

Global University Entrepreneurial Spirit Students' Survey

GUESSS 2008

Summary Findings for Singapore

March 2010



GUESSS 2008

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Overview of GUESSSS 2008

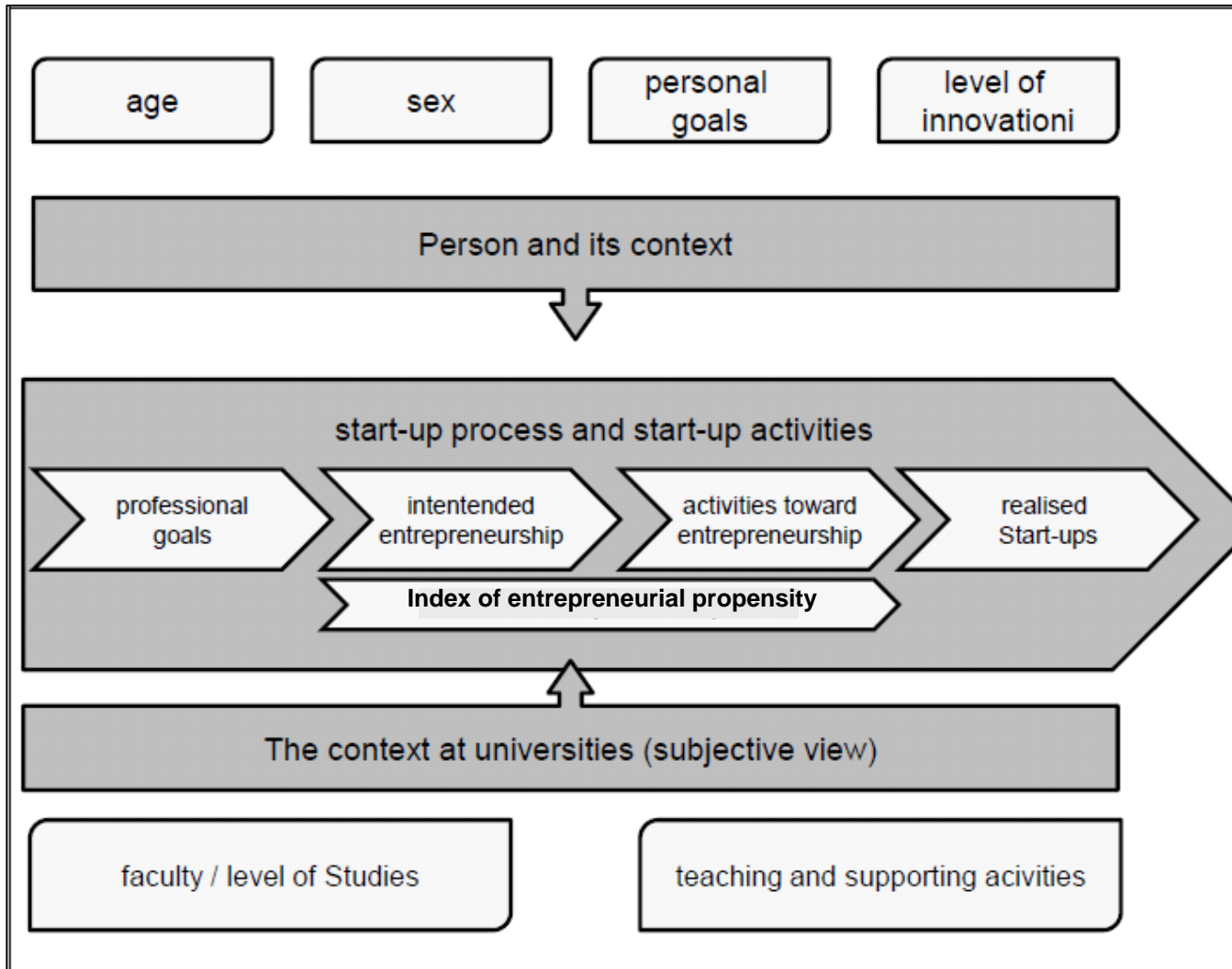
- A cross-national assessment of the entrepreneurial spirit (i.e. founding intention, goals, activities, & success) of students at IHLs.
- GUESSSS was initiated in 2004 and coordinated by the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen (KMU-HSG) in Switzerland.
- Conducted once every two years, 2 countries (Switzerland & Germany) participated in 2004, 14 countries in 2006 and 19 countries in 2008.
- 2006 pilot-scale study – Only SMU represented Singapore (n = 354).
- NUS Entrepreneurship Centre was invited to lead and coordinate the 2008 study for all tertiary institutions in Singapore.
- GUESSSS Singapore 2008 funded by National University of Singapore (NUS).
- 2008 study - Due to the small sample size in 7 countries, only 12 countries were used in the international analysis.

Sample Sizes by Country

Country	Sample size (n)	Country	Sample size (n)
Switzerland	12,685	Finland	1,122
Hungary	11,366	Mexico	720
Belgium	9,822	Indonesia	588
Germany	7,626	Luxembourg	424
Austria	5,818	Greece	284
New Zealand	5,332	Liechtenstein	278
Singapore	2,319	Ireland	140
South Africa	2,150	Australia	89
Estonia	1,548	Portugal	60
France	1,150		

Small samples; omitted from analysis

GUESSS Research Framework



GUESSS Research Methodology & Data Sources

- The GUESSS survey is administered through a common web-based questionnaire from May-Nov 2008.
- IHL students are provided a link to the national questionnaire via email.
- A total of **63,527** students from **83** IHLs in **19** countries participated in the 2008 study.
- In Singapore, a total of **2,319** students from the 3 public universities and 5 polytechnics were successfully surveyed.
 - ✓ NTU (only students from the Nanyang Technopreneurship Centre were surveyed).
 - ✓ SP and NP (only students from the Business School were surveyed).

SAMPLE CHARACTERISTICS

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxemburg, and Portugal) were omitted from the analysis due to the very small sample size

SAMPLE CHARACTERISTICS (Global)

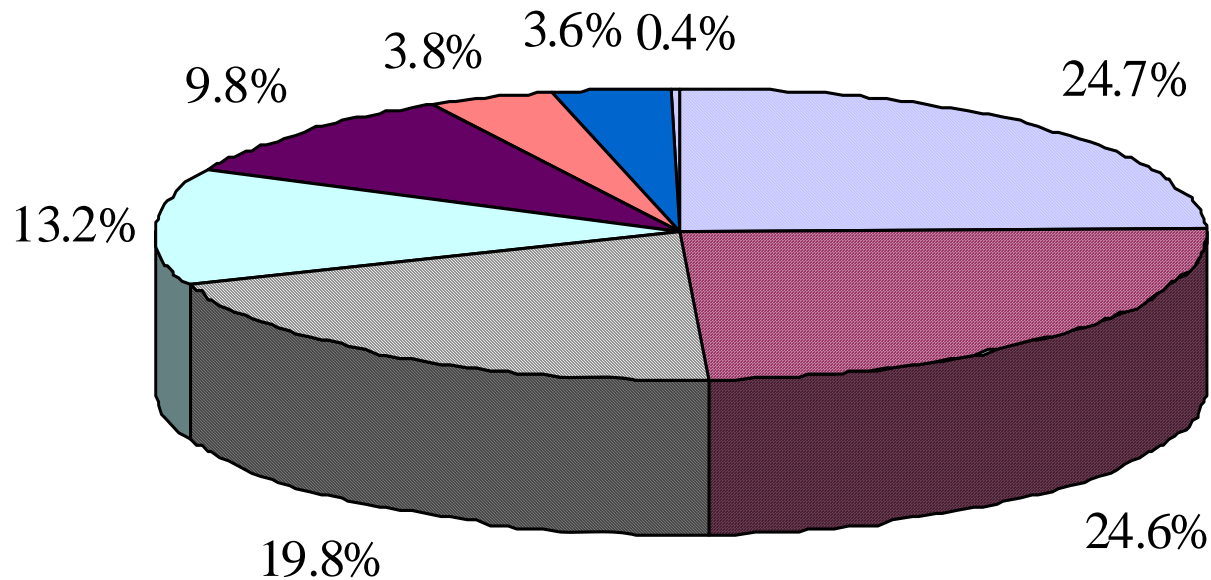
- Majority (i.e. > 75%) of respondents in Singapore and in most GUESSS participating countries were **undergraduates**, between the age of **22-25 years old**.
- Apart from Estonia and Hungary where the majority of respondents were mainly females, respondents in all other countries were **split evenly between males and females**.
- Both internationally and in Singapore, a higher percentage of respondents were **non business students**.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

