FACULTY OF MATHEMATICS AND NATURAL SCIENCES

Framework for study and career orientation

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Introduction

Why?

A student's study choices directly affect his/her career possibilities after graduation. More attention to career orientation within the degree programme is therefore warranted. There are, however, more reasons for this.

Students have expressed their dissatisfaction regarding matters related to the transition from the university to the labour market across several surveys including the Nationale Studie Enquête (NSE). As a response, the Board of the University of Groningen[1] (UG) has decided to further prioritize career services and employability. As a first step, an umbrella organization for various career services for all UG students known as NEXT was launched in September 2013. After an evaluation in the summer of 2014 it became apparent that, besides the UG-wide efforts and employability strategy, some faculties wished to develop their own activities for career orientation.

Also for the Faculty of Mathematics and Natural Sciences (FMNS) it is important to give additional attention to the employability of its students. First of all, despite the fact that the job perspective of FMNS graduates is still not bad, students are not a guaranteed to have a job within a few months of graduating. The UWV Arbeidsmarktprognose 2015-2016[2] does conclude that the Dutch economy is recovering from the crisis and in general the number of job openings is increasing: the number of permanent positions increases with approximately 0,8% per year. However, the size of the working population will increase as well (0,7% in 2016). Besides that, the economic growth stimulates people to switch jobs. All in all, the dynamics of the labour market increases.

Additionally, the Head of the Education Support Centre, Loes Schaafsma, states that more students become self-employed (zzp'er). She also notes that this Faculty has an international ambition and as such the student should be trained for an international labour market and not just the Dutch market.

For these reasons, it is important that a student should have a thorough orientation on the labour market and be aware of his/her personal ambitions. This ensures that already in an early phase of the degree programme the study choices dovetail with what the student wants to achieve. Extracurricular or career orienting activities will help the student stand out on and prepare for the labour market.

What?

With this in mind, the student assessor 2014-2015 (Nadalina Merkelijn) had several discussions with programme directors, study advisors, study associations and students. It became apparent that the dissatisfaction on career orientation and information is mainly due to a lack of a comprehensive framework in which stakeholders of the faculty can present their information on study and career orientation. In collaboration with the head of the Education Support Centre and the directors of Undergraduate and Graduate School of Science the student assessor of the

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[1] The organizational structure of the University is explained in Appendix A.
[2] http://www.uwv.nl/overuwv/Images/UWV_Arbeidsmarktprognose%202015-2016.pdf

faculty started a project group to develop such a comprehensive framework.

This framework is to be a strategic tool for programme directors and study advisors to develop a thorough and good system for study and career orientation, starting from the propaedeutic year and ending with students finding their first job.

Who?
The project group operated under the name 'Frameworks for Study and Career Orientation', often abbreviated to 'SCO Frameworks' and worked under the supervision of the Board of the Bètastuf.

The Bèta Studenten Federatie (Bètastuf) is the overarching governing body for all student representation of the Faculty of Mathematics and Natural Sciences. The Bètastuf is chaired by the Board of the Bètastuf (BOB). Each month representatives of the Programme Committees, the student associations and the Faculty Council come together. Student board members of the Undergraduate School of Science, Graduate School of Science and Faculty Board as well as representatives of the University Council are also present. Faculty-wide changes, problems, and developments are discussed during the meeting. In some cases, project groups are installed to review or improve for example internationalization, the mentor-tutor system or in this case study and career orientation.

The 'SCO Frameworks' project group consists of:

- Karin Dirksen, Physics student, member of the Faculty Council and chairman of the project group

- Florentine van Elsacker, Chemistry and Chemical Engineering student, board member of the FMNS Undergraduate School of Science

- Irina Chiscop, Mathematics student, member of the NEXT Career Services student pool

Chapter 1

Project outline

1.1 Problem statement

As mentioned in the introduction, the **problem** at hand is that the preparation for the labour market is not sufficient (score below 3,0) as assessed by students in the NSE and that the cooperation and coordination of the multiple bodies that try to improve the situation is suboptimal. The NSE scores are shown in figure 1.1, which is based on the data taken from the different NSE reports and summarized in Appendix B. The figure shows that the university average is improving, yet the University scores significantly lower than the national average of the different universities. The FMNS has a similar situation: its average is higher than the university average and marked as sufficient (score between 3,0 and 3,5), but compared to the other science faculties in the Netherlands we see that the FMNS also scores significantly lower. It comes as no surprise that universities score lower on labour market preparation as compared to the HBO which can be deduced from the fact that the higher educational institutes (HO) average (which includes the HBO's) is higher than the university average (WO).
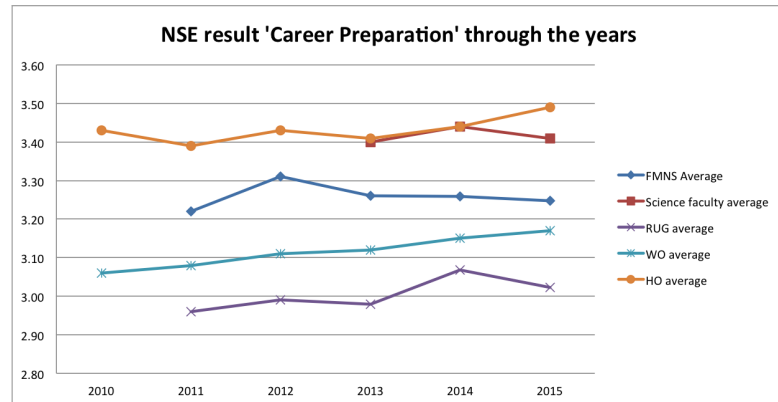

