GUESSS

Global University Entrepreneurial Spirit Students' Survey

Report for Australia (2013/14)

School of Management,

Curtin Business School,

Curtin University,

Perth, Western Australia

Australian academic partners in GUESSS 2013/14 and 2016.

Curtin University

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Generously supported by Ernst & Young (EY) as the international project partner.

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We would also like to thank our colleagues at the University of St. Gallen (KMU-HSG) who managed and coordinated this international project so adeptly. In particular we acknowledge the administrative leadership of Dr Phillip Sieger who tirelessly and patiently assisted us on our first involvement with this global project. We are pleased to be involved with GUESSS, now and into the future.
At Curtin Dr Paull Weber and Dr Louis Geneste led the project and we are grateful for the assistance of staff from the division office and the office of the Vice Chancellor in granting and facilitating access to the student population at Curtin in particular. We had a strong response from Curtin students and stakeholders in this round and hope to emulate that response at other Universities in Australia in the 2015-16 round.

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Curtin University

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Executive Summary

Australia is a significant tertiary education provider in our region. With 40 Universities and in excess of 120 other higher education providers in 2014. The higher education industry in Australia earned a total export revenue of $11.7 billion in 2014, making tertiary education the fourth largest export overall after iron ore, coal and natural gas. Entrepreneurship education is only a small fraction of the overall offering, but it has been identified by many stakeholders as key to our continued prosperity, especially post mining boom.

GUESSS 2013/2014 provided insights into the entrepreneurial intentions and university experiences of over 100, 000 responses from 34 countries. The Australian GUESSS survey attracted 495 responses with about 80% coming from the students of Curtin University in Western Australia. We were able to demonstrate that this sample was representative of the Australian student population by comparison with information held by the Australian Bureau of Statistics, Universities Australia, The Reserve Bank and the Federal Department of Education.

About two thirds of Australian respondents were under 25 years old (67.4%), which is 7.1% less than in the international norm. Females are more prevalent in this sample at 56%, which is very similar to the Australian University norm, whilst females account for a higher 58.4% of all respondents in the International GUESSS data. Well over half of the sample identified their nationality as Australian (60.8%) with Chinese students making up the next largest cohort (11.9%) and Malaysia occupying 3rd place (5.5%).

We highlighted a range of trends impacting upon higher education in Australia and how some of those trends are already emerging in the data. These trends include: democratization of knowledge, exchange rate fluctuations; contestable markets; diminishing government funding; digital technology adoption in teaching and learning; global student mobility and industry integration.

In terms of drivers of choice of University for students in our Australian sample, they were attracted by university reputation much more so than home proximity (44.4% vs 16.4%). Also, Australian students were over 6 times more likely to be studying at MBA level than the international norm (8.1% vs 1.2%). Having regard for students intending to start-up 5 years after graduation, at each level of educational attainment the largest single category of employment intent was to be a company founder.

Graduating females in Australia intend to start their careers as employees 91% of the time, effectively ‘playing it safe’ in their early career. However, 5 years out their intentions have shifted to start-up levels above the international norms. In terms of entrepreneurship training, only 36% of respondents had experienced any significant entrepreneurship content in their course. Regardless of

this, students identified their university had an atmosphere conducive to developing ideas for a business and was quite encouraging of entrepreneurial activities, relative to the international norms.

Student self-rating of academic performance was very interesting, with a small cohort of under performers more intent on immediate start-up upon graduation. Regardless of performance considerations, the MOST common career intention 5 years after graduation was becoming a founding entrepreneur (35.2%). This was up from a much lower 6.5% at graduation. We consider this a major finding of the analysis of the Australian sample. Our students are patient nascent entrepreneurs willing to build skills and resources over an extended period before attempting to start up later in life. They do indeed have a plan to start-up, it is simply a case of ***when,*** not ***if*** for many future entrepreneurs.

We commend this study to you and hope you too can identify with and appreciate the bright future that the current crop of intending entrepreneurs are planning, when the 'time is right', as well as celebrating that smaller groups of go-getters who are eager to start as soon as possible to contribute to the success of their nation and of course, their own future prosperity!

Research Design & Methodology

GUESSS is a well-established global survey with over 50 countries and 120,000 students tipped to participate in the 2016 round. It therefore has to tread the well-worn research/practice path between comparability, parsimony and relevance in a global context, which is no mean feat. The overarching survey design is managed by the project leaders at the University of St Gallen and the underlying theoretical perspective is built upon the ***Theory of Planned Behavior*** (Ajzen, 1991). The focus of the work is on identifying career choices and intentions with reference to entrepreneurship as the career in focus. To arrive at a planned career choice the study examines (as independent variables) the family, university, and other social contexts as well as personal characteristics and motives of students enrolled in tertiary study. It is not designed to be used as a tool to compare results between institutions, only at the country level. The study is repeated every 2-3 years.

Exhibit 1 GUESSS Theoretical Framework[1]

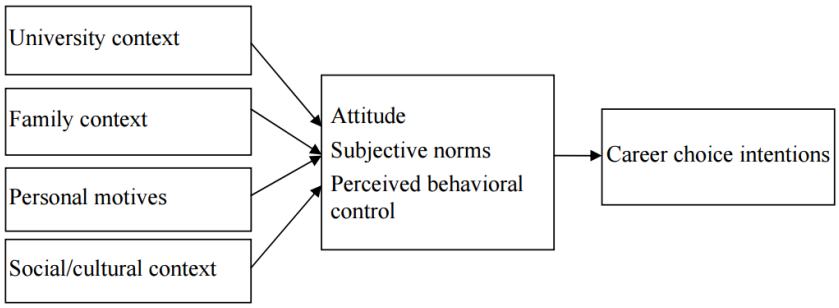


Exhibit 2: University Sample

In 2013 thirty four countries participated in the GUESSS project. The survey attracted 109,026 responses from 759 universities around the globe, with 495 of these responses from Australia. In this first involvement in GUESSS it was Curtin and Murdoch universities in Western Australia who supplied a significant majority of completed responses to the survey, collectively representing 86.3% of responses. This bias must be noted when interpreting the response patterns that emerge and it does have some impact upon the way data is presented and analysed. However, we present compelling comparative evidence that the sample is still broadly representative of the Australian student body.

University	N	%
Curtin University	402	81.2
Murdoch University	25	5.1
University of Western Australia	3	0.6
University of Newcastle	8	1.6
University of Tasmania	4	0.8
Other*	53	10.7
Total	495	100

* Other represents respondents that did not identify a specific university, not missing values.

[1] For more detail see the full international report at www.guesssurvey.org/PDF/2013/GUESSS_INT_2013_REPORT.pdf

The Tertiary Education Environment in Australia (the sample frame)

This is a dynamic period for Australian Universities and their students, with significant forces of change a characteristic of the sector. In 2012 Ernst and Young Australia identified five trends that are working to reshape the tertiary education industry and thus the student experience therein (Ernst & Young, 2012). These trends are:

1. Democratization of knowledge— as seen through such things as the rise of Google and the prevalence of MOOCs (Massive Open Online Courses).
2. Contestable markets & funding— governments (state and federal) that are fiscally constrained, seeking to support more players and constituents with less.
3. Digital technology— changing the way intellectual property and educational 'value' is created and communicated.
4. Global mobility— for students, academics and university brands.
5. Industry integration— a growing need to deepen ties that reinforce the role of universities as drivers of innovation and growth, remain relevant and to gain access to scarce resources.

