

Entrepreneurial Intentions and Activities of Students at Austrian Universities

Global University Entrepreneurial Spirit Student's Survey 2011

- National Report Austria -

Kailer Norbert, Gruber-Mücke Tina, Wimmer-Wurm Birgit, Blanka Christine

Linz 2012



IUG-working paper 11, Linz 2012

Authors:

Professor Dr. rer.soc.oec. Norbert Kailer

Head of the Institute for Entrepreneurship and Organizational Development (IUG), Johannes Kepler University Linz, GUESSS country representative Austria.

Assistant-Prof. Dr.rer.soc.oec. Tina Gruber-Mücke

Vice Head of the IUG.

Mag.rer.soc.oec. Birgit Wimmer-Wurm

University Assistant at the IUG

Mag.rer.soc.oec. Christine Blanka

Research Assistant and Lecturer at the IUG (Project KOENIG – Networks for the development of competences of Intrapreneurs and Founders)

Editor:

Institute for Entrepreneurship and Organizational Development (IUG)

Johannes Kepler University Linz

Altenberger Straße 69, HF Building, A– 4040 Linz

Tel. ++43 732 2468 3721, Fax. ++43 732 2468 1725, www.iug.jku.at

© IUG - Norbert Kailer (2012)

We would like to thank the following sponsors of the Austrian report:



Business Start-Up Service of the Austrian
Chamber of Commerce

www.gruenderservice.at



Federal State of Upper Austria

www.land-oberoesterreich.gv.at



Institute of Business Promotion (WIFI) Austria

www.wifi.at



Member of  UniCredit

Bank Austria UniCredit Group

www.bankaustria.at

Country Representatives of GUESSS 2011

No.	Country	Universität/Institution	Representatives
1	Argentina (ARG)	IAE Business School	Prof. Silvia Carbonell
2	Austria (AUT)	Johannes Kepler University Linz	Prof. Dr. Norbert Kailer
3	Belgien (BEL)	Vlerick Leuven Gent Management School	Prof. Dr. Hans Crijns
4	Brazil (BRA)	UNINOVE - Universidade Nove de Julho	Prof. Edmilson Lima
5	Chile (CHI)	Universidad Adolfo Ibanez, Santiago	Prof. German Eche copar
6	China (CHN)	Tongji University (CDHK), Shanghai	Prof. Zheng Han
7	Estonia (EST)	Tallinn University of Technology	Prof. Dr. Urve Venesaar
8	Finland (FIN)	Lappeenranta University of Technology	Prof. Asko Miettinen
9	Frankreich (FRA)	EM Lyon Business School	Prof. Dr. Alain Fayolle Janice Byrne
10	Deutschland (GER)	University of Hohenheim	Dr. Heiko Bergmann
11	Griechenland (GRE)	University of Western Macedonia	Prof. Katerina Sarri
12	Ungarn (HUN)	University of Pecs, Faculty of Business & Economics; Szechenyi Istvan University, Györ	Prof. Dr. Laszlo Szerb, Dr. Szilveszter Farkas
13	Irland (IRL)	University of Limerick	Dr. Naomi Birdthistle Dr. Briga Hynes
14	Japan (JAP)	Hosei University	Prof. Noriko Taji
15	Liechtenstein (LIE)	University of Liechtenstein	Prof. Dr. Urs Baldegger
16	Luxemburg (LUX)	Institut Universitaire International Luxembourg	Prof. Dr. Pol Wagner
17	Mexiko (MEX)	EGADE Business School, Tecnologico de Monterrey	Prof. Dr. Elisa Cobas-Flores
18	Netherlands (NED)	Erasmus University, Rotterdam	Prof. Roy Thurik Dr. Joern Block Dr. Katrin Burmeister Dr. Ingrid Verheul
19	Pakistan (PAK)	GC University, Lahore	Prof. Najaf Khan
20	Portugal (POR)	Technical University of Lisbon Instituto Superior Tecnico	Prof. Joao Leitao Prof. Rui Baptista
21	Romania (ROM)	University of Bucharest	Dr. Lilian Ciachir
22	Russia (RUS)	St.Petersburg State University Graduate School of Management	Prof. Galina Shirokova Alexander Kulikov
23	Singapore (SIN)	National University of Singapore	Prof. Dr. Wong Poh Kam
24	Südafrika (RSA)	Stellenbosch University	Dr. Suzette Viviers
25	Switzerland (SUI)	University of St.Gallen (KMU/CFB-HSG) HEG Fribourg	Dr. Philipp Sieger Prof. Rico Baldegger
26	UK	Kingston University, Kingston	Prof. Robert Blackburn

List of figures

Figure 1: Age profile of the sample.....	12
Figure 2: Gender profile of Austrian students	13
Figure 3: Level of studies	13
Figure 4: Field of study of Austrian and international students	14
Figure 5: Perceived Offerings at the universities	16
Figure 6: Students´ Awareness of Entrepreneurship Offerings at Universities by Fields of study.....	17
Figure 7: Needs for support among students in Austria (Basis: only students, who didn´t notice the offerings).....	18
Figure 8: Utilisation of Entrepreneurship Education offerings at the universities (Basis: only students who knew that these offerings were available)	19
Figure 9: Utilisation of university offerings by entrepreneurial intention	20
Figure 10: Level of satisfaction with the used offerings	21
Figure 11: Satisfaction with the used university offerings by entrepreneurial intention.....	22
Figure 12: User assessment of the university offerings concerning the development of their competences.....	23
Figure 13: Assessment of the university offerings by entrepreneurial behaviour.....	24
Figure 14: Career choice intentions: directly after studies and 5 years after graduation	26
Figure 15: Career intentions by groups.....	26
Figure 16: Career options right after the graduation by fields of study	27
Figure 17: Career choice intentions five years after graduation by fields of study	27
Figure 18: Career choice intentions five years after graduation by gender.....	28
Figure 19: Motives for future career path.....	29
Figure 20: Motives by foundation motivation.....	30
Figure 21: Strengths of founding intentions	31
Figure 22: Foundation intentions of students by groups.....	32
Table 2: Founding intentions by gender (n=1,781)	32
Figure 23: Founding intentions by age.....	33
Figure 24: Steps taken to found a business (multiple responses)	34
Figure 25: Industry sector of future companies.....	35
Figure 26: Industry sectors of future companies by fields of study.....	36
Figure 27: Industry sectors of future companies by gender	37
Figure 28: Sources of business ideas.....	38

Figure 29: Relevant work experience for foundation	38
Figure 30: Partner at planned foundation	39
Figure 31: Choice of partners (multiple response)	40
Figure 32: Use of sources of finance	40
Figure 33: Use of finance source „own funds“	41
Figure 34: Barriers to foundation	41
Figure 35: Barriers to foundation by fields of study	42
Figure 36: Barriers to foundation by gender.....	43
Figure 37: Industry sectors of active founders	45
Figure 38: Source of business idea of active founders (multiple responses).....	46
Figure 39: Used source of finance of active founders	47
Figure 40: Used source of finance „equity capital“	47

Tabellenverzeichnis

Table 1: Participated Universities and response rate	11
Tabelle 2: Founding intentions by gender (n=1,781).....	32

Table of contents

Country Representatives of GUESSS 2011	iv
1 Introduction	9
2 The Research Project GUESSS	10
2.1 Respondents.....	10
2.2 Sample characteristics	12
2.2.1 Age	12
2.2.2 Gender	12
2.2.3 Nationality	13
2.3 Level of studies.....	13
2.4 Fields of study.....	14
3 Entrepreneurship Courses and Service Offerings at higher Education Institutions.....	15
3.1 Perceived Offerings at the Universities	15
3.2 The demand for university offerings	17
3.3 Utilisation of university offerings.....	19
3.4 Students` evaluation of university offerings	21
3.5 Influence of the university offerings on students` entrepreneurial competencies ...	22
4 Career choice intentions	25
4.1 Career choice intentions directly and 5 years after graduation	25
4.2 Career choice intentions in detail	26
4.2.1 Career options directly after graduation.....	27
4.2.2 Career choice intentions five years after graduation	27
4.2.3 Career choice intentions by gender	28
4.3 Motives for choice of future career path	28
5 Strengths of founding intentions	31
6 Intentional founders.....	32
6.2 Founding intentions by gender.....	32
6.3 Founding intentions by age	33
6.4 Steps taken to found a business	33
6.5 Industry sectors of future companies.....	34
6.6 Source of Business Idea	37
6.7 Relevant Work Experience.....	38

6.8	Foundation partners.....	39
6.9	Capital requirements for foundation	40
6.10	Start-up Barriers.....	41
7	Active founders.....	43
7.1	Characteristics of the active founders	43
7.2	Foundation partners.....	44
7.3	Capital	44
7.4	Employees and sales.....	44
7.5	Industry sectors.....	44
7.6	Start-up Idea	45
7.7	Previous professional experience	46
7.8	Sources of finance	46
8	Summary	48
9	BIBLIOGRAPHY	50

1 Introduction

Founding an enterprise as well as business succession are of increasingly high importance for the economy.¹ According to the start-up statistics of the Austrian Chamber of Commerce more than 35.000 people started an enterprise in 2011.² The promotion of entrepreneurship is critical in stimulating economic growth and job creation as well as innovation. Studies show that students as well as graduates of universities are increasingly interested in the career option of self-employment. Students without any interest in entrepreneurship are in a distinct minority.³ A considerable percentage of the students already acquires practical entrepreneurial experience through working in a family firm or as business owners. Without doubt the entrepreneurial potential can be increased by practice-oriented entrepreneurship education at universities including extracurricular activities and intensive cooperation with the support infrastructure of the region.⁴ As a large percentage of the students envisions to establish their own businesses within five years after graduating (and thus after gaining working experience and also industry-specific know-how), entrepreneurship education also has to include alumni as additional target group for their activities,⁵ as potential entrepreneurs, as role models and as entrepreneurs-in-residence.⁶ Higher education institutions have an important role in this respect because they can spread the spirit of enterprise through fostering a positive attitude of the students towards entrepreneurship, through competency development in the field of entrepreneurship and through actively supporting (potential) academic start-ups.⁷ The development of university-wide concepts for entrepreneurship education⁸ is urgently needed to create “entrepreneurial universities”⁹. International theme-specific networks and working groups can support the activities to reach this goal.¹⁰

¹ See Calogirou/Fragozidis/Houdard-Duval/Perrin-Boulonne (2011).

² WKO Federal Chamber of Commerce Austria, Start-up statistics for 2000 – 2011 (including self-employed care assistance).

³ See Fueglistaller et al. (2009), for Austria see Kailer (2002, 2007a), Bauer/Kailer (2003), Kailer/Daxner (2009, 2011), at EU level see NIRAS et al. (2008).

⁴ See f.i. NIRAS et al (2008).

⁵ See the survey of JKU-alumni by Kailer/Böhm/Zweimüller (2010).

⁶ See Kailer (2009), World Economic Forum (2009), Schramm (2011).

⁷ See Henry (2003), Kailer (2007b), Gruber-Mücke/Kailer/Stockinger (2011).

⁸ See Kailer (2005, 2011), NIRAS et al. (2008) and European Commission (2008) concerning design elements of an university Entrepreneurship Education concept

⁹ See Gutschelhofer/Kailer (2002), Badelt (2004), Gibb (2005).

¹⁰ Examples are indicated like the Rencontres de St. Gall, the working group Entrepreneurship Education of the G-Forums, the EECPL-programme from Harvard Business or its successor programme the European Entrepreneurship Colloquium.

2 The Research Project GUESSS

The Global University Entrepreneurial Spirit Students` Survey (GUESSS) project is an international collaboration. The first wave of this longitudinal study has been carried out from autumn 2008 until spring 2009 (GUESSS 2009); the follow-up study (GUESSS 2011) is a revised and expanded version. GUESSS is based on the International Survey on Collegiate Entrepreneurship (ISCE) 2006, which was also an international collaboration to investigate and compare students` entrepreneurial intentions and experiences.¹¹ GUESSS is based on a cooperation between national representatives. Each representative is responsible for contacting universities and sponsors, for data collection and interpretation as well as for the analysis and report for his country. GUESSS is organized and led by the Swiss Research Institute of Small Business and Entrepreneurship (KMU-HSG) and the Center for Family Business (CFB – HSG) both at the University of St. Gallen.

Since its beginning, the country study for Austria has been carried out and financed by the Institute of Entrepreneurship and Organizational Development of the Johannes Kepler University Linz.

A special word of thanks is extended to the following organizations for their support: The **Business Start-Up Service of the Austrian Chamber of Commerce** and the **Government of Upper Austria** supported this project financially. To increase the response rate, non-cash prizes sponsored by the **Bank Austria UniCredit Group** as well as education vouchers sponsored by the **Institute of Business Promotion (WIFI) Austria** were raffled among the participants.

In 2011 twenty-six countries participated in the anonymous web-based survey and the final response included questionnaires of 93,265 students.

2.1 Respondents

23 universities and universities of applied science with altogether 144,700 students participated in the Austrian survey. A critical success factor of a web-based questionnaire is the general accessibility to students via e-mail as well as the willingness of the universities to inform as many students as possible of the survey. The rectors, the vice rectors of academic affairs of universities and the managing directors and programme directors of the universities of applied science have been contacted by email and/or by telephone and have been

¹¹ See the findings of the previous surveys ISCE 2006 (for Austria: Kailer 2007a) and GUESSS 2008 (for Austria: Kailer/Daxner 2009, 2011).

requested to encourage the students via round mail to complete the questionnaire. In most cases an e-mail with a short introduction of the project and a link to the online survey was sent to students. In some cases an additional e-mail reminded the students of the survey and some information about the project was given on homepages of some institutes. Some universities decided to inform their students through their regular electronic newsletter which led to a lower response rate. As in the former the surveys big differences in the return rate of participating countries as well as between universities of each country could be observed. This has to be kept in mind when trying to make any comparisons between countries or universities. Table 1 shows the participating universities, total number of addressed students, received responses and the resulting response rate.

University of Applied Sciences	population	Response (N)	%
University of Applied Sciences Campus Vienna	3,500	313	8.9
University of Veterinary Medicine Vienna	2,000	146	7.3
University of Applied Sciences Salzburg	2,200	142	6.5
University of Applied Sciences Tyrol	550	35	6.4
Johannes Kepler University Linz	15,000	887	5.9
FH Vorarlberg University of Applied Sciences	400	22	5.5
Health and life sciences University Hall/Tyrol	1,200	66	5.5
Montan University of Leoben	3,000	135	4.5
Graz University of Technology	10,000	434	4.3
Medical University of Graz	4,000	172	4.3
University of Salzburg	14,900	355	2.4
University of Innsbruck	26,300	608	2.3
University of Graz	26,850	600	2.2
Vienna University of Economics and Business	24,000	411	1.7
University of Art and Design Linz	1,150	19	1.7
Mozarteum University Salzburg	1,500	22	1.5
University of Klagenfurt	8,150	117	1.4
TOTAL	144,700	4,484	4.3

Table 1: Participated Universities and response rate¹²

The response of 4,484 questionnaire (response rate 4.3%.) has been the same as in GUESSS 2009, although the questionnaire has been considerably enlarged. It is noticeable that the participation of females was above average in the Austrian survey (this has to be

¹² The table only shows 17 universities with a response rate of more than 1 percent.

kept in mind in comparisons as there exist gender differences in the entrepreneurial intention context).¹³

2.2 Sample characteristics

2.2.1 Age

The age profile (Figure 1) shows, that the average age of the respondents in Austria (26.6 years) is slightly above the international average (25.1 years).

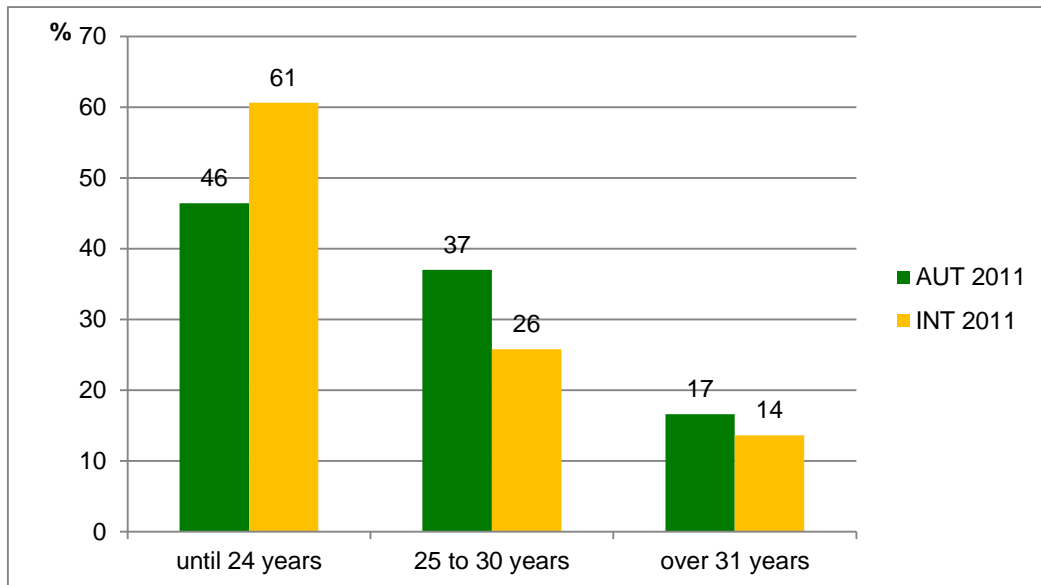


Figure 1: Age profile of the sample

2.2.2 Gender

There were major differences when comparing the Austrian sample (63 % female respondents) with the international sample (45 %). This can partly be explained by the fact that the University of Technology Vienna (TU Wien) decided not to participate in GUESSS 2009.¹⁴ The higher percentage of women has to be taken into account in country comparisons as the female entrepreneurial intention is lower.

¹³ This is partly due to the fact that the Technical University of Vienna did not participate in the survey this time.

¹⁴ The percentage of responding females varies across the fields of study. (Social sciences 81 %, Business & Economics 60 %, Natural Sciences 52 %).

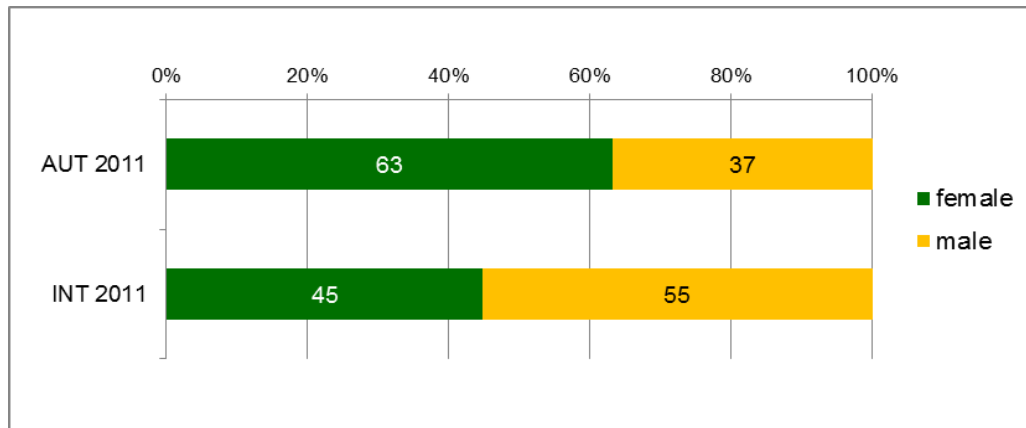


Figure 2: Gender profile of Austrian students

2.2.3 Nationality

The bulk of the Austrian respondents (85%) were Austrian citizens, followed by Germany (8.9 %) and Italians (2.4 %).

