and that their contribution has grown rapidly over the last decade.

Nevertheless, the market is volatile. Although Australian universities have benefited from the rapid growth in international student numbers over the last decade, the most recent figures suggest a faltering expansion in total onshore numbers to an annual growth rate below three per cent (IDP, 2006). Reasons for this include increased competition for international students from other countries, while many of the developing nations that have supplied students to Australia in the past are rapidly expanding their own higher education systems[7]. Exchange rate effects may also be relevant, with the stronger Australian dollar of recent years reducing the competitiveness of Australian exports including higher education. These factors, together with increased consistency and portability of university degrees among many European nations under The Bologna Process, has resulted in the Australian Government fostering enhanced cooperation among Asia-Pacific nations in an attempt to maintain competitiveness in this sector (DEST 2006, Asia-Pacific Education Ministers' Meeting 2006).

This paper focuses on a sample of international students studying at the University of Wollongong (UOW), a medium sized regional university in Australia, which attracts about four percent of all such students in Australia and is increasingly dependent on these as a source of revenue (UOW 2006). The UOW is one of only six universities in Australia that rely on international student fees for more than 20 per cent of total income. The increase in international students drove the university's expansion in the 1990s to the point where, by 2000, they represented nineteen per cent (2425) of all students, the sixth largest share among Australian universities. By 2004

[7] On the forces that impact on the mobility of educated and creative individuals, see Florida, R. (2005).

this share had expanded to 37 per cent (7940), much more than had been anticipated by the Internationalisation Strategic Plan (UOW 2004). Data for 2006, however, suggests a reversal of this trend with new enrolments dropping by as much as five per cent.[8] A further defining feature of the current UOW profile is the high proportion of international students that are studying onshore - 88 per cent (2143 students) in 2000, one of the highest shares among Australian universities, although this declined to 65 per cent (5133 students) by 2004 (DEST, 2000).

Our interest in this paper lies in the extent to which a sample of international students at the UOW attempted to renew their social capital, and whether these investments were associated with improved academic performance. In the next section, we document results from a survey of international students designed to elicit information on methods of social capital renewal (and other activities and experiences) that are potentially important in determining well-being in general and academic performance in particular.

4. Social Capital Renewal by International Students at the UOW

We initiated our research by conducting two semi-structured focus group meetings, each with eight international students, to elicit information that would help formulate key questions for a formal survey. The aims of the project were explained to the students along with the concept of social capital. They were asked their views on the transition problems of international students and were asked to comment on whether they believed involvement with clubs and friends, and paid and unpaid employment, were likely to aid in renewing social capital stocks of international students and thereby contribute to their academic performance.

[8] The most current information obtained from Planning Services, University of Wollongong, 2/6/2006.

This exploratory stage provided insights into the social capital investments of international students that allowed us to construct a 36 question survey instrument[9]. All onshore international students enrolled at the UOW in late 2005 (approximately 5500 students) were invited to complete and submit the survey electronically. The first section of the survey elicited background details such as age, nationality, degree being studied, first language, and time spent and place of residence, in Australia. Subsequent sections each asked a series of questions relating to a particular aspect of social capital renewal. Information on wellbeing at the time of arrival in Australia, and subsequently, was also elicited. The survey ended with some free response questions which focussed on valued services that the university and local community does or could provide for international students. To maximise sample size and reduce sample selection bias, an incentive was provided in the form of either a book voucher or a movie pass, both valued at approximately A$10. The survey was made available on three separate occasions of about three weeks each, from late 2005 to early 2006. We now report on the findings from the survey.

4.1 Sample size and representativeness

We obtained 173 useable responses.[10] Our sample closely resembles the population of onshore international students in several respects. The gender balance of our sample is similar, with a ratio of male to female of 58:42 compared to 53:47 nationally. The principal region of origin of surveyed students coincided precisely with national figures with 82 per cent emanating from the Asian continent. Sixty per cent were undergraduates compared with 58 per cent nationally. The spread across disciplines was similar to national figures – 43 per cent were studying management

[9] The survey instrument can be found at http://www.uow.edu.au/commerce/econ/nerif.html
[10] There were 193 responses but we decided to exclude responses from 20 students who had been in Australia for less than six months on the grounds that they would have had limited opportunities to form new social networks or comment on changes over time.

and commerce compared to 46 per cent nationally, although 23 per cent were studying information technology, somewhat higher than the national figure of 15 per cent, reflecting the UOW's major role in this field (DEST 2005a, DEST 2005b).[11] Nevertheless, and despite our incentive scheme, the response rate of about three per cent of the body of onshore international students at Wollongong was modest and so any results and conclusions drawn from this study should be treated with some caution.

4.2 Student background characteristics

As a starting point, we offer some background characteristics on our survey respondents in terms of their country of origin, length of stay in Australia, location and type of accommodation, and their initial English language speaking skills. Respondents originated from 27 countries with the dominant region being Asia (141 students from 16 countries) and the dominant country being China. Table 1 contains a detailed breakdown of respondent numbers by country of origin.

[Table 1 here]

Length of stay in Australia at the time of completing the survey ranged from a minimum of six months to a maximum of 8 years. The mean (and modal) length of stay was 24 months. Most students (88.4 per cent) resided in the 'greater' Wollongong area at the time of completing the survey. The remainder resided in Sydney and near suburbs. The dominant form of student accommodation was rented premises (71.7 per cent) followed by halls of residence (23.1 per cent). Perhaps somewhat surprisingly, 45.1 per cent of respondents reported that they mainly interacted in their current place of residence with students from a different country of origin to their own.

[11] The data in these sources relates to the 2004 body of international students. Our survey was conducted in 2005-6. Nevertheless many of the survey participants would have been enrolled in 2004. Except for country of origin, the national data covers all overseas students, onshore and offshore, while our sample includes onshore students only.