Figure 1.1 – *NSE results on career preparation through the years for the University of Groningen (UG), the Faculty of Mathematics and Natural Sciences (FMNS), science faculties in general, universities in general (WO) and all higher educational institutes (HO).*

The immediate **cause** for this problem seems to be that there are either insufficient possibilities for career orientation or there is a large unfamiliarity among students with existing efforts. Besides that, there are many stakeholders within the faculty working separately on the problem. The first step in remedying the assessment scores for this faculty is therefore to understand better what the current situation is and compare that with the needs of the students. Further comparison with other faculties/universities can lead to additional insights.

1.2   Project aim and report

The **aim** of this project group is to produce a framework for study and career orientation containing both current orientation methods and contributions from study associations as well as suggestions for improvement. This cohesive framework visualizes the coordinated efforts over all organizational levels to achieve this goal.

To make such a framework it is necessary to answer the following research questions:

  i. Who are the stakeholders?

 ii. What is currently being done with respect to career and study orientation?

iii. What is being done at other faculties both inside and outside the UG?

 iv. What does the student need?

Investigation of these questions is done via different **project activities**. First and foremost, there were regular project meetings in which the members of the project group discussed their progress, problems and results. Besides these internal meetings, individual project members contacted academic advisors and/or programme coordinators to verify the information of current study defining and informing moments. Study associations were contacted for their study and career orientation activities. Career services via NEXT were discussed with the faculty liaison of NEXT (Marion van Rijssel). Other project activities consisted of developing and analyzing the results of the student survey and gathering relevant information form other faculties/universities.

The present **report** is the result of the work of the project group, as presented to the Bètastuf, the student assessor and the vice dean of the FMNS. The first two research questions will be addressed in the next chapter and chapter 3 is devoted to the comparison between the FMNS and a selective few other faculties. To interpret the observations done in these two chapters we need answers to the questions (i.) how informed do and should students make their study choices and (ii.) where lies the responsibility of the faculty to provide information, offer trainings and guide students during their studies towards their first job? These questions are partially addressed in the student survey, subject of the fourth chapter. In the final chapter the information from the different research questions is combined into a final framework for career and study orientation, incorporating the observations and recommendations as much as possible.

1.3   Scope and background

The **scope** of this endeavor is limited to an inward reflection on the status of study and career orientation. For research question 2 the extracurricular situation considered is constrained to activities relevant for study and career orientation as detailed in section 2.4. Furthermore, neither the activities of the UG initiative of the Entrepreneurship Centre nor outreach programs of the industry that exist next to the study associations have been considered. We have also decided to focus on only three Dutch institutes for the comparison with other faculties inside and outside the UG (research question 3). A full investigation of best practices is thus beyond the scope of this report.

The policy **background** of this project consists of

- The first overview of all Faculty Career Services[1] from September 2011;
- The subsequent policy plan[2] 'Plan Career Services FWN' from December 2011 where

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[1] "Overzicht career services faculteiten" by Henri Ligtenberg, September 2011

[2] This was discussed with the degree programme directors and written by prof. dr. M.P. Gerkema (directeur Centrum voor Ondernemerschap)dr. M. van Rijssel (opleidingscoördinator Levenswetenschappen), drs. C.D. Visser (beleidsmedewerker onderwijs FWN) and E.H.B. Lubberman (studentlid faculteitsbestuur). The functions

we have taken note of the organizational change of 2012 to the current USS/GSS/ESC structure;

- The Employability Strategy University of Groningen[3] 'The NEXT Step' from July 2015;

- The NSE survey result reports 2010-2015 drawn up by the ESI.

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in brackets reflect the positions they then held within the FMNS organization.

[3]This was a report of the Employability Task Force which was chaired by prof. Mirjam de Baar (Portfolio holder for Education of the Faculty of Theology and Religious Studies.

Chapter 2

Study and career orientation at the FMNS

The important link between study and career orientation is already stressed in the University's and Faculty's mission on education. Focussing on the implementation of the Educational Mission rather than the policy making itself, we continue with discussing the stakeholders in this complex interplay. The last two sections are devoted to assessing the current curricular and extracurricular situation at the FMNS. Here we make factual observations based on the information provided by the study associations and academic advisors of all degree programmes.