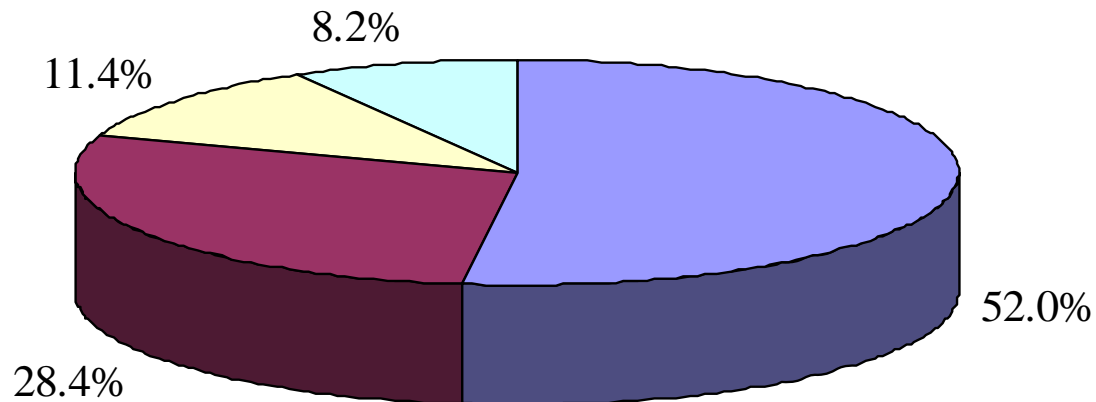
SAMPLE CHARACTERISTICS (Singapore)





- 3 universities (NUS, SMU and NTU) and 5 polytechnics participated in the GUESSS Singapore study.
- The largest proportion of respondents were from **NUS (24.7%)**, followed by **Nanyang Poly (24.6%)**, and **SMU (19.8%)**.
- Around 50% of respondents were diploma students, 30% were undergraduates, and a further 20% were graduates (Masters) and postgraduates (Ph.D.)

University / Polytechnic Attended by Singapore Respondents



Educational Level of Singapore Respondents



-  Diploma courses
-  Undergraduate studies
-  Graduate studies (Masters)
-  Postgraduate studies (Ph.D.)

ENTREPRENEURIAL POTENTIAL

- Vocational Aspirations
- Entrepreneurial Intentions
- Entrepreneurial Propensity

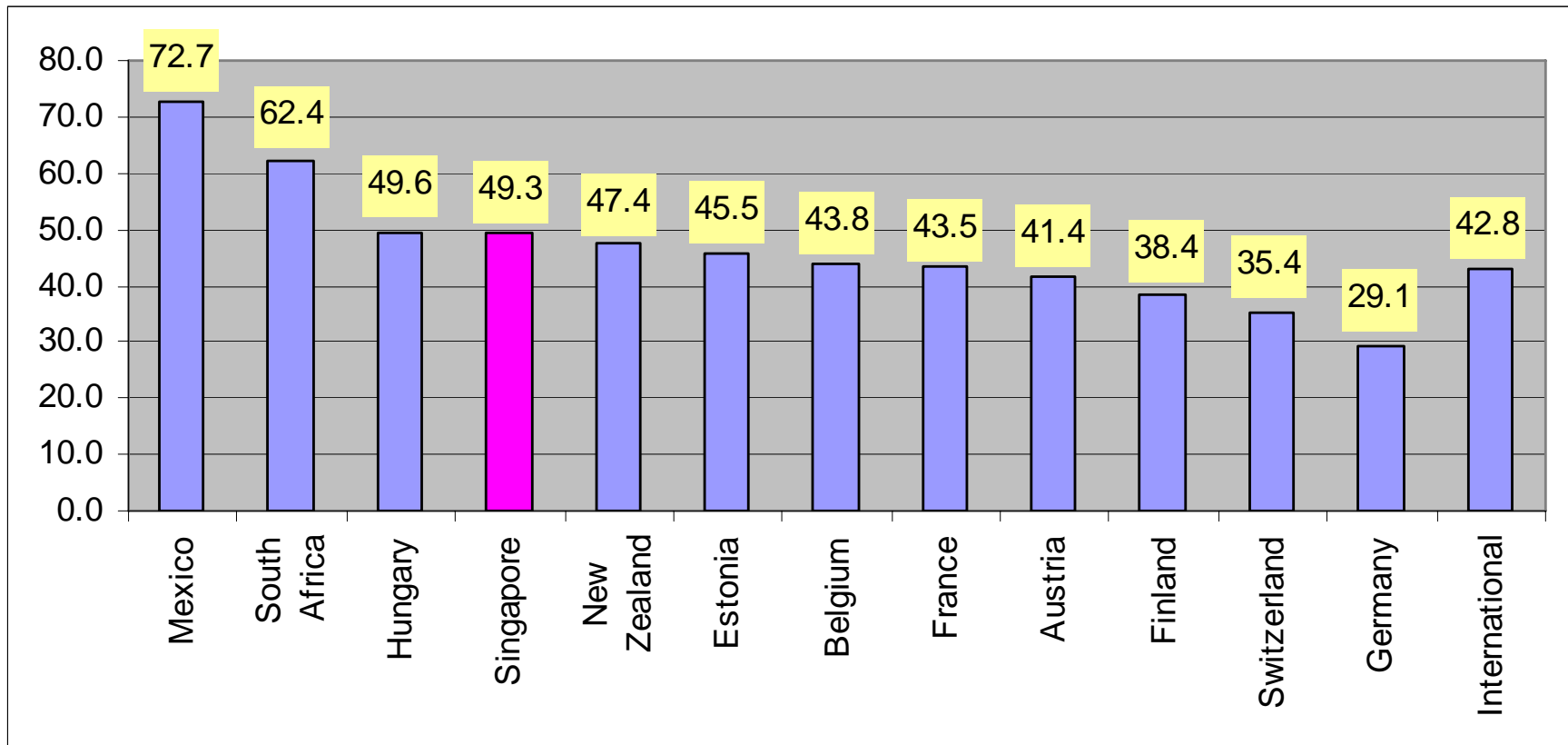
VOCATIONAL ASPIRATIONS

Vocational Aspirations – Long Term (Global)

- The percentage of students who aspire to be entrepreneurs in the long term (5 years or more after graduation) ranges from 29.1% for Germany to 72.7% for Mexico.
- **49.3% of Singaporean students** indicated that they would like to start their own business in the long term.
- This percentage for Singapore is higher than the international average of 42.8%.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

Vocational Aspirations (%) – Long Term (Global)