All of these trends and their consequences are no doubt having an impact on the plans of students and their experiences of entrepreneurship whilst they study. In particular, global mobility is changing the student and academic mix. We are seeing an increasing globalization of both the teacher and the taught. The interplay of knowledge democratization and digital technology is fundamentally changing the educators' task from one of content delivery to capability enhancement, facilitation and encouragement. Students are more than ever seeking ways to ***do*** things and ***understand*** concepts from multiple formal/informal sources, with a myriad of new networks emerging, in particular the rise of new forms of the business incubator (Kemp & Weber, 2012).

In the entrepreneurship education space this is nowhere more evident than the growth in prevalence and popularity (amongst students, politicians and angel investors) of various forms of technology incubators, accelerators, competitions, groups, investor clubs and support networks. Indeed the growth of such outlets for students with entrepreneurial intentions could be a challenge for the university sector, with some students not seeing the value of their course as a good match for the 'fast-track to success' that is at least the public image of some of these heroic programs.

However, as one prominent entrepreneurship educator in Australia noted recently "… *for governments, universities or other publicly funded institutions the accelerator model may be less desirable than the more conventional not-for-profit incubator. This could be particularly true if the technology underlying the innovation is complex and requires time to develop*" (Mazzarol, 2015).

Therefore this GUESSS data is, we believe, presented at a point in time where we are likely to see rapid change in the for-credit and extra-curricular experiences offered by entrepreneurship educators in Australia. These changes are being driven by market forces and the public discourse on the importance of innovation and entrepreneurship as well as university sector fiscal realities. Notably, the Federal government of Australia has laid out a National Innovation Agenda (NIA) which includes a specific and detailed focus upon stimulating entrepreneurship[2].

Indeed, within the innovation agenda the following statement on entrepreneurship as a driver of economic prosperity is noted, "…*start-ups and entrepreneurs are a large contributor to new jobs and innovation in Australia. In fact, start-ups created 1.44 million jobs in our economy between 2006 and 2011*." [3]

[2] Commonwealth of Australia, Department of the Prime Minister and Cabinet, *National Innovation and Science Agenda*. ISBN 978-1-925238-19-8

[3] Commonwealth of Australia, Department of the Prime Minister and Cabinet , *Start-ups and entrepreneurs*, available at http://innovation.gov.au/audience/start-ups-and-entrepreneurs

Around the time of this GUESSS survey, Australia had 40 full Universities and in excess of 120 other higher education providers that often worked in pathway partnerships with these universities to create a large volume of graduating students. If we examine the higher education system from an export industry perspective Australia earned a total export revenue of $11.7 billion in 2014[4], making tertiary education the fourth largest export overall after iron ore, coal and natural gas. This success results in a considerable supply of graduating students flowing into the marketplace having to make career decisions in the context of an uncertain employment outlook. However, the Grattan Institute reported that whilst students were experiencing a slower transition from graduation into the Australian workforce they were still earning significantly more than those who exited education at year 12 (Norton & Cherastidham, 2014).

The decision risk of continued unemployment whilst waiting for an opportunity to utilise earned qualifications is one factor that encourages students to consider self-employment. There is evidence in this GUESSS study that this conundrum is particularly the case for students who were not performing well in their studies (see Exhibit 11: Student Performance x Start-up Intentions on page 14 of this report). This reality sets up an important decision for entrepreneurship intent graduates, do I startup now, or stick to the plan to build capability and resources working for someone else? (as seen in Exhibit 12: Employment Intentions after Study on page 15).

This is the first time that Curtin has sponsored and managed this project for the Australian cohort. We consider it a success and also a work in progress as we drive to encourage a more diverse university involvement in future rounds. There were distinct challenges to doing so in the first round, not least of which was convincing potential partners of our own long term commitment to the project. That commitment is now further evidenced by Curtin agreeing to also co-ordinate the Australian survey in 2016.

Fortunately, Curtin University is an ideal subsample of the Australian student diaspora as it is a large institution in the tertiary education context with Australia's third largest international student population, having over 60,000 enrolled students in 2014 across regional and city campuses. Students enrolled at Curtin came to Australia from over 130 countries globally in 2014[5]. With such a diverse cohort we can reasonably claim the survey to be representative of the wider Australian student body.

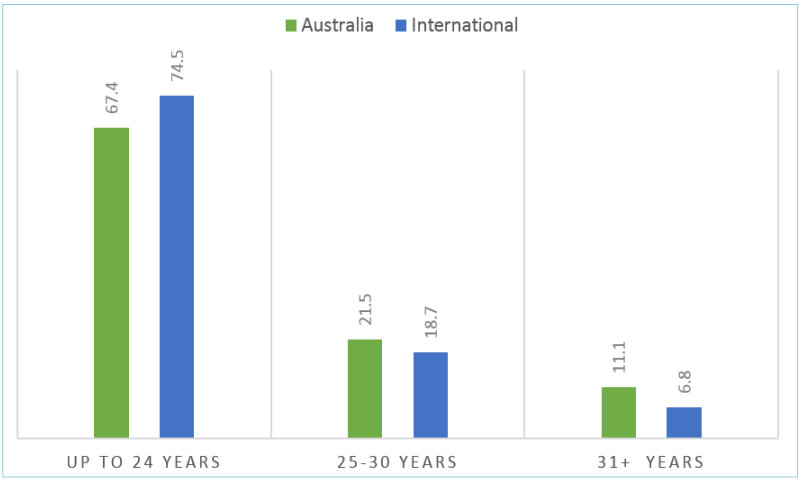
[4]Australian Government, Department of Education and Training, Research Snapshot June 2015
https://internationaleducation.gov.au/research/Research-Snapshots/Documents/Export%20Income%20CY2014.pdf

[5] Curtin University, *Facts and Figures (2014),* http://about.curtin.edu.au/our-profile/facts-figures

Student Demographics

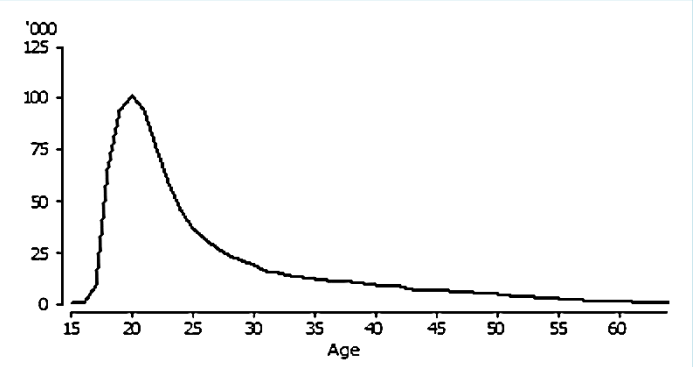
The total number of student places in higher education in Australia had grown to 977,000 in 2014, up from 588,000 places in 2001. This growth was driven in part by over 25 percent of places being opened up to overseas full fee paying students. This expansion also came from an increase in the proportion of Australians aged 25-34 participating in tertiary education to sit at 37.2%, up from 27% just two years prior in 2012.[6]

Exhibit 3: Respondent Age (percent, N=279)



Comparing exhibits 3 and 4, the sample age structure is observably similar to the Australian tertiary student age distribution as published by the Australian Bureau of Statistics. The survey sample also appears to approximate the international norms, with just a few exceptions. Australia does have a slightly older student cohort according to Australian Bureau of Statistics data, with 41% of students aged 25-64 at the last population census in 2011.[7] Therefore we would expect to see a somewhat "fatter" tail on the Australian Age distribution, and that is indeed the case with 11.1% of respondents in the 31+ category against an expected 6.8% international norm.