2.3 Level of studies

The Austrian sample differs partly strongly from the international sample as illustrated in Figure 3. Only approximately half of the respondents were undergraduates. In comparison to the international sample the share of postdocs is considerably higher.¹⁵

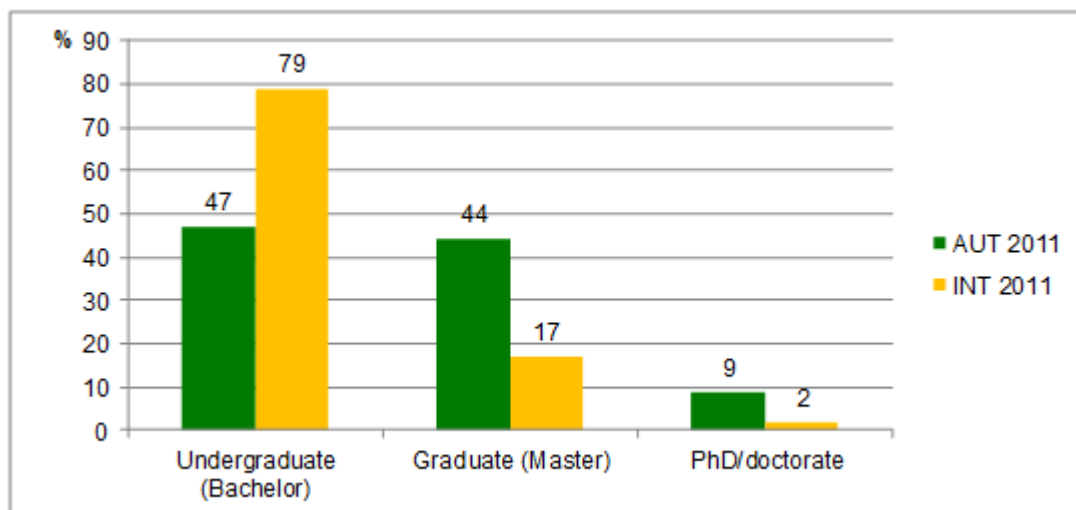


Figure 3: Level of studies

On average the Austrian respondents had been studying for 4.47 years at the time of completion of the questionnaire.

¹⁵ In Austria the conversion from the diploma programmes (leading to a “Magister” as first degree) to bachelor and master programmes is still going on. This means that respondents which still follow a diploma programme in the first semesters did not consider themselves as undergraduates/bachelors but rather as graduates/masters.

2.4 Fields of study

As illustrated in Figure 4 there were minor differences between the structure of the Austrian and the international sample. More Austrian students were enrolled for qualifications in the fields of Law and Mathematics and natural sciences than in the international sample. The international sample had a higher representation of students in the field of Business and Economics. The highest percentage of students was studying towards a business and management degree (20.4 %), followed by Engineering (9.9 %) and Medicine/Health Science (also 9.9%).

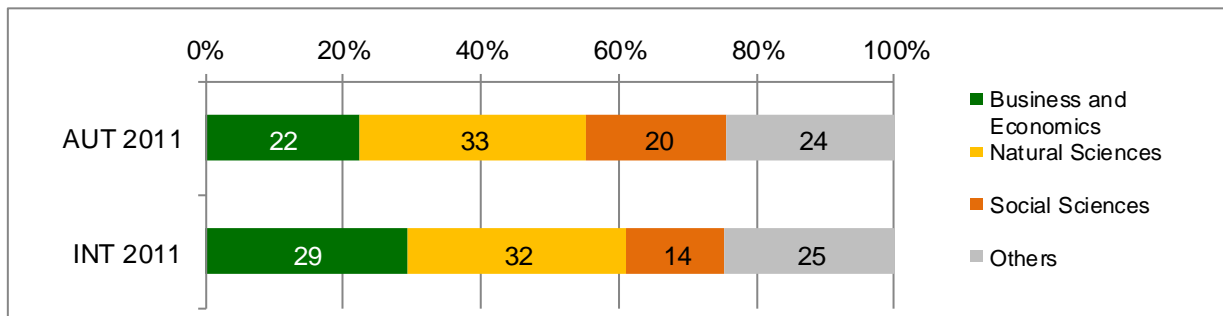


Figure 4: Field of study of Austrian and international students

3 Entrepreneurship Courses and Service Offerings at higher Education Institutions

3.1 Perceived Offerings at the Universities

In this section, students' perceptions regarding entrepreneurship offerings at higher education institutions are investigated. These offerings are classified into three main categories, namely (1) lectures and seminars, (2) extracurricular activities like workshops and coaching opportunities and (3) the provision of resources for entrepreneurs by the universities.

The findings about measures to promote entrepreneurship at universities are presented in Figure 5:¹⁶ Students were the most aware of lectures and seminars on topics relating to *entrepreneurship in general* (51.6%) and *business planning* (39.4%). The highest levels of awareness of offerings in the category workshops and coaching opportunities dealt with *networking opportunities with experienced entrepreneurs* (47.9%) and *business plan contests/workshops* (30%) There was a relatively low level of awareness concerning lectures and seminars on family business, workshops and coaching opportunities, contact platforms with potential investors and mentoring and coaching programmes for entrepreneurs. The least well-known covered offering was seed funding/financial support by universities in the category provision of resources.

Overall considered about 10% to 20 % of the respondents didn't take any notice of the several asked offerings. Noticeable is the high proportion of "I don't know"-answers. These findings can be due to a number of causes:

- Lack of information of the respondents about existing offerings (which could be caused by PR deficits concerning the promotion of the measures at the universities)
- Lack of interest of the respondents and lack of attention towards special offerings, because the career option „entrepreneur“ has not been taken into account by the students
- Actually missing offerings

¹⁶ The formulation of question according to the questionnaire: „What was on offer at the university you have attended?“ Therefore the answers reflect the estimation of the students whether there is an offering at the individual university or not. If students don't perceive an offering this does not necessarily mean that there really is no respective offer at the universities.

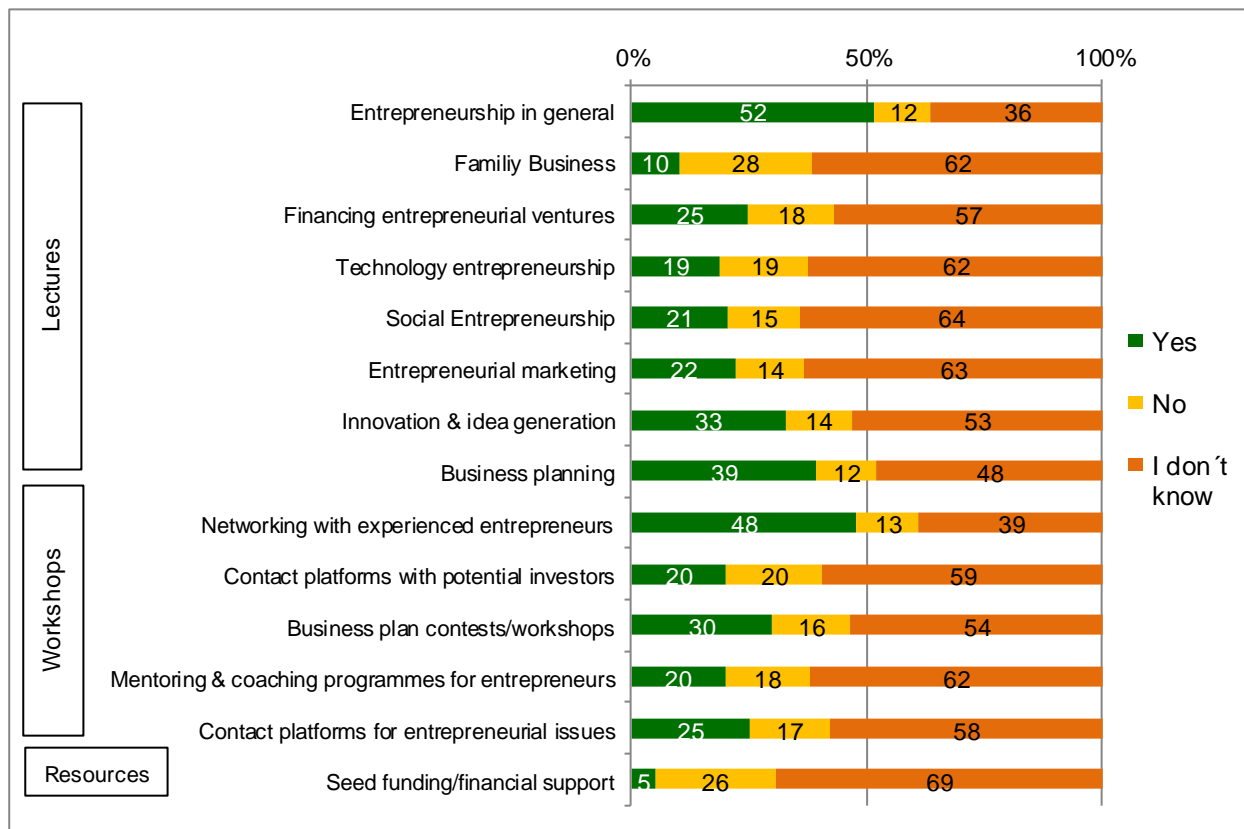


Figure 5: Perceived Offerings at the universities

It has to be mentioned that a more detailed analysis shows that at universities with an entrepreneurship institute and/or start-up centres students develop more entrepreneurial activity and also have a higher perception of the offerings at the universities.¹⁷

¹⁷ See for example the special analysis for the JKU Linz (Kailer/Wimmer-Wurm 2012).

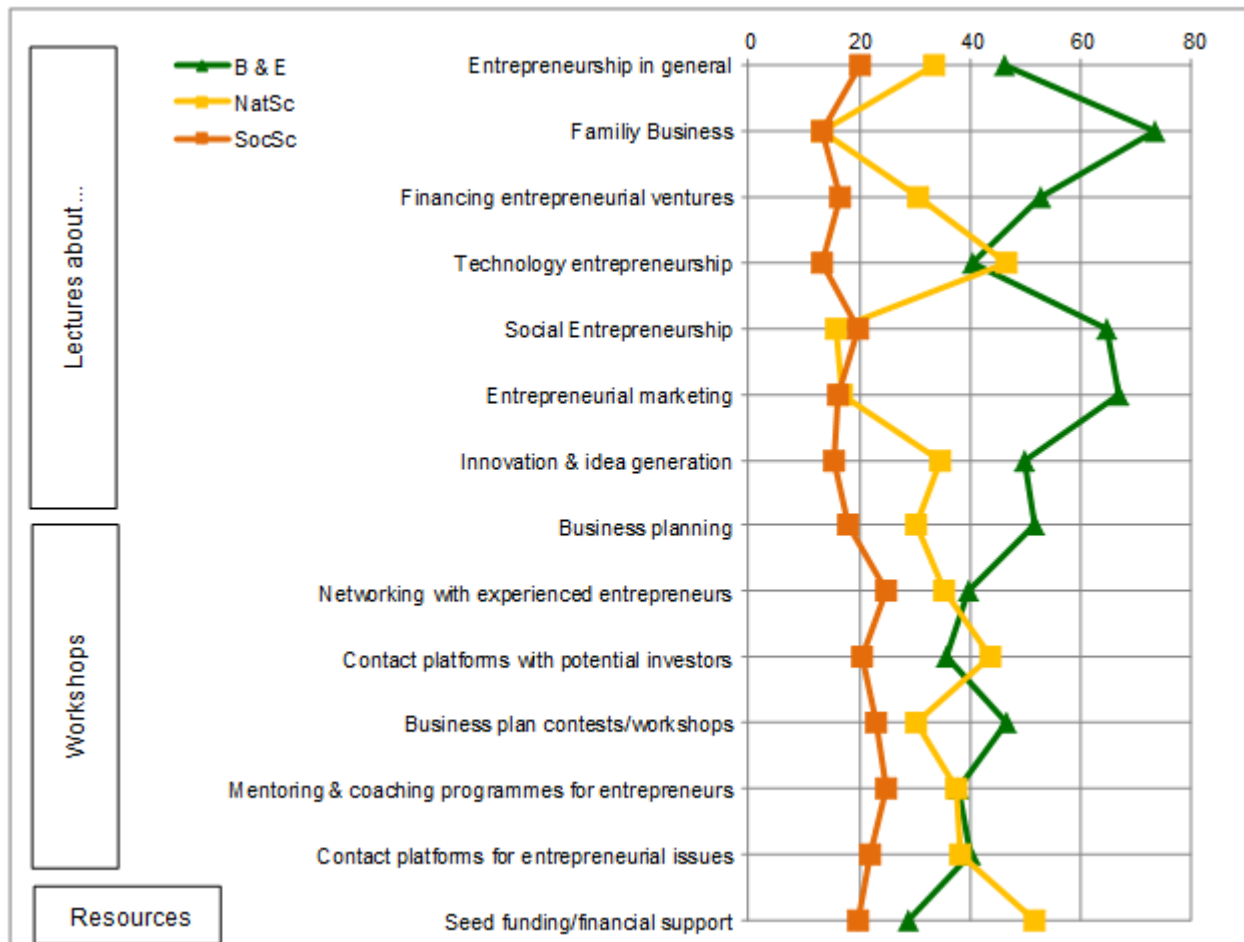


Figure 6: Students' Awareness of Entrepreneurship Offerings at Universities by Fields of study

The awareness is clearly influenced by the fields of study. Offerings concerning family business, social entrepreneurship and entrepreneurial marketing were mainly noticed by Business and Economic students, while the best known lecture theme among Natural Science students is technology entrepreneurship. The latter group is also very interested in resources (seed funding, financial support) as planning a technologically oriented start-up also includes the necessity to look for potential investors.

3.2 The demand for university offerings

The respondents were also asked to indicate in which areas they would like to receive **additional** support at their universities. When interpreting the findings it has to be kept in mind that **only students without awareness** of special offerings at their university were asked for their demand for additional support.¹⁸

¹⁸ This means no concrete support need for support for active entrepreneurs and for students which are in the concrete planning process for their start-up can be derived from these data. Findings from earlier studies (f.i. Kailer 2007, Kailer/Daxner 2009) show that the structure of the support needs depends on the extent of the start-up motivation: The more concrete the business planning, the more specific are the problems and open questions

Figure 7 summarizes this demand for (additional) support measures. Concerning lectures, mainly entrepreneurship in general as well as specific lectures about financing, innovation and idea generation as well as business planning were mentioned. Concerning extra-curricular activities mainly contact points (start-up centres) at universities, networking events and mentoring/coaching opportunities were mentioned.

These findings underline the importance of the contact platforms (start-up centres) at universities. They are sought after not only by students which are actively planning a start-up but also by students who are looking for a contact point for more general information about entrepreneurship.

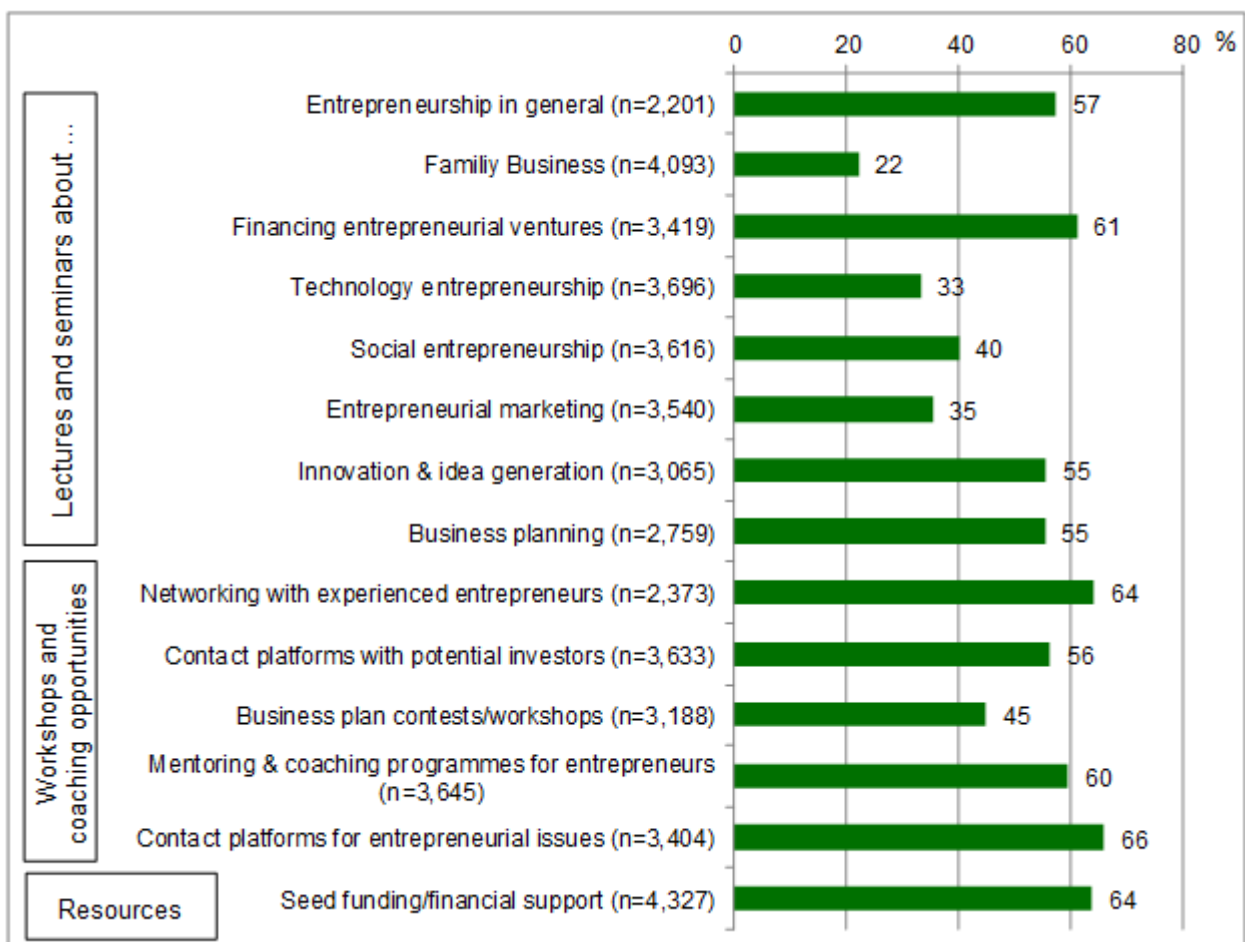


Figure 7: Needs for support among students in Austria

(Basis: only students, who didn't notice the offerings)

and therefore the support needs. Individual and tailor-made demands like coaching are of increasing importance for start-up planners and entrepreneurs whilst theoretical underpinnings of the discipline or introductory lectures lose their importance.

3.3 Utilisation of university offerings

To analyse the demand further the study also examined the utilisation of existing offerings. Therefore respondents were asked to indicate whether they had made use of the various kinds of entrepreneurship support on offer at the universities which they knew to be available.¹⁹

Figure 8 shows the most utilised lectures like *entrepreneurship in general* as well as *innovation and idea generation* and *business planning*. In case of workshops and coaching opportunities the highest demands were for *networking with experienced entrepreneurs* followed by *business plan contests* as well as *contact platforms with potential investors*.