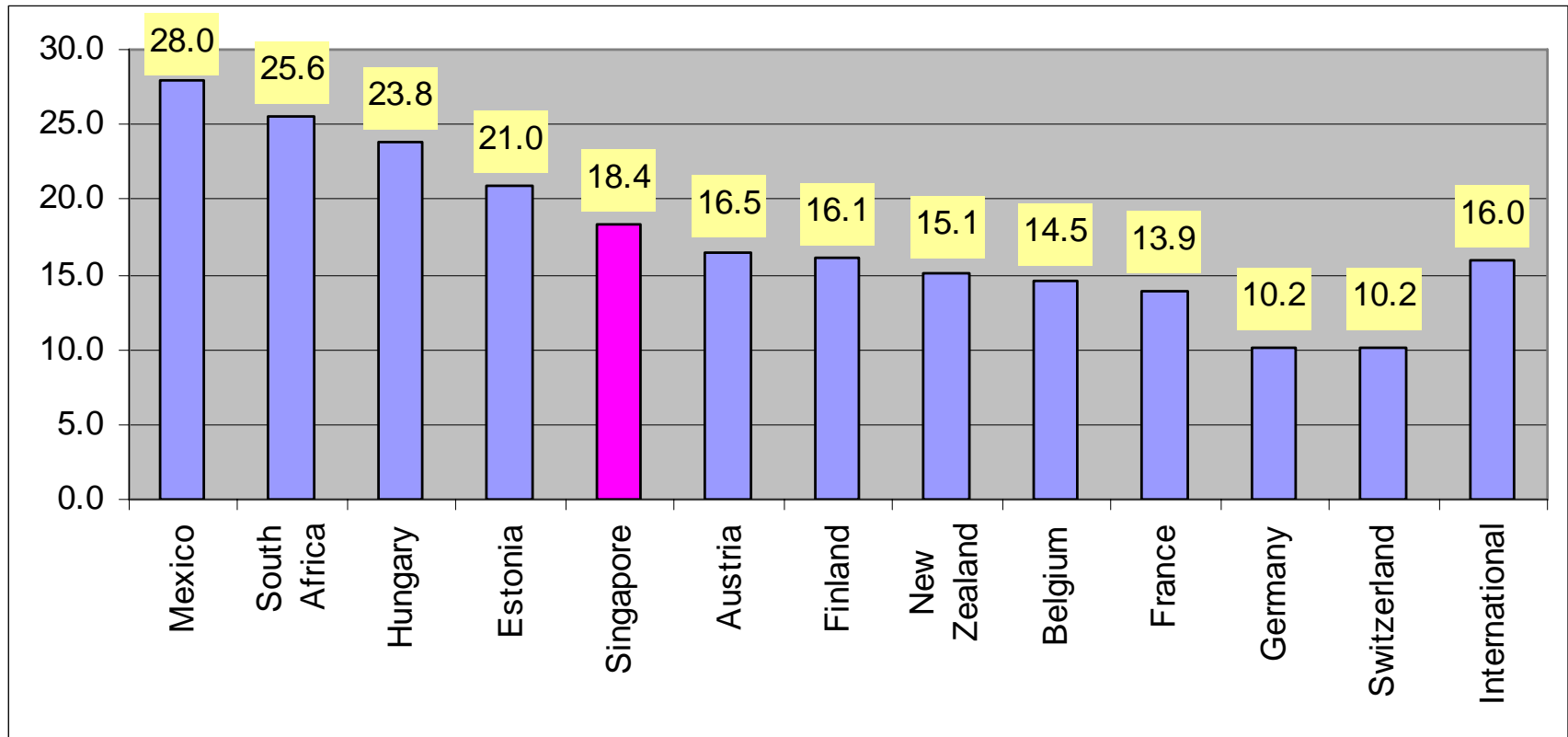


Vocational Aspirations – Near Term (Global)

- The percentage of students who aspire to be entrepreneurs in the near term (**within 5 years of graduation**) ranges from **10%** for Switzerland and Germany to **28%** for Mexico.
- **18.4% of Singaporean students** aspire to be entrepreneurs in the near term.
- This percentage for Singapore is slightly higher than the international average of 16%.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

Vocational Aspirations (%) – Near Term (Global)



Vocational Aspirations (Singapore)

- While **18.4%** of Singapore students aspire to be entrepreneurs within 5 years of graduation, a slightly **higher percentage of poly students** (20.8%) compared to their university counterparts (15.1%) planned to do so.
- However, in the **longer term** (i.e. 5 years or more after graduation), a significantly higher percentage (**49.3%**) desired entrepreneurial vocations:
 - Proportion is higher for **business students**; around **1 in 2** aspire to be involved in independent businesses 5 years after study
 - Lower proportion (**41.1%**) of **non-business students** have this long-term aspiration

Vocational Aspirations (Singapore)

Desired Job	Within 5 years of graduation					5 years or more after graduation				
	Total Sample (N = 2,319)	Business (n = 627)	Non-Bus. (n = 1,692)	Univ (n = 1,116)	Poly (n = 1,203)	Total Sample (N = 2,319)	Business (n = 627)	Non-Bus. (n = 1,692)	Univ (n = 1,116)	Poly (n = 1,203)
Salaried (%)										
Work for a very small enterprise	2.3	1.4	2.6	1.9	2.7	0.9	0.5	1.0	1.0	0.7
Work for a small company	9.7	8.1	10.3	5.7	13.5	2.5	1.4	2.8	2.6	2.3
Work for a medium company	16.7	20.3	15.4	15.2	18.2	5.5	5.7	5.4	4.3	6.6
Work for a major company	26.4	37.1	22.5	37.4	16.3	17.1	22.0	15.3	17.0	17.3
Work for a university/technical	7.9	1.6	10.3	13.4	2.8	7.3	2.2	9.2	10.6	4.2
Public service	6.0	4.0	6.7	4.1	7.7	4.5	3.2	5.0	3.5	5.5
Total salaried	69.0	72.5	67.8	77.7	61.2	37.8	35.0	38.7	39.0	36.6
Independent (%)										
Continue in parents' business	2.5	3.2	2.2	1.2	3.7	2.0	3.0	1.7	2.2	1.8
Take over an existing company	0.8	0.5	0.9	0.5	1.1	1.8	1.8	1.8	1.3	2.2
Set up a franchised company	1.3	1.3	1.3	1.2	1.4	3.2	3.5	3.1	3.3	3.2
Partner in an existing company	1.9	2.4	1.7	1.7	2.0	5.0	5.6	4.7	5.0	4.9
Continue with a company I established	1.9	1.1	2.2	2.0	1.8	3.4	3.7	3.3	3.8	3.1
Set up a company	6.2	6.5	6.1	6.2	6.2	28.1	32.3	26.5	30.3	26.1
Commence self-employment	3.5	2.9	3.7	2.3	4.6	4.9	4.6	5.1	4.2	5.6
Total independent	18.4	17.9	14.4	15.1	20.8	49.3	49.9	41.1	50.1	46.9
Other (%)										
Concentrate on family	1.1	0.8	1.2	0.7	1.4	1.3	1.6	1.2	1.1	1.6
Don't know yet	9.9	7.7	10.7	5.5	13.9	10.7	7.8	11.8	8.3	12.8
Other activities	1.9	1.1	2.2	1.0	2.7	1.8	1.1	2.1	1.5	2.1
Total (%)	100	100	100	100	100	100	100	100	100	100

ENTREPRENEURIAL INTENTIONS (Global)

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

ENTREPRENEURIAL INTENTIONS (Global)

- Entrepreneurial intentions rate is an indicator of the level of interest in entrepreneurial activities. It is measured as the proportion of students who indicated that they have at least thought about starting their own businesses
- Globally, entrepreneurial intentions range from **59.4% for Germany** to **91.0% for Mexico**.
- In Singapore, **81.4%** of respondents expressed entrepreneurial intentions, significantly higher than the international average of **71.3%**.