Exhibit 4: ABS 2011 Census, Higher Education Enrolment, by Age



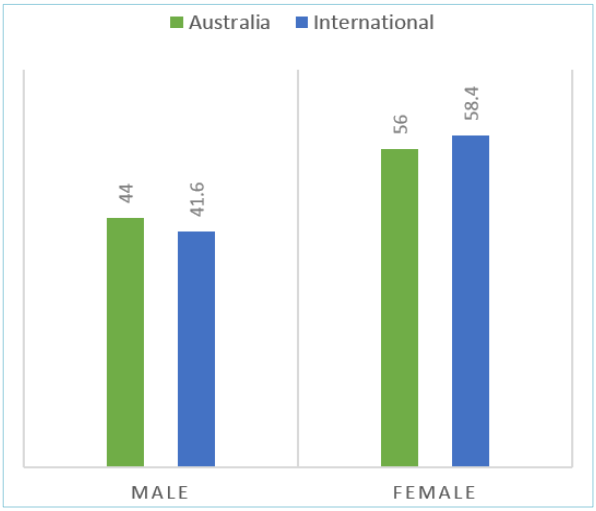
Source: ABS 2011, Census of Population and Housing

[6] Universities Australia, *Higher Education and Research: Facts and Figures , November 2015*, available at www.universitiesaustralia.edu.au/australias-universities/key-facts-and-data#.VrrjDfl97RY

[7] Australian Bureau of Statistics: *Australian Social Trends, July 2013, Cat No. 4102.0*, available at www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20July+2013#p2

Since 1987, there have been more women than men enrolled in higher education. In 2011, 57% of higher education students aged 15-64 years were women in Australia.[8] This GUESSS 2013/14 sample has 56% female participants, which closely mirrors the national norm.

Exhibit 5: Respondent Gender (percent, N=495)



Australia has experienced rapid growth in international student enrolments since first opening up the system to a fee paying cohort in 1986, with double digit growth being the norm from 2000 to 2010. In 2013 there were 328402 international students enrolled in Australian Universities, but only 74% of these students were studying in Australia (Norton & Cherastidham, 2014). Students attending offshore campuses (26%) of Australian universities are deliberately excluded from this study since the global methodology used by GUESSS means they could be captured by another country GUESSS survey.

Exhibit 6: Respondent Nationality

Nationality	N	%
Australian	301	60.8
English	6	1.2
Chinese	59	11.9
Indian	5	1.0
Malaysian	27	5.5
Indonesian	10	2.0
Other (incl. 12 missing)	87	17.6
Total	495	100

Interestingly, when comparing the level of international student response in the Australian sample to a similar education export leader (such as the UK) we note a similar 54.3 percent local home country cohort with a more Europe centric international cohort (rather than the Asian influence in the Australian sample). This high Asia centric student concentration will no doubt have some influence upon comparisons between Australia and the global norms, tending to be more representative of Asian attitudes, culture and trends. Data from the ABS in 2011 showed that the top

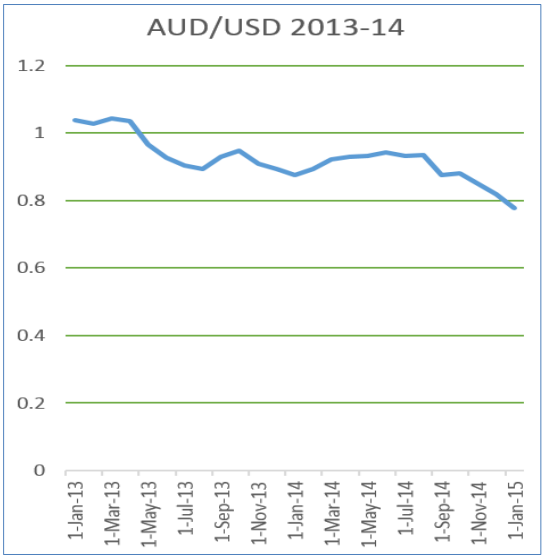
[8] See footnote 7 on page 7

four countries for international students studying in Australia at that time were, China, India, South Korea and Malaysia, in that order. The sample generated in this research seems to be underrepresenting South Korean and Indian students, but otherwise fits reasonably well with expected geographic response patterns. In 2013 the Department of Education produced data[9] on the top ten source countries of fulltime enrolled students in 2013, these were:

- China
- Singapore
- Malaysia
- Vietnam
- India
- Hong Kong
- Indonesia
- Nepal
- South Korea
- United States.

The common country of origin theme is, for the most part, an Asia centric country of origin. However, it would be too simplistic to describe 'typical' characteristics of students from such diverse societies and cultures. Therefore, we acknowledge in this survey and indeed in the global GUESSS database that the impact of cultural factors related to country of origin will play a significant role in the entrepreneurship attitudes and intentions of students. A more sophisticated analysis would only be possible with larger samples than we have available here. For example, with only 5 Indian respondents and 87 from 'other' nations, there is too much variance to use any of the country of origin data as a control variable. For example, work by Australian academics on the differences between Chinese and Malaysian students shows there are significant differences in preference for online distance learning. In particular, the Malaysian cohort are more amenable to blended learning than Chinese students who prefer a face to face experience (Kamal, Sweeney, Soutar, & Roberts, 2016).

Exhibit 7: Exchange Rates 2013/14



It is also likely that there are exchange rate related factors at play upon student career intentions which vary from one survey period to the next. At the time of this survey the Australian dollar was a relatively strong currency, approaching parity with the US dollar. The shift in costs attributed to exchange rate movement has an undoubted impact upon both the volume and type of international students coming to study in Australia. For example, in the period 1994 to 2011 the AUD-IDR exchange rate doubled. This had a marked impact upon Indian student enrolment, contributing to a 2011 26.8% drop in enrolments (Rafi & Lewis, 2013) However, since the beginning of 2013 the foreign exchange trend was downwards and ongoing.[10]

[9] Department of Education (2014j) *uCube - Higher education statistics*, Department of Education http://highereducationstatistics.education.gov.au

[10] Data obtained from The Reserve Bank of Australia, *Historical Data*, http://www.rba.gov.au/statistics/tables/xls-hist/f11hist.xls

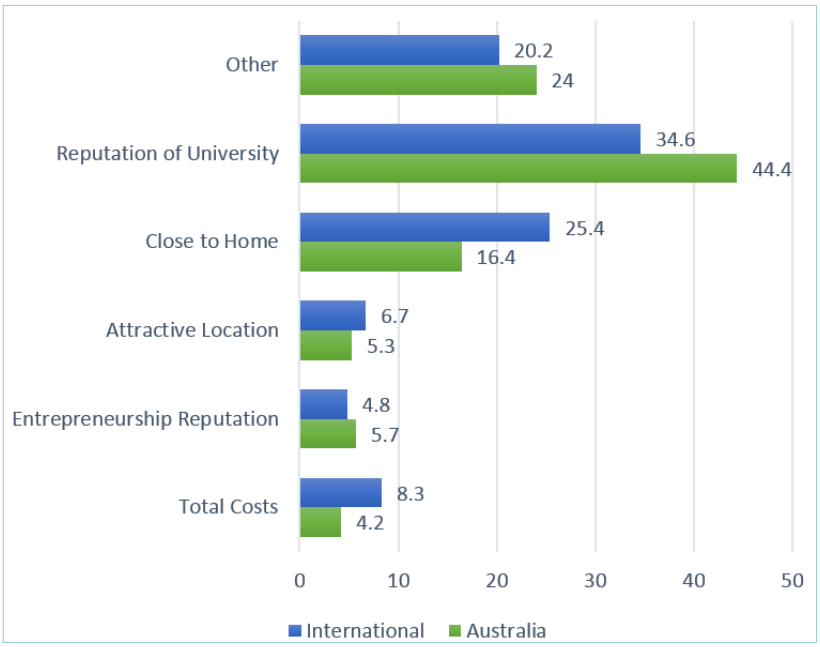
Results

The results of the survey are presented here with the emphasis on identifying and where possible exploring/explaining differences rather than reporting similarities. In some areas of the global study it is not valid to report the results due to sample size limitations.