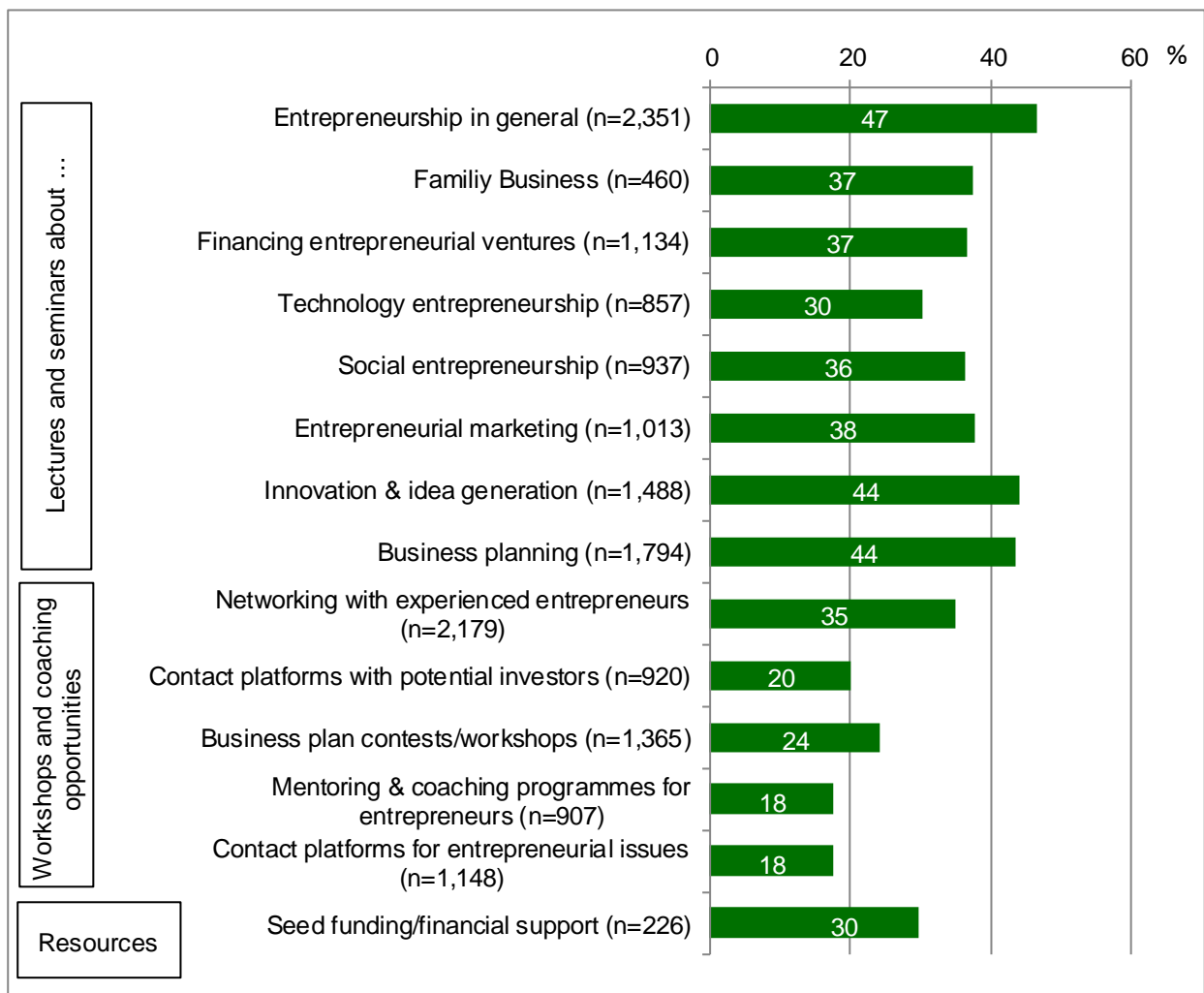


Figure 8: Utilisation of Entrepreneurship Education offerings at the universities

(Basis: only students who knew that these offerings were available)

¹⁹ The formulation of the question: „If available: Have you used it? “

The degree of utilisation of entrepreneurship offerings depends on the (self-assessed) entrepreneurial intention of the respondents, i.e. the higher the entrepreneurial intention, the more intensive these offerings are used. The findings show that also “non-founders”, i.e. students with little or no interest in entrepreneurship participate in entrepreneurship lectures and extra-curricular activities. This is partly due to the fact that some students choose the optional course entrepreneurship (including its extracurricular activities like networking and guest lectures) for other considerations than mere interest in entrepreneurship (e.g. restricted access to other optional courses, lack of other available courses, other courses are considered to have a heavier workload, interest in the topic entrepreneurship as cross-sectional matter combining the topics of several courses, high interest in practice-oriented events in general, looking for contacts with practice in general or career perspective “intrapreneur”).

However, the utilisation of the not obligatory extra-curricular offerings indicates that entrepreneurship might be of some interest also for the “non-founders” among the students. As can be expected, more intentional founders and particularly active founders among the students attended lectures and seminars on entrepreneurship topics.

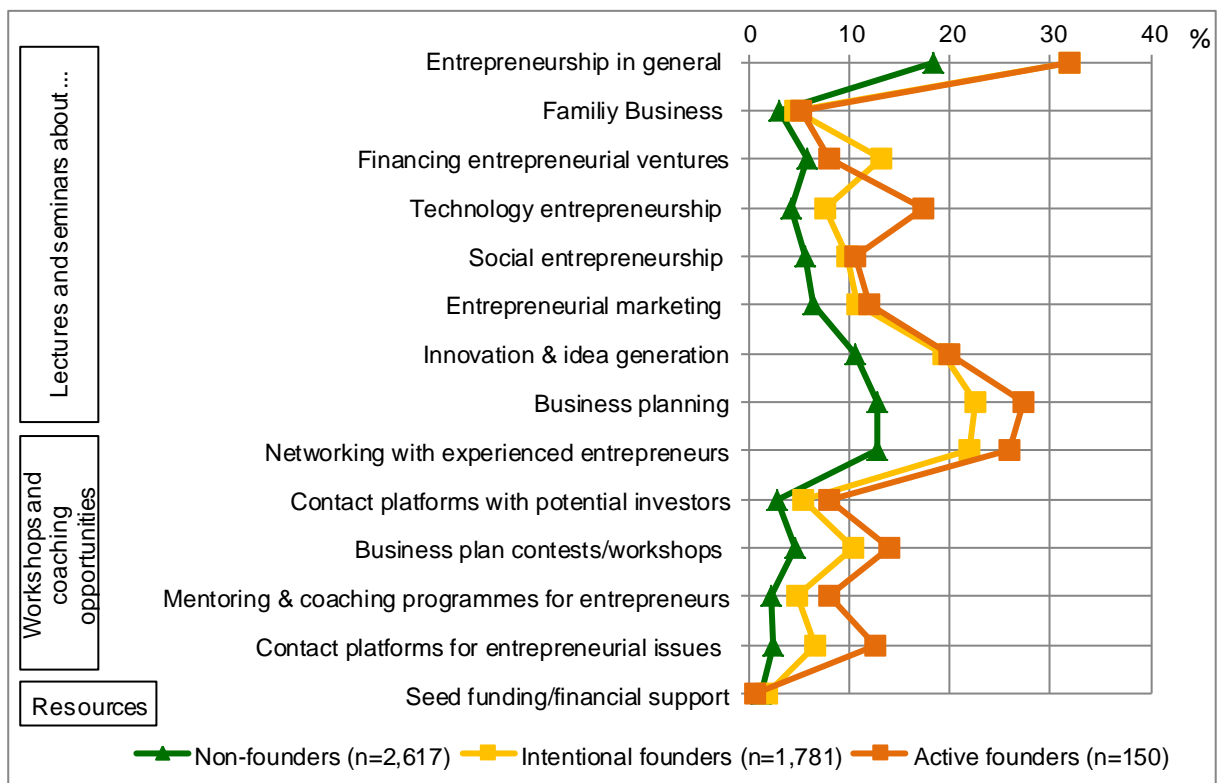


Figure 9: Utilisation of university offerings by entrepreneurial intention

3.4 Students` evaluation of university offerings

The majority of the respondents are “very/rather satisfied” with the entrepreneurship offerings they made use of at their respective universities. Depending on the category, approx. 20 to 25% of students were very satisfied and 15 to 20 % were not or rather dissatisfied. This suggests a needs for change for parts of the courses of study and of the support depending on a more specific analysis on university-level.²⁰

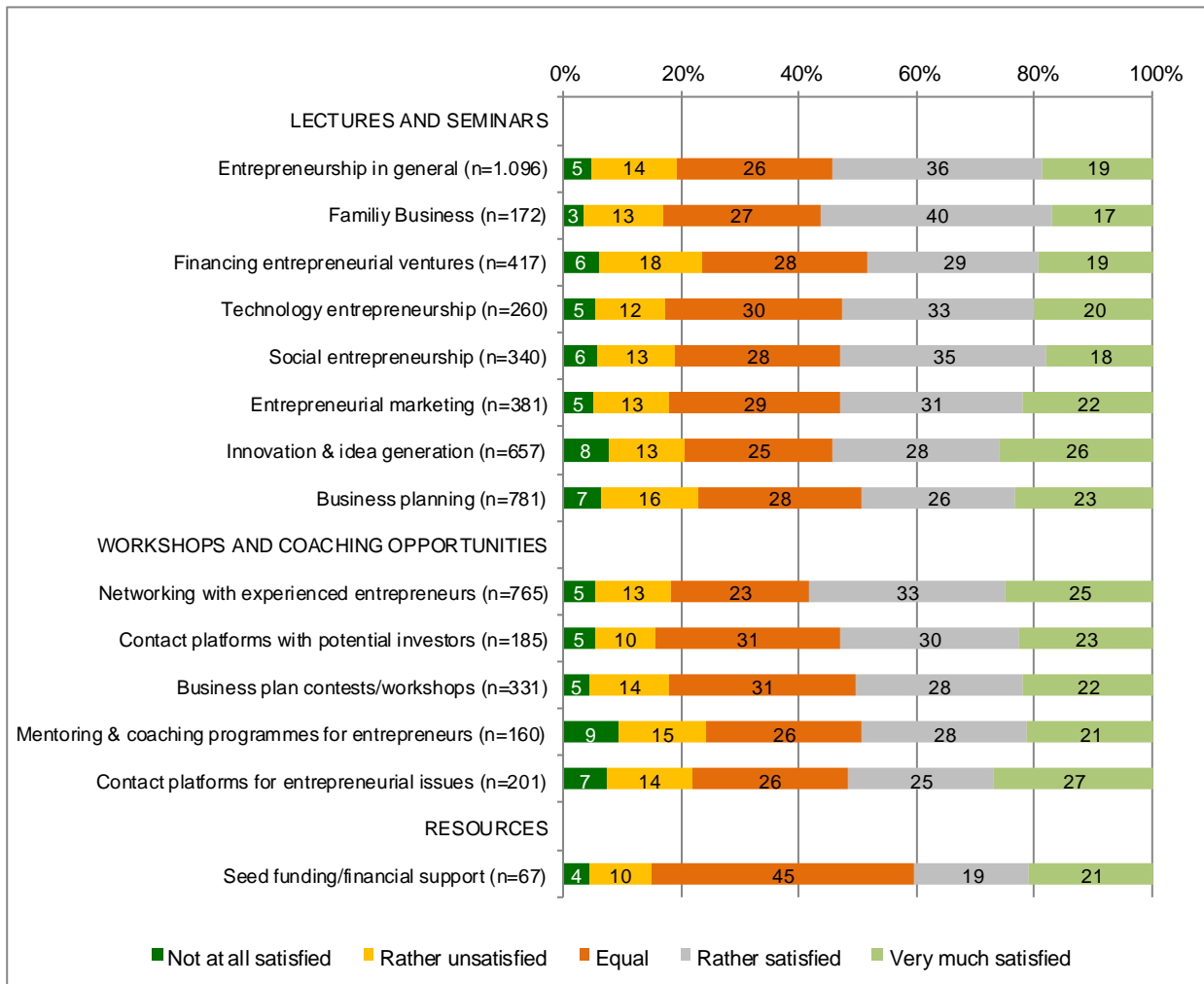


Figure 10: Level of satisfaction with the used offerings

“Non-founders” and “intentional founders” show a quite similar level of satisfaction with the entrepreneurship education measures. “Active founders are more satisfied with lectures concerning family business, social entrepreneurship, technology-oriented start-ups and start-up centres at universities whilst they are less satisfied with financial support by universities.

²⁰ The causes for their indication can be diverse like assessing the practical orientation and practical relevance of the contents, didactical aspects, registration problems/available places on the courses, group size, grading of the courses, felt level of difficulty concerning required content and examination preparation period and so on. However such causes were not collected through this study.

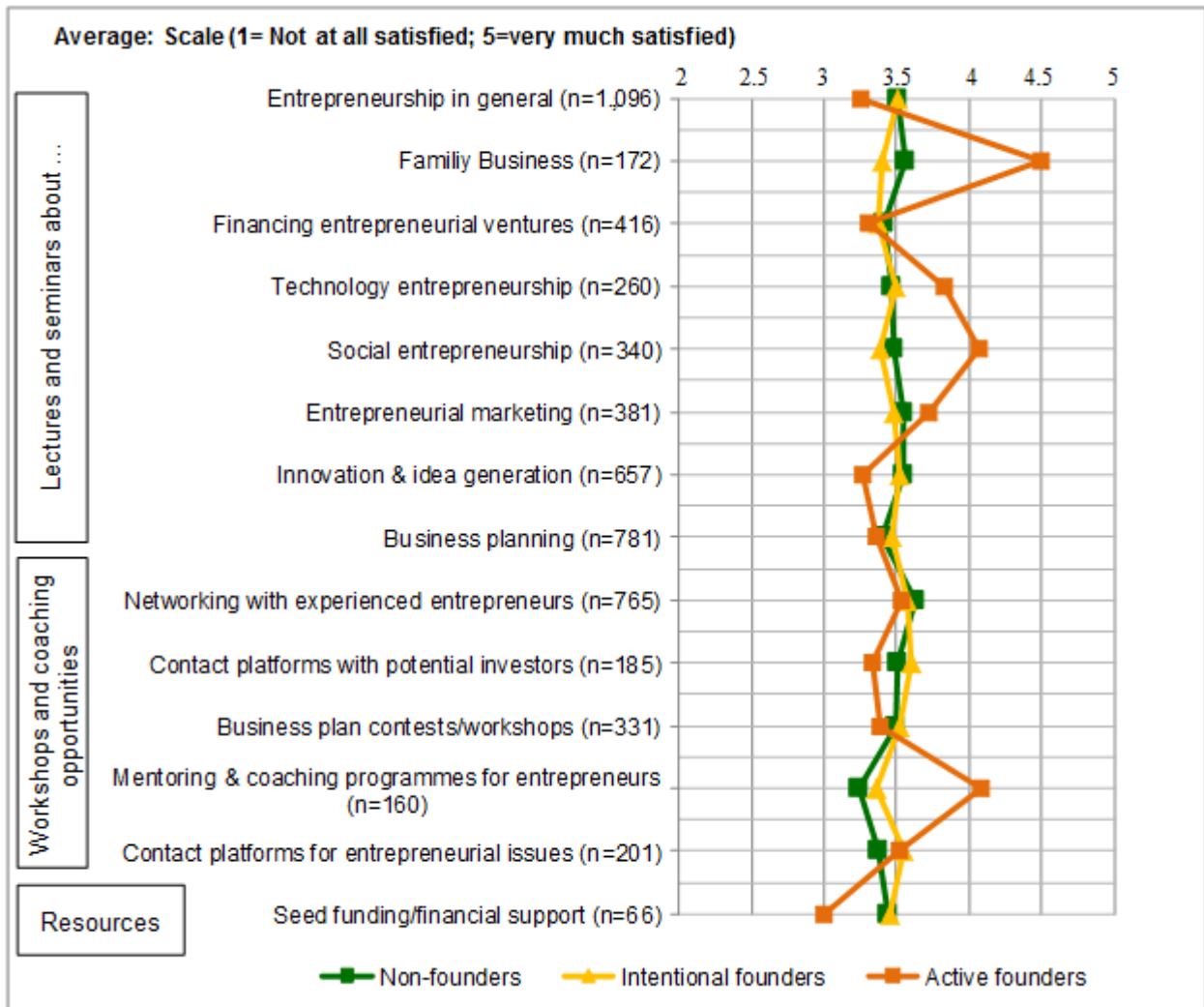


Figure 11: Satisfaction with the used university offerings by entrepreneurial intention

3.5 Influence of the university offerings on students' entrepreneurial competencies

The study also tried to analyse the impact of the university offerings on the students' entrepreneurial intentions and behaviour based on a self-assessment with a seven-point Likert scale. Respondents were asked to assess their level of agreement with statements which basically cover all areas of the entrepreneurship competence model (entrepreneurial intention, explicit and tacit knowledge, framework conditions)²¹:

- Attitude towards Entrepreneurship in general
- Perceived change of the individual entrepreneurship competences (management skills for entrepreneurship, networking competence, idea recognition)

²¹ The model of entrepreneurship competencies is based on Kailer (2005) and Kailer/Wei (2012). See also the results of an empirical study of entrepreneurship competencies by Kailer/Gruber-Muecke (2010).

- Framework conditions at the university (entrepreneurial climate and conducive infrastructure at the university, practice orientated design of the teaching)

The highest levels of improvement can be found for *Understanding of attitudes, values and motivations of entrepreneurs* (3.81), *improvement of the ability to develop networks* (3.64) and *better understanding of the actions someone has to take in order to start a business* (3.55).

The statement about the *ability to identify an opportunity* is assessed with a mean score of 3.04. This is due to the fact that the universities have different methodological and didactical approaches and different opinions concerning the value of practice-orientation in the respective curriculum.

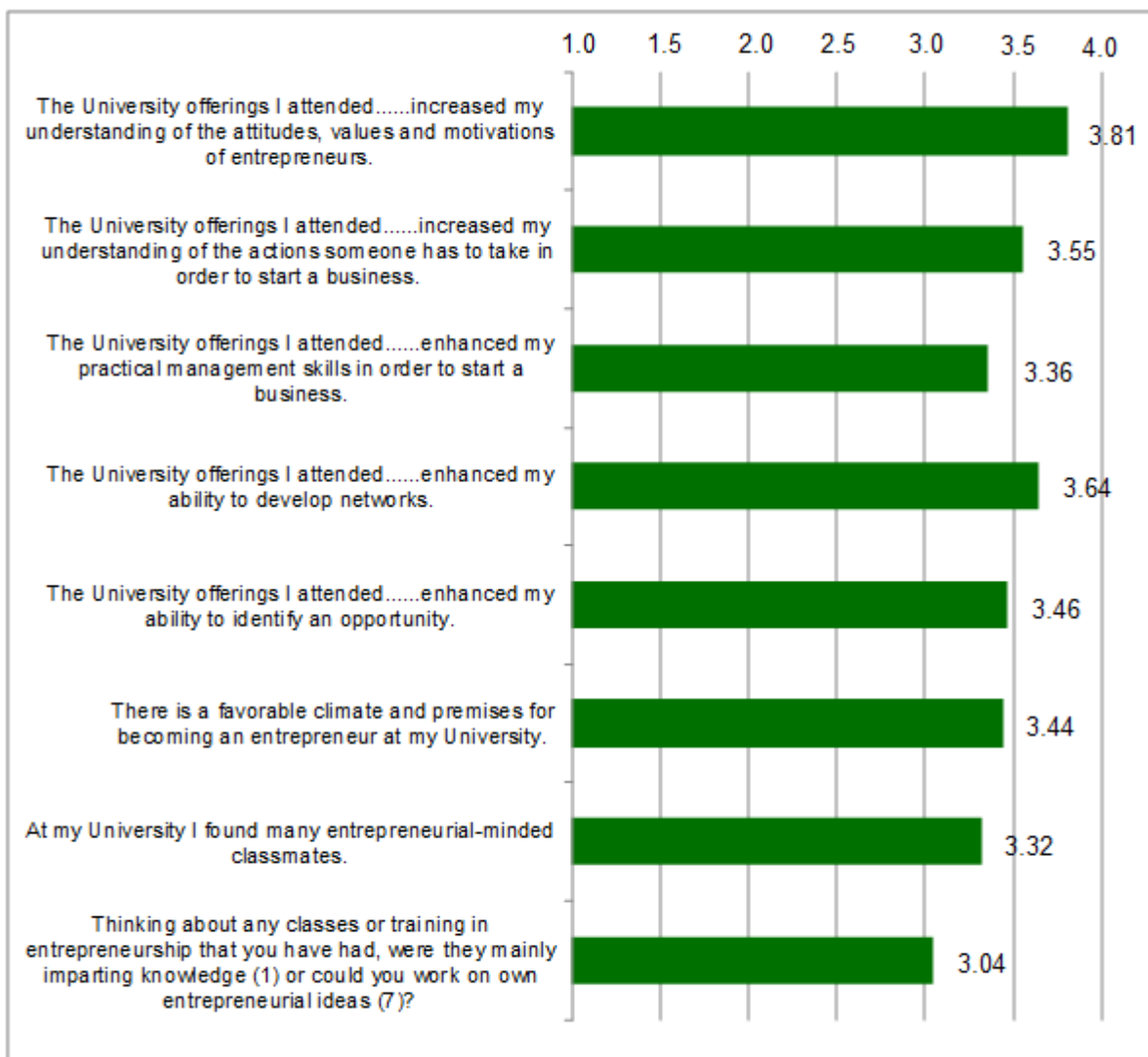


Figure 12: User assessment of the university offerings concerning the development of their competences

Not surprisingly a different assessment of the development of their competences in the broadest sense differed by entrepreneurial behaviour has been pointed out.