ENTREPRENEURIAL INTENTIONS BY COUNTRY

	No, never	Yes, have at least thought about founding a business	Yes, already founded a business*
International	26.0	71.3	2.7
Business School	19.0	77.6	3.4
Non-Business	28.3	69.2	2.5
Mexico	7.2	91.0	1.8
South Africa	8.2	89.4	2.3
Singapore	16.5	81.4	2.1
Hungary	16.8	79.6	3.7
New Zealand	18.3	76.6	5.1
France	23.1	76.0	0.8
Estonia	19.5	75.8	4.7
Austria	24.8	70.8	4.4
Belgium	28.5	70.6	0.7
Finland	31.9	64.0	4.0
Switzerland	36.9	61.8	1.3
Germany	37.2	59.4	3.3

* Includes former and current entrepreneurs

ENTREPRENEURIAL INTENTIONS (Singapore)

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

ENTREPRENEURIAL INTENTIONS (Singapore)

- The intentions rate in Singapore is **comparable across fields of study** (business versus non-business) and **type of IHLs** (university versus polytechnic).
- However, there is a **difference between university students studying at different levels** - undergraduates (Bachelor degree students) and graduates (comprising Masters and PhD students).
 - A **higher proportion of undergraduates** (87.1%) more so than graduates (71.9%) have expressed thoughts of setting up their own business.

ENTREPRENEURIAL INTENTIONS (Singapore)

Thoughts of setting up own business	Total Sample (N = 2,319)	Course of Study		Type of IHL		Level of Study	
		Bus. School (n = 627)	Non-Bus. (n = 1,692)	Univ (n = 1,116)	Poly (n = 1,203)	Undergrads (n = 6,58)	Graduates / Post-grads (n = 458)
No, never	16.5	12.6	18.0	16.2	16.8	11.1	24.2
Yes, have thought of it	81.4	85.0	80.0	81.1	81.7	87.1	71.9
Yes, founded a business	2.1	2.4	2.0	2.7	1.5	1.8	3.9
Total	100	100	100	100	100	100	100

INTENDING ENTREPRENEURS – STEPS TAKEN TO START BUSINESS

- Close to half and one-third of the intending entrepreneurs in the global and Singapore samples respectively have not yet taken any steps in setting up their business.
- However, a larger percentage of intending entrepreneurs in Singapore compared to the global sample have embarked on both the initial and concrete steps toward their potential start-ups.
- More encouragingly, almost 1 in 5 intending entrepreneurs in Singapore has developed a business plan compared to fewer than 1 in 10 of the global sample of intending entrepreneurs.

Note: “Intending Entrepreneurs” = have at least thought about starting a business

Intending Entrepreneurs – Steps Taken to Start a Business

	Global Sample of Intending Entrepreneurs (N = 45,295) (%)	Singapore Sample of Intending Entrepreneurs (N = 1,887) (%)
No steps taken	46.7	33.4
Thinking through initial business ideas	44.6	61.8
Writing down initial business Ideas	14.7	24.3
Gathering start-up specific Information	18.1	23.3
Developing a business plan	8.1	18.9
Visiting start-up specific events	8.2	11.8
Talking to potential sources of financing	5.2	10.4
A prototype of the product/service exists	6.1	9.9
Determining a start-up date	2.7	6.5

INDEX OF ENTREPRENEURIAL PROPENSITY**

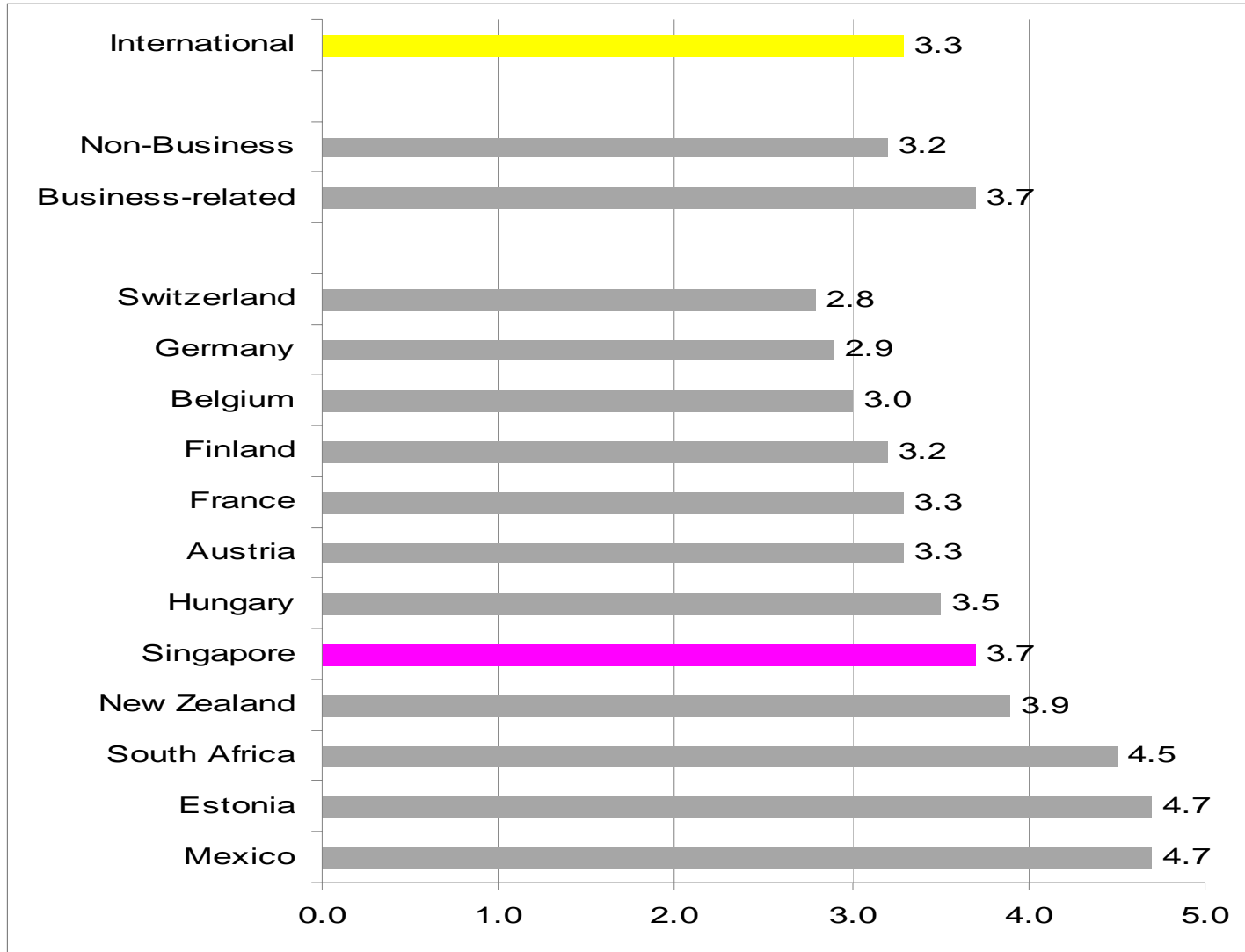
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** In the International Report (Fueglistaller et al. 2009, pg 21), this is referred to as the Entrepreneurial Power Index.

ENTREPRENEURIAL PROPENSITY INDEX

- The ‘entrepreneurial propensity’ index is computed based on two components:
 - the **students’ entrepreneurial intentions**; and
 - the **steps taken to start a business**.
- The maximum value of the index is 10; minimum is 1.
- The **international average** of the index is **3.3**. **Business students** display a **higher** entrepreneurial propensity (3.7) than their non-business counterparts (3.2).
- The entrepreneurial propensity index ranges from **2.8 for Switzerland** to **4.7 for Mexico and Estonia**.
- **Singapore’s index stands at 3.7**, slightly higher than the international average of 3.3.