2.1 Educational and Employability Mission

The University of Groningen is an internationally oriented, research-driven higher education institution that is strongly rooted in its environment. From the Strategic Plan 2015-2020[1] we can read:

> **The University of Groningen's Mission** is to impart to students the values, skills and knowledge that they need in order to become the next generation of independent and responsible leaders, innovators, academics and professionals around the world who can also think critically. In order to accomplish this, we teach them in a challenging environment that focuses on personal development and ambition as well as creativity, entrepreneurial spirit and a mutual commitment to excellence. It is inspired by leading current research, highly motivated lecturers and relevant social issues in national and international contexts.

Then they proceed with stating that "in order to achieve our aim we will:

- create an academic and social environment in which students are actively involved in their own education process and in which learning and personal talent development take centre stage

- exchange, generate and integrate knowledge in an innovative, close-knit academic community in which excellent teaching and motivated learning are highly valued

- provide first-class teaching that is based on our research strengths and gives students the opportunity to study and work at the forefront of knowledge

- intensify the international nature of our academic community in order to enable students and staff to collaborate with and learn from people from different cultural backgrounds

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[1] http://myuniversity.rug.nl/infonet/medewerkers/beleid-en-strategie/strategisch-plan/strategic-goals/education

and thus take a global perspective

- *impart to students the necessary skills, attitudes and knowledge that they will need to compete successfully in the global labour market*"

The italicized sentence shows that the University interlinks employability with its educational mission. Also in the faculty's mission education and employability are linked:

> **The Faculty of Mathematics and Natural Sciences' Educational Mission** is to train students to be able to perform scientific research independently, with a critical and academic attitude, accompanied with a clear ethical conduct, thus *preparing them for an excellent starting position for an academic or professional career.*

This shows that employability is an integral part of all degree programmes, whether they prepare for a specific profession or not. All programmes provide the student with a range of qualifications that allow them to function as graduates in the labour market. Therefore, two perspectives on employability can be formulated:

- Employability as an aspect of the curriculum (at the level of learning outcomes and educational activities) as well as part of the quality assurance system of the University

- Employability as part of personal development

These two perspectives are complementary. However, together we need to decide exactly what we expect of the student on his/her own accord outside the curriculum as opposed to any mandatory career preparation that we implement in the degree programme. The current curricular status as compared to the extracurricular status of study and career orientation will be discussed after we have mentioned the stakeholders.

2.2   Stakeholders

A stakeholder is a person, group or organization with an interest, concern or role in the study and career orientation of FMNS students. From the two formulated perspectives we immediately see that the student and the University are the primary stakeholders in this complex process of study and career orientation and preparation. The student is independent and in charge of his/her own life choices, but the University is an important role model during a critical phase in the student's life. The prospective employers, which include the industry (Dutch: 'bedrijfsleven') as well as the academia, have personal interests in getting highly qualified new personnel and thus also have an interest in the study and career orientation of a student. Noting furthermore that a large part of the FMNS graduates ends up working in the industry, one could argue that a better transition to that same industry needs to be incorporated into the degree programme.