Details of Variables Examined

The following details of the responding students are intended to give an overview of their choice criteria (entrepreneurship focus) and level of study undertaken, as well as their self-reported performance and capabilities. These three criteria help to paint a picture of the students focus and anticipated outcomes.

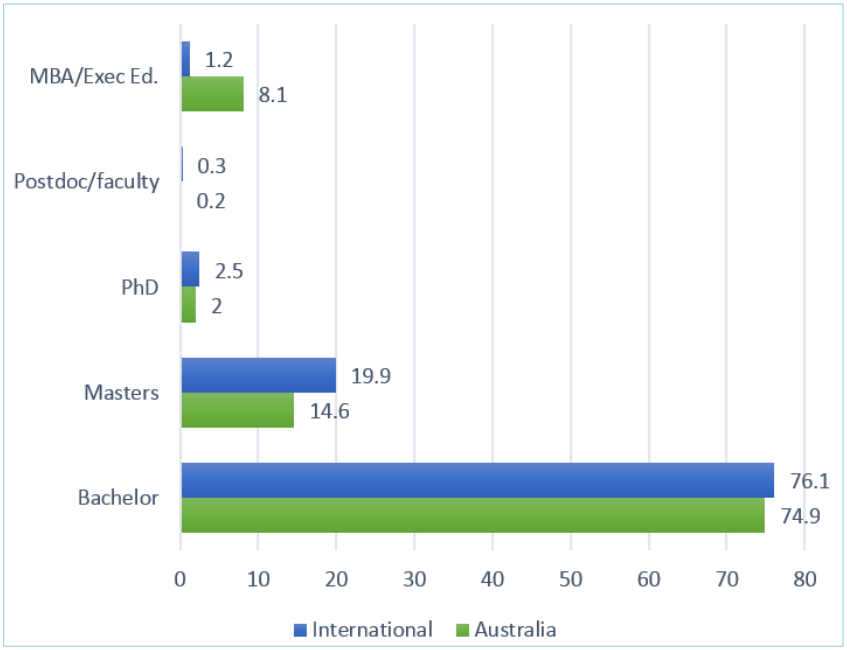
Exhibit 8: Reasons for University Choice (percent, N = 495)



There is longstanding evidence in the education management literature that choice of University in Australia by the international student cohort (39 percent of this sample) is a multifaceted issue with many push and pull factors (Mazzarol & Soutar, 2002). In more recent times issues of personal safety and potential to attain resident status after graduation are likely having a substantial impact upon decisions made (Baas, 2006). It is beyond the scope of this study to control for such moderating factors, so this is noted and then we simply focus on the proportion and relative frequency of the issues covered within the GUESSS international survey. Clearly the reputation of the university is an important criterion. It is unsurprising then, that students who select Australia as their study destination (in particular Western Australia) do not seek a solution 'close to home'.

The graph at Exhibit 9 identifies the level at which respondents were studying and then compares the proportions to the international survey. There are some minor differences with the international sample evident.

Exhibit 9: Level of Current Study (N=495)



A substantial majority of all students in the Australian sample (74.90%) are undergraduate students (Bachelor). A still sizeable 8.1 % of students were attaining a Masters of Business Administration, which is over 6 times the international sample of 1.2%.

Another interesting observation is in relation to the differences in the students 5 year employment plan. In each level of educational attainment the largest single category of employment intent was to be a company founder. The following percentage of respondents expressed an intent to found a business in 5 years' time:

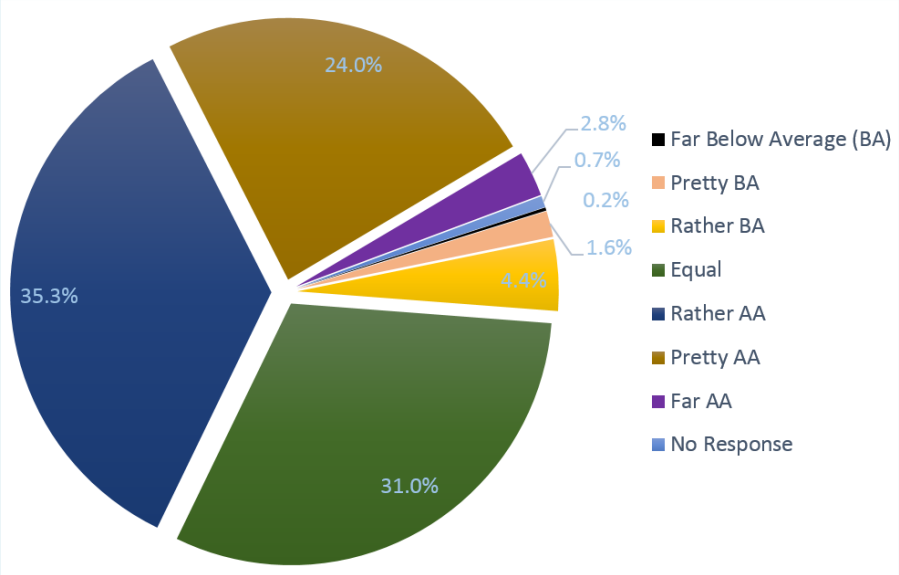
- Undergraduate – 35.6% (n= 371)
- Masters - 33% (n= 72)
- PhD – 40% (n = 10)
- Post Doc – 100% (n = 1)
- MBA – 32.5% (n = 40)

There is a general acceptance of the value and importance of fostering innovation and entrepreneurship at Universities in Australia and it would seem that current Australian students are getting the message, intending to be quite an entrepreneurial generation. However, the courses and extra-curricular offerings to support this at tertiary institutions vary greatly between universities and even within university schools/faculties. There are some universities that provide excellent support and encourage businesses through technology spin-off programs and student start-up incubators and some that provide executive education and other short courses supporting Entrepreneurship[11] .

[11] See for example the Intellectual Property Commercialisation program operating at Curtin University http://research.curtin.edu.au/commercialisation/spin-out-companies

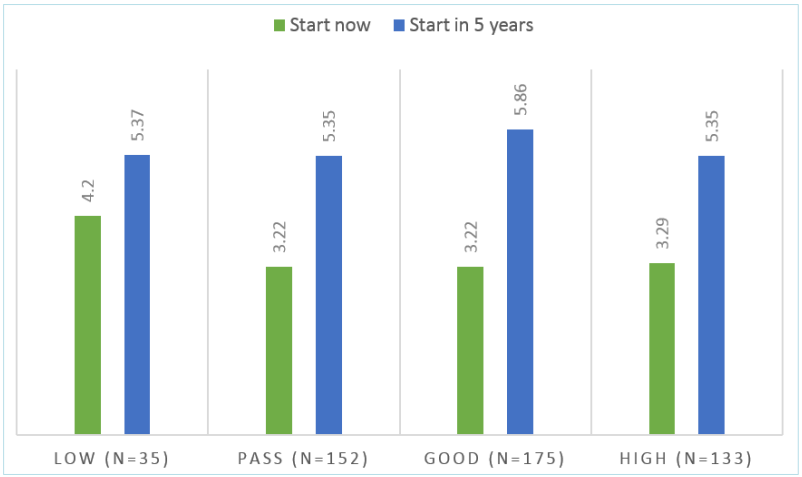
The exhibit below identifies the relative performance of responding students. It is a self-evaluation and as such is expected to have a negative skew (over reporting) to the distribution, this is the case but the skew is minor (-.295), suggesting an acceptable and rational assessment of abilities was made by students.