ENTREPRENEURIAL PROPENSITY BY COUNTRY



ACTUAL ENTREPRENEURIAL ACTIVITIES

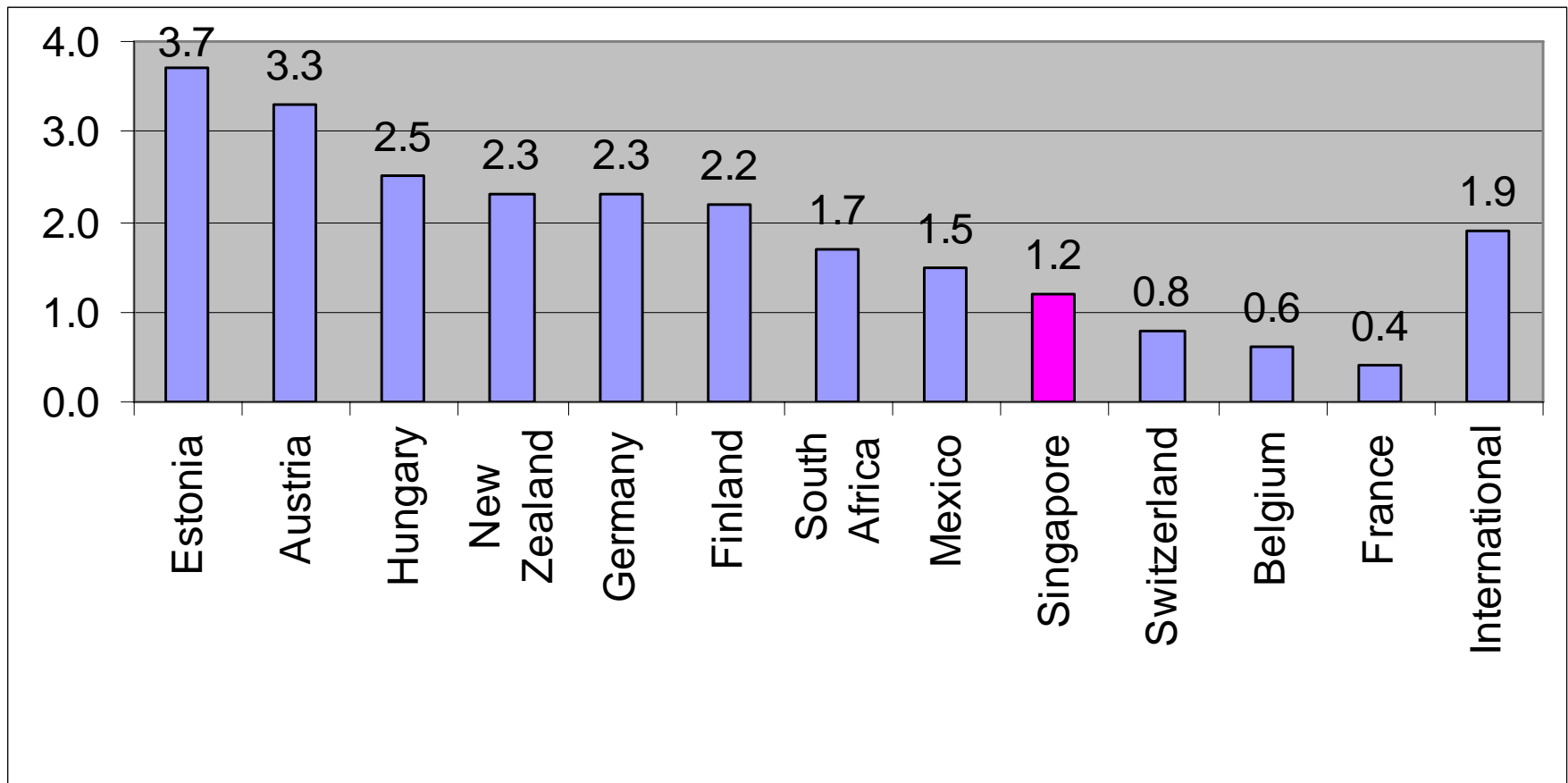
- Active Entrepreneurial Rate
- Start-up Survival Rate
- Satisfaction from Self-Employment

ACTIVE ENTREPRENEURIAL RATE*

- The active entrepreneurial rate is measured as the percentage of students who are currently active entrepreneurs.
- The rate ranges from 0.4% for France to 3.7% for Estonia, with an “international” average of 1.9%.
- Singapore’s active entrepreneurial rate is 1.2%, slightly lower than the “international” average rate.

* In the International Report (Fueglistaller et al. 2009, pg 23), this is referred to as the Foundation Rate.

Active Entrepreneurial Rate by Country (%)



Start-Up Survival Rate for Singapore

- Overall, the survival rate of businesses started by Singaporean students is **77.1%**.
- It is important to note that the unusually high survival rate is probably due to the **very young age of the start-ups**, about **less than one year old on average**.
- A **higher percentage of businesses** founded by **polytechnic students (88.9%)** compared to **university students (70%)** were still in existence at the point of survey.

Start-Up Survival Rate for Singapore

	Overall	Type of Course		Type of IHL		Level of Study	
	n = 48	Business (n=15)	Non- Business (n=33)	University (n=30)	Polytechnic (n=18)	Undergraduates (n=12)	Grads / Postgrads (n=18)
		%	%	%	%	%	%
Surviving	77.1%	73.3	78.8	70.0	88.9	75.0	66.7

Satisfaction from Self-Employment (Global versus Singapore)

- Overall, the level of satisfaction from self-employment is slightly higher for Singapore student entrepreneurs compared to the international sample.
- Singapore entrepreneurs indicated a slightly higher satisfaction on two dimensions;
 - “With hindsight I am very happy that I founded my company” (3.52 for Singapore versus 3.29 internationally)
 - “I would recommend anyone to found a company, if he or she feels capable of doing so” (3.35 for Singapore versus 2.99 internationally).



Satisfaction from Self-Employment (Global versus Singapore)

<u>Likert scale (1-4)</u>	International Sample (n=1,725)	Singapore Sample (n=48)	Business (n=15)	Non-Business (n=33)
With hindsight, I am very happy that I founded my company.	3.29	3.52*	3.47	3.55
I would recommend anyone to found a company, if he or she feels capable of doing so.	2.99	3.35**	3.67**	3.21
All in all, I have become more satisfied with my life through the founding of my company.	2.99	3.31	3.33	3.30
I will always try to remain self-employed for the rest of my life.	2.77	2.90	3.07	2.82
I realize more and more that the risks of being self-employed are not outweighed by particular opportunities.	2.56	2.85	2.73	2.91
I often wonder I could have a better life as an employee.	2.31	2.50	2.33	2.58
If I had not put so much time and effort into my company, I would prefer to be employed in another company.	2.05	2.42	2.27	2.48

* Sig. at 10%; ** Sig at 5%; 1 – Completely disagree; 4 – Completely agree

Satisfaction from Self-Employment (Singapore)

- Among the Singapore sample, business school students reported greater satisfaction from self-employment as compared to their non-business school counterparts, particularly in terms of their willingness to recommend others to found a company (3.67 for business students versus 3.21 for non-business students).
- Undergraduates more so than graduates/post-graduates derive greater satisfaction from starting their own businesses (3.42 for undergraduates versus 3.00 for graduates/post-graduates).