The active founders as well as the intentional founders among the respondents notice a more intensive improvement of their entrepreneurial competencies than the “non-founders”. Potential founders often point out that their entrepreneurial intention and values have been influenced positively. The higher the entrepreneurial intent, the more classmates with similar attitudes are recognized at the university. These findings points out the importance of support for building specific networks at the universities.

However *striking differences between the individual universities* indicate the university-specific needs for change of their respective entrepreneurship education concepts.

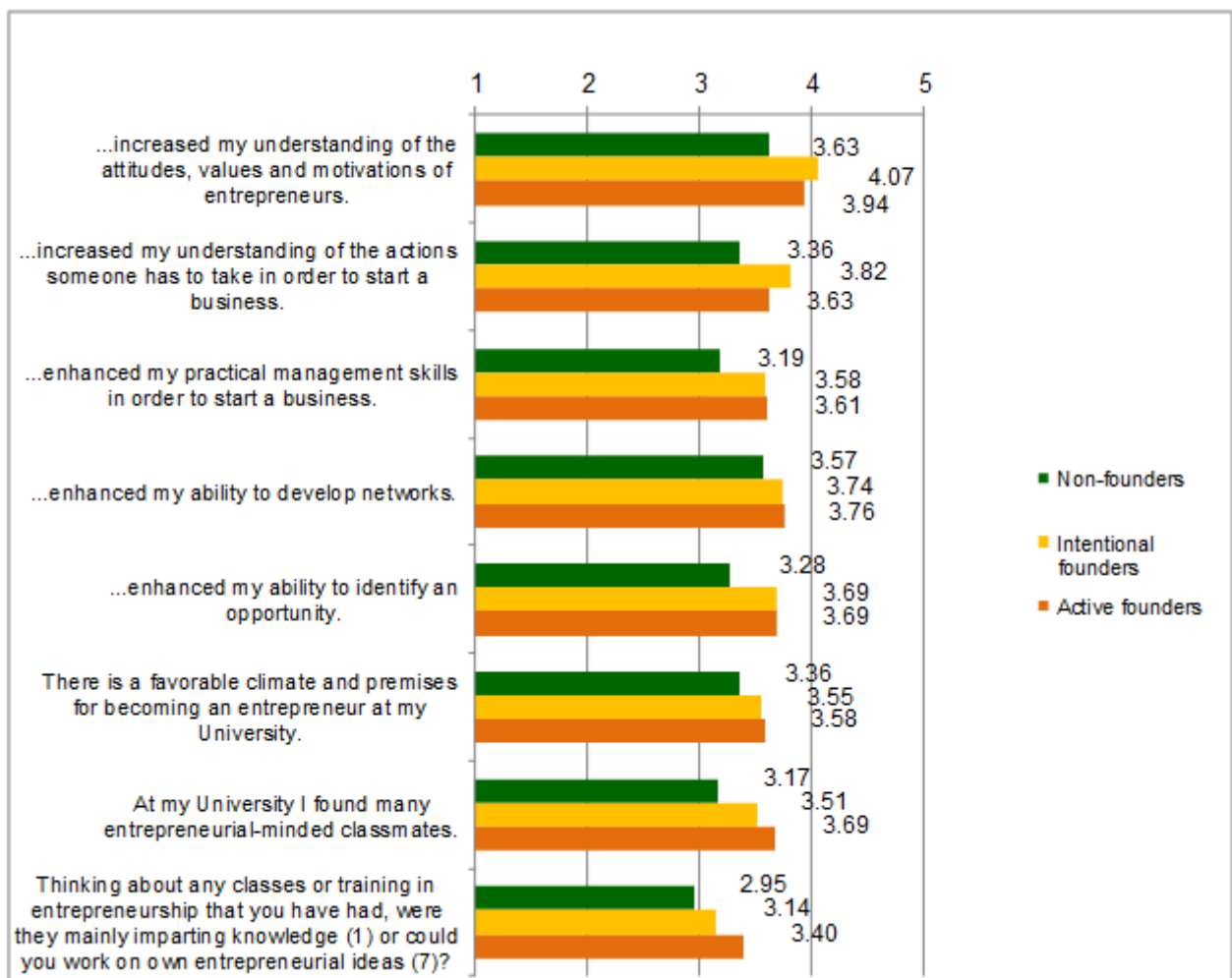


Figure 13: Assessment of the university offerings by entrepreneurial behaviour²²

²² There are significant differences in the competence development concerning the entrepreneurial intention. (ANOVA – $p < 0,05$)

4 Career choice intentions

4.1 Career choice intentions directly and 5 years after graduation

The expressed intention to aspire either self-employment or employment directly after studies respectively five years after graduation can serve as a first indicator for the strength of an individual entrepreneurial attitude. Alumni studies show that the career goals expressed in student surveys are to a considerable extent be put into practice.²³

Generally it can be stated that directly after their graduation more than half of the respondents (56%) intend to start their career as an employee (34% in an SME, 22% in a large firm). An academic career at a university is preferred by 13%. 7% regarded the public service to be a more likely career option (mainly law).

Therefore right after the studies about three fourth of the respondents strive for an employment in organizations.²⁴ 7.6% of the students intend to start or continue an own venture (including freelancer, franchise company, et al.) and 1.9 % aim to take over an existing company.

Five years after graduation this picture is completely different:

- Only less than half of the Austrian students (47%) tend to be employed (17% in a large firm, 13 % in a SME, 10 % at universities and 7% in the public service).
- *29 % of the respondents* intend to found an own company and *6% of the students are interested in taking over an existing company* as a career option.
- Compared with previous studies importance of business succession has increased (GUESSS 2009: 4.9% vs. GUESSS 2011: 5.7 %) Figure 14 points out that this increase is not due to the succession of a family business but can mainly be attributed to an increase in external succession.²⁵

²³ For an overview of student and alumni surveys in German speaking countries see Kailer (2009). F.i., according to GUESSS 2009, about 40 % of the JKU students see themselves self-employed five years after graduation (Kailer/Daxner 2009); the JKU alumni study also figures out that, after 10 years of practical experience, one third of the alumni has acquired entrepreneurial experience (Kailer/Böhm/Zweimüller 2010).

²⁴ This meets the findings of the previous survey of GUESSS 2009.

²⁵ See f.i. the detailed analysis of the Austrian GUESSS 2011 data in Zainzinger (2012).

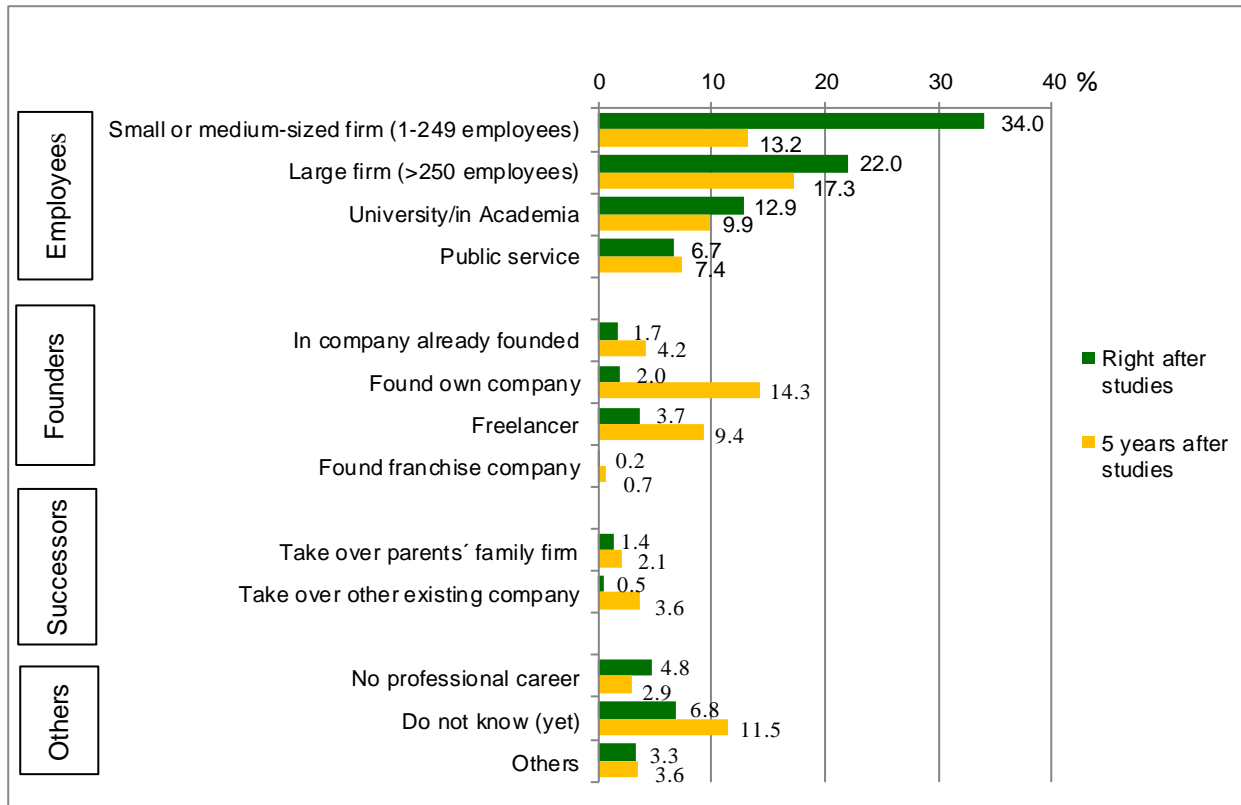


Figure 14: Career choice intentions: directly after studies and 5 years after graduation

4.2 Career choice intentions in detail

Five years after the studies for many students employment is less attractive than right after graduation. This tendency is visible more clearly when we categorize the different career choice intentions into the groups of employees, founders, successors and others (Figure 15). However the intention of being self-employed or succeeding a company seemed to be much higher.

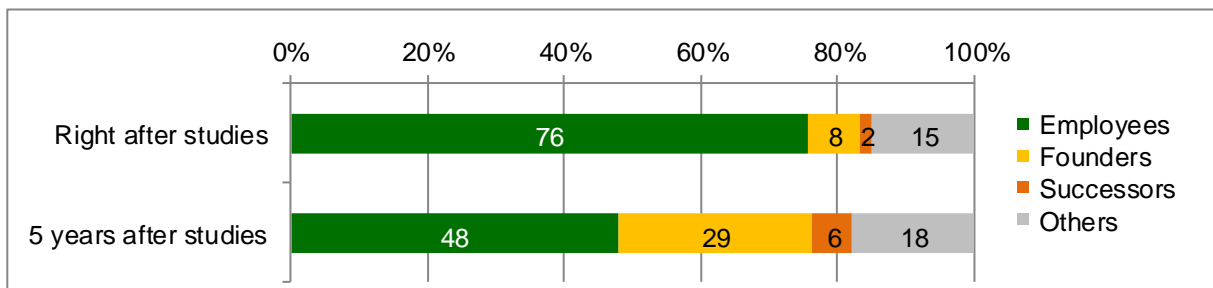


Figure 15: Career intentions by groups

4.2.1 Career options directly after graduation

Figure 16 illustrates that the career choice intentions directly after studies depend on the field of study. In comparison with other fields of study, social sciences students seem to prefer the career option of self-employment more often. It cannot be derived from this study whether this depends on a higher entrepreneurial intent of these students or rather on the lack of relevant jobs in this sector.

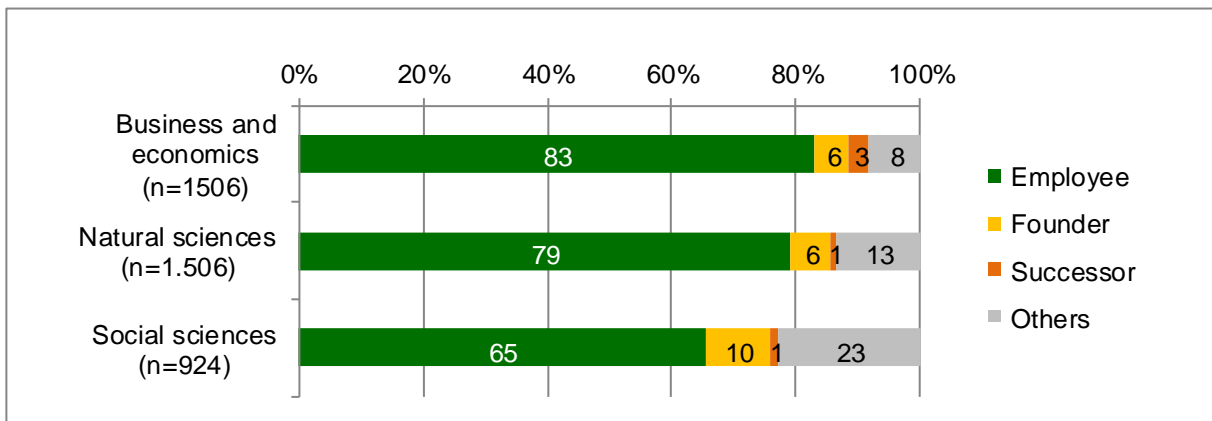


Figure 16: Career options right after the graduation by fields of study

4.2.2 Career choice intentions five years after graduation

In a perspective of five years after graduation the importance of the career option “entrepreneur” increases across all fields of study. Half of the students of Business and Economics as well as of Natural Science and 44% of the students of Social Science intend to be working as employees. In contrast, 37% of the students of Business and Economics, 33% of Social Science and 31% of Natural Science see themselves as a founder of a start-up or as a successor of an existing business.

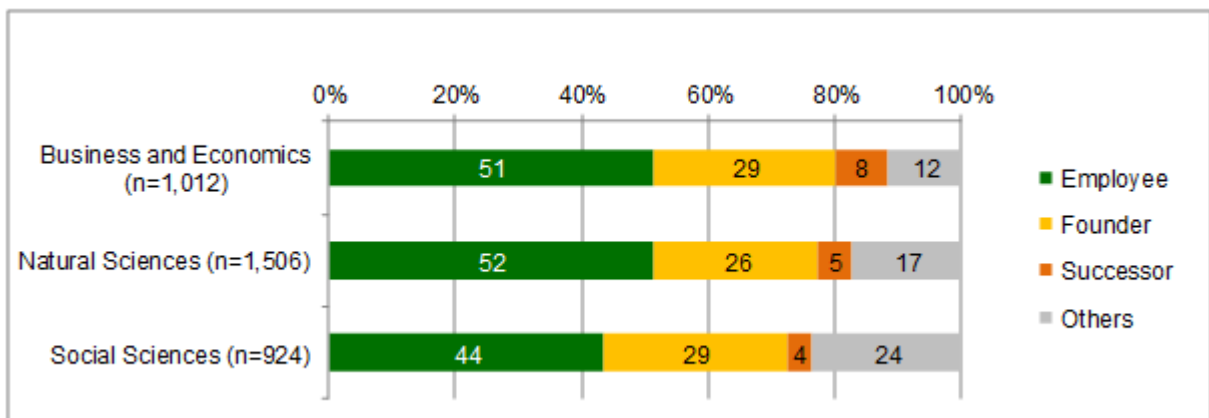


Figure 17: Career choice intentions five years after graduation by fields of study

4.2.3 Career choice intentions by gender

Directly after graduation 12% of the male graduates, but only 8% of the female graduates intend to start an entrepreneurial activity. Respectively about three quarters want to start their career as employees. This *gender difference, however, is reduced in a long-term perspective* of five years after graduation, when 32% of the men and already 27% of the women plan a career as founder.

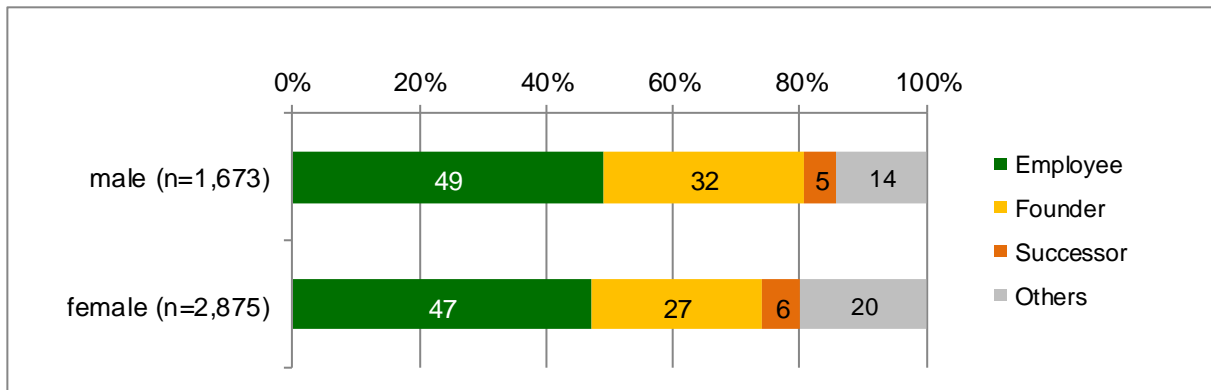


Figure 18: Career choice intentions five years after graduation by gender

4.3 Motives for choice of future career path

The most popular motive for the Austrian students concerning their choice of their future career paths is „to grow and study as a person“. Other important motives are personality- and achievement-orientated motives like „realize my own dream“ and „challenge myself“ as well as “to get more flexibility for private life” and “financial stability”.

The motives which seem to be less important are those connected with family background (e.g. “continue family tradition” or “to build up an enterprise which my children can inherit”). This finding is astonishing, given that almost a quarter of respondents have a family business background.²⁶ Of course it has to be taken into account that comparatively few respondents aim for business succession.

²⁶ Meaning: either father or mother or both are self-employed.