Nevertheless, a still sizeable 39.3 per cent of students reported mainly interacting with students from their own country of origin. Only 12.7 per cent of respondents reported that they mainly interacted with non-students. On a 5-point Likert scale, most students reported that, on arrival in Australia, their English speaking ability was average. At one extreme, 25.4 per cent reported that their English speaking ability was very good, whilst 2.3 per cent reported that their English speaking ability was very poor. Overall, the number of students that reported their initial English speaking ability as good or very good (44.5 per cent) was more than twice the number that reported their initial English speaking ability as poor or very poor (21.4 per cent).

4.3 Club activity

Students were asked about their involvement in seven categories of university, and six categories of non-university, clubs or organisations. The survey responses revealed a total of 157 student memberships of university clubs, and 88 student memberships of non-university clubs[12]. A detailed breakdown of membership by university and non-university club category is provided in Table 2. Overall, student memberships in university clubs and organisations were approximately twice the number of that for non-university clubs and organisations. Involvement in sport and nationality clubs were the most prevalent, religious and social organisations also being relatively popular. Perhaps not surprisingly, there was little involvement in political organisations amongst this sample of students.

[Table 2 here]

Three students each reported being a member of four university clubs. At the other extreme, 58 students reported that they were not involved with any university club or organisation. The mean number of university club memberships per student

[12] Because of multiple club memberships this does not mean that these were necessarily the numbers of student members of university and non-university clubs, respectively.

surveyed was 0.91. With regard to off-campus activity, three students reported membership of three clubs while 101 students reported no non-university club membership. The mean number of non-university club memberships per student surveyed was 0.51. The large numbers of students not involved in any type of organised on-campus or off-campus activity (41 students, or 23.7 per cent of our sample) is somewhat surprising given the emphasis that the participants of our focus groups placed on achieving a balance between study and non-study activities. We also obtained data on the number of hours devoted to club activities per week, the details of which are set out in Table 3. The minimum hours per week, and the most common response, was zero. The maximum reported hours per week was twenty.

[Table 3 here]

Another important aspect of club membership is the nature of the interactions that students experience as members. In particular, we asked students to report on whether they interacted mainly with club members from their own, or from a different, country of origin. Of those students that responded to this question, 63 per cent indicated that they mainly interacted with members from a different country of origin from their own. A final aspect of club membership that we investigated was the intensity of club membership. Of the students who responded to this question and were involved in clubs, 19 per cent indicated that they were *highly active* members in that they regularly attended club events and contributed to the organisational effort, while 47 per cent indicated that they were *active*, in that they regularly attended club events. The remainder indicated that they were *passive* club members who rarely attended club meetings and activities[13].

[13] In asking these questions on interactions and intensity, we were trying to distinguish between bonding and bridging social capital. We further discuss these notions below.

4.4 Paid and voluntary work

Students were asked about the quantity and nature of any paid work they regularly performed while studying. Fifty eight students (33.5 per cent of our sample) responded that they performed no paid work, whilst one student reported completing 38 hours per week in paid employment. In between these two extremes, 103 students reported completing between two and twenty hours of paid employment per week (eleven students did not respond to this question). The proportion in paid employment (60 per cent) is identical to that in a large national survey of first year students that included 185 international students. The mean number of weekly paid hours of employment for our sample was twelve, which is close to the respective national figure for international students of eleven (DEST 2005c).

Of the 104 students who completed weekly paid employment, 71 (68.3 per cent) reported that their English speaking skills improved, whilst 32 (30.8 per cent) reported that their English speaking skills did not improve, as a result of their involvement in paid work (one employed student did not respond to this question). This mixed picture is not too surprising, in part because many students reported that their English speaking skills were either good or very good on arrival in Australia, but also because of the varied nature of the employment tasks reported, as summarised in Table 4 below. The most commonly reported employment category (34.6 per cent) was in the hospitality industry. Perhaps surprisingly, almost the same numbers of students were involved in education, usually as tutors or laboratory demonstrators, as were working in the shop/sales/marketing sector.

[Table 4 here]

Students were also asked about their involvement in voluntary, unpaid work. Thirty nine reported that they spent, on average, about five hours per week in

voluntary work. However, 134 students either reported not doing any voluntary work at all or did not respond to this question. Students were also asked to report on their motivations for working voluntarily. Whilst motivations were diverse, and some were difficult to categorise, more than one half of students who worked voluntarily did so for what could be regarded as extrinsic reasons. For example, one student responded that they worked voluntarily because "I feel good to help the poor and needy people". Others were motivated by more intrinsic factors, such as the desire to gain work experience and build up personal networks.[14]

4.5 Friendship groups

Students were also asked about their university and non-university friends. Table 5 summarises the data on the number of friends and the weekly hours spent socialising with them outside of formal clubs and organisations. Two students reported having zero friends whilst seven reported having twenty or more friends. On average, each student had about six friends and spent nearly eleven hours per week socialising with friends outside of formal club or organisational events. Not surprisingly, a large majority of the students in our sample (85 per cent) mostly befriended other university students, and 56.7 per cent reported that most of their friends came from the same country of origin. Finally, 60.7 per cent of students reported that most of their university friends were in the same year of study as their own.

[Table 5 here]

4.6 Changes over time

We asked students to report on the changes they had experienced during their time at university with regard to their English speaking ability, their residential

[14] Of course it is possible that at least some students may be motivated by a combination of intrinsic and extrinsic factors.

location, and their self-perceived sense of wellbeing. One student reported that their English speaking ability had changed from very poor to very good, whilst two students reported a change from poor to very good, during their time at university. Most students reported more modest improvements: for example sixteen (9.3 per cent) reported a two-place improvement on the 5-point Likert scale, such as from poor to good or from average to very good, and 73 students (42.2 per cent) reported a one-place improvement only, while 67 students (38.7 per cent) reported no change, in their English speaking ability. Again this latter result should not be too surprising as 77 (44.5 per cent) students reported their initial English speaking ability as either good or very good. Finally, two students reported that their English speaking abilities had deteriorated over time, in both cases by one place only (two students did not respond to this question). So, as would be expected, most students experienced an improvement in their English speaking ability while a university student.