Satisfaction from Self-Employment (Singapore)

<u>Likert scale (1-4)</u>	University (n=30)	Polytechnic (n=18)	Undergrads (n=12)	Grads/Post-grads (n=18)
With hindsight, I am very happy that I founded my company.	3.50	3.56	3.75**	3.33
I would recommend anyone to found a company, if he or she feels capable of doing so.	3.50*	3.11	3.67	3.39
All in all, I have become more satisfied with my life through the founding of my company.	3.17	3.56*	3.42**	3.00
I will always try to remain self-employed for the rest of my life.	2.87	2.94	3.08	2.72
I realize more and more that the risks of being self-employed are not outweighed by particular opportunities.	2.83	2.89	3.08	2.67
I often wonder I could have a better life as an employee.	2.47	2.56	2.42	2.50
If I had not put so much time and effort into my company, I would prefer to be employed in another company.	2.37	2.50	2.25	2.44

* Sig. at 10%; ** Sig at 5%; 1 – Completely disagree; 4 – Completely agree

HOW ENTREPRENEURIAL INTENTIONS & ACTIVITIES VARY AMONG SINGAPORE STUDENTS

- Family influence
- Demographic characteristics (age, gender, university versus polytechnic, business versus non-business students)
- Education levels (diploma, undergraduates, graduates, postgraduates)

Differences in Entrepreneurial Intentions among Singapore students

- Entrepreneurial intentions were more prevalent among those with entrepreneurial family influence (i.e. father / mother / grandparent has always been self-employed and still is) than those without.
- Entrepreneurial intentions were higher among male students (84.4%) than among female students (78.5%), and among business students (85%) than non-business students (80%).
- A higher proportion of diploma (81.8%) and undergraduate students (87.1%) had entrepreneurial intentions as compared to graduates (72%) and undergraduates (71.7%).

Entrepreneurial Intentions of Singapore Students by Family Influence & Demographic Groups

Characteristics	Already Entrepreneurs*	Intending Entrepreneurs	No Entrepreneurial Intention
<u>FAMILY INFLUENCE</u>			
Either Father/Mother/Grandparent has always been self-employed and still is	2.5%	84.9%	12.6%
Neither Father/ Mother/ Grandparent has been self-employed	1.4%	76.8%	21.8%
Average Age		21.5	21.6
<u>GENDER</u>			
Male	3.1%	84.4%	12.5%
Female	1.0%	78.5%	20.5%
<u>IHL TYPE</u>			
University	2.7%	81.1%	16.2%
Polytechnic	1.5%	81.7%	16.8%
<u>FIELDS OF STUDY</u>			
Business	2.4%	85.0%	12.6%
Non-Business	2.0%	80.0%	18.0%

* Includes former and current entrepreneurs

Entrepreneurial Intentions of Singapore Students by Level of Study

Education Level	Already Entrepreneurs (n = 48)	Intending Entrepreneurs (n = 1,887)	No Entrepreneurial Intention (n = 384)	Total (%) (N = 2,319)
Diploma courses	1.5 %	81.8 %	16.7 %	100
Undergraduate studies	1.8 %	87.1 %	11.1 %	100
Graduate studies	4.5 %	72.0 %	23.5 %	100
Postgraduate studies	3.2%	71.7 %	25.1 %	100

Gender Perspective: Entrepreneurial Intentions, Aspirations & Actual Start-Ups

- Higher proportions of male students have:
 - thought about starting their own businesses (84.4% compared to 78.5% for female students)
 - higher entrepreneurial aspirations both in the short term (20.8% vs 16%) and long term (53.3% vs 43.5%).
- 1.9% of male students have already started a business while studying compared to only 0.5% of female students.

Entrepreneurial Intentions, Aspirations & Actual Start-Ups by Gender

	MALE (n =1,144)	FEMALE (n = 1,175)
Entrepreneurial Intentions / Interest	84.4%	78.5%
Entrepreneurial Aspiration (< 5 years from graduation)	20.8%	16.0%
Entrepreneurial Aspiration (> 5 years after graduation)	53.3%	43.5%
Already started a business (includes former & current entrepreneurs)	1.9%	0.5%

(1 – Completely disagree; 4 – Completely agree) * Sig. at 10%; ** Sig at 5%

Business Goals of Actual and Intending Student Entrepreneurs in Singapore

- Industrial sector
- Degree of innovation
- Experience in the intended business
- Priority for new business

Note: “Intending Student Entrepreneurs” = have at least thought about starting a business

Industrial Sector and Level of Innovation – Comparisons Between Intending and Actual Entrepreneurs

- Intending entrepreneurs were interested in starting manufacturing-based businesses (13.6%) as compared to 6.3% of current entrepreneurs.
- A higher proportion of intending entrepreneurs (18.8%) as compared to actual entrepreneurs (12.5%) intend to offer something new to the region.

Industrial Sector and Level of Innovation - Comparisons Between Intending and Actual Entrepreneurs

	Status of Start-up	
	Intending Entrepreneurs (n=1887)	Actual Entrepreneurs (n= 48)
<u>Industrial Sectors</u>		
Primary industries (agriculture, forestry, FIS)	2.5	0
Manufacturing	13.6	6.3
Primarily Trade	18.7	20.8
Primarily Services	65.2	72.9
<u>Level of Innovation</u>		
New worldwide	15.1	14.6
New for your region	18.8	12.5
New for your country	30.6	27.1
Traditional proven concept	35.5	45.8

Experience – Comparison Between Actual and Intending Entrepreneurs

- Among actual entrepreneurs, the majority have experience in different areas of their businesses e.g. the industry, products, customer groups, and distribution channels.
- Additionally, the priorities set forth for new businesses among actual and intending entrepreneurs are comparable across the different fields of studies and type of IHLs.

Experience – Comparison Between Actual and Intending Entrepreneurs

	Total Sample (N = 2,319)			Actual Entrepreneurs (n = 48)			Intending Entrepreneurs (n = 1,887)		
	No specific experience	Up to 1 yr	> 1 yr	No specific experience	Up to 1 yr	> 1 yr	No specific experience	Up to 1 yr	> 1 yr
Experience in industry	78.3	7.4	14.3	33.3	6.3	60.4	79.4	7.5	13.1
Experience in products / Services	68.9	11.0	20.1	22.9	18.8	58.3	70.1	10.8	19.1
Experience in customer groups	67.7	12.3	20.0	22.9	20.8	56.3	68.8	12.1	19.1
Experience in Distribution channel	84.0	7.2	8.8	37.5	18.8	43.7	85.2	6.9	7.9

Entrepreneurship Climate in Tertiary Institutions

Entrepreneurship courses, programmes, and infrastructure

- **Importance**
- **Awareness**
- **Participation**
- **Fulfilment of expectations**

Global Ratings on the Importance Placed on Entrepreneurship Courses, Programmes, and Infrastructure**

- On a scale of 1 (very unimportant) to 6 (very important), the importance placed on entrepreneurship courses, programmes & infrastructure range from 3.58 for Germany to 4.62 for South Africa.
- Singapore's rating is 4.34, higher than the international average of 3.97.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

** These include entrepreneurship seminars and lectures, exchange of experiences with founders, start-up business games, business plan project seminars, start-up financing through the university, incubators, start-up coaching, contact for general questions.

Global Ratings on the Importance Placed on Entrepreneurship Courses, Programmes, and Infrastructure**



Country	Importance of Entrepreneurship Courses, Programmes, Infrastructure* (Likert scale from 1 = very unimportant to 6 = very important)
South Africa	4.62
Singapore	4.34
Estonia	4.28
France	4.25
Hungary	4.21
Mexico	4.15
Finland	4.08
Austria	3.90
Belgium	3.90
Switzerland	3.83
New Zealand	3.76
Germany	3.58
International	3.97

* Based on the average ratings of importance placed on entrepreneurship seminars and lectures, exchange of experiences with founders, start-up business games, business plan project seminars, start-up financing through the university, incubators, start-up coaching, contact for general questions.