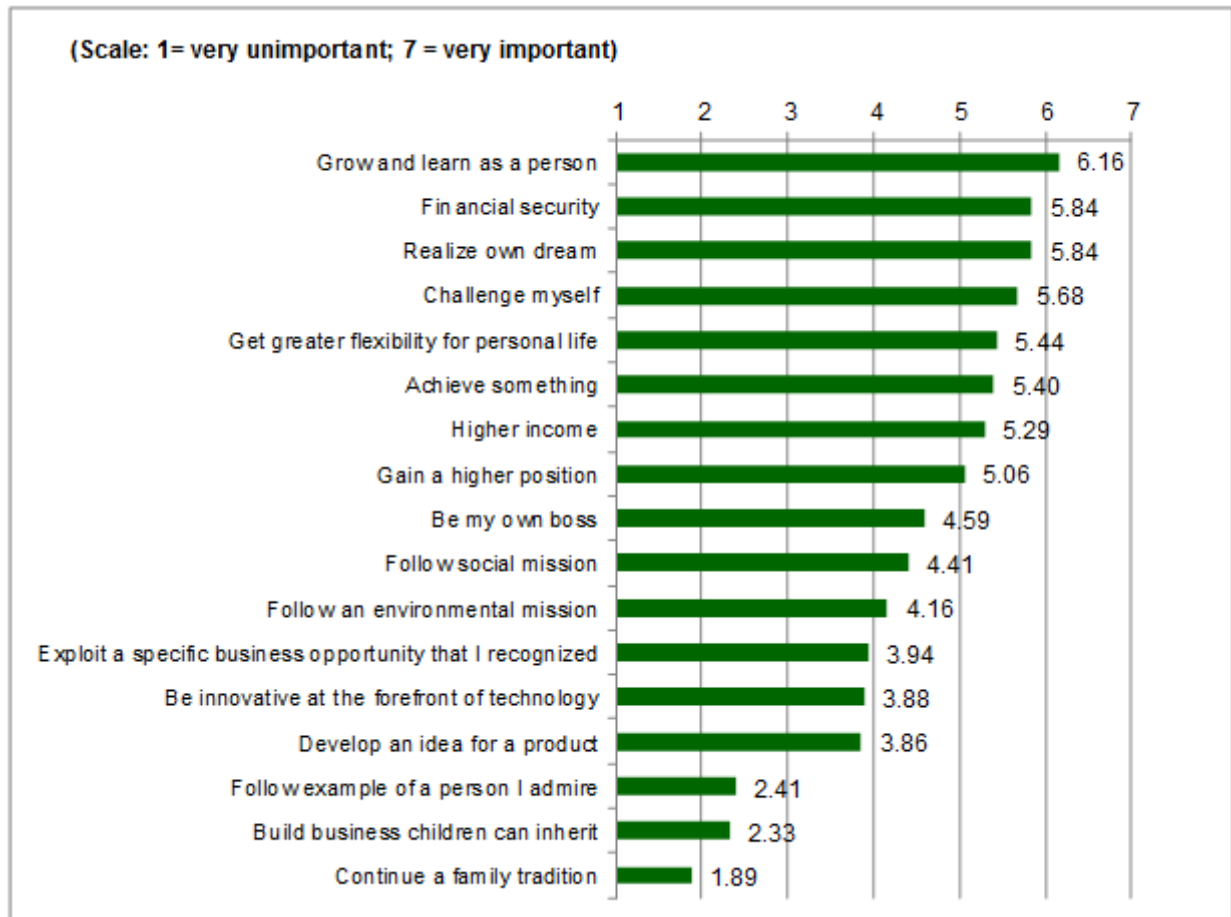


Figure 19: Motives for future career path

The ranking of the individual motives for the choice of the future career paths hardly changes when differentiated according to the strength of the foundation motivation. Some differences attract, however, attention: Typically entrepreneurial motives like „be my own boss“, „make use of own idea“, „develop an idea for a product“ and „be innovative“ have a considerable higher relevance for active and potential (intentional) students than for respondents which are not inclined to found an enterprise (non-founders).

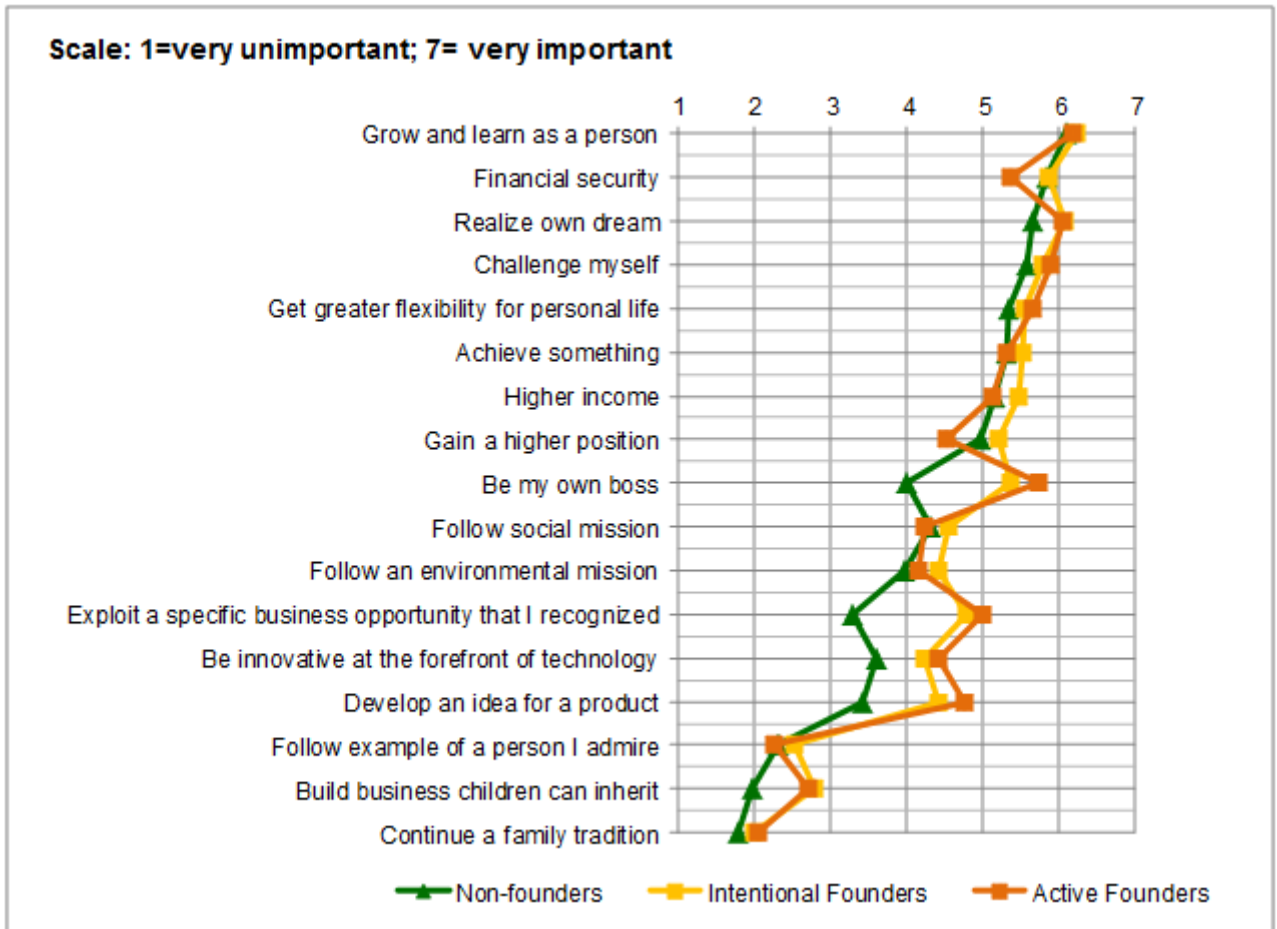


Figure 20: Motives by foundation motivation²⁷

Although the motive structure is quite similar in all fields of study some differences can be found in respect of economic, technical and social motives: Students of Technology and Natural Science pay higher attention to the motives „be innovative“ and „develop an (technical) idea for a product“. For Business and Economics students developing product ideas and using their own idea are important motives for their future career choice. Social Science students rank the motives of following a social mission highest.

²⁷ Significance test: univariate ANOVA; level of significance $p < 0.05$; significant differences for all motives.

5 Strengths of founding intentions

Concerning the foundation intentions of the respondents the findings in Austria are quite similar findings to the international report. It is noteworthy that in Austria considerably more students already have experience as active founders²⁸ (2.8% are active founders, further 0.5% even serial entrepreneurs).

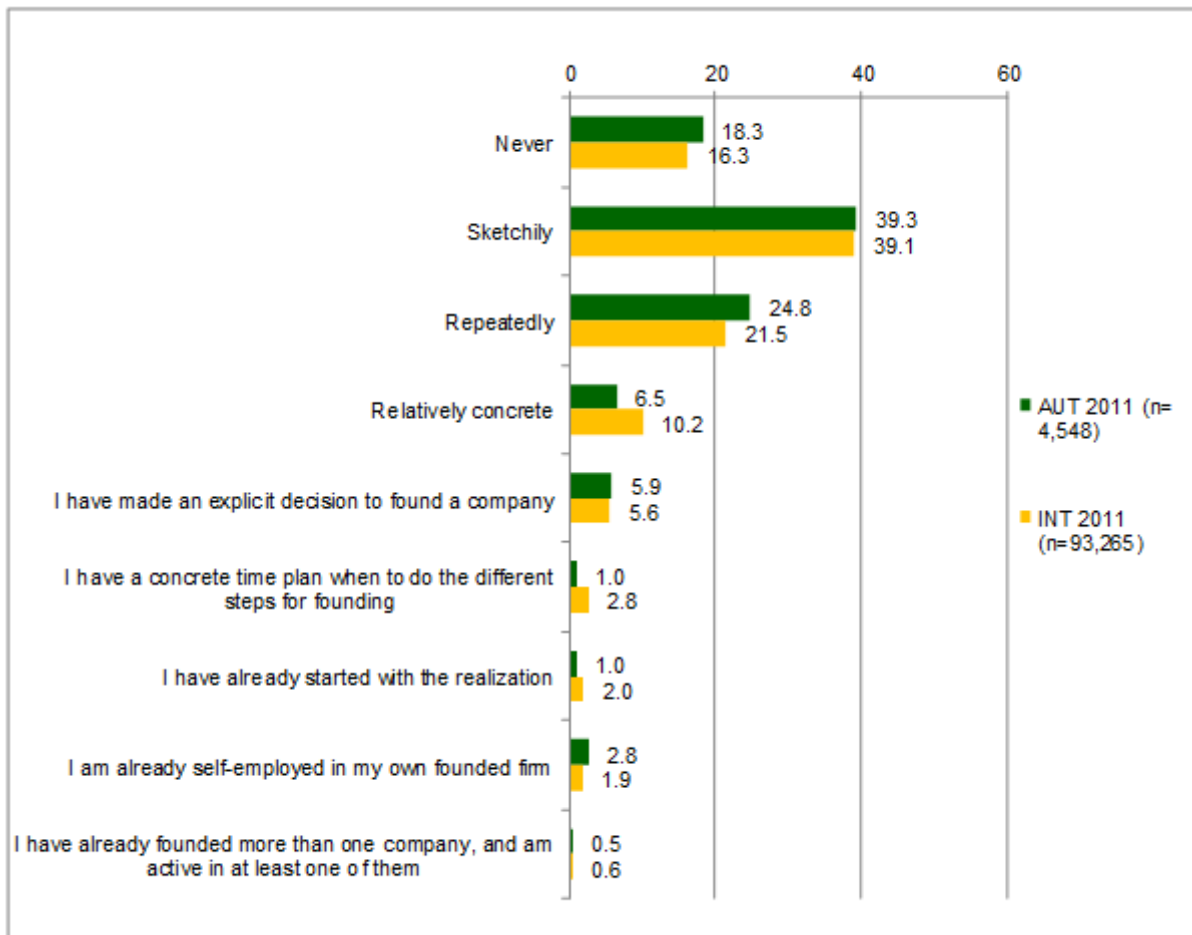


Figure 21: Strengths of founding intentions

In the next figure the foundation intentions are summarised in the categories “non-founders”²⁹, “intentional founders”³⁰ and “active founders”. *The Austrian percentage for active entrepreneurs among the students of 3.3 % is strikingly higher than the international benchmark of 2.5 %.*

²⁸ Active founders: I am already self-employed in my own founded company; I have already founded more than one company and am active in at least one. People with entrepreneurial experience from former activities (meaning: they finished entrepreneurial activity before or during university studies) are not included here (in contrast to the former surveys ISCE 2006 and GUESSS 2009).

²⁹ Non-founders: Never, Sketchily

³⁰ Intentional founders: Repeatedly; Relatively concrete; I have made an explicit decision to found a company; I have a concrete time plan when to do the different steps for founding; I have already started with the realization.

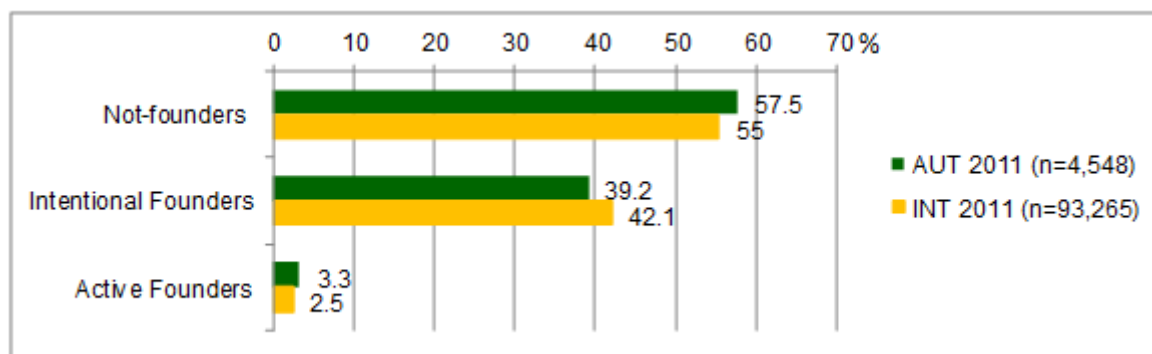


Figure 22: Foundation intentions of students by groups

6 Intentional founders

From the groups mentioned above, the “intentional founders”³¹ are focussed in this chapter in order to find out how their founding intentions could be reinforced.

6.2 Founding intentions by gender

Female students more often think repeatedly about founding an enterprise and also more often have made an explicit decision to found, but men more often have already started with the realization of their start-up idea (see *Table 2*).

	male	female	total
Repeatedly	60.2%	65.9%	63.3%
Relatively concrete	18.5%	14.8%	16.5%
I have made an explicit decision to found a company	14.8%	15.1%	15.0%
I have a concrete time plan when to do the different steps for founding	3.1%	2.2%	2.6%
I have already started with the realization	3.3%	2.0%	2.6%
Total	100.0%	100.0%	100.0%

Tabelle 2: Founding intentions by gender (n=1,781)

³¹ Intentional founders: Repeatedly, Relatively concrete, I have made an explicit decision to found a company, I have a concrete time plan when to do the different steps for founding, I have already started with the realization.

6.3 Founding intentions by age

The average age of intentional founders is 31 years. Other studies³² show an average founding age of alumni of 35 years. It can be concluded that the founding intentions increase with age (and therefore also with the extent of professional experience and industry-specific know-how). (See Figure 23).

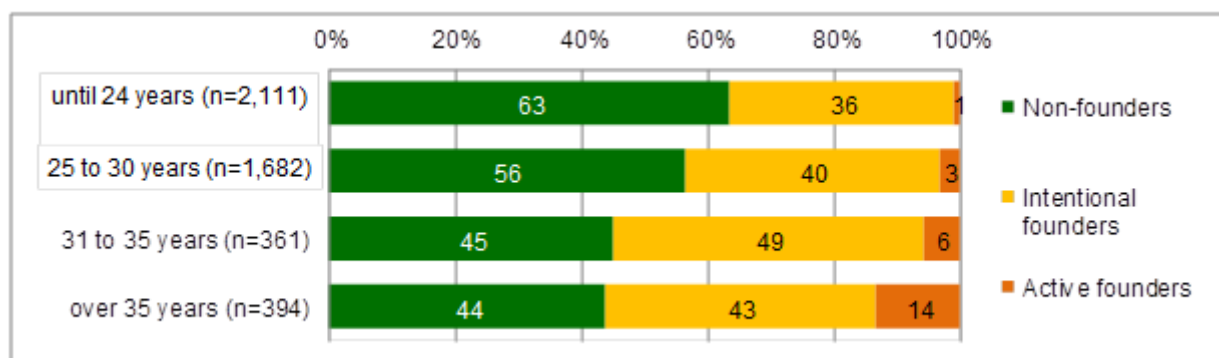


Figure 23: Founding intentions by age³³

6.4 Steps taken to found a business

The range of the activities which intentional founders have already taken to found a business varies from „nothing done so far“ (34%) to „decided on date of foundation“ (2%).³⁴ Approximately *a third* of the intentional founders has *not taken any concrete step* to found a business; at least *two third* of the intentional founders have thought about a *concrete business idea*. A quarter each has already looked for potential partners and has identified a concrete business idea. 9% have a *concrete business plan* and therefore can be characterised as “advanced founding planners”.

³² See e.g. the alumni survey of the University of Linz (Kailer/Böhm/Zweimüller 2010).

³³ Significant differences can be discovered between founding intentions and age (t-test: $p < 0.05$). While non-founders are on average 25.9 years old, intentional founders have a higher age of 27.1 years and active founders show the highest average age of 33.5 years.

³⁴ Out of 28 respondents, who already decided on a date for foundation, two third already plan the founding in the year of census. Therefore they are already in an advanced phase of planning the foundation.

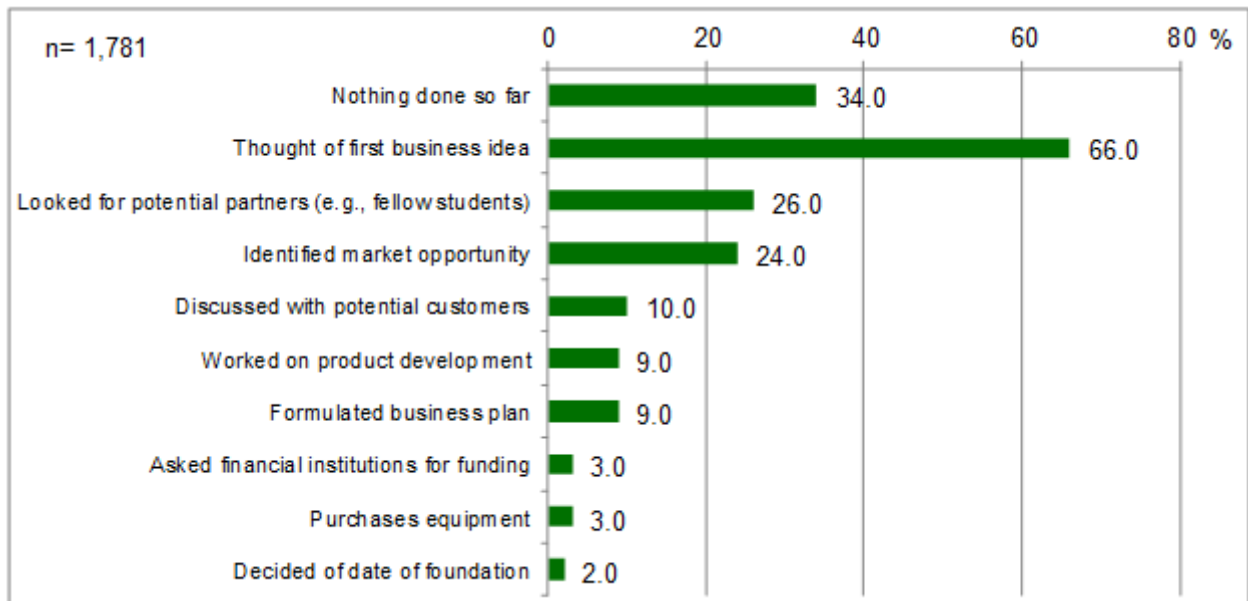


Figure 24: Steps taken to found a business (multiple responses)

A consideration of steps by fields of study shows only minimal differences.³⁵ This corresponds to the results of GUESSS 2009 (Kailer/Daxner 2009). The results mentioned above point out that support is needed during the search of business ideas and checking their future sustainability on the market, in identifying and making contact with potential customers, during the writing of the business plan and the search process for investors.