We have chosen to group these stakeholders into different categories depending on their primary role. The first category are the policy makers, secondly there are stakeholders that provide information regarding study and career orientation and thirdly there is the group of employers and alumni. When it comes to embedding study and career orientation activities within the degree programme (for example as part of the learning outcomes) then Boards of Examiners and programme committees also play a role. It is illustrative to first present the hierarchical structure of the faculty as it shows the governmental structure which most the stakeholders are part of (figure 2.1).
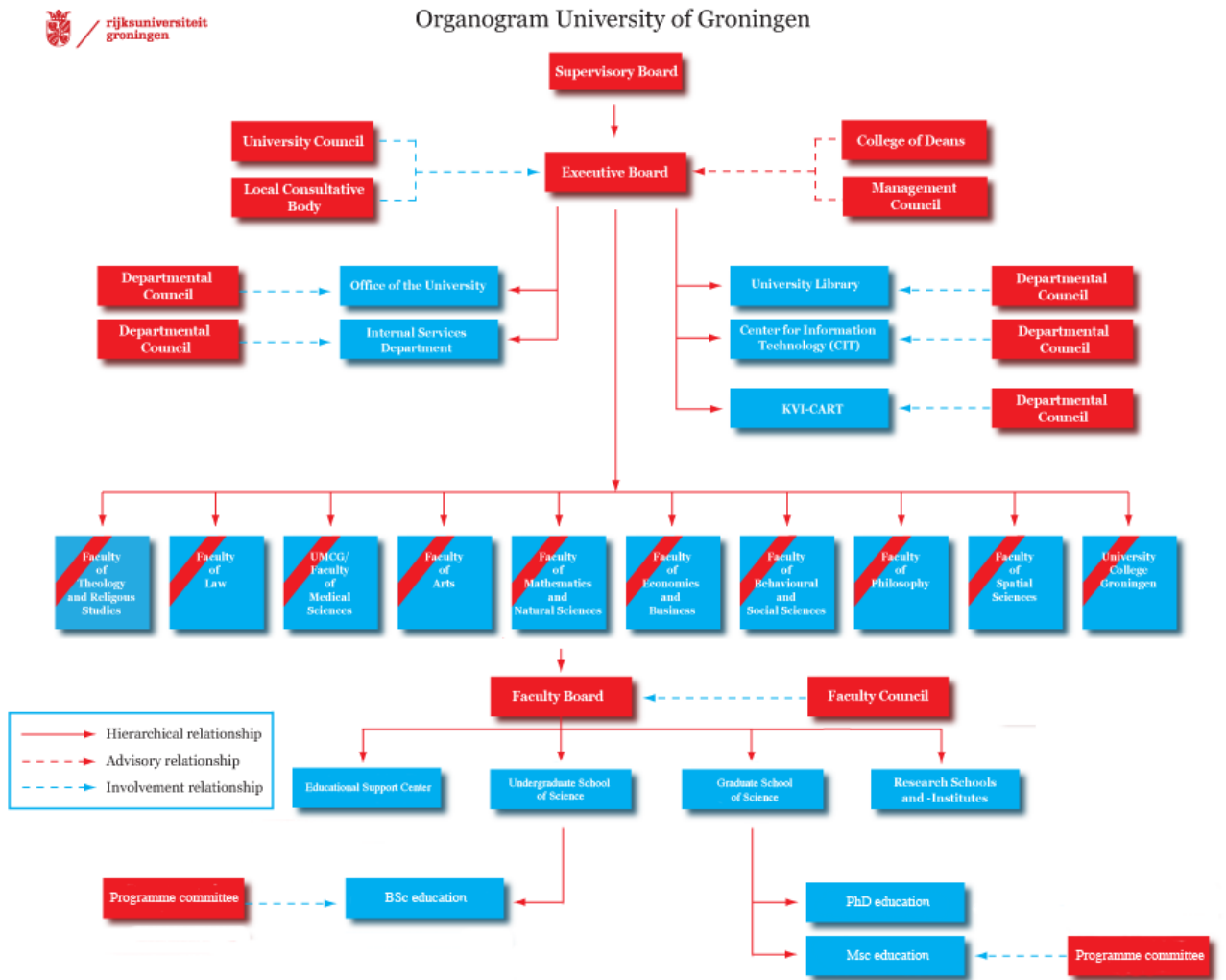
Figure 2.1 – *Organogram of the University of Groningen, adapted from* `https://www.rug.nl/about-us/organization/administrative/organogram-rug-en.pdf`

Category	Stakeholder	Responsible for
Policy makers	Program director	Program specific policy
	Director of the GSS	Master and PhD education
	Director of the USS	Bachelor education
	Portfolioholder of Education	Faculty employability and educational policy
	Head of the ESC	Educational support policy
	Rector	University employability and educational policy
	Minister of OCW	National guidelines with respect to education
Informants	Academic advisor	Advise student on study choices
	Mentor/Tutor	Advice student on study choices
	Study association	Organization of study and career activities
	NEXT	Organization of career activities
	Teacher	Puts course content in a societal perspective and links to active research in both academia and industry
	Program coordinator	Informing students on organizational measures related to the study
Business community	Alumni	Sharing their experiences with study and career choices
	Prospective employer	Familiarize the student with career possibilities

Table 2.1 – *Prioritized stakeholders in career and study orientation at the FMNS*

Within each category some stakeholders have more influence than others and we can prioritize them as is done in table 2.1. As this report is focussed on the implementation of employability as opposed to a vision, the prioritizing is based on the stakeholder's influence on the implementation of study and career activities.

For the policy makers the hierarchy is based on the policy maker with the most direct influence on the student. As the programme director is in charge of implementing any employability strategy within the curriculum, he is ranked highest. Then follows the GSS since career advice is most important in the Master phase of the education at the FMNS while the focus within the USS is primarily on study advice. The Faculty Board, by name of the portfolio holder of Education, is more influential that the Head of the ESC or the Executive Board as the first is tasked with a.o. streamlining the communication, while the latter operates on a University level.

For the informants category the hierarchy is based on the fact that students are most likely to turn to the academic advisor and the mentor/tutor for advice regarding study and career orientation advice. As study associations can provide both, they are higher ranked than NEXT which only deals with career orientation. Note that mentor/tutor systems are part of all degree programmes with varying degrees of success. As the mentor/tutor is such an important informant, it is advised to investigate the best practices and ensure that the system works not only on paper but also in reality.

In the last category alumni provide valuable personal and specific input to students and form an important bridge between students' current environment and their prospective job.

2.3   Current curricular situation

One of the two relevant perspectives was employability as part of the curriculum, because employability is a relevant concern whenever a study choice has to be made. Therefore the Faculty or degree programme should provide clear choices as well as well-timed information about these choices. The information should be easily accessible and if needed, support in making these decisions should be available. After reviewing the decision and information moments of all FMNS degree programmes, a general overview can be formulated (table 2.2).