Global Ratings on the Awareness of Entrepreneurship Courses, Programmes, and Infrastructure

- The percentage of respondents who are aware of entrepreneurship courses, programmes and infrastructure ranges from **16.2% for Austria to 71% for Mexico**.
- In **Singapore**, **37.9%** of the respondents were aware of these university support services, higher than the **international average of 20.4%**.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

Global Ratings on the Awareness of Entrepreneurship Courses, Programmes, and Infrastructure

Country	Awareness of entrepreneurship courses, programmes and infrastructure* (% yes)
Mexico	71.0
France	45.4
Singapore	37.9
Finland	33.3
South Africa	27.7
Estonia	21.9
Belgium	18.5
Switzerland	17.7
Hungary	17.1
New Zealand	17.1
Germany	16.5
Austria	16.2
International	20.4

* Based on the average percentage of awareness on entrepreneurship seminars and lectures, exchange of experiences with founders, start-up business games, business plan project seminars, start-up financing through the university, incubators, start-up coaching, contact for general questions.

Global Ratings on the Participation in Entrepreneurship Courses, Programmes, and Infrastructure

- The percentage of participation in entrepreneurship courses, programmes, and infrastructure range from **12.9% for Switzerland** to **34.9% for Mexico**.
- The participation rate for **Singapore is 27.1%**, almost on par with the international average of **25.7%**.

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxemburg, and Portugal) were omitted from the analysis due to the very small sample size

Global Ratings on the Participation in Entrepreneurship Courses, Programmes, and Infrastructure



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Country	Participation in Entrepreneurship Courses, Programmes, Infrastructure* (% yes)
Mexico	34.9
South Africa	34.7
France	33.2
Hungary	29.4
Belgium	28.7
Finland	28.3
Singapore	27.1
Estonia	26.4
New Zealand	21.9
Austria	20.1
Germany	17.6
Switzerland	12.9
International	25.7

* Based on the average percentage of participation in entrepreneurship seminars and lectures, exchange of experiences with founders, start-up business games, business plan project seminars, start-up financing through the university, incubators, start-up coaching, contact for general questions.

Importance, Awareness, and Participation in Entrepreneurship Courses, Programmes, and Infrastructure in Singapore

- The **importance** placed on entrepreneurship courses, programmes & infrastructure was **highest among intending and actual entrepreneurs**.
- Overall, a higher percentage of **actual and intending entrepreneurs** were **aware** and had **participated** in the entrepreneurship courses, programmes

Importance of Entrepreneurship Courses, Programmes and Infrastructure for Singapore

Likert Scale (1-6)	No intention (n=384)	Intending entrep (n=1887)	Actual entrep (n=48)
Start-up financing through the university	4.23	4.58	4.67*
Start-up coaching	4.13	4.48	4.75*
Incubators (service center for early stage start-ups)	4.05	4.48	4.83**
Regular round tables for founders (e.g. exchange of experiences)	4.10	4.42	4.79**
Contacts for general enquiries	4.01	4.41	4.63
Business plan project seminars	3.96	4.32	4.52*
Start-up business games / start-up simulations	3.90	4.26	4.17
Entrepreneurship seminars and lectures	3.85	4.23	4.35*

* Sig. at 10%; ** Sig. at 5%; 1 – Very unimportant; 6 – Very important

Awareness of Entrepreneurship Courses, Programmes and Infrastructure in Singapore



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Percentage of 'Yes' (%)	No intention (n=384)	Intending entrep (n=1887)	Actual entrep (n=48)
Business plan project seminars	36.2	44.9	45.8
Start-up coaching	21.1	30.4	27.1
Entrepreneurship seminars and lectures	60.9	70.6	64.6
Start-up business games / start-up simulations	29.9	37.3	43.8
Regular round tables for founders (e.g. exchange of experiences)	31.0	30.2	22.9
Contacts for general enquiries	35.9	-	25.0
Start-up financing through the university/poly	20.1	31.5	33.3
Incubators (service centre for early stage start-ups)	19.5	30.6	35.4

Participation in Entrepreneurship Courses, Programmes and Infrastructure in Singapore



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Percentage of 'Yes' (%)	No Intention (n=384)	Intending entrep (n=1887)	Actual entrep (n=48)
Business plan project seminars	16.5	35.5	63.6
Start-up coaching	13.6	28.4	53.8
Entrepreneurship seminars and lectures	29.5	50.4	64.5
Start-up business games / start-up simulations	13.9	30.0	71.4
Regular round tables for founders (e.g. exchange of experiences)	20.2	31.9	63.6
Contacts for general enquiries	31.9	32.4	66.7
Start-up financing through the university/poly	7.8	7.9	18.7
Incubators (service centre for early stage start-ups)	5.3	8.7	17.6

Fulfilment of Expectations from Entrepreneurship Courses, Programmes, and Infrastructure in Singapore**

- Overall, **actual entrepreneurs** reported **lower fulfilment of expectations** from most of the entrepreneurship courses, programmes, and infrastructure compared to intending and non-intending entrepreneurs.
- However, **intending entrepreneurs** were **most satisfied** with “**start-up coaching.**”
- **Actual entrepreneurs** derived **greater satisfaction** from “**start-up financing through IHLs**” and “**entrepreneurship seminars/lectures.**”

* 7 countries (i.e. Australia, Greece, Indonesia, Ireland, Liechtenstein, Luxembourg, and Portugal) were omitted from the analysis due to the very small sample size

** No global comparisons are available for this dimension

Fulfilment of Expectations from Entrepreneurship Courses, Programmes and Infrastructure in Singapore

Likert scale (1-6)	No intention (n=384)	Intending entrep (n=1887)	Actual entrep (n=48)
Contacts for general enquiries	4.57	4.34	3.57**
Start-up business games / start-up simulations	4.50	4.41	3.50**
Regular round tables for founders (e.g. exchange of experiences)	4.53	4.22	4.00*
Incubators (service centre for early stage start-ups)	5.00	4.41	4.00*
Start-up financing through the university/poly	4.50	4.33	4.75
Start-up coaching	3.50	4.35*	4.00
Business plan project seminars	4.49	4.30	3.67**
Entrepreneurship seminars and lectures	3.84	4.24	4.40*

* Sig. at 10%; ** Sig at 5%; 1 – Not at all; 6 – Completely fulfilled

Comparisons between GUESSS 2008 and NSTB Student Technopreneurship Study 2000

- **NSTB Study 2000** – Conducted by NEC in 2000 using a research framework with similar elements to the GUESSS framework to ascertain the **attitudes of IHL students in Singapore towards technopreneurship**.
- Students from all 4 polytechnics, NUS, and NTU participated in this study.
- The NSTB Student Technopreneurship Survey 2000 used a different questionnaire design and constructs from GUESSS but there are **several indicators that are common to both studies**.
- This allows us to **compare** the level of **entrepreneurial intentions** among IHL students at **two different points in time**.

Comparisons between GUESSSS 2008 and NSTB Study 2000

- The **general level of interest in entrepreneurship** has **remained consistent** (about **81%** in 2000 and 2008).
- In terms of more **definite long term aspirations (>5 years)** to start businesses the figures **have not changed much** (**50%** in 2000 vs. **48%** in 2008).
- The proportion of students with **shorter-term aspirations** **has dropped** from **25.9%** (2000) to **18.4%** (2008) - can be partially explained by the **larger share of polytechnic students in the 2000 study** (**69%** vs **52%** in GUESSSS).
- The proportion of students who had **already founded businesses** has also **remained consistent** at around **2%** (**1.6%** in 2000, **2.1%** in 2008).