6.5 Industry sectors of future companies

The industry sector, where most of the intentional founders plan their entrepreneurial activity, is health economy (15%), followed by consulting in the fields of law, tax and management (13%), information and communication technology (9%), advertising/marketing/design (8%) and architecture/engineering also with 8%. Therefore the main focus is on the service sector and information sector.

³⁵ *Weak significant differences* between general steps taken to found a business and fields of study can be discovered at „nothing done so far“, „thought of first business idea“, „formulated business plan“ and „identified market opportunity“. *No significant differences are shown at the concrete steps to found a business* (e.g. „looked for potential partners“, „purchased equipment“, „worked on product development“, „discussed with potential customers“, „asked financial institutions for funding“ and „decided on date of foundation“).

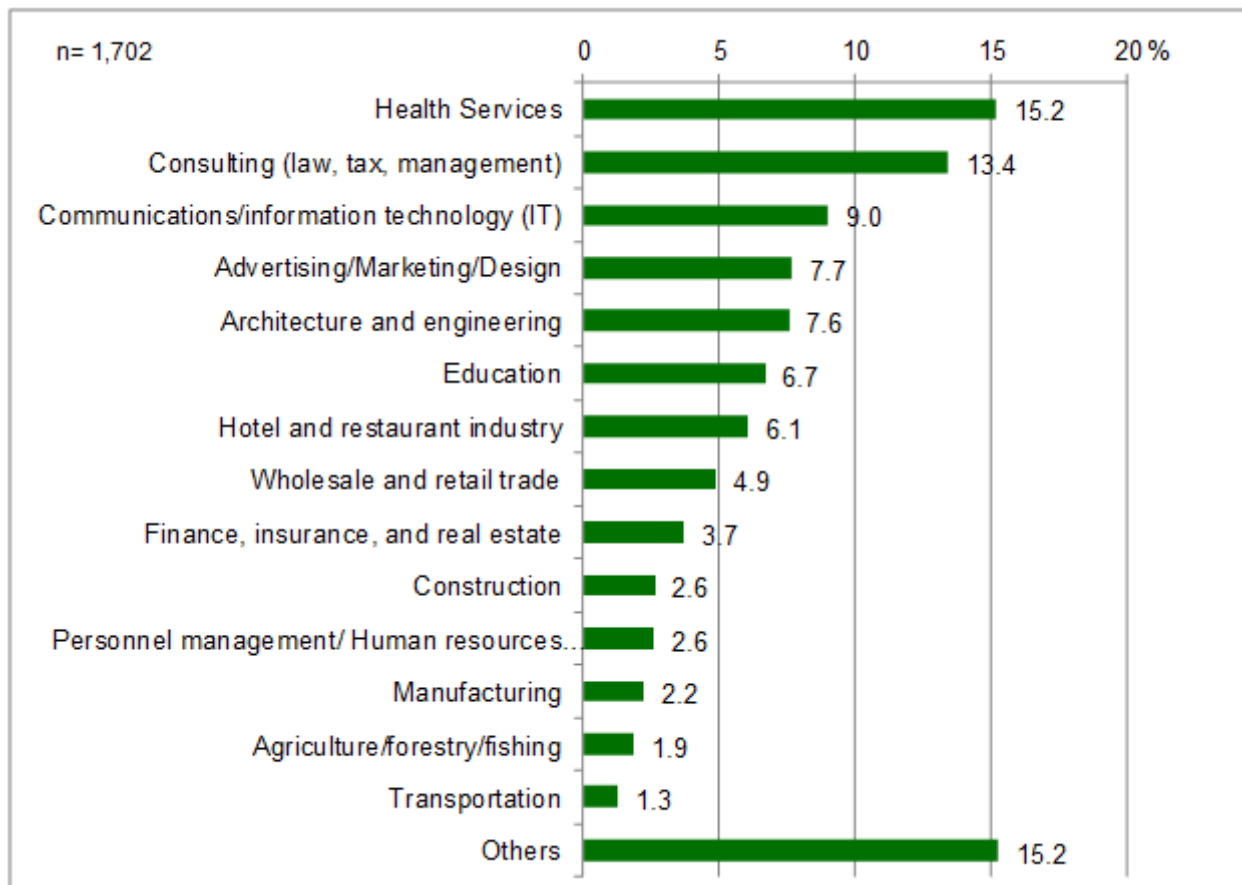


Figure 25: Industry sector of future companies

A specific analysis shows significant differences which correspond to the different main emphases of the study fields. A quarter of the Business and Economics students plan their start-up in finance, insurance, real estate and consulting (law, tax, management). The main focus of Natural Science students lies at health economy³⁶ and architecture/engineering. The core area of Social Science students is education. (Figure 26)

³⁶ The high share of health services is ascribed to the participating Medicine Universities and therefore the focus on the industry sector health services.

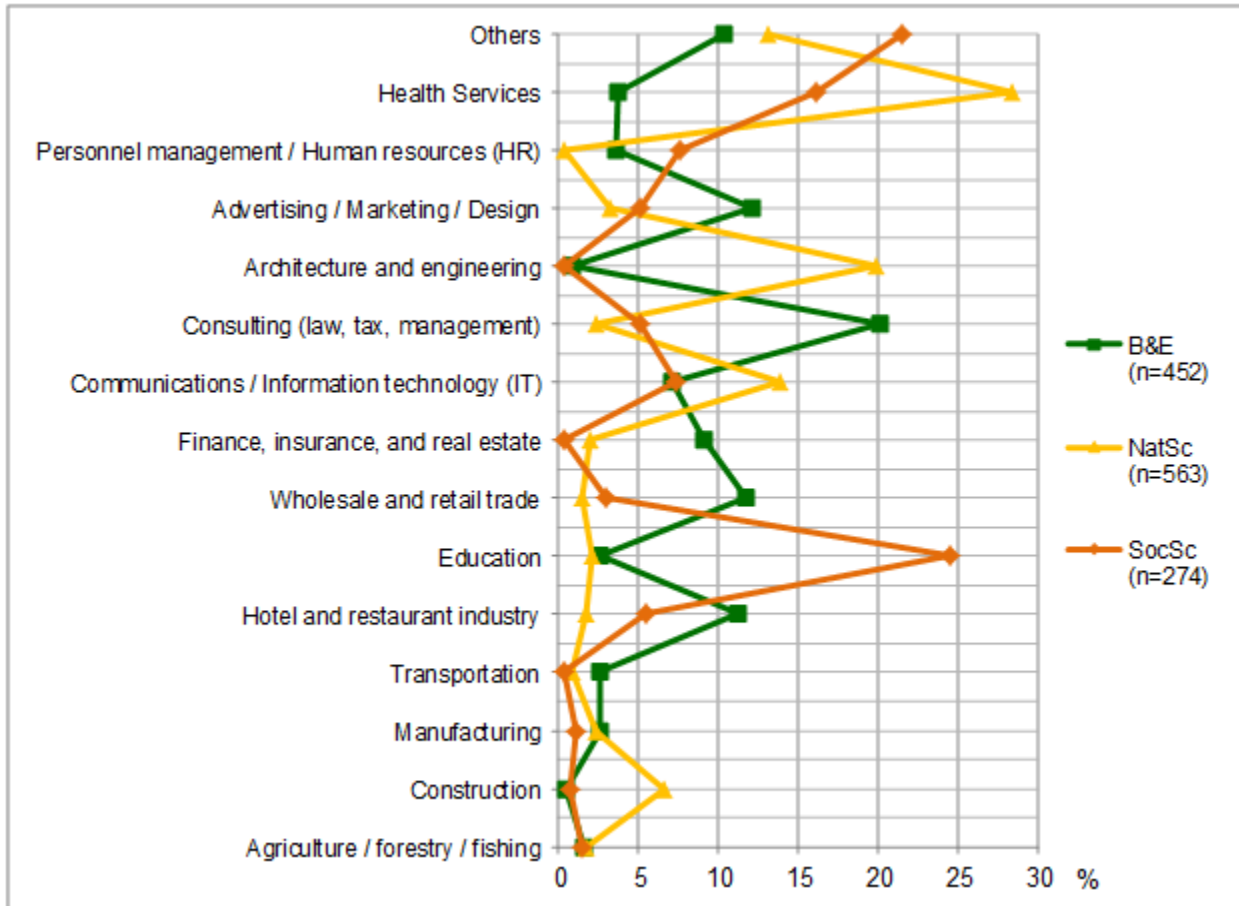


Figure 26: Industry sectors of future companies by fields of study³⁷

A gender specific analysis shows significant differences in regard to the choice of the industry sector (see Figure 27).

³⁷ According to Chi-square (0.534) a middle-strength correlation can be discovered between industry sector and fields of study.

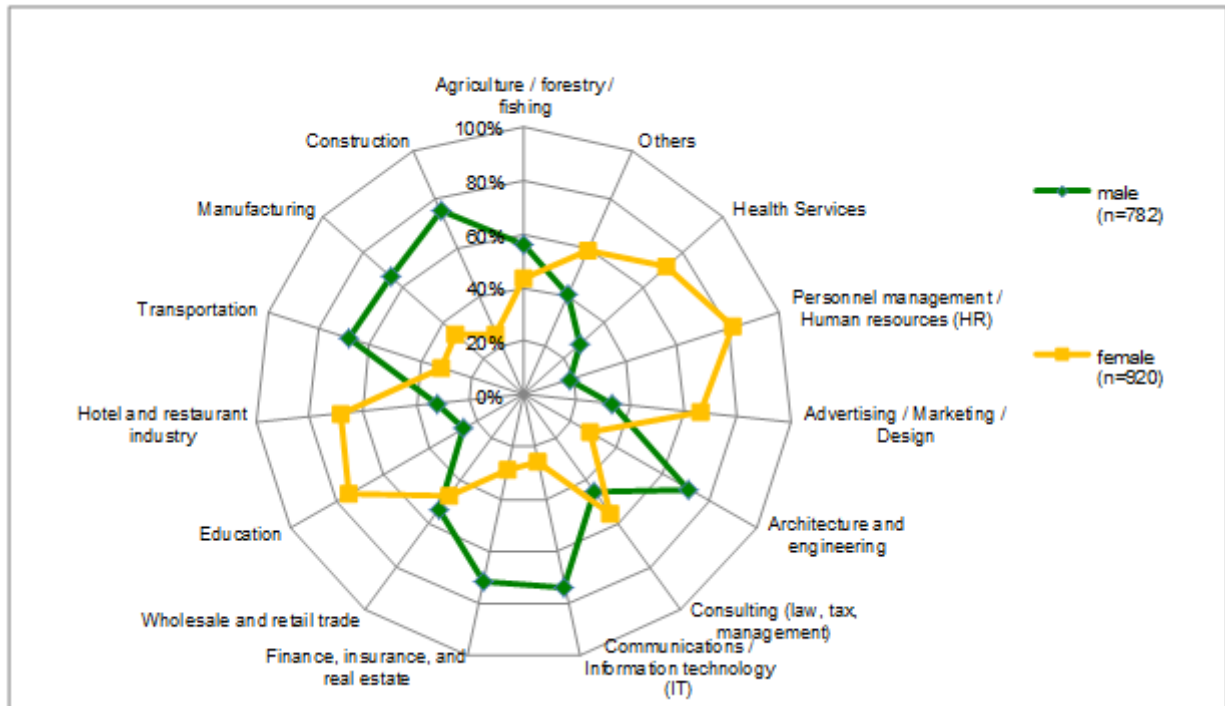


Figure 27: Industry sectors of future companies by gender³⁸

Female intentional founders focus on sectors like human resource management, education and training, advertising/marketing/design and hotel/restaurant industry. The main focus of male students lies on architecture/engineering, transportation, manufacturing, finance/insurance /real estate and communication and information.

6.6 Source of Business Idea

Respondents were asked to indicate the origins of their business ideas. Most of the students mentioned their university studies as major source. A third of respondents declared that their business ideas came from hobby or leisure. For 30% it is an idea of one's own or one of fellow students. (Figure 28).

³⁸ The planned industry sector shows a significant middle-strength correlation with gender (Chi Square test). This means that the choice of industry sector depends on gender.

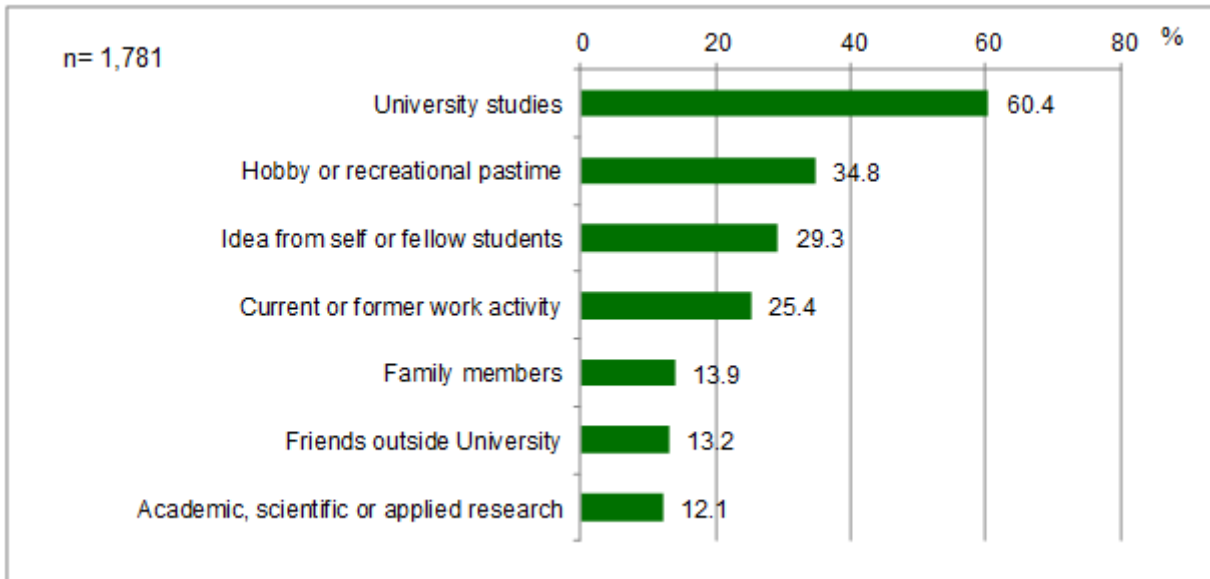


Figure 28: Sources of business ideas

6.7 Relevant Work Experience

Almost the half of the answering intentional founders do not have any special professional experience, 40% have 3 years or more work experience (average 4.7 years). In regard to the diverse fields of study there were no significant differences.

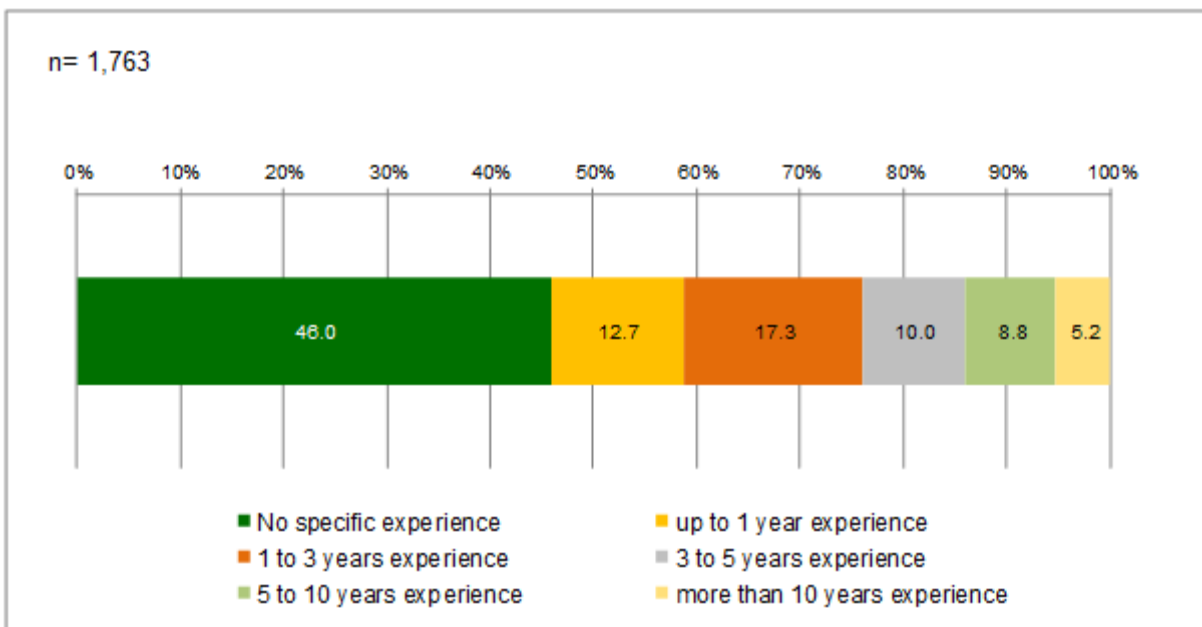


Figure 29: Relevant work experience for foundation

6.8 Foundation partners

In Austria the trend towards individual foundation is more distinctive than in the international comparison. More than 40% of the intentional founders tend to found an enterprise without partners (INT: 35%), more than 40% want to found with one partner, the rest of the intentional founders plans to start their business with two or more partners (AUT: 18% vs. INT: 25%).

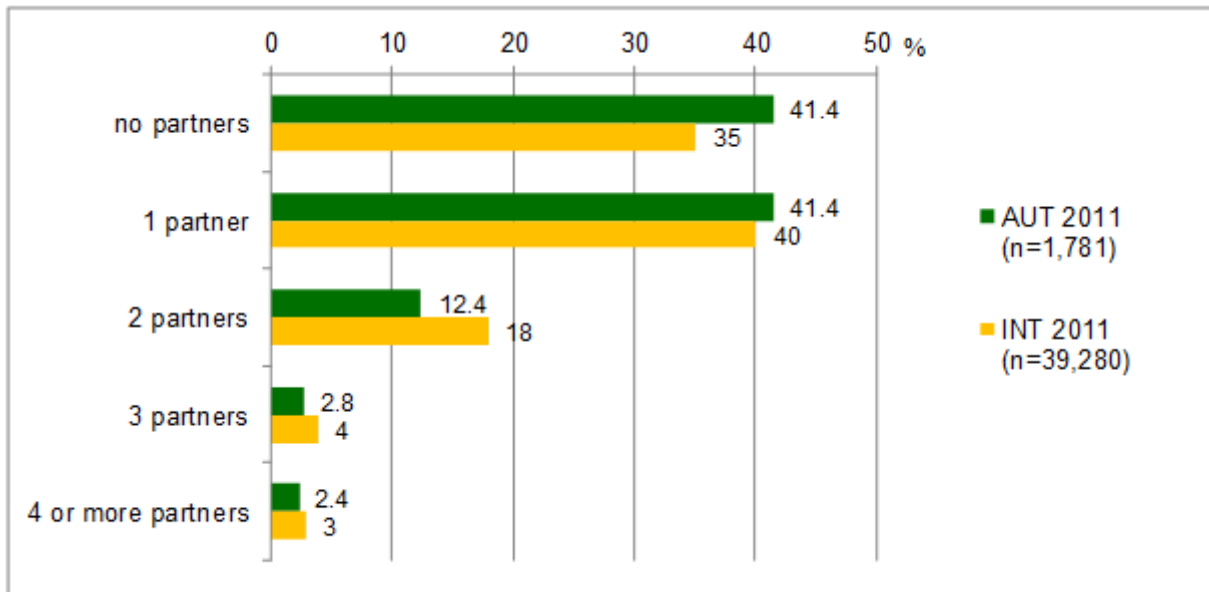


Figure 30: Partner at planned foundation

Weak significant differences were shown between the number of foundation partners and fields of study³⁹ respectively gender⁴⁰. Most of the Social Science students found their enterprises without a partner (47%) compared with Business and Economics students with 38%. 45% of the male respondents and 55% of the women intend to found a company without further team members.