Study phase	Choice of	Deadline	Information is given in	Information is given by
Before bachelor	University and Bachelor	1 May	November, March, April	Communications Department
Year 1	Track/major	Year 1.1b	Year 1.1a	Academic advisor
	Honours College	Year 1.1b	Year 1.1b	Honours College
Year 2/3	Minor	Year 2.2b	Year 2.1b	Academic advisor
	Studying abroad	Year 2.2a	Year 2.1b	Exchange Office
	Research subject	Year 3.2a	Year 3.2a	Academic advisor
Before master	University, Master and Profile	1 May	March	Communications Department Academic Advisor
During the master	Track	Year 1.1a		Academic advisor, Tutor
	Internship	Year 1.1b		Internship coordinator, Tutor
	Research subject	Year 1.2a		Tutor, Senior staff member
After graduating	Career	Year 2.2a		Tutor, supervisor, NEXT

Table 2.2 – *General overview of the defining moments, the related informing moments and responsibilities for the FMNS degree programmes. Empty cells indicate that no faculty wide conclusion could be drawn.*

Additional information to the table:

- After successful registration for a Bachelor programme, all first year students will be given a presentation by the academic advisor who will explain the propaedeutic phase, the mentor-tutor system, practicalities as books, Student Portal, etc.

- In Life Sciences there is a major information day to provide information on that choice. Track choices in other degree programmes are addressed by the academic advisor and/or by the mentors.

- Regarding the choice of Master degree programme, starting this year there was a Master's week in March where all Faculties present their masters programmes for current and other Dutch students. For current students an additional informing moment for the directly related master degree programmes is given in year 3.2a by the academic advisor. The choice of Master degree also includes the choice of a profile: the research profile which is more research oriented or the Science, Business and Policy (SBP) profile which prepares (better) for a job outside the academia.

- When a Master degree programme has been chosen, the academic advisor (sometimes in combination with the programme coordinator) gives a presentation for (new) master students. The general part explains the course subscription, Student Portal, etc. The programme specific part is dedicated to explaining the curriculum.

Besides the choices already listed, for most degree programmes the student can choose a certain amount of electives each year, as well as choose extracurricular activities either related to their study, career or personal development. These options will be discussed in section 2.4.

Observations

Programme specific analysis based on the information tables provided in the appendices, lead to the following observations regarding study and career orientation activities within the degree programme:

  i. Overall every decision moment is coupled with an informing moment. However, matching defining moments with information moments is only one step in encouraging students to make informed and conscious decisions regarding their study and career. Where possible, each informing moment should highlight the consequences for a particular choice on future defining moments and even career possibilities.

 ii. Information is mainly provided orally during bulk meetings where all relevant students are invited to. Some degree programmes ((Applied) Mathematics, Biology and LS &T) also publish the slides of the presentations on the Student Portal. This is done by the academic advisor or the programme coordinator.

iii. Most students are not *actively* challenged to make *informed* study choices. The set-up of the bachelor study choices doesn't stimulate to think ahead as students only need to choose a particular elective a couple of weeks before the particular course starts. The only exception is in the Biology and Life Science bachelor via the mandatory major assignment which asks students to reflect upon decisions made and plans for the future (see Appendix D).

 iv. Because of the above, student may not be fully equipped when entering the master degree programme. The master (track) choice usually involves the planning of the entire study programme because the track in combination with electives and if applicable the time planning of the internship and research project need to be approved by the Board of Examiners. This means a lot of study choices are made already at the start of the master's programme. This requires that students are already informed about their options before the start of the master programme, i.e. during their bachelor.

  v. Besides the Career Day initiative, career orientation activities are not explicitly part of the study curriculum. The course *Science, Ethics, Technology and Science* does stimulate students to think about their career. However, as the name already shows, the course combines many learning objectives thus leaving little room for a proper career orientation. There are true exceptions to the observation. BSc Pharmacy students follow the compulsory course *Pharmacy in Perspective* introducing them to practical aspects of the pharmaceutics environment such as the daily practice of a Public Hospital Pharmacy. This orientation on career aspects is also carried out in Master programme of Pharmacy. The research master in Behavioral and Cognitive Neurosciences also explicitly contains a course on career orientation, namely *Career Related Topics* in which students discuss current issues with clear interdisciplinary ramifications.

 vi. The mentor/tutor system works differently for different degree programmes. In the Bachelor, all students are assigned to a mentor group and mentor (usually an older student). They have a couple of meetings with the mentor in the first semester. After this, the tutor (teacher) takes over. The tutoring system continues till the end of the bachelor programme and aims to provide assistance on both study and career related matters. Whilst in some of them, namely Mathematics and Physics, students don't seem to be reliant on this system since it is not a mandatory part of their studies, in some disciplines, especially during the master, the tutor has an active role in the academic life of the students. For example, in the master programme of Energy and Environmental Studies, each student chooses a tutor from ESRIG with whom all the study plans and research choices are discussed. Clearly, this type of tutor fulfils an active role of a coach instead of a passive role as a staff member who is available for questions, as in the rest of the degree programmes.

vii. A lot of the responsibility lies with the academic advisor: If the academic advisor drops out, a lot of information does not reach the student. Quality assurance would dictate a back-up for these cases, e.g. easy accessible, online information.