We also obtained data on the number of times students had changed their place of residence. The data are presented in Table 6. Only 46 students experienced complete residential stability (no moves). At the other extreme, 29 students changed residence three times, while twenty students changed residence four or more times. Given that the mean months in Australia for our sample was 24, it appears that many students experienced substantial residential instability.

[Table 6 here]

Finally, we obtained data on happiness or wellbeing by asking each student to report their initial and current level of happiness on a five point Likert scale. The data are summarised in Table 7. A large number of students (84 or 48.6 per cent) reported an increase in happiness, whilst a smaller but still sizeable number (32 or 18.5 per cent) reported a decrease in happiness, over their time at university. More students

reported high or very high levels of happiness (from 65 to 93), and fewer students reported low or very low levels of happiness (from 39 to 15), in the current period compared to the initial period. The most common change was a one-point increase in happiness (59 students) followed by no change in happiness (57 students). Conversely, nearly as many students experienced a one-point decrease in happiness as did those that experienced a two point increase in happiness. So, whilst these data point to favourable changes in well being for most students, there were still a sizeable number who had experienced a decrease in happiness while a student at the UOW.

[Table 7 here]

4.7 Free response questions

The final five questions of the survey asked students to identify those existing university-based and community-based services that most assisted them, and those that could additionally be provided to most assist them, with their academic studies. Most of the responses provided in this section identified important aspects of educational rather than social capital. Students selected the university library as the single most valued university service (61 students or 42.4 per cent of respondents). Other cited services included the provision of online teaching and university workshops that targeted the improvement of English language skills. Students mentioned several additional university services they would favour including more study centres, greater contact with academics, and the need for further student interaction.

Among community services, students emphasised the importance of their local library. Other common responses included the importance of public transport, moral support for students, and community based clubs and societies. Those that responded to the question concerning additional community services wrote about the importance

of finding better ways of interacting with the local community culture, thereby more effectively settling into their environment.

Responses to the final question, eliciting comment on any other service/issue not so far canvassed, concentrated on the following three important social capital related themes. Firstly, 25.8 per cent of respondents identified the presence and support of family and close friends as being very important for academic success. Secondly, many respondents emphasised the importance of organised social events and activities as a means of making friends and expanding support networks. Finally, and consistent with our findings from the focus group interviews, many respondents identified the importance of maintaining a high level of general wellbeing and happiness.

4.8 Mean social capital investments

In Table 8, we summarise the mean social capital investments for our sample of international students. This method uses, as a common currency, hours spent in club activities, with friends, and in paid and voluntary work. Thus, across all students surveyed, the mean weekly time spent on these four (potentially) social capital enhancing activities was 21.6 hours, distributed as 10.7 (50 per cent) on friendship, 2.3 (11 per cent) on clubs, 7.5 (37 per cent) on employment, and 1.1 (6 per cent) on voluntary work. This is a substantial investment of time on social capital enhancement, particularly the predominance of friendship hours. Some of these activities may have other principal motivations, such as income from employment and enjoying leisure as a consumption good, but social capital enhancement may, nonetheless, be a positive externality. It should also be noted that there is a mixed experience across students – each activity showing significant variations in terms of maxima and minima and relatively high coefficients of variation.

[Table 8 here]

We now construct a conceptual model of the social capital and other variables that may be associated with the academic performance of international students and test this model using our survey, and other, data.

5. Social Capital Renewal and Academic Performance

Academic performance can be measured in a number of ways. We measured the academic performance of international student *i* as her weighted average mark (WAM) in all subjects completed at the UOW. The weighting scheme reflects both the year level of each subject and its credit point contribution to the degree being sought. WAMs are commonly used across Australian and international universities to measure and compare the academic performance of students, and are typically calculated as follows:

$$WAM_i = \Sigma_i (mvw) / \Sigma (vw) \quad \text{for } i = 1, \ldots\ldots n, \qquad (1)$$

where m is the individual subject mark, v is the credit point value of the subject, w is the weighting of the subject based on the year classification (first year subjects have a weight of one, second year subjects have a weight of two, third year subjects have a weight of three and fourth year subjects (where applicable) have a weight of four), and the subscript i indexes each of the n students.[15] Data on individual subjects and

[15] Some Australian and many overseas universities use grade point average (GPA) to measure the academic performance of students. Formulas for calculating GPAs vary somewhat across institutions. To test whether the use of GPA would produce substantially different measures of academic performance than does the use of WAM, we calculated GPAs for our sample of students based on the following allocation of grade points: a mark of 85% or above earns 4 grade points, 75%-84% earns 3 grade points, 65%-74% earns 2 grade points, 50%-64% earns 1 grade point, 45%-49% earns 0.7 grade points and below 45% earns 0 grade points. We then used the following formula: $GPA_j=\Sigma_i (CP_i.GP_i)/\Sigma i (CPi)$ where CP refers to credit points by subject (a typical three year degree at the UOW requires 144 credit points. Most subjects carry six credit points but some as little as two and others up to eight), GP refers to grade points, i subscripts individual subjects and j subscripts individual students. The correlation between WAM and GPA for our sample of students is 0.97. Hence we believe that our results are not sensitive to our use of WAM (as opposed to GPA) as a measure of academic performance.

results for individual students in our sample were obtained from official university records. Whilst we are primarily interested in social capital, we also constructed data on a series of student background variables, which we discuss next.

Firstly, within our sample, 69 students were majoring in Commerce, 39 students were majoring in Information Technology, 14 students were majoring in Engineering, and 31 students were majoring in other degrees such as education, creative arts and journalism. To control for possible systematic differences in marking 'standards' across disciplines, we constructed four dummy variables, COMM for commerce students, IT for information technology students, ENG for engineering students and OTHER for students enrolled in other degrees, so as to estimate a fixed effects model.