The majority of the foundation partners comes from the own universities or the network of personal friends outside the university context (mentioned 57% respectively).

³⁹ Weak correlation between number of foundation partners and fields of study (Chi-square: 0.081).

⁴⁰ Weak correlation between number of foundation partners and gender (Chi-square: 0.093).

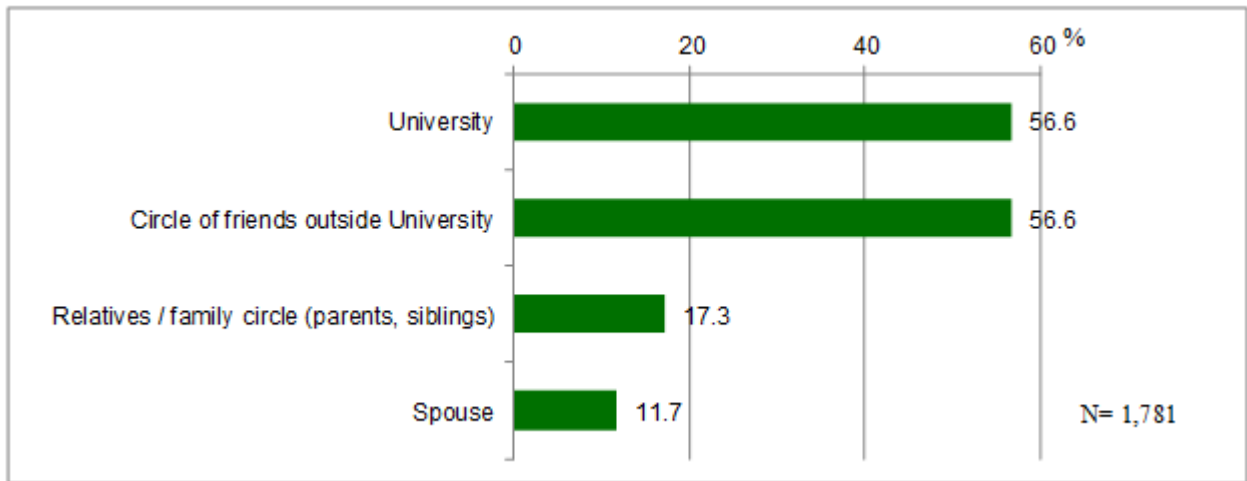


Figure 31: Choice of partners (multiple response)

6.9 Capital requirements for foundation

The financing of a start-up is often the crucial question for realising the project founding a company. Different possibilities are available: equity capital/own funds, bank loans, government aid/subsidies and external investors such as venture capital, business angels or private investors (family, friends & foolhardy investors).

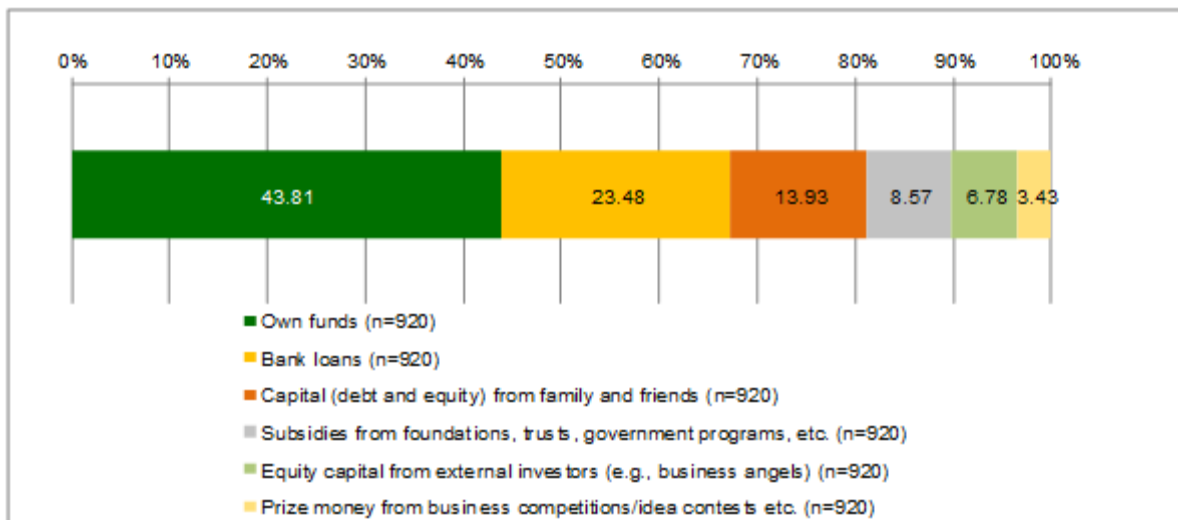


Figure 32: Use of sources of finance

Concerning the intended start-up equity capital/own funds plays the most important role, followed by bank loans and equity and debts from family and friends (“FFF”). The relatively high percentage of the planned use of equity capital from external investors is surprising.

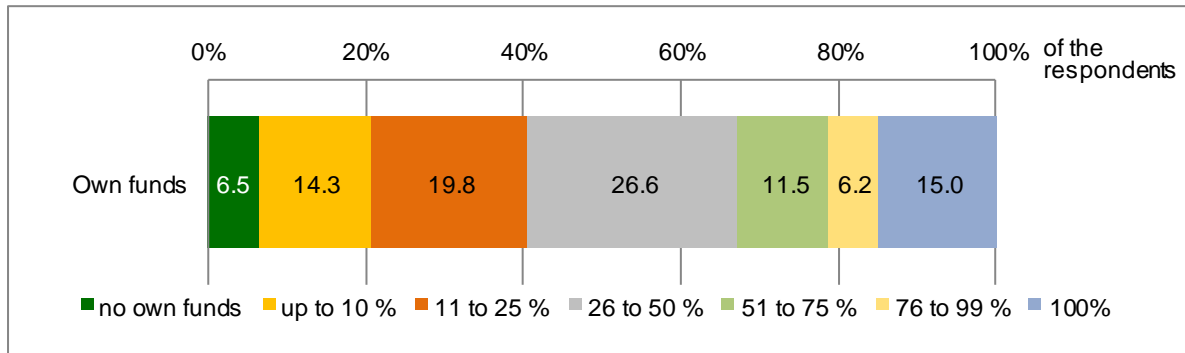


Figure 33: Use of finance source „own funds“

However, the strategies for financing the start-ups are very different: F.i. 6.5% do not intend to use own funds for the start-up, whilst 15% intend to finance it only through own funds. Also, 44% of the intentional founders do not plan to use capital from family or friends at all. On the other hand, approximately half of the intentional founders intend to use up to 50% of the total required capital from this source.

6.10 Start-up Barriers

There are only few differences between the international and Austrian results with regard to the perceived importance of foundation barriers. The financial risk is assessed significantly more strongly as a start-up barrier in Austria than in the international context. In contrast, access to capital, the general economic environment, the lack of a right business idea as well as competence deficits seem to be a significantly less barrier

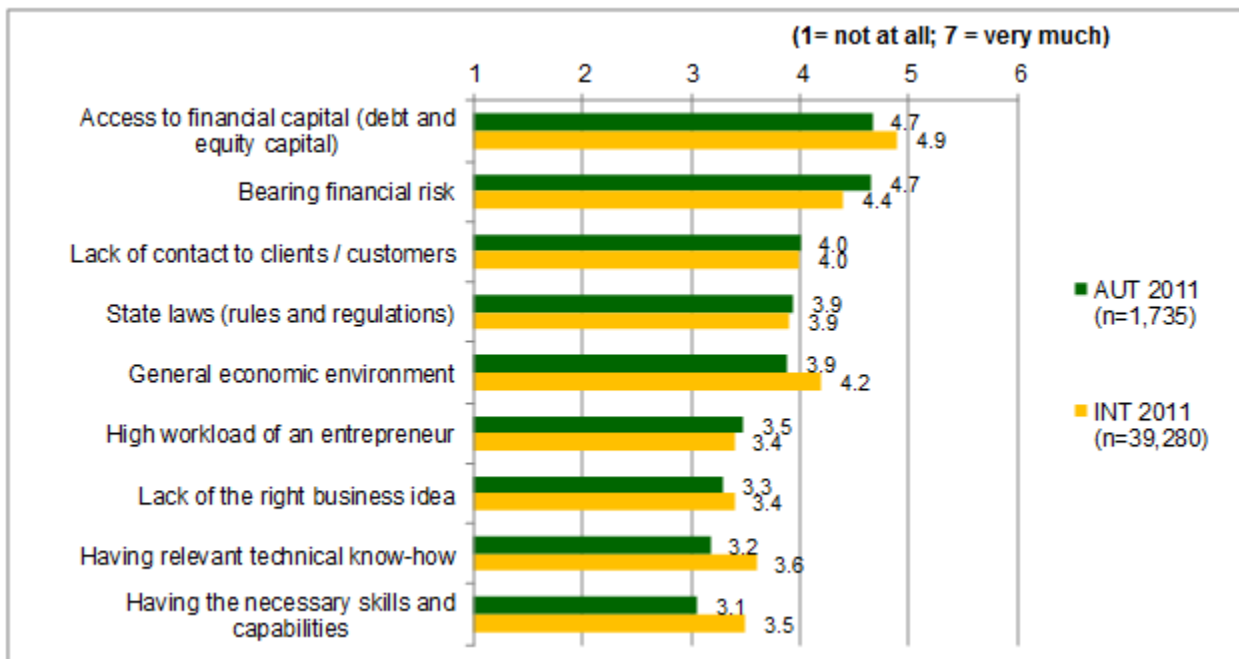


Figure 34: Barriers to foundation

The access to capital seems to be difficult especially for Social Science students⁴¹, legal regulations are perceived as important barrier by Natural Science students and Business and Economics students mention the lack of a reasonable business idea and missing technical knowledge as a strong barrier.⁴²

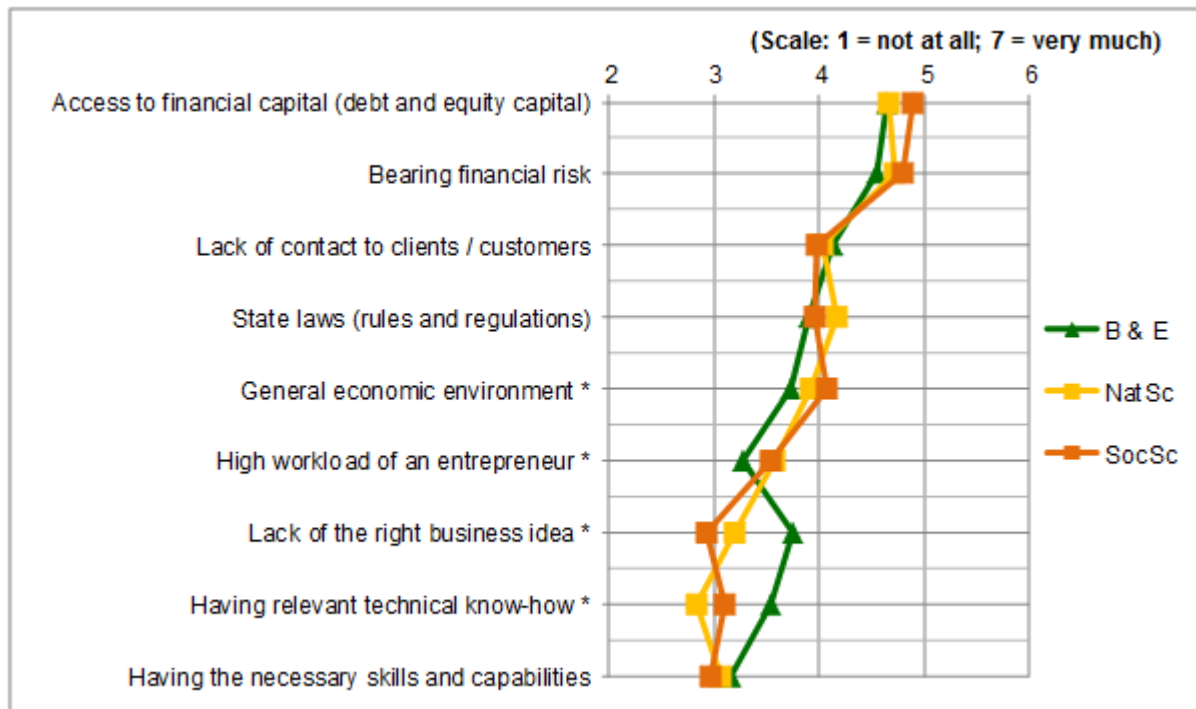


Figure 35: Barriers to foundation by fields of study⁴³

An analysis of gender specific differences shows that the access to capital and the financial risk represent more important barriers for women than for men. In contrast the lack of a business idea hinders rather men than women.

⁴¹ No significant differences (t-test, $p < 0.05$).

⁴² T-test, $p < 0.05$; significant differences at „lack of the right business idea“ and „having the necessary skills and capabilities“ between all three groups (of study fields).

⁴³ ANOVA: level of significance $p < 0.05$; significant differences are marked with *.

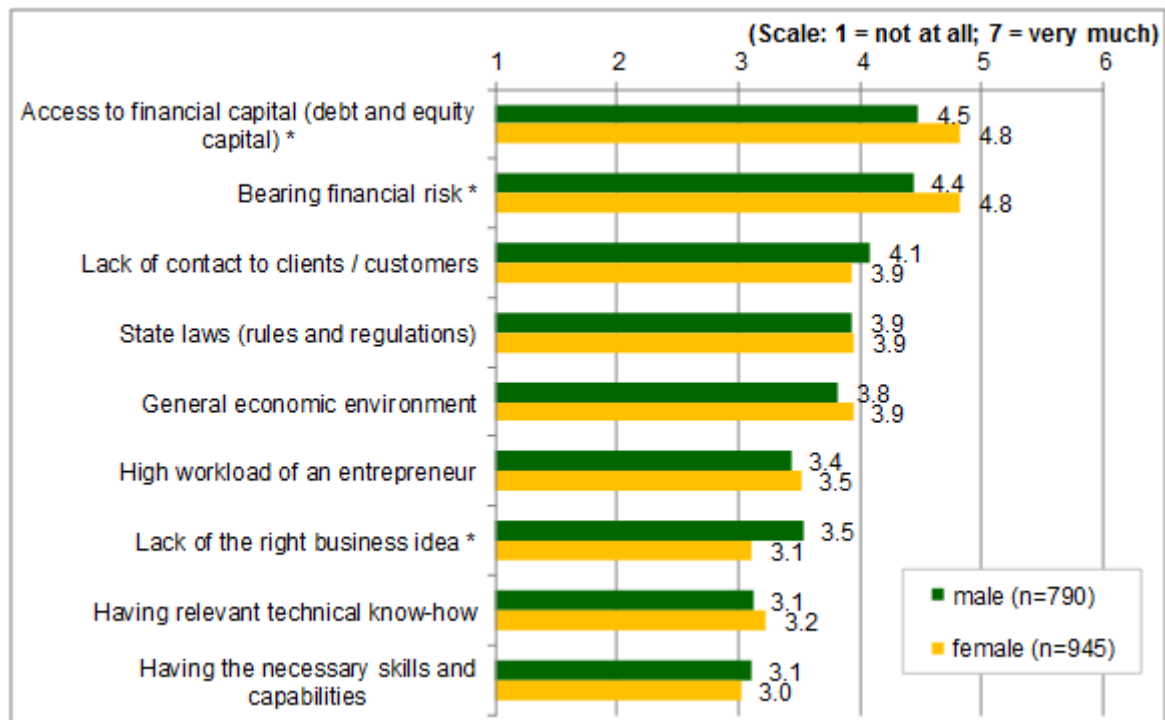


Figure 36: Barriers to foundation by gender⁴⁴

7 Active founders

3.3% of the Austrian respondents (150 students) are already active founders, meaning that they are already self-employed and/or already have founded more than one company and work in at least one of them at the moment (INT: 2.5%). Most of these active founders are studying at the University of Linz (31%), University of Innsbruck (12%), Vienna University of Economics and Business and the University of Graz (11%).

7.1 Characteristics of the active founders

The average age of the active founders is 34 years. 40% of them are women (Business Economics 33.3%, Natural Science 26.3%, Social Science 64.7%). Half of the active founders had their first financial expenses in the years 2008 to 2011. Also half of the active founders have carried out the first sale of their products/services in 2008 to 2011. Within the last three years the earnings of half of the active founders have covered their costs for the first time .

⁴⁴ T-test: Significant differences at access to capital, bearing financial risk and lack of the right business idea; level of significance = 0.05.

7.2 Foundation partners

Almost 70% of the active founders have set up their enterprise alone, about 17% founded with a partner. Active female student entrepreneurs were more inclined to found with partners compared with male students. 82 % of the Natural Science students founded their company without a partner, compared with 60 % in Business Economics and Social Science. Friends from outside the university were most often mentioned as foundation partners (50%), followed by family members (30%).

7.3 Capital

On average the active founders held 80% of the total equity.

7.4 Employees and sales

The active founders employ two people on average. 70% of the enterprises do not have any employee, 25% have one to five employees.

In a five-year-perspective it is mostly planned to increase the number of employees: The proportion of companies without employees drops from 70% to 38%. The planned number of employees on an average increases from 2 to 4.8.

The average sales volume of the active founders in the last year was € 187,000. Within five years the active entrepreneurs want to increase their sale volumes considerably (on the average € 2,089,000).

7.5 Industry sectors

The preferred industry sectors of the active founders among students for their start-up are communication and information technology (19%), health economy (9%), advertising/marketing/design (9%) and education (7%).

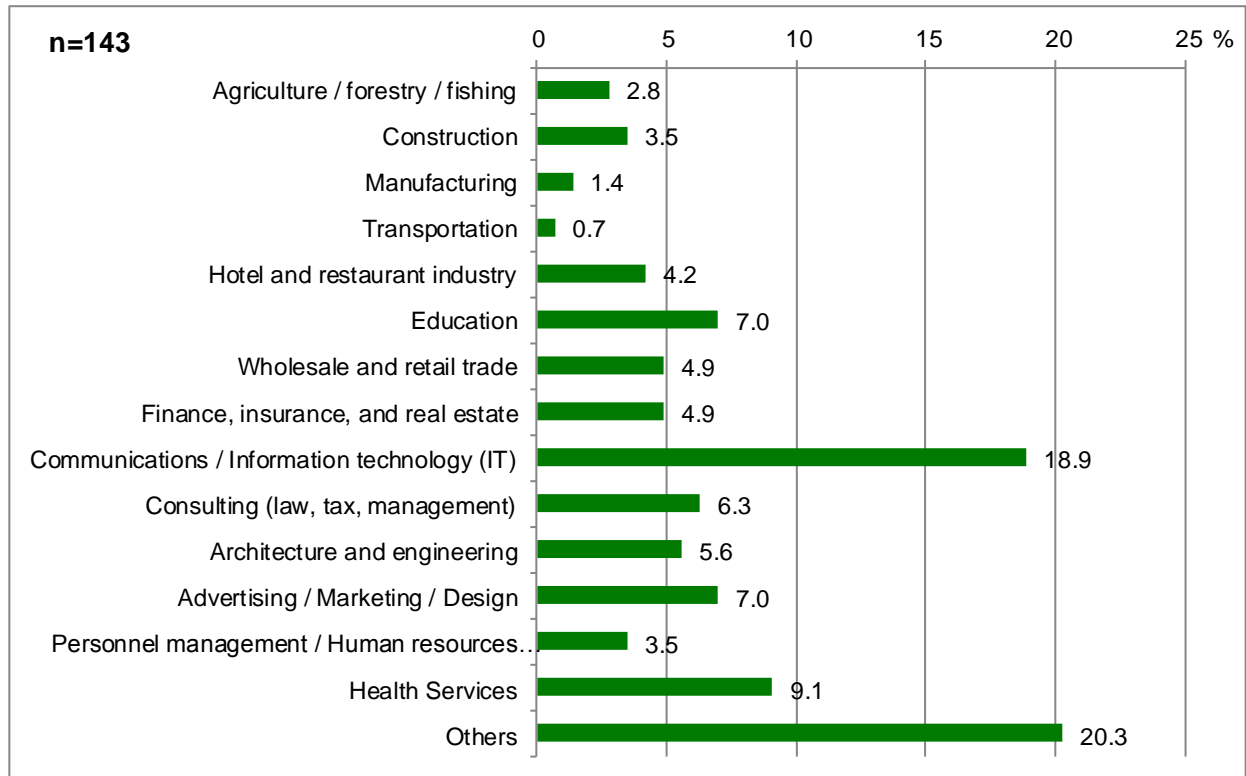


Figure 37: Industry sectors of active founders

While male students intend to found in the sectors communication and information technology, consulting and architecture/engineering, women choose health economy, communication and information technology and education.