viii. Internship information is ill provided in almost all programmes. Although in some cases there is an internship coordinator who is in charge of this matter, students are not aware of his/her existence. This happens because he/she is at no point presented to students as a mean of getting information on internships. However, there is one programme who manages to handle this issue successfully and that is the Pharmacy master programme which incorporates no less than three internships in a very organized manner, through the internship coordinators.

ix. The applied master degree programs have a mandatory external (outside the RUG) component either in the form of an internship or research project. The theoretical studies do not have this: an external component needs to be introduced by the student himself in for example, his master research. The other alternative for the students is to choose the SBP track. However, an internship which also has a relevant research subject for theoretical studies is not always possible (for example for MSc Physics (Quantum Universe) students) making the SBP track in those cases not an option.

x. Research information in the bachelor and master is sometimes lacking as there is no complete set of instructions available. In some programmes (only) the research groups are presented during the bachelor programme, but not during the master whereas new students have joined and thus miss that information. Nevertheless, the master programme in Energy and Environmental Studies compiled a research manual for its students, available on the Student Portal. It contains information about the thesis procedure, thesis assessment form, research proposals and research topics. Despite its usefulness, this type of material is not implemented in the other programmes.

xi. The practical information on career, concerning basic aspects such as job platforms, entry level salary and what graduated students actually become, is completely absent. The faculty could publish some information on career perspectives and insights from some existing websites.

2.4 Current extracurricular situation

For the current extracurricular situation we looked at what the study associations[2] and NEXT offered. We are only interested in activities which at least in part prepare the student in making study or career choices. Therefore, activities from the study associations such as exam trainings, exam databases, instruction videos, and the trips abroad are not considered.

Study associations still organize an abundance of activities that do meet the brief. Therefore we evoke another condition based on the fact that we are gathering information to draft a faculty wide framework for study and career organization. Activities that are thus very programme specific and not of added value to other programmes are therefore also not considered.

The remaining activities are sometimes given different names by the different associations, but for comparison we have used the generalized names for similar events, namely:

- Company excursions: A group of students visits companies that are interested in and interesting for students of a particular degree programme. They will receive for example a tour and/or a presentation where they see different aspects of the company and get the know the atmosphere and people that work there.

- Company lectures: A company is invited to give a lecture (usually combined with an

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[2]See A.2 for more information on the different FMNS study associations.

Table 2.3 – *Study and career activities per degree programmes[3] as organized by the study associations*

	Bio	LS&T	Pharm	IEM	Math	Phys	Astro	Chem	CS	AI
Company excursions	x	x	x	x	x	x	x	x	x	x
Company lectures			x	x	x	x	x	x	x	x
Company case studies				x	x	x	x	x	x	x
Alumni event	x	x	x		x	x	x		x	
Research lectures	x	x	x	x	x	x	x		x	x
Research symposium	x	x	x	x	x	x	x	x	x	x
Personal development training courses	x	x		x				x		

informal lunch or borrel). The lecture is intended to give an introduction to the company and its activities. Often one specific subject or branch is explained more thoroughly.

- Company case studies: Workshop or short case study by a degree programme related company.

- Alumni event: Event where alumni are invited to discuss their study and career choices. The event is intended to show students the diversity of career options after graduation.

- Research lectures: Lecture that show the relevant research done most often inside the University of Groningen to show possible research directions for the bachelor or master research. Research lectures can also be more broadening for example to showcase interdisciplinary research.

- Research symposium: Symposium organized for one or more degree programmes often centered around a theme where (inter)national speakers are invited to discuss their research.

- Personal development training courses: Training courses for example on writing your resume, giving an elevator pitch or applying for a job/internship.

The types of activities per degree programme as organized by the study associations are identified in table 2.3. Besides these, there are the events organized by NEXT and the board of the Beta Business Days (BBD). From this year onwards, there is also the FMNS Career Day organized by a collaboration of the study associations, NEXT and GSS.

- NEXT offers different personal development training courses as well as network events (from September 2016 onwards) and an alumni event ('Seminar Working in the Netherlands'). They also host a Student&Society event ('Volunteer for your Career') bringing together entrepreneurs, non-profit organizations and students.

- The BBD is a two-day career event for all FMNS students, offering company presentations and cases as well as a network market, personal development trainings and an alumni session. The lunches and recruitment dinners offer individual insight into a company and company interviews even form the first step in the application process.

- FMNS Career Day is a day for master students where they are taught the general skills they need to to search for a job. The day consisted of workshops and presentations and there was an information market as well.

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[3]Abbreviations of the bachelor degree programmes were used, without specifically mentioning the applied degree programmes. Master degree programmes are often directly linked to the bachelor degree programme, thus master students can use the same offer of activities. For more broadening master programmes, the students can choose between even more activities and associations.

Observations

In general, it seems that sufficiently large variety in extracurricular study and career activities is offered to all degree programmes, as the BBD, Career Day and NEXT fill the gaps that can be seen in table 2.3.