Comparisons between GUESSS 2008 and NSTB Study 2000

	2000 NSTB Student Technopreneurship Survey (NUS, NTU, SP, TP, NP, NYP)	2008 GUESSS (NUS, NTU, SMU, SP, TP, NP, NYP, RP)
Profile:	1. Total Responses = 11,660 <ul style="list-style-type: none"> • Univ - 3,612 (31%) • Poly – 8,048 (69%) 2. Gender Male – 54.2%, Female – 45.8% 3. Fields of study Business – 23%, Non-Biz – 77%	1. Total Responses = 2,319 <ul style="list-style-type: none"> • Univ – 1,115 (48%) • Poly – 1,204 (52%) 2. Gender Male – 49.3%, Female – 50.7% 3. Fields of study Business – 27%, Non-Biz – 73%
Entrepreneurial Intentions / Interest	80.8%	81.4%
Entrepreneurial Aspiration (< 5 years from graduation)*	25.9% <i>(Immediately: 3.3% Within 5 years: 22.6%)</i>	18.4%
Entrepreneurial Aspiration (> 5 years after graduation)*	49.9% <i>(5-10 years: 40.3% > 10 years: 9.6%)</i>	48.4%
Already started a business (includes former & current entrepreneurs)*	1.6%	2.1%

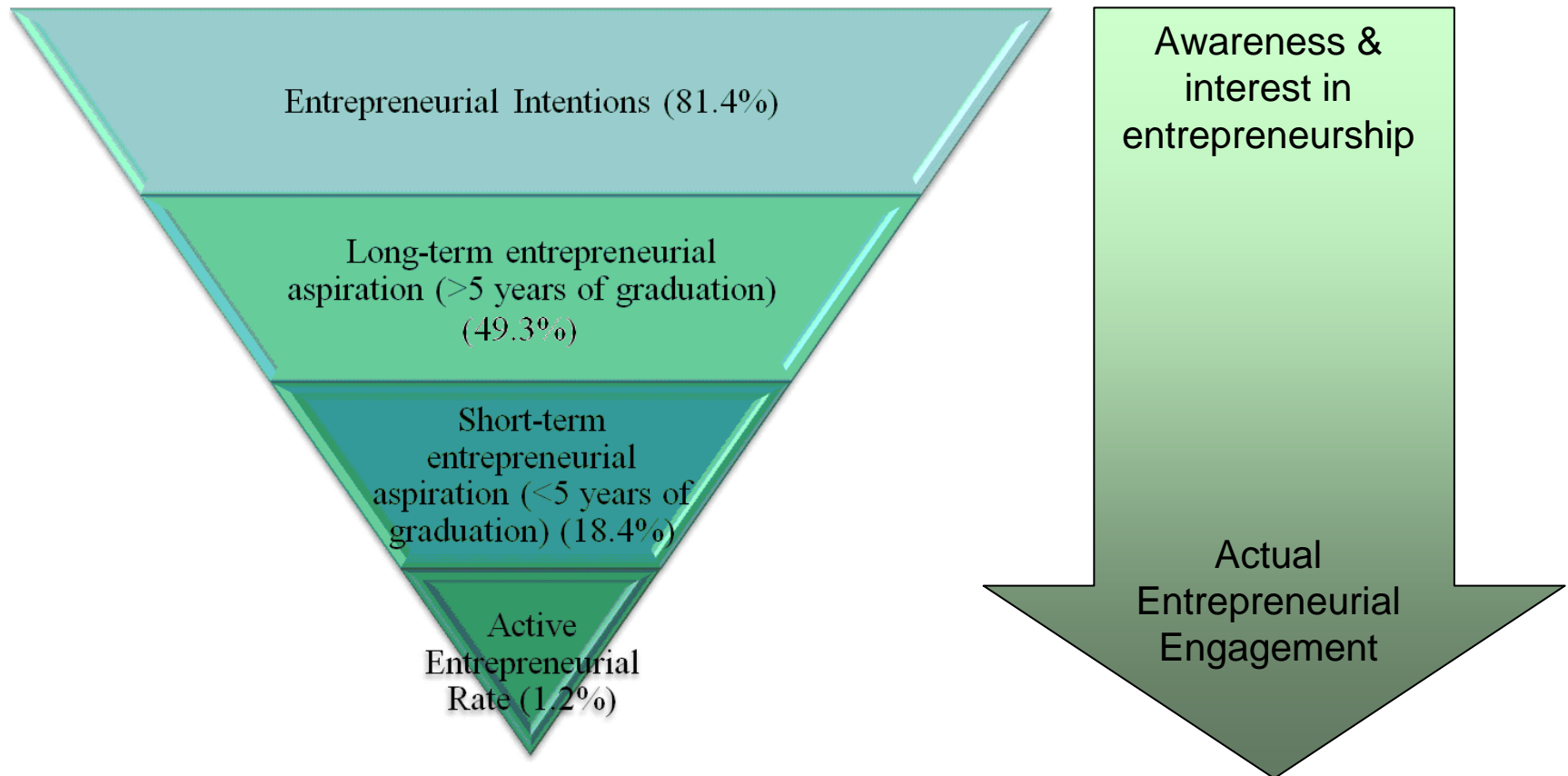
* The figures for the 2000 NSTB study reported here are computed by assuming no entrepreneurial aspiration among those who indicated little or no interest in starting their own business. The figures here differ from the figures in the 2000 report, which allowed students without entrepreneurial interest to indicate entrepreneurial aspirations.

GUESSSS Singapore 2008

Conclusions and Recommendations

Conclusions and Recommendations

- The GUESSS survey reveals that there is strong awareness of and interest in entrepreneurship among students in Singapore IHLs. The key challenge is to translate this interest into actual entrepreneurial engagement.



Conclusions and Recommendations (Cont'd)

- Some key implications and recommendations:
 - IHLs need to look beyond just providing programmes; they need to systematically evaluate and benchmark the entrepreneurship programmes to ensure their effectiveness within the overall academic environmental context.
 - Factors external to the IHL may hinder students' entrepreneurial activities. Such factors include parental/societal pressures, bonds that limit entrepreneurial options for scholarship holders, opportunity costs of self-employment, etc. Unless there are changes external to IHLs, the impact of IHL programs may be limited.
 - The impact of IHL programs may be better measured in terms of long-term mind-set change, as such programs may not lead to immediate entrepreneurial actions by students. Students may choose to act upon their entrepreneurial interest later in life, after acquiring necessary skills, financial reserves, experience and network contacts.

Conclusions and Recommendations (Cont'd)

- Some key recommendations:
 - IHLs should find ways to encourage greater interaction between business and non-business students, including formation of cross-disciplinary teams in entrepreneurship courses and projects. This creates opportunities for new business ideas by combining the skills of technical and business-school students in a complementary manner.
 - Due to relative youth of polytechnic students and their high propensity to start businesses within 5 years of graduating, entrepreneurial education for polytechnic students should have a stronger element of mentoring by experienced entrepreneurs.
 - More interactions between entrepreneurial polytechnic and university students should be encourage, to synergize the practical/hands-on skills of the former with the more conceptual thinking of the latter.

Looking forward ... GUESSS 2011

- Next GUESSS cycle will begin data collection in Spring 2011
- NEC has been invited to be the Singapore country representative
- NEC invites IHLs partners to participate in GUESSS 2011 on an institution-wide level

New to GUESSS in 2011:

- Broader view of Entrepreneurial Intentions:
 - Founding company
 - Become a successor
 - Take over an existing company (family or non-family owned)
- Expanded theoretical framework:
 - Theory of planned behaviour (new)
 - Personal background
 - Personal motives (extended)
 - Family background (new)
 - University context (extended)
 - Additional constructs under consideration
 - Emotion / Affect, over-optimism etc
 - Person-organization fit
 - Country specific questions

GUESSS 2011 – Global Representation

- Confirmed participating countries
 - Singapore, Switzerland, Germany, Austria, Ireland, France, Hungary, Portugal, Luxemburg, Liechtenstein, Greece, Finland, Australia.
- In discussions:
 - India, Pakistan, New Zealand, Estonia, Mexico, Brazil, USA, Belgium, Italy, Japan.
- Under consideration:
 - Sweden, Turkey, Norway, the UK, Canada, China

To download GUESSSS Singapore report & presentation, NEC website:

<http://www.nus.edu.sg/nec>

(Download available from 30 March)

To download GUESSSS International Report, GUESSSS website:

<http://www.guesssurvey.org/>

(Download available now)