Exhibit 10: Self- Rating of Academic Performance (N=495)



The timing of the 2013/14 survey coincides with the growing inclusion of more 'blended learning' at many Australian Universities. Blended learning in this context relies upon a mix of online learning and classroom or face to face interaction. In most circumstances, the knowledge is shared online and the concepts are then practiced and tested in the classroom context, before migrating the experience to the 'real world' through work integrated learning. The research on the effectiveness of blended learning in entrepreneurship education is showing that high achievers favor this mode but lower achievers are not as able to function well in this environment (Owston, York, & Murtha, 2013). Over recent years Australian universities have been driven by market forces and policy to grow participation rates, in part by lowering entry requirements resulting in two potential cohorts of students in this data. At the extreme, in terms of entrepreneurial intent these two groups may be thought of as those who 'can but won't' (High Performance, low intent) and those who 'can't but will' (Low Performance, high intent). The low performance group in Exhibit 11 may well be a form of 'Push Entrepreneur', with a higher start now criterion driven by a lack of perceived alternative.

Exhibit 11: Student Performance x Start-up Intentions (Relative Average Responses).



Career Choice Intentions, Main Area of Interest.

In early 2014 (when some in this sample would be graduating) nearly one third of bachelor-degree graduates were still looking for full-time work four months after graduating (Norton & Cherastidham, 2014). Although many of these graduates may have had some part-time or casual work they were clearly under-employed, this reality could push forward the 5 year plans of many to start their own business (out of necessity), but it is beyond the scope of GUESSS to examine this in greater depth.

Exhibit 12: Employment Intentions after Study

Employment Intention	After studies	5 years later
An employee in a small firm (1-49 employees)	21.2	***3.6***
An employee in a medium-sized firm (50-249 employees)	23.0	7.2
An employee in a large firm (250 or more employees)	29.9	26.9
An employee in a non-profit organization	3.8	3.2
An employee in Academia (academic career path)	2.6	3.8
An employee in public service	5.3	3.6
A founder (entrepreneur) working in my own firm	6.5	***35.2***
A successor in my parents' / family's firm	2.4	3.0
A successor in a firm currently not controlled by my family	0	4.8
Other / do not know yet	5.3	8.7
Total (N= 495)	100	100

It is a key finding of this round of the Australian GUESSS survey that a relatively low 6.5 percent of students intend to start-up as soon as they graduate, yet in five years over one third of students plan to be self-employed. This is a remarkable shift in intentions and is (we contest) an important reason to embed start-up and entrepreneurial skills within more courses, as many students will benefit from a base understanding of entrepreneurship 'one day', many more than can be reached through a traditional degree program in entrepreneurship. There seems a strong argument for introducing components of entrepreneurship into the curriculum of many other degree streams. This growth in self-employment intentions may also be a pragmatic outlook, driven as noted earlier by the recent Australian trend of reducing entry requirements (for domestic students) as this has been shown to result in commensurate increases in fail rates and hence greater salience of the self-employment career option. [12]

[12] Kemp, D. and Norton, A. (2014) Review of the demand driven system: final report, Department of Education: available at: https://docs.education.gov.au/system/files/doc/other/review_of_the_demand_driven_funding_system_report_for_the_website.pdf

This data on gender differences in start-up pathways identifies the differences between genders on the start-up now/five years later decision and introduces a finer degree of pathway description to differentiate between founder and succession plans.

Exhibit 13: Pathway to Start-up, by Gender

Entrepreneurial Pathway	Right after studies		5 years later	
	Male	Female	Male	Female
Employee	173 (79.4%)	252 (91.0%)	85 (39.0%)	154 (55.6%)
Founder	22 (10.1%)	10 (3.6%)	97 (44.5%)	77 (27.8%)
Successor	6 (2.7%)	6 (2.2%)	19 (8.7%)	20 (7.2%)
Other	17 (7.8%)	9 (3.2%)	17 (7.8%)	26 (9.4%)
Total (N=495)	218	277	218	277

The shift in proportion of students intending to move away from working as an employee between right away and 5 years is 35.4% (91-55.6) for women and 40.4% (79.4-39.0) for men. The 5% gap between genders (40.4-35.4) may not be a 'real' gap as recent research into gender differences in entrepreneurial intent does show that females are less likely to report high intensity of intention (Westhead & Solesvik, 2015). These researchers also show that females who undertake entrepreneurship education may well have their entrepreneurial intentions moderated by a heightened perception of risk, which they learn of during their studies. With this caveat in mind, we conclude that both genders are indicating a culture of patient intent to become an entrepreneur in the current student cohort.

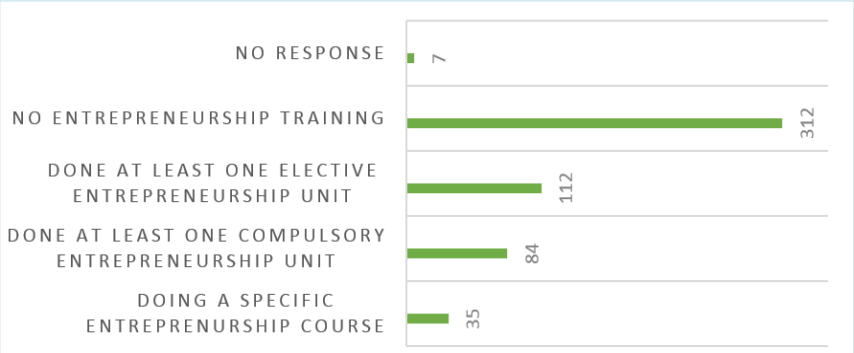
If we compare these results with the international norms Australian students can be reasonably described as 'playing it somewhat safe' immediately after graduation. Globally the norm is 78.2% of men and 80.6% of women planning to be an employee upon graduation. In Australia those numbers are 79.4% and 91% respectively.

Looking forwards to the 5 year intention data, 39.8% of males and 31.5% of females were intent on start-up or succession. Globally the norm is 43.5% of men and 28% of women planning to be an employee 5 years post-graduation. Therefore, we can clearly see that Australian female students have marginally exceeded the global norms in their five year entrepreneurial plans whereas the men are marginally below the norm. It is particularly promising to see females overtaking the international norms, as this would seem to somewhat reassure that they are not being turned away from entrepreneurship by concerns of risks that develop during their studies. The caveat here is that the actual field of study and the expected qualifications were not in entrepreneurship education for most students who participated. Can we therefore interpret that there is potentially a cohort of female students from other disciplines who are intent upon a 5 year delayed start-up? That is certainly one possibility arising from this data.