However, some nuances to this statement are needed as we, for example, have not judged the quality, coverage, content or attendance of these events. Also the types of companies have not been scrutinized as we understand that there are also financial interests at play, potentially leading to biased company activity offer consisting mainly out of multinationals.

Furthermore, there is a lack of career activities for Biology and LS&T. There are also few degree programme specific career activities for Astronomy and Mathematics, though this is not immediately clear from the table but follows from the data on which the table is based. In both cases students are, of course, invited for all activities organized by the relevant study associations as well as the BBD and NEXT. Yet these activities are organized for a broader audience and therefore are not specifically tailored to the needs of students from a specific degree programme.

Chapter 3

Comparison with other faculties/universities

Comparison with other faculties or universities is always difficult as they are not only organized differently, but their entire view on employability can differ greatly just as the career opportunities of their students. However, there can still be a lot to learn from each other and best practices can be even translated to fit within our own employability strategy.

Here we just compare this faculty with three selected others: the Faculty of Arts (FA) of the University of Groningen, the Science Faculty of the Utrecht University (UU), and the University of Twente (UT). This choice of faculties will facilitate a comparison between the FMNS with another faculty inside the same university (FA), a science faculty within another general university (UU) and an 'technical' university (UT). Their background with respect to their NSE scores on career orientation is explained in the first section.

The goal of this exercises is to spot major differences as well as similarities between these four institutes and understand the differences in the organization of career orientation, potentially leading to points of improvement for the FMNS and/or suggestions for career activities. In our investigation we focused on the main question "How do you prepare your students for the job market?" This is subdivided in an organization and information, and activities aspect in section 3.2 and 3.3 respectively.

3.1 Background

As this project was initiated based on NSE results of the Faculty of Mathematics and Natural Sciences, it is interesting to also look at the NSE scores of the chosen faculties, where we were particularly interested in the results on the theme 'Voorbereiding beroepsloopbaan' (career preparation).

For figures 3.1 and 3.2 we considered the different FMNS degree programmes and the similar programmes at Utrecht and Twente. Because not all FMNS programmes are given at these universities or response rates on the NSE for a particular degree programme were too low, it was decided to cluster similar degree programmes and take average NSE scores[1].

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[1]The NSE results are of 2015 and retrieved from http://www.studiekeuze123.nl. All scores are tabulated in appendix B. The appendix also explains the clustering and how the averages were calculated.
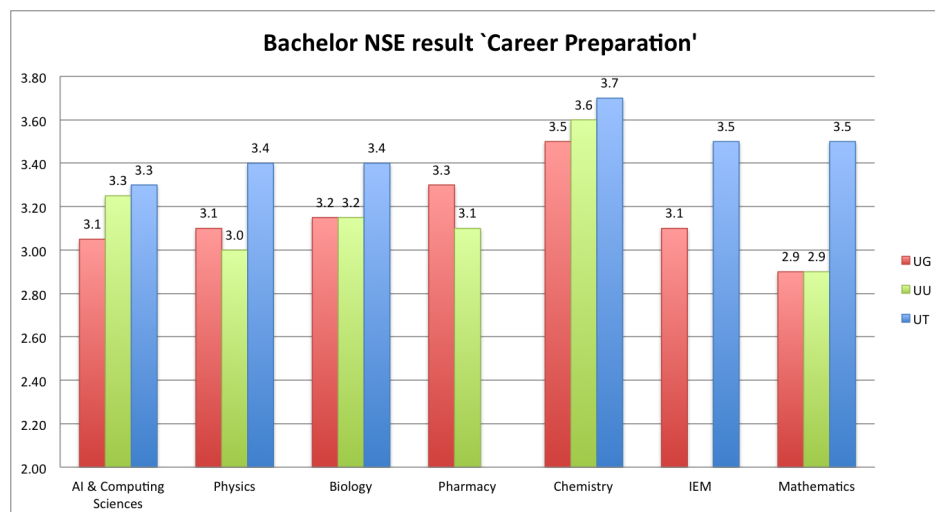
Figure 3.1 – *2015 NSE results on career preparation for bachelor degree programme clusters of the University of Groningen (UG), the University of Utrecht (UU) and the University of Twente (UT)*
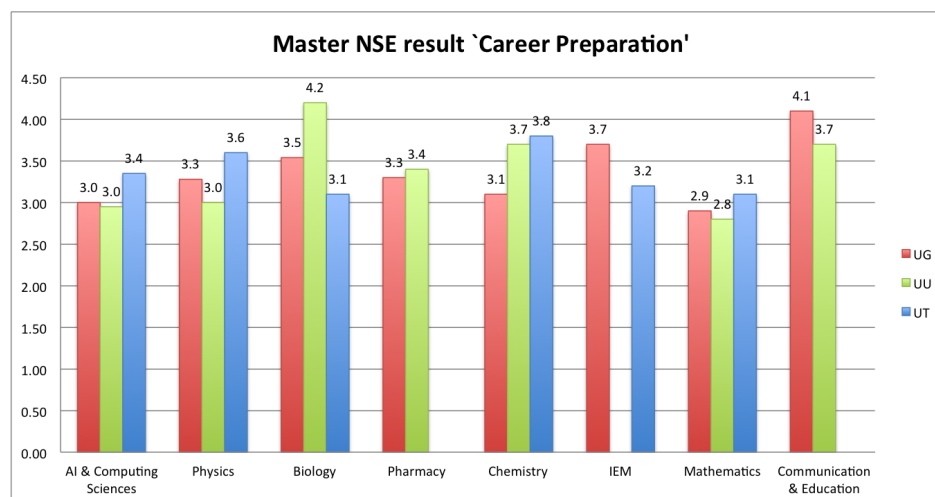