Secondly, we constructed a dummy variable (UG) to control for whether individual students were undergraduates (102) or coursework postgraduates (51) at the time of completing the survey. We expect that postgraduates would have self selected for further study, in part because of their relative success as undergraduates. Their undergraduate experiences may also have contributed to a greater understanding of the expectations and demands of lecturers and better time management skills. We thus expect postgraduate coursework students to have, on average, higher WAMs than undergraduate students, other things equal.

Whilst most of the students in our sample were from Asian countries, a substantial minority derived from 'Western' countries such as the USA, the UK and countries in Europe. If important differences exist in the educational practices between 'Western' and Asian nations then familiarity with 'Western' educational practices may contribute to improved academic performance, other things equal. To test this hypothesis, we constructed two separate dummy variables. The first (WEST)

captures only those students from countries that we classified as Western. However, to test whether WEST is simply controlling for English language proficiency, we constructed a second dummy variable (ENGLISH) for those students who indicated via their survey responses that English was their first language in their country of origin. The (Pearson) correlation coefficient between WEST and ENGLISH is 0.55.

Whilst some students in our sample had been a resident in Australia for only eight months, others had been studying in Australia for as much as eight years. We expect that social capital renewal within and outside the university will be (in part) a positive function of the length of time spent in Australia. Over time, 'culture shock' should diminish, communication and 'survival' skills should improve, as should a students' understanding of university expectations and practices. Hence we also included, for each student, the number of months they had been studying in Australia at the time of completing the survey (MONTHS) and expect MONTHS and academic performance to be positively associated, other things equal.

We now consider variables that may enhance social capital. The first of these is weekly hours of paid work (WORK). Many international students, especially those from low income households, face substantial financial constraints in living and studying in a foreign country and so, of necessity, undertake regular paid employment. This could be a source of social capital renewal, especially if paid work contributes to improved communication skills and increased friendship networks. Indeed, a majority of those in regular paid employment indicated that their English speaking skills did improve as a result of their employment. On the other hand, the great majority of paid student employment was in quite menial tasks unrelated to their area of study, and so it is possible that paid work substitutes for, rather than complements, academic study. This would be consistent with the view that paid work

is about earning money and not about building social capital (Sobel 2002). Hence, *a priori*, we have no expectation of the coefficient sign on WORK.

We also included data on mean weekly hours of voluntary work completed by each student (VOLUNTEER). Voluntary work could enhance social capital if it results in increased local community contacts and hence an improved understanding of local culture. Voluntary work could also act as a signal for students with sufficiently high stocks of existing social capital, that they care about their local community and are prepared to contribute to its well being. Either way we expect the coefficient on VOLUNTEER to be positive.

The survey instrument, guided by student responses from focus group interviews, concentrated on two other potential sources of social capital renewal. The first concerns student involvement in university and non-university clubs or organisations. Putnam (1995) emphasised the notion of bridging social capital, generated via active involvement in group activities with individuals different to oneself. Bridging social capital should confer benefits to international students not only in the form of specific information on university practices and characteristics, expectations of particular lecturers and an increased network of friends and acquaintances with different but complementary knowledge and skills to that of the international student, but also in terms of information about local community resources and cultural practices that should contribute to the well being of the student more generally.

Our survey instrument elicited information on the average number of weekly hours devoted to club memberships, on the characteristics of club members (whether from the same or from a different country of origin) and on the intensity of club

involvement ('passive', 'active' or 'active and organisational')[16]. From this information we constructed an interactive term (CLUBSC) to capture social capital renewal from club membership, as follows:

CLUBSC = (weekly club hours) X (club member origin) X (membership intensity) (2)

Club member origin equals one (two) where members derive mainly from the same (a different) country of origin. Similarly, membership intensity equals one for passive, two for active and three for active and organisational. So, for example, a student who spends four club hours per week interacting mainly with students from a different country and is an active member would achieve a CLUBSC score of sixteen. We hypothesise that, other things equal, international students who interact with club members from another country, and in particular from Australia, and who are actively involved in clubs, such as in an organisational or leadership role, are more likely to come into contact with a broader cross section of different students and others, and so are more likely to develop 'bridging' social capital than passive club members and, especially, students who are not a member of any club. Hence we expect CLUBSC to be positively associated with WAM, other things equal. Of course we are mindful of the potential opportunity costs of excessive club involvements and so also investigate the possibility of a quadratic relationship between WAM and CLUBSC.

The second source of social capital renewal is the formation and maintenance of informal friendship networks. We asked students to report on their average weekly hours spent socialising with friends outside of organised clubs and organisations, and also on whether most of their friends were from the same country of origin ('bonding' social capital), or from a different country of origin ('bridging' social capital) to themselves. Whilst clubs exist for specific and explicit purposes, such as to play

[16] We are also interested in intensity because, other things equal, we expect greater intensity to result in greater stocks of bridging social capital.

competitive football or to organise bushwalks, none of which may be of interest to some students, opportunities to benefit from friendship networks should be available to all students. Hence we constructed another interactive term (FRIENDSC) which attempts to capture social capital renewal from friendship networks, as follows:

FRIENDSC = (weekly friend hours)*(friend origin) (3)

Friend origin equals one (two) if friends were mainly from the same country (a different country) of origin. Again, we expect FRIENDSC to be positively associated with WAM, other things equal, but test for the possibility that this relationship is also quadratic.

Finally, other things equal, we expect that happier students will do better academically. Our survey instrument asked students to indicate their general level of current period well being or happiness and so we have included this data as an additional explanatory variable (HAPPY)[17]. We hypothesise that, additional to having a direct positive impact on academic performance, social capital renewal may also have an indirect positive impact via improving the general well being of students. This was a theme which emerged quite strongly from some of the participants in the focus group interviews, who suggested that many international students seek club involvement and friendship groups to maintain a balanced and happy student life. If this is so then, other things equal, students who are better at renewing their social capital stocks should be happier and should thus do better academically[18].

[17] Happiness was measured on a five point scale with one for 'very happy' through to five for 'very unhappy'. Hence the smaller the happiness score the greater we expect WAM to be, other things equal.