Students and Entrepreneurship Studies

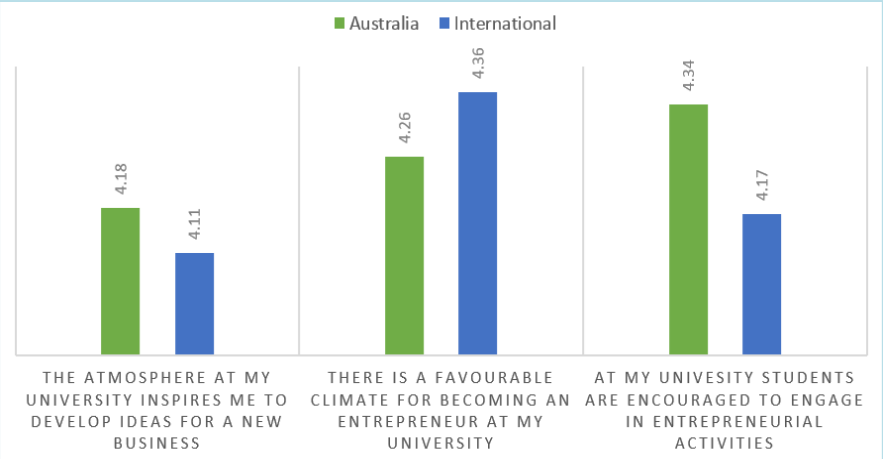
This exhibit identifies the extent to which respondents have been exposed to any entrepreneurship training whilst undertaking their studies. The nature of this question means that some students were able to respond in the affirmative in multiple categories. Therefore the total of the five reported categories exceeds the sample size.

Exhibit 14: Attendance at Entrepreneurship Courses (N=495, multiple response possible)



Universities generally claim (and research supports) that engagement in entrepreneurial education positively impacts upon entrepreneurial intentions. To gauge the students' level of exposure to entrepreneurship education respondents were queried as to what extent they have attended entrepreneurship-related courses. The results show that 63% of respondents have not taken an entrepreneurship unit as part of their current studies. Only 7.1% were enrolled in a full course of entrepreneurship, with only a potential additional 10% having experienced any entrepreneurship education in their degrees. Because of the overlap in these questions (a person could do one compulsory and one elective component but still not be doing a full degree). Allowing for the non-responders, the best we can say is that no more than 36% of respondents have had any exposure to entrepreneurship education in their degrees.

Exhibit 15: University Entrepreneurship Environment

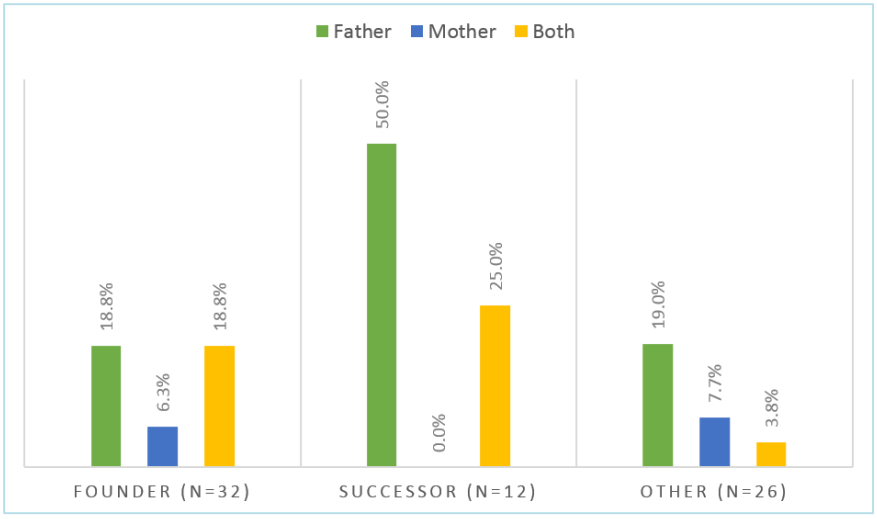


These items were scored on a Likert scale with a range 0-5.

The above student impression of the campus entrepreneurial environment follows international norms with only small mean differences, nonetheless it does not meet the norm for becoming an entrepreneur, indicating a need perhaps for more effort around encouragement and support of start-ups in the curriculum.

Exhibit 16: Family Business Owners of the Start-up Intenders (N=70) identifies whether it was one or both of the students' parents (Family) who influenced entrepreneurial intent. Attention is naturally drawn to the nil response for the entrepreneurial mothers of students wanting to groom a successor, but the small sample size of immediate start-ups makes such conclusions improper. In fact we do not even know how many students in the sample come from single parent families, so it is even more risky to over-interpret these small proportionate numbers. We offer commentary below which is probably best termed speculation with the sample size and particular variables concerned.

Exhibit 16: Family Business Owners of the Start-up Intenders (N=70)

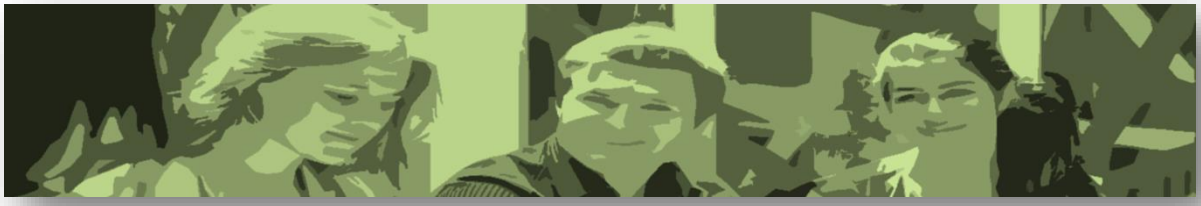


Family experiences of entrepreneurship are thought to have an influence on the entrepreneurial intentions of students. To explore this family influence we observed the respondents who:

1) Intended to start-up (upon graduation or in 5 years) and…
2) …had one or both of their parents who were self-employed.

There were 70 such respondents who satisfied both conditions from the total sample of 495. From this relatively small group we cannot do more than observe and speculate, as the differences noted may just be chance. However, that said, it was notable that family business succession only appeared as a career intention when there were two parents or a father who were self-employed, there were no cases within the 495 students responding where it appeared that a solo female business owner was preparing her child as a successor.

A recent literature review and meta-analysis of the relationship between entrepreneurship education and entrepreneurial intentions suggested there is a small but enduring correlation between the two (Bae, Qian, Miao, & Fiet, 2014). However, these authors also identified that where the student was from a family of entrepreneurs the influence of family was not a significant moderating factor (Bae et al., 2014). This finding backs up the earlier work from GUESSS by Zellweger, Sieger & Halter (2011) who found that students with a family business background were actually more pessimistic about being in control in an entrepreneurial career, even though they had confidence in their capability (self-efficacy) to do so. This is an interesting finding in the context of the complete absence of female successor businesses in the sample for GUESSS Australia 2013-14.



Intentional Start-ups (founders)

One of the key questions which entrepreneurship educators would like to "know" is whether the education provided does in fact lead to an increased intention to start and then to encourage actual start-up behaviours. This is always hard to establish as 'fact' since it can be many years after a student graduates that they move into self-employment. Yet, even with a delayed commencement alumni may still draw upon the skills and learnings of their course/degree to help start and run the new business. Indeed, GUESSS seeks to partially resolve this conundrum by asking students to predict their own future direction, relying upon the Theory of Planned Behaviour (Ajzen, 1991) to argue that intentions will lead to actions at some point in the future. 2013/14 is the first data that we possess for the Australian respondents, so we cannot claim to see a trend from a single year performance. However, the jump in '5 year starts' to a number higher than the global norm (which is also correlated with the measure of competency/ESE) gives Australian educators cause to feel vindicated that we are at least stoking the slow burning fires of entrepreneurship within the student body! (See exhibit below)

Exhibit 17: Intentional Entrepreneurs Australia-International Comparison

Year of Survey	International		Australia	
	After Studies	5 Years After	After Studies	5 Years After
2013/14	6.60%	32.50%	8.88%	43.03%