Natural Science students rather found in the industry sectors communication and information technology and health economy. Business Economics students mostly start their enterprise in the sectors advertising/marketing/design, finance, insurances, real estate and retail and wholesale. Social Science students rather start-up in the sector education.

7.6 Start-up Idea

43% of the active founders declared that their start-up idea stems from the current or former job, followed by university studies (35%) and hobby or leisure (29%).⁴⁵

⁴⁵ A clear difference compared with the intentional founders can be discovered here: Two third of these respondents mentioned the university studies, one third the hobby or recreational pastime and only one quarter the current or former work activity as source of business idea.

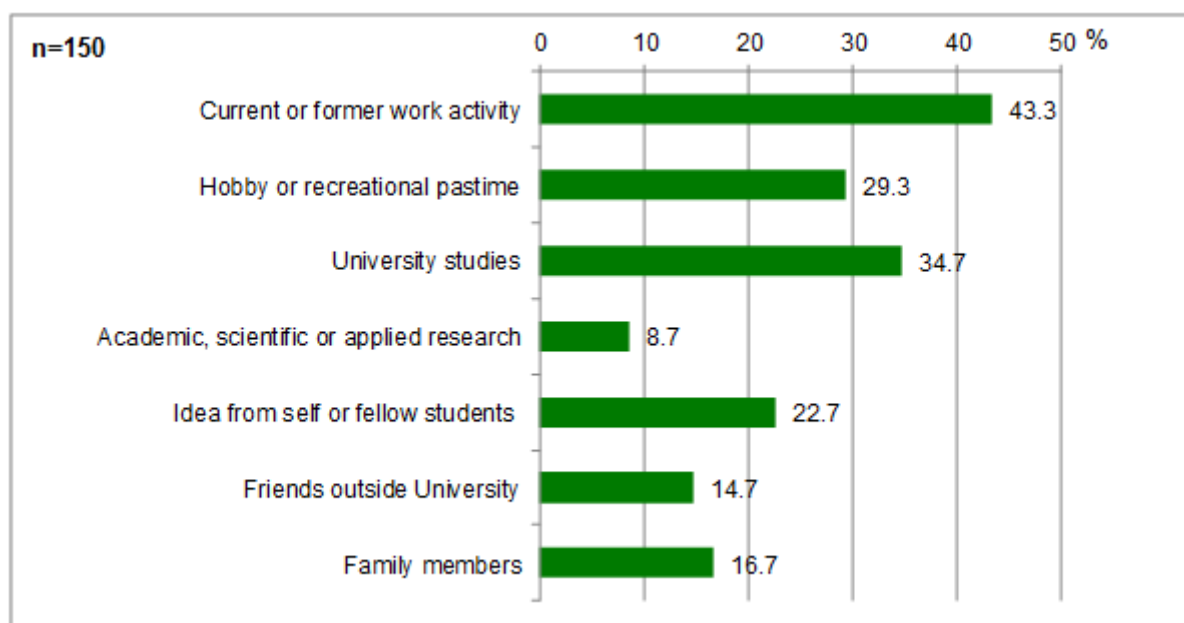


Figure 38: Source of business idea of active founders (multiple responses)

More men than women said that the business idea came from the hobby or leisure. In contrast more women than men said that the business idea derived from studies, family members or scientific or applied research.

7.7 Previous professional experience

79% of the active founders claimed to have acquired relevant professional experience and know-how before founding their own enterprise (approximately three quarter of Business Economics and Natural Science students, 85% of the Social Science students). This is considerably higher than for intentional founders where only one half has relevant professional experience.

7.8 Sources of finance

The financial requirements of active founders are mainly covered by equity/own funds and bank loans. Compared with intentional founders the active founders have a stronger focus on equity. Prize moneys and financial subsidies for start-ups were only seldom used as sources of finance. On average the active founders have already invested € 52,635 in their enterprise until the time of the interview.

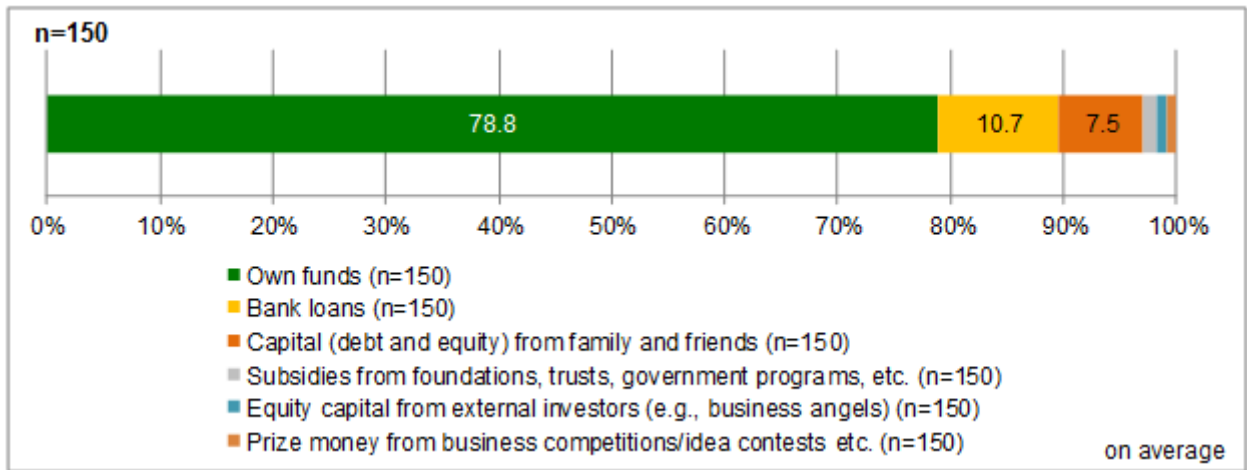


Figure 39: Used source of finance of active founders

A relatively high share (60%) of the active founders covers its financial requirements completely with equity capital (compared with intentional founders: 43%). On the other hand, only 3.3% started with no own funds, whilst 60% funded their start-up completely with own funds.

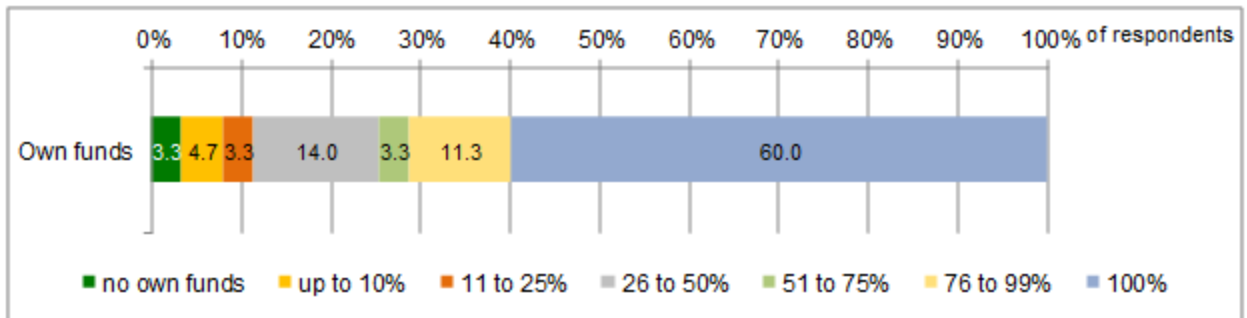


Figure 40: Used source of finance „equity capital“

8 Summary

The Global University Entrepreneurial Spirit Students' Survey (GUESSS) includes 26 countries worldwide. More than 93,000 students responded to this online-survey focussing on entrepreneurial intention and start-up activities of university students.

The Institute for Entrepreneurship and Organizational Development of the Johannes Kepler University Linz conducted the survey for Austria with support from the Start-Up Service of the Federal Chamber of Commerce, the Federal Government of Upper Austria, the WIFI Business Promotion Institute Austria and Bank Austria UniCredit Group. 4,484 students from 23 Austrian universities filled in the questionnaire (i.e. a response rate of 4.3 %).

Main results:

- Directly after graduation three out of four students intend to work as employees (34% in a SME, 22 % in a large enterprise, 13 % in academia/research, 7 % in the public service. 10% intend to be self-employed.
- Looking ahead 5 years after their graduation, there is a distinct shift towards self-employment: 34% of the students want to be self-employed.
- Only one fifth of all responding students did not consider the option of founding one's own enterprise at all. 40% are potential founders, 3.3% are active entrepreneurs. However, there is a distinct variation of these results among the participating universities.
- The strength of the entrepreneurial intention as well as start-up activities increase with the age of the respondents.
- By far more male than female students plan a start-up or are active entrepreneurs. Nevertheless these differences decrease in the mid-term perspective.
- Students plan to start in the following industries: Health Service (15%), Consulting (13%), Communication and Information Technology (9%), Marketing/PR/Design (8%).
- In 60% the start-up idea stems from the studying at the university. For one third hobby and leisure are the sources of the start-up idea.
- About one half of the potential entrepreneurs have no relevant professional experience. On the other hand, one out of four students have a relevant professional experience of more than 3 years.

- About one third of all potential entrepreneurs did not undertake any activities concerning their start-up idea till now, two out of three at least have a first start-up idea.
- 150 students are active entrepreneurs. 31% (47 persons) follow their studies at the University of Linz, followed by the University of Innsbruck (12 %), the University of Graz (11%) and the Vienna University of Business and Economics (11%).
- In the first year after their foundation 70 % of the active entrepreneurs among the students have no other employee or team member. Nevertheless most of these entrepreneurs plan to expand the business and to hire employees during the next years.

Generally speaking GUESSS shows a high interest for entrepreneurship and a marked entrepreneurial intent for students at Austrian universities. Therefore entrepreneurship education concepts for these universities are a critical success factor. These concepts should include not only curricular but also extra-curricular activities, support infrastructure and financial support. During the first semester(s) the entrepreneurial motivation at large as well as the individual entrepreneurial intention should be reinforced. The career options include start-up and business succession as well as intrapreneurship in other companies or start-up consulting in start-up centres, technology centres, banks or consulting firms. Practice-oriented lectures including entrepreneurs as role models should be introduced at this stage. Building on that specialised courses it should be offered for interested students on a voluntary basis (optional courses as well as extra-curricular activities like networking, coaching which could also be offered by a start-up service centres/contact point directly at the university). There should also be offered the opportunity to cooperate in projects or business planning with students from other faculties or universities. In addition, extra-curricular activities should also include networking events, entrepreneurs as guest speakers or entrepreneurs-in-residence. Support infrastructure (f.i. laboratories, co-working spaces) and financial support through venture capital funds of the university are particularly important for technology-oriented start-ups. In most cases enterprises are founded after the acquisition of relevant professional experience and industry-specific know-how. Therefore the support of alumni is a strategic task for the universities.

The whole curriculum should be very practice-oriented which included a systematic cooperation with the regional start-up support infrastructure (f.i. chambers of commerce, technology centres, banks).

9 BIBLIOGRAPHY

Badelt, C. (2004), Die unternehmerische Universität: Herausforderung oder Widerspruch in sich?, Wien.

Bauer, U./Kailer, N. (2003), Gründungsneigung von Technikern am Beispiel der Technischen Universität Graz und ausgewählten Wirtschaftsingenieurstudiengängen, Schriftenreihe BWL Education & Research Nr. 7, Technische Universität Graz (Hrsg.), Graz.

Calogirou, C./Fragozidis, K./Houdard-Duval, E./Perrin-Bouillon, H. (2011), Business Dynamics: Start-ups, Business Transfers and Bankruptcy, PLANET S.A., CCIP, DTI & GPA, publishes by the European Commission, DG Enterprise and Industry, Brussels.

European Commission, Enterprise and Industry Directorate-General (2008), Best Procedure Projekt: „Entrepreneurship in higher education, especially in non-business studies“, Final Report of the Expert Group, Brussels.

Feldbauer-Durstmüller, B./Kailer, N./Pernsteiner, H./Duller, C./Haas, T. (2010): Familienunternehmen in Österreich – Entwicklungsstand und Handlungsempfehlungen zum Controlling, Finanzmanagement und zur Unternehmensentwicklung. Institut für Controlling und Consulting, Institut für Unternehmensgründung und Unternehmensentwicklung, Institut für betriebliche Finanzwirtschaft, Institut für Angewandte Statistik (Hrsg.), Johannes Kepler Universität Linz, Linz.

Fueglistaller, U./Klandt, H./Halter, F./Müller, C. (2009), An international comparison of entrepreneurship amongst students - International report of the Global University Entrepreneurial Spirit Students' Survey, St. Gallen/Oestrich-Winkel.

Henry, C./Hill, F./Leitch, C. (2003), Entrepreneurship Education and Training, Aldershot/Burlington.

Gibb, A. (2005), Towards the Entrepreneurial University: Entrepreneurship Education as a lever for change, NCGE Policy Paper 3, National Council for Graduate Entrepreneurship (ed.), Birmingham.

Gruber-Mücke, T./Kailer, N./Stockinger, A. (2011): Möglichkeiten und Grenzen des CAIPO-Modelles als Evaluationsbasis für ein interfakultäres Entrepreneurship-Ausbildungskonzept, in: Müller, K.-D./Diensberg, C. (Hrsg.): Methoden und Qualität in Gründungslehre, Gründungscoaching und Gründungsberatung – Interventionen und Innovationen, Beiträge zu Gründung, Unternehmertum und Mittelstandsentwicklung, Band 4, BIEM (Hrsg.), Eul Verlag, Köln, S. 183 – 193.

Gutschelhofer, A./Kailer, N. (2002), Stiftungslehrstuhl für Unternehmensgründung an der Universität Linz – Konzept und aktueller Realisierungsstand, in: Buchinger, S. (Hrsg.): Gründerland Österreich, BMWA (Hrsg.), Wien, S. 121 – 135.

Kailer, N. (2011): Entrepreneurship Education an Universitäten – Erhebungsergebnisse und Gestaltungsvorschläge, in: Tomaschek, N./Gornik, E. (Hrsg.): The Lifelong Learning University – Perspektiven für die Universität der Zukunft, Waxmann Verlag, Münster, S. 99 – 110.

Kailer, N. (2009): Entrepreneurship Education: Empirical findings and proposals for the design of entrepreneurship education concepts at universities in German speaking countries. In: Journal of Enterprising Culture. Singapore. Vol. 17, No. 2 (June 2009), pp. 1 – 31.

Kailer, N. (2007a): Gründungspotenzial und –aktivitäten von Studierenden an österreichischen Hochschulen – Austrian Survey on Collegiate Entrepreneurship, IUG-Arbeitsbericht Nr. 3, Johannes Kepler Universität Linz, Linz.

Kailer, N. (2007b): Evaluation of Entrepreneurship Education, in: Fayolle, A. (ed.): Handbook of Research in Entrepreneurship Education, Edward Elgar, Cheltenham (UK)/Northampton (M.A.), pp. 221 – 242.

Kailer, N. (2005): Konzeptualisierung der Entrepreneurship Education an Hochschulen: Empirische Ergebnisse, Problemfelder und Gestaltungsansätze, in: Zeitschrift für KMU und Entrepreneurship (ZfKE), 53. Jg., Heft 3 (2005), Duncker & Humblot, Berlin 2006, S. 165 – 184.

Kailer, N. (2002): Studierende als Gründer: Gründungspotenzial, Gründungsaktivitäten, Unterstützungswünsche, in: Buchinger, S. (Hrsg.): Gründerland Österreich, BMWA (Hrsg.), Wien, S. 151 – 168.

Kailer, N./Böhm, D./Zweimüller, R. (2010): Unternehmerisches Potenzial von AbsolventInnen der Johannes Kepler Universität Linz - Ergebnisse einer Online-Erhebung bei JKU-AbsolventInnen. IUG Arbeitsbericht Nr. 6, Johannes Kepler Universität Linz, Linz:

Kailer, N./Daxner, F. (2011): Gründungspotenzial und –aktivitäten von Studierenden technisch-naturwissenschaftlicher Studiengänge an österreichischen Hochschulen, IUG Arbeitsbericht Nr. 7, Johannes Kepler Universität Linz, Linz.

Kailer, N./Daxner, F. (2009): Gründungspotenzial und –aktivitäten von Studierenden an österreichischen Hochschulen – Global University Entrepreneurial Spirit Students' Survey (GUESSS) – Country Study Austria, IUG Arbeitsbericht Nr. 4, Johannes Kepler Universität Linz, Linz .

Kailer, N./Gruber-Mücke, T. (2012): Unternehmensnachfolge in Österreich – Planung und Umsetzung der Unternehmensnachfolge – Eine empirische Studie. Länderstudie Österreich im Rahmen des Projektes Unternehmensnachfolge im deutschsprachigen Raum der Universität St. Gallen, der Hochschule für Wirtschaft Freiburg, der Universität Siegen, der Hochschule Liechtenstein und der Johannes Kepler Universität Linz, IUG Arbeitsbericht Nr. 8, Johannes Kepler Universität Linz, Linz.

Kailer, N./Gruber-Mücke, T. (2010): Entwicklung eines Entrepreneurship-Kompetenzprofils. In: Heyse, V./Erpenbeck, J./Ortmann, S. (Hrsg.): Grundstrukturen menschlicher Kompetenzen – Praxiserprobte Konzepte und Instrumente, Waxmann Verlag. Münster, S. 251 – 257.

Kailer, N./Weiß, G. (2012), Gründungsmanagement kompakt, Linde Verlag, Wien, 4. erw. Auflage.

Kailer, N./Wimmer-Wurm, B. (2012): Unternehmerisches Potenzial, Gründungsplanung und unternehmerische Aktivitäten von Studierenden der Johannes Kepler Universität Linz, IUG Arbeitsbericht Nr. 10, Johannes Kepler Universität Linz, Linz.

NIRAS Consultants/FOR A/ECON Pöyry (2008), Survey of Entrepreneurship Education in Higher Education in Europe, European Commission/Directorate General for Enterprise and Industry (ed.), Bruxelles.

Schuster, H. (2000): Geleitwort, in: Kailer, N./Pernsteiner, H./Schauer, R. (Hrsg.): Initiativen zur Unternehmensgründung und –entwicklung – Konzeptionelle Überlegungen und Fördermaßnahmen auf dem Prüfstand, Linde Verlag, Wien, S. 9 – 14.

Schramm, C. (2011): The “new learning” in entrepreneurship, Ninth Anniversary Address, Ewing Marion Kauffman Foundation, Kansas, April 15th 2011.

World Economic Forum (Hrsg.) (2009), Educating the Next Wave of Entrepreneurs – Unlocking entrepreneurial capabilities to meet the global challenges of the 21st Century, Cologny/Geneva.

Zainzinger, S. (2012): Unternehmensnachfolge – ein Karriereziel für Studierende? Studie der beruflichen Intention von Österreichs Hochschülern, Diplomica Verlag, Hamburg.