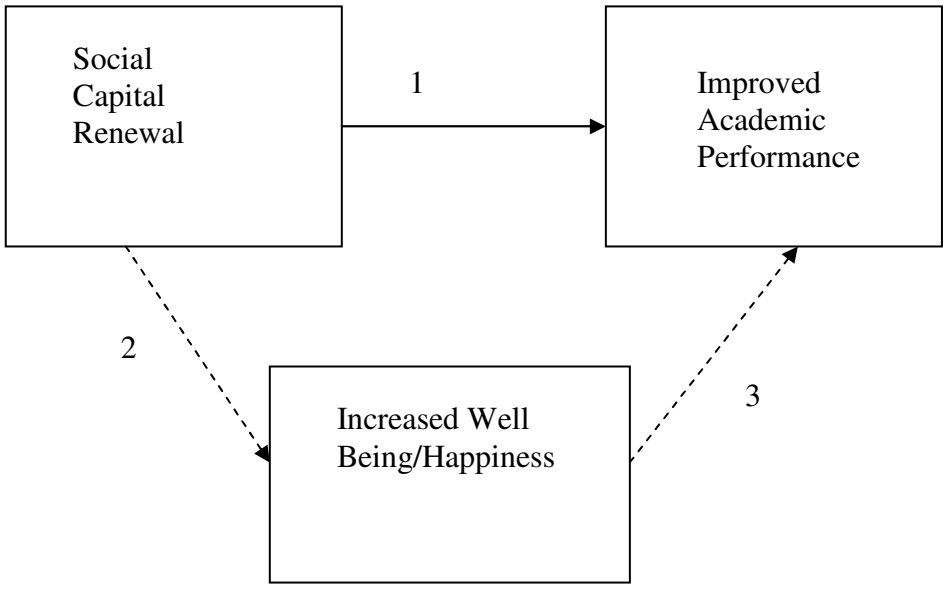
[18] Of course another possibility is that international students invest in social capital renewal for 'consumption' purposes, i.e. to increase instantaneous utility, rather than for 'production' purposes via direct returns over time in the form of an improved academic performance. Indeed because of the opportunity costs involved, it may be the case that social capital renewal actually reduces academic performance. In terms of Figure 1 this would mean that only relationship 2 holds. To test this alternate hypothesis we estimated equation (4) but with the current period level of reported well-being (HAPPY) as the dependent variable. See Table 10 (column 7) for results.

These hypothesised relationships are summarised by Figure 1 below, where bold line 1 represents the direct impact of social capital renewal on academic performance whilst dashed lines 2 and 3 represent the indirect impact via improved well being. Our proposed model is represented by equation (4) below, with expected coefficient signs in parentheses following each explanatory variable.

$$\begin{aligned} WAM = F(&COMM(?), IT(?), ENG(?), OTHER(?), UG(-), MONTHS(+), WORK(?), \\ &VOLUNTEER(+), WEST/ENGLISH(+), CLUBSC(+), FRIENDSC(+), \\ &HAPPY(-)) \end{aligned} \tag{4}$$

Table 9 contains descriptive statistics for our dependant and (non-dummy) explanatory variables whilst Table 10 presents our estimation results for various versions of equation (4)[19].

Figure 1: Hypothesised Direct and Indirect Impacts of Social Capital Renewal on Academic Performance.



[19] The raw data used to obtain these estimation results is available from the authors on request.

[Table 9 here]

[Table 10 here]

Before estimating the fixed effects model, we estimated the model with a common intercept as a baseline for comparison. The results are in column 1 of Table 10. Consistent with expectations, undergraduate international students have a WAM that is nearly seven points lower than coursework postgraduates (significant at the .01 level). Somewhat puzzling is the result for MONTHS which suggests, other things equal, that WAM is reduced by one mark for every additional seven months spent in Australia (almost significant at the .05 level). Also, work hours are negatively associated with WAM (although this result is statistically significant at the 0.10 level only) with, on average, a reduction of one WAM point for an additional six weekly hours of paid employment. Also consistent with expectations, students from Western countries do better by nearly ten WAM points than students from Asian countries (significant at the .01 level). Finally, whilst the coefficient signs on HAPPY and VOLUNTEER are as expected, we find no statistically significant correlation between either of these two variables and WAM. These six explanatory variables account for about 27 per cent of the variation in WAM for this sample of international students.

In column (2) we control for systematic differences in marking standards across disciplines by employing a fixed effect model. Our results indicate (at the .01 level of significance) that systematic marking difference do exist, with the difference between the 'easiest' and 'toughest' marking disciplines being about eleven WAM points. The coefficient for UG is similar in size and significance to that in column (1). However, that for MONTHS is now larger in size and significant at the .01 level. The implication now is that WAM is reduced by about two marks for each additional year spent in Australia. Again, this is a puzzling result which we discuss in more detail in

the next section. The coefficient for WORK is again negative but smaller in magnitude than that in column (1) and not statistically significant, whilst the coefficient for WEST now suggests that international students from Western countries enjoy a WAM advantage of only about five marks (significant at the .05 level). Finally, neither of the estimates for HAPPY and VOLUNTEER are statistically nor socio-economically significant, the latter now being negative in sign. Based on the adjusted R^2 and the Akaike Information Criteria (AIC) this model is more statistically acceptable than that in column (1).

In column (3) we repeat the model in column (2) but replace WEST with ENGLISH, for reasons discussed earlier. Whilst there is little change in the other coefficient estimates, the coefficient for ENGLISH is of the expected sign but is smaller in magnitude and statistically significant only at the .10 level. We interpret this result as suggestive that students from 'Western' countries do have an advantage that is more related to their greater stocks of cultural and university-specific knowledge than to any superiority in English communication skills. Also, based on the AIC, the model in column (2) is more statistically acceptable than that in column (3) and so in the remaining regressions we use WEST rather than ENGLISH.