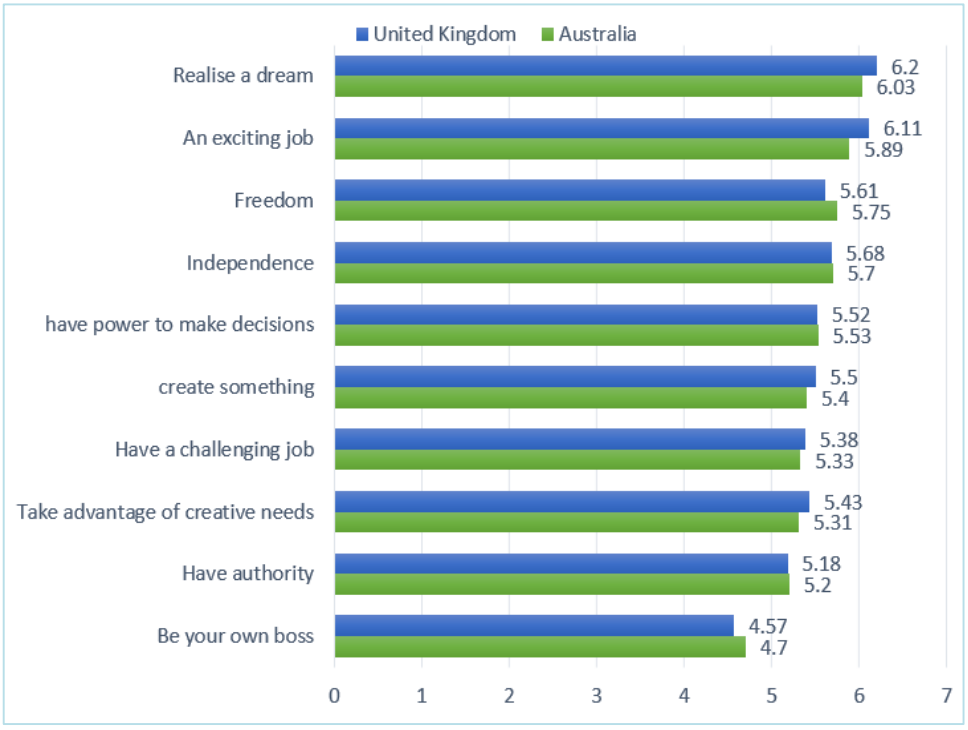
Students intending to start in the Australian sample appear to plan to delay the start by at least five years, to a greater extent than the global norm. We can reasonably assume that this decisions allows many nascent entrepreneurs the time to develop more skills, networks and resources for a more successful start. However, there could be many other explanatory factors, including a lack of entrepreneurial self-efficacy (ESE), even at end of degree. In the GUESSS study there are eight questions related to "competence" which can be considered a reasonable approximation of entrepreneurial self-efficacy. These include:

1. Identifying new business opportunities
2. Creating new products and services
3. Applying my personal creativity
4. Managing innovation within a firm
5. Being a leader and communicator
6. Building up a professional network
7. Commercializing a new idea or development
8. Successfully managing a business

These eight questions indicate the student's perceived competence or at least confidence in their capacity to be a successful entrepreneur. In the academic literature this approximates the concept of entrepreneurial self-efficacy, albeit with less items than is normally the case (for reasons of parsimony in such a long survey). The scale as deployed was investigated for reliability and it yields an excellent Cronbach's Alpha of .914, making this a highly reliable scale. Further, the scale is unidimensional, meaning that all eight items are explaining the same underlying concept or construct, namely entrepreneurial self-efficacy. Further analysis shows us that individual items within the scale all belong to the same concept or dimension with factor loadings between 0.734 and 0.852. The scale as used explains 64.36% of the variance in responses in the sample.

We test this approximation of entrepreneurial self-efficacy by correlating it with a separate comparison statement "If I become an entrepreneur, the chances of success would be very high" (7 point agree /disagree Likert scale). The result of this correlation is significant (0.01 level, 2-tailed) with a Pearson *r* of .577. Acknowledging the perils of implying causality to correlational studies, we are still confident to interpret this as evidence of the face validity of the abridged ESE scale. Interestingly, there is no correlation between intentions to start-up immediately after graduation but there is a significant (0.01 level, 2-tailed) positive correlation (*r* = .141) with intentions to start up after 5 years. This may indicate that the start-up timeframe is more about building the necessary externalities such as networks and capital which the degree does not provide, rather than the internal personal competencies or ESE that can be learned.

Exhibit 18: Twin Tales of Motivation for Start-up, Australia (N=495) and the UK (N=637).



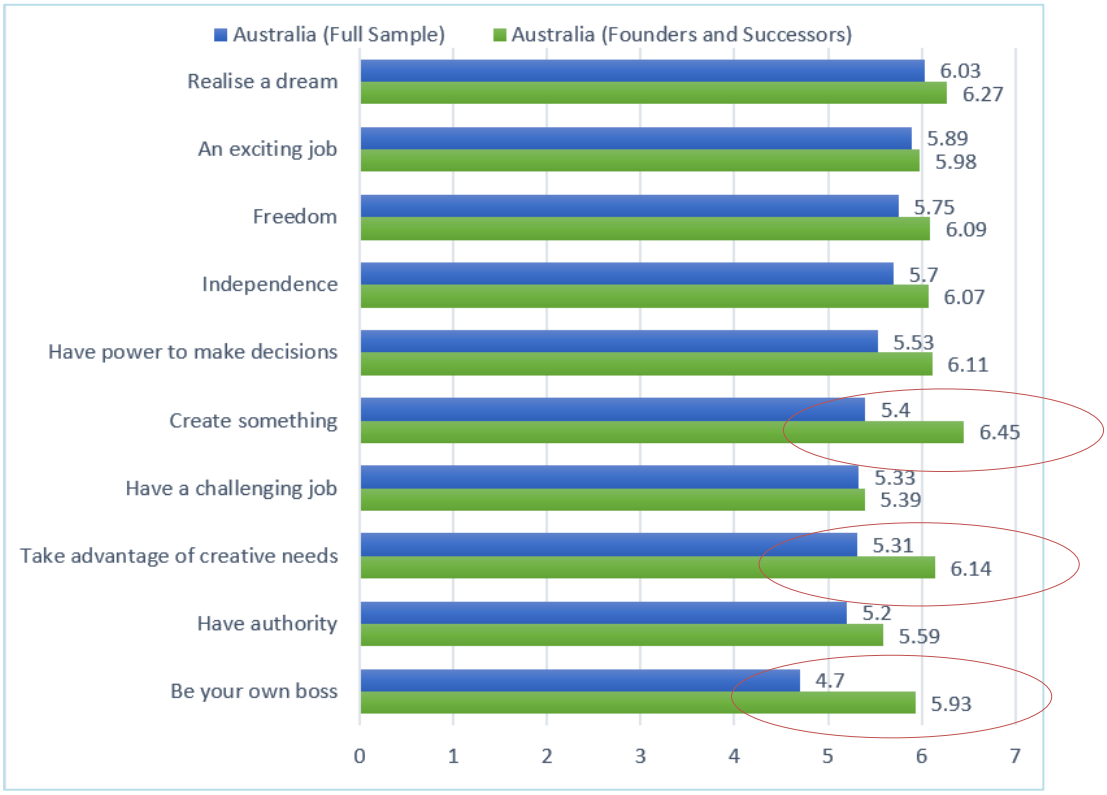
These items were scored on a Likert scale with a range of 0-7.