In column (4) we include our interactive proxies for club and friendship activities. The results for the discipline specific intercepts and for UG, MONTHS, and WORK are largely unchanged from the baseline regression in column (2), both in term of magnitude and statistical significance. The coefficient on WEST has increased by over 1.3 points and is still significant at the .05 level. However, our results for club and friendship activities are both contrary to expectations. The coefficient on CLUBSC is positive as expected but is very small in magnitude (with a WAM advantage for a student at the sample mean for CLUBSC of less than 0.4 marks over a

student with zero CLUBSC) and, in any case, is not statistically significant. So it seems, contrary to expectations, that organized club activities are not positively associated with academic performance for this sample of international students. The result for FRIENDSC is even more surprising, with the coefficient being negatively associated with academic performance and statistically significant at the .05 level. The magnitude of the coefficient estimate implies that a student who spent eighteen hours per week socializing with friends (the sample mean) from, in the main, the same country as their own suffered, on average, a WAM reduction of only about one mark relative to a student who spent no time socializing with such friends, other things equal. Finally, and as was the case in column (2), neither HAPPY nor VOLUNTEER are significantly associated with WAM. Based on the adjusted R^2 and Akaike Information Criterion, the model in column (4) is statistically more acceptable than that in column (2).

In column (5) we test whether the relationship between WAM and social capital renewal is quadratic. The idea here is that whilst some time spent in club activities and fostering friendship networks is likely to be good for academic performance, excessive investments in social capital renewal may reduce academic performance. However, the results in column (5) reject this possibility, with all four coefficients being the 'wrong' sign, economically insignificant and statistically insignificant at usual confidence limits.

In column (6), we test for the possibility that social capital renewal, rather than impacting positively on academic performance, may simply reduce the volatility of academic performance. International students face a number of potentially adverse shocks whilst studying in a foreign country, such as frequent residential moves, changes to financial circumstances, and bad news from family back home. It seems

reasonable to expect that, other things equal, a student's ability to cope with adverse shocks will be positively associated with her stock of social capital in the host country. Hence, we hypothesize that international students who have been better at renewing their social capital are well equipped to deal with adverse shocks and so we expect a negative correlation between social capital renewal and volatility in academic performance. We measured volatility as the standard deviation (SD) of each student's subject marks. However, the results in column (6) do not support this hypothesis. Firstly, and contrary to expectations, volatility increases by about 1 mark for each additional year of residence in Australia. This is consistent with earlier puzzling results for MONTHS. It seems that, in general, the longer a student is resident in Australia, the worse their academic performance, other things equal. Secondly, whilst the signs of the coefficient estimates for CLUBSC and FRIENDSC are both as expected, neither is statistically not economically significant. Social capital renewal via club and friendship activities did not reduce volatility in academic performance for this sample of international students. Also, whilst the estimate for HAPPY is of the expected sign, that for VOLUNTEER is contrary to expectations: in any case neither is statistically significant.

So what can we conclude from this series of results? Contrary to expectations, none of our proxies for social capital renewal have the expected association with academic performance. Indeed, one result suggests that social capital renewal (via friendship activities) is actually detrimental to academic performance. In terms of Figure 1, there is no statistical support for our hypothesised relationships 1 and 3. So could social capital renewal be simply a consumption activity? Our model in column (7), though of low explanatory power, suggests that this is indeed the case. Firstly, the coefficient estimates for MONTHS and WORK, though not statistically significant,

are both negative. These results indicate that well being increases with length of residence and with hours of work (and presumably disposable income) [20]. More importantly, the coefficient estimates for CLUBSC and FRIENDSC are also both negative, and statistically significant. Their magnitude suggests that, other things equal, approximately 100 additional 'units' of either club or friendship social capital would improve the average student's level of general well-being by one point on our five point scale. For example, an otherwise average student would experience a change from a moderate level of happiness (3) to a high level of happiness (2) if, other things equal, they were to join a club and spend around 16 hours per week actively engaged in an organisational role and mixing mainly with students from a different country of origin to themselves. Finally, the only other statistically significant result in column seven suggests that students from 'Western' countries are happier than students from non-Western countries.

6. Discussion and Conclusions

This study has investigated the manner and degree to which international students renew their social networks denuded by the process of migration, and the impact of these investments on well being and academic performance. It reports and analyses the results of a 2005/06 survey of 173 international students conducted at the University of Wollongong, a leading educator of international tertiary students in Australia and one of the principal national players in the market. While not the first survey of international student behaviour, it adopts a social capital framework, which facilitates engagement with a broader conceptual and empirical literature and provides for measurement of these activities.

[20] As noted earlier, we used a reverse Likert scale to measure well being, with 1=very happy and 5=very unhappy. Hence lower scores for HAPPY indicate greater well being.

Results from our survey are consistent with psychology theories of culture shock and suggest that many students experienced relative unhappiness and disorientation on arrival from overseas. However, most managed to build up a circle of friends and became happier over time although a small but notable minority failed even to engage with the university community. Many students also built social networks through membership of clubs and increased their financial footings by undertaking paid employment. Our expectation, consistent with some of the literature in this area, was that these investments in social capital renewal would also provide some returns in the form of improved academic performance. However, our regression results in Table 10 provide no support for this hypothesis. Our paper is pioneering work in this area and so only limited inferences should be drawn from our results. Apart from any methodological weaknesses, our sample size is small.

Nevertheless, our results point quite consistently to the unexpected conclusion that social capital renewal, or at least our proxies for social capital renewal, are at best not associated with academic performance and, at worst, actually counter-productive. How may we explain this result? One possibility is to consider the important distinction between bonding and bridging social capital. Most social capital investments by international students occurred via on campus interactions with other international students, predominantly from the same country of origin. Only a minority of students forged relationships with domestic students or in the local community that might have provided them with insights into the broader culture of the host nation. This evidence must be set within the context of the prevailing high levels of social capital in Australia identified in our discussion of the broader empirical literature in section 2. Student friendships with domestic students, who would better

understand the institutional and behavioural characteristics of the local educational system, were rare.

The study of Westwood and Barker (1990) of peer pairing programmes for international students indicated that, 'contact with certain host national individuals is positively correlated with academic success and lowered probability of dropping out'. In the main then, our sample of international students appears to have formed 'bonding' rather than 'bridging' social capital. These shortcomings in the nature of the social capital investments are also manifested in Granovetter's (1973) classic statement of the importance of 'weak ties' among more distant acquaintances in providing a larger and more diverse network on which to draw, rather than 'strong ties' among close friends with similar backgrounds.

Also, most student interaction was among peers from the same year of study suggesting little in the way of mentor style networking with senior students who might help new starters establish themselves. Thus, while the culturally close horizontal networks formed by international students in our sample may be supported by the social capital literature as optimal behaviour and are associated with increases in well being or happiness, there is reason to believe that broader and hierarchical ties may well serve them better in terms of improving their academic performance.

In terms of policy, this aspect of our results points to the difficult but important task for university educators of finding effective programmes to foster closer ties between domestic and international students, and between junior and senior students. Educators need to think carefully about how such investments may be better encouraged and supported. One possibility could be a variant of the 'buddy system' commonly employed in primary schools, where individual international students could be allocated a volunteer domestic student who would perform a mentoring type

role. Future empirical research might focus on this issue, that is, on whether only specific types of social capital are causally related to academic performance and on how educators might design policies to better encourage investment in bridging social capital. Of course whilst such a scheme might be a useful way of initiating the accumulation of bridging social capital in the medium term, as well as assisting international students to more quickly and efficiently acclimatize to the new environment on arrival, our results suggest that the magnitude of any social capital impact on academic performance is likely to be small.

Other aspects of our results also deserve further investigation. For example, students from Western countries do better than those from non-Western countries. If this result is in large measure due to familiarity with Western educational practices and philosophies, as we suggest, then educators could give some thought to designing and implementing appropriate programs to better inculcate non-Western international students with the general practices and expectations of Western educational institutions. One possibility could be a short course on university expectations, practices and procedures, which could run in tandem with English language programs that many international students are required to successfully complete. Such programs may also have benefits in terms of the efficiency with which international students renew their social capital in the host country.

A final aspect of our results that deserves further attention is the negative and statistically significant association, though again small in magnitude, between length of study in Australia and academic performance. We expected the set of networks that a student establishes both within and outside the university to be a positive function of the length of time she has been studying in Australia. In other words, ‘culture shock’ should diminish over time and so, other things equal, well being in general and

academic performance in particular should improve. And yet our results suggest the opposite, at least in terms of academic performance. At this stage we have no plausible explanation of this result other than to surmise that the objectives of international students may be more complicated than we have assumed. For example, anecdotal evidence suggests that, at least for some international students, behaviour may be motivated more by extraneous factors such as a desire to increase disposable income or to maximise the probability of gaining residency than by our more obvious but perhaps more naïve assumption of maximising academic performance[21]. If this turns out to be so, then unravelling the major determinants of the academic performance of international students will be a difficult task. Again we believe that more research needs to be undertaken into whether international students arrive in their host country with a portfolio of objectives rather than simply seeking to maximise academic performance.

[21] Discussions with colleagues suggest that at least some international students enroll in particular programs of study in order to meet residency requirements as set down by the Australian Department of Immigration, rather than because of any comparative advantage in that particular area of study.

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Table 1

Survey Respondents by Country of Origin

Country of Origin	**Number of Respondents**	**Percentage of respondents**
China	68	39.3
Singapore	12	6.9
India	14	8.1
Canada	9	5.2
Indonesia	9	5.2
Bangladesh, Malaysia, Thailand, USA	7 each	4.1 each
Iran	4	2.3
UK	3	1.7
Colombia, France, Ireland, Japan, Jordan, Kenya, Mexico, Nepal, Philippines, Sri Lanka	2 each	1.2 each
Croatia, Libya, Pakistan, Poland, South Korea, PRC-Taiwan	1 each	0.6 each
Total	173	

Note: Percentages may not sum to 100 due to rounding. China includes Special Administrative Region of Hong Kong

Table 2

Club Membership by Category

Club Category	**University (%)**	**Non-University (%)**
Nationality	43 (27.4)	17 (19.3)
Faculty	20 (12.7)	
Sport	35 (22.3)	20 (22.7)
Religious	21 (13.4)	19 (21.6)
Social	16 (10.2)	20 (22.7)
Political	2 (1.3)	3 (3.4)
Other	20 (12.7)	9 (10.2)
Total	157	88
Maximum	4 (3 students)	3 (3 students)
Minimum	0 (58 students)	0 (101 students)
Mean	0.91	0.51
Standard Deviation	0.84	0.69

Notes: The membership numbers reported in columns two and three are also reported as percentages of the total number of student university and non-university club memberships (157 and 88, respectively). Percentages may not sum to 100 due to rounding.

Table 3

Frequency of Weekly Hours Devoted to Club Activities

Hours per Week	Student Numbers (%)
0	54 (31.2)
1	27 (15.6)
2	32 (18.5)
3	16 (9.2)
4	12 (6.9)
5	16 (9.2)
6	7 (4)
8	2 (1.2)
10	1 (0.6)
11	1 (0.6)
12	1 (0.6)
20	2 (1.2)
Not indicated	2 (1.2)
Mean Hours per week	2.33
Standard Deviation	2.98

Note: Seventeen students did not respond to this question. Of these, fifteen indicated they were not a member of any club, so we have assumed zero club hours for these students. Percentages may not sum to 100 due to rounding.