Students are asked why they might be motivated to start their own business. The responses portrayed represent the more commonly cited reasons in the literature why entrepreneurs choose to start a business. Whilst compiling the Australian data we were taken by the similarity of responses with the UK sample[13]. The two cohorts closely match each other in terms of both the strength of agreement with these statements and the rank order of importance is similar as well. It seems there is a good deal of agreement in similar contexts of these two nations about why one may wish to take an entrepreneurial path. Therefore, to understand this at a deeper level we then ran the same ranked mean test on only those students in the Australian cohort who were flagged as intending to start their business immediately upon graduation. This cohort would we believed have spent more time deeply considering this near future activity. For ease of comparison we have again aligned these responses with the full sample as a comparator.

[13] See www.guesssurvey.org/PDF/2013/GUESSS%20England%20Report%202013_2014.pdf

The exhibit below focusses on the small group of respondents who are intent upon starting up (being a Founder) or joining the family business (being a Successor) as soon as they graduate. We explore their motives in that context and compare with the full Australian sample, looking for similarity and difference.

Exhibit 19: Motives of Students Intending Immediate Start-up (N=44)



This comparison between immediate startup intending students and the entire entrepreneurship intent cohort represents just 8.88% (44 students in the sample of 495) of the student body that responded. Indeed, students undertaking a full course in entrepreneurship accounted for even fewer responses at only 1.6%. However, this smaller 8.88% cohort of intending founders and successors (acting immediately after graduation) seem to be stronger in terms of their desire to create and realise a dream. Educators of these creative and driven individuals (such as the authors) will recognize these students as often so eager to start-up that sometimes they are even at risk of not completing their studies, such is their impatience to get trading. The authors of this report can cite cases of students now running multi-million dollar enterprises and still trying to work out how to complete their degrees…were these cases a 'failure', certainly not. Will they return to complete their degrees? We certainly hope so.

Overall summary of findings, outlook and implications

GUESSS 2013/2014 provides insights into the entrepreneurial intentions and university experiences of over 100, 000 responses from 34 countries. GUESSS is running again in 2016 and over 50 countries are tipped to take part. Understanding entrepreneurship education and the effect it has upon the intentions of graduates is of growing economic, political and societal importance. The impact that universities can have on the next generation of entrepreneurs should not be underestimated and most certainly is better understood as a result of GUESSS. Curtin Business School is pleased to be a sponsor of this project in Australia.

Australia had 40 Universities and in excess of 120 other higher education providers that often work in pathway partnerships with the universities. The higher education industry in Australia earned a total export revenue of $11.7 billion in 2014, making tertiary education the fourth largest export overall after iron ore, coal and natural gas.

The Australian GUESSS survey for 2013/14 attracted 495 responses from several universities, but comes, in the main, from students of one large university in Western Australia that led this round of the survey. Whilst not ideal, we have been able to demonstrate that the sample is broadly representative of the wider tertiary student population in Australia.

With these factors in mind, the focus of the report is on areas where there was a large enough sub sample to make comparisons with the international data possible. This meant we focussed more on personal characteristics, motivation factors and university offerings (within the BECL cohort) and to a lesser extent on family business succession. We did not develop an analysis of variables related to respondents already in business as the sample size was deemed inadequate to do so. In some circumstances we instead presented comparisons with a similar sized sample from a comparable education export country (the United Kingdom).

About two thirds of Australian respondents were under 25 years old (67.4%), which is 7.1% less than in the international norm. The explanation for this disparity is that there are more 31+ year old respondents in the Australian sample. Females are more prevalent in this sample at 56%, which is very similar to the Australian University norm, whilst females account for a higher 58.4% of all respondents in the International GUESSS data. Well over half of the sample identified their nationality as Australian (60.8%), with Chinese students making up the next largest cohort (11.9%) and Malaysia occupying 3rd place (5.5%). We presented various data from the Australian Bureau of Statistics, Universities Australia, The Reserve Bank and the Federal Department of Education that reassures us that this is a sample which is broadly representative of the Australian student cohort.

We highlighted trends that are working to change the face of higher education in Australia and some of the impacts of those trends already evident in the data, such as an emerging dichotomy of students suited and not suited to new forms of teaching and learning and the interaction of an increasingly fragile graduate employment market leading to shifts in the effect of student entrepreneurial self-efficacy upon the timing of start-up plans. These trends in student learning needs and outcomes were also linked to a resurgence in student entrepreneurship groups, incubators, competitions and accelerators as well as increased political focus upon innovation and entrepreneurship as a means to maintain prosperity, especially in relation to employment creation.

We also acknowledged the important impact that exchange rates have upon the international student intentions. Further, we identified the moderating effect on other study variables that this may have, such as source nationality student volumes which could be expected to ebb and flow. In turn, expectations and attitudes be impacted by exchange rate related financial pressures. The impact of a devaluing Australian Dollar would only have just begun to have an effect during this survey period, but was an increasing factor towards the end of 2014.

In terms of drivers of choice of University for students in our sample, they were attracted by reputation much more so than home proximity (44.4% vs 16.4%). Only 4.2 % of respondents identified total cost of study as a choice factor, compared to the 8.3% international norm. Interestingly, more students (5.7%) selected their place of study based upon entrepreneurship education reputation than on total costs. Australian students who responded were over 6 times more likely to be studying an MBA than the international norm (8.1% vs 1.2%). Having regard for students intending to start-up 5 years after graduation, at each level of educational attainment the largest single category of employment intent was to be a company founder.

Student self-rating of academic performance was interesting, with a small cohort of under performers more intent on immediate start-up upon graduation. We postulate that current economic conditions may well have been creating a degree of 'push' entrepreneurship in this case. Regardless of performance considerations, the MOST common career intention 5 years after graduation was becoming a founding entrepreneur (35.2%). This was up from a much lower 6.5% at graduation. We consider this a major finding of the analysis of the Australian sample, these are patient nascent entrepreneurs willing to build skills and resources over an extended period before attempting to start up. It appears from the data that this supply of 'patient nascent entrepreneurs' would come to a large extent from students who were originally intent upon working with a small firm post-graduation, probably as a way to gain experience and resources for later use. Small business owners should take note of this observed trend when employing graduates. It may be that small businesses are more likely to keep graduates loyal to them with the opportunity to become a partner, rather than 'just' an employee.

Comparing the 80.6% of women from the global report who are planning to be an employee upon graduation with women in Australia at 91% respectively, it is reasonable to contend that Australian women are initially 'playing it safe' in their entrepreneurial career intentions. However, examining the 5 year intentions it is the females who have shifted their ambitions to now sit above the global norms.

The subjects in this study were not all exposed to any entrepreneurship training in their degrees, indeed only 36% had definitely experienced any significant entrepreneurship content in their course. What was promising given this minority experience of entrepreneurship was that students still identified their university as having an atmosphere conducive to developing ideas for a business and was encouraging of entrepreneurial activities, relative to the international norms.

In order to better understand the validity of the measure of entrepreneurial competence used in this survey we conducted a factor analysis and reliability test upon the entrepreneurial self-efficacy items in the study, both tests confirmed the scale used was very stable (Cronbach's Alpha .914) and an accurate reflection of the intended construct (one factor-unidimensional solution) that explained about two thirds of the variance of responses. The resulting single factor scale also showed a

significant and moderately strong correlation with an associated measure of likelihood of success, further strengthening claim of validity of this measure.

Finally, our analysis of the motives for immediate start-up amongst the small group of Australian founders and successors in the sample showed they had strong desires to be their own boss and wanted undoubtedly to take advantage of (and perhaps satiate) their own creative needs in the process.

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(* Some references to specific statistical information is presented only in the relevant page footnote)

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