Table 4

Student Employment Frequencies by Employment Categories

Employment Category	**Student Number (%)**
Hospitality	36 (34.6)
Shop/Sales/Marketing	20 (19.2)
Education	19 (18.3)
Consulting/Office Admin/IT Support	16 (15.4)
Manual Labour	5 (4.8)
Nursing	3 (2.9)
Other	3 (2.9)
Nature of employment not stated	2 (1.9)

Table 5

Number of Friends and Hours Spent Socialising per Week

	Number of Friends	**Weekly Hours Socialising**
Minimum	0	0
Maximum	30	80
Mean	6.2	10.9
Standard Deviation	5	12.3
Mode	5	5
No response	1	3

Table 6

Frequency of Residential Mobility over Time

Number of Residential Moves	Frequency
0	46
1	26
2	51
3	29
4	10
5	5
6 or more	5

Table 7

Initial and Current Well-Being

Happiness Level	**Initial (%)**	**Current (%)**	**Change (%)**
Very High	23 (13.3)	29 (16.8)	
High	42 (24.3)	64 (37)	
Moderate	69 (39.9)	65 (37.6)	
Low	28 (16.2)	13 (7.5)	
Very Low	11 (6.4)	2 (1.2)	
Happier *3			3 (1.7)
Happier *2			22 (12.7)
Happier *1			59 (34.1)
No Change			57 (33)
Less Happy *1			21 (12.1)
Less Happy *2			9 (5.2)
Less Happy *3			2 (1.2)

Table 8

Mean Social Capital Investment (hours per week)

	Friend Hours	**Club Hours**	**Paid Hours**	**Voluntary Hours**	**Social Capital Hours**
Total Hours	1848	398	1294	193	3733
Respondent Mean	10.9	2.3	8	1.43	21.6
Sample Mean	10.7	2.3	7.5	1.1	21.6
Std Deviation	12.3	3	7.6	3.46	16.55
CV	1.1	1.3	0.95	2.4	0.77
Minimum	0	0	0	0	0
Maximum	80	20	38	20	84

Table 9: Descriptive Statistics

Variables	**WAM**	**SD**	***MONTHS***	***WORK***	***CLUBSC***	***FRIENDSC***	***HAPPY***	***VOLUNTEER***
Mean	65.6	9.5	25.1	7.6	8.9	17.9	2.4	1.36
Median	67.2	8.7	23	8	4	10	2	0
Mode	69.9	9.1	24	0	0	5	2	0
SD	10.9	4.2	14.8	7.7	15.3	24	0.9	3.52
Minimum	34.5	1.9	8	0	0	0	5	0
Maximum	85.3	26.1	96	38	120	160	1	20

Notes: WAM is weighted average mark. SD is the standard deviation of the student's marks and is a measure of volatility in academic performance. MONTHS measures months spent studying in Australia at the time of completing the survey. WORK measures average weekly hours spent in paid employment. CLUBSC is an interactive term which attempts to capture social capital renewal from club membership and is calculated as follows: *Weekly Club Hours*Club Member Origin *Membership Intensity*. FRIENDSC is an interactive term which attempts to capture social capital renewal from friendship networks and is calculated as follows: *Weekly Friend Hours*Friend Origin*. *HAPPY* indicates current period happiness measured on a (reverse) five point Likert scale from 1 (very happy) to 5 (very unhappy). *VOLUNTEER* measures hours per week of unpaid voluntary work for individuals and/or organisations. See text for more complete explanations. Data on the variables in italics were obtained via the survey. Data on the level and volatility of academic performance calculated from official university records. The raw data is available from the authors on request.

Table 10: OLS Estimation Results for Equation (4)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent V.	WAM	WAM	WAM	WAM	WAM	SD	HAPPY
Common Int.	71.50 (25.57)						2.83***
Discipline Specific Int.							
COMM		68.33 (25.19)	68.06 (23.93)	69.64 (24.04)	70.21 (23.36)	6.91 (5.80)	2.82 (13.97)
IT		76.86 (25.68)	74.52 (25.36)	75.68 (25.86)	76.11 (25.70)	6.97 (5.62)	2.82 (15.04)
ENG		73.04 (19.73)	72.81 (16.38)	74.23 (17.90)	74.85 (17.32)	6.70 (4.41)	2.84 (11.20)
OTHER		79.29 (24.70)	79.99 (25.18)	80.60 (24.05)	80.86 (23.76)	3.61 (2.54)	2.95 (12.25)
Slope Coefficients							
UG	-6.61 (4.01)	-5.91 (4.07)	-6.54 (4.67)	-5.90 (4.19)	-5.88 (4.05)	2.09 (3.49)	-0.15 (1.09)
MONTHS	-0.14 (1.94)	-0.18 (3.28)	-0.17 (3.19)	-0.17 (3.22)	-0.17 (2.92)	0.08 (3.74)	-0.002 (0.43)
WORK	-0.16 (1.77)	-0.10 (1.08)	-0.08 (0.85)	-0.10 (1.03)	-0.09 (0.90)	0.05 (0.92)	-0.001 (0.15)
WEST	9.54 (4.52)	5.31 (2.18)		6.68 (2.49)	7.07 (2.64)	-0.20 (0.16)	-0.42 (1.79)
ENGLISH			3.12 (1.66)				
CLUBSC				0.04 (0.60)	-0.02 (0.16)	-0.03 (1.12)	-0.01 (2.06)
CLUBSC^2					0.001 (1.02)		
FRIENDSC				-0.06 (2.19)	-0.09 (1.31)	-0.01 (0.52)	-0.01 (2.39)
FRIENDSC^2					0.00 (0.52)		
HAPPY	0.74 (0.90)	0.55 (0.72)	0.61 (0.78)	0.32 (0.42)	0.27 (0.35)	-0.07 (0.21)	
VOLUNTEER	0.06 (0.22)	-0.02 (0.10)	0.02 (0.10)	-0.06 (0.24)	-0.15 (0.62)	0.12 (1.01)	0.01 (0.69)
N	153	153	153	153	153	153	153
Adjusted R^2	0.27	0.39	0.39	0.40	0.40	0.26	0.05
Akaike I.C.	7.355	7.184	7.198	7.180	7.200		

Notes: numbers in parentheses below each coefficient estimate are the (absolute) t-statistics, computed using White heteroskedasticity-consistent standard errors in the Eviews statistical software package. Coefficient estimates have in most cases been rounded to two decimal places.