Figure 3.2 – *2015 NSE results on career preparation for master degree programme clusters of the University of Groningen (UG), the University of Utrecht (UU) and the University of Twente (UT)*

From these figures we can see that the University of Twente consistently scores much higher in the bachelor degree programmes, while the difference with Utrecht is almost negligible. This tentatively suggests in the bachelor programmes we can learn from the career organization of the University of Twente.

In the master degree programmes the differences between UG, UU and UT are smaller but on average slightly in the favor of the UT. The biggest differences can be found in 'Chemistry' and 'Biology'. However, we note that 'Biology' is a cluster of many different programmes for Groningen, while only one or two programmes contribute to the NSE score of UU and UT. Therefore we refrain from drawing any strong conclusions based on this.

Besides these degree programme specific results, we can look at the trend of the NSE score on career preparation of the FMNS as compared to the Faculty of Arts, additional to the trend-lines already given in figure 1.1. This is depicted in figure 3.3. From this figures we can see that although the Faculty of Arts is consistently below the UG average, it is steadily improving through the years.
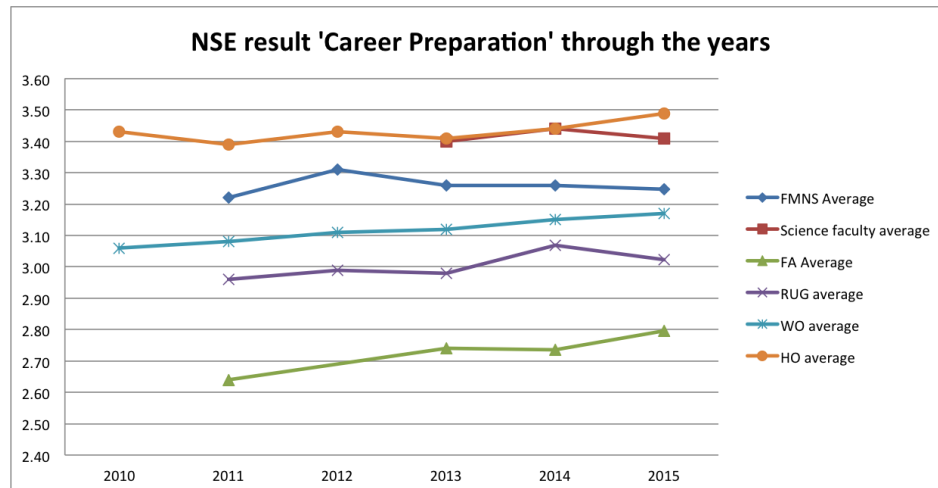
Figure 3.3 – *NSE results on career preparation through the years for the University of Groningen (UG), the Faculty of Mathematics and Natural Sciences (FMNS), the Faculty of Arts (FA), science faculties in general, universities in general (WO) and all higher educational institutes (HO).*

3.2 Organization of Career Services

UG Faculty of Arts

As the Faculty of Arts (FA) is part of the University of Groningen they have to a certain extent a similar career policy and organization as the FMNS and also have access to the activities organized by NEXT. At the FA there is a faculty body[2] responsible for different career events, but also for study promotion events like a Master event, 'meeloopdagen' and matching (together with the study associations). Student ambassadors representing their degree programme help with the organization of the latter. Study associations are important for the degree programme specific career activities.

In part the above is similar to the ScienceLinx division of the FMNS: they too are responsible for outreach to high school students, work together with the study associations and use students to represent the different degree programmes. Interesting is to see that the central organ of the FA is also responsible for career events, making it a mixture of our ScienceLinx and FMNS Career Services.

At the Faculty of Arts, Miss Esther Haag is the Career Strategy Coordinator. She is responsible for Career ConNEXT, has an extensive network with the industry and acquires relevant internships for the Arts masters. She plays a pivotal role in acquiring internships for the students, thus strengthening the FA's ties with the industry and NEXT further. The internships are promoted in Career ConNEXT and a Facebook page 'Careers University of Groningen - Faculty of Arts'.

In contrast to the FA, internships at the FMNS are organized per degree programme and mostly on an individual basis. The potential work field of the FMNS students is not actively involved or contacted in our career organization except for the collaboration with Honours Master programme or existing UG-wide company contacts. However, companies are welcomed to contact and reach out via Career Services. This is done deliberately, and discussed extensively during the start-up of NEXT, because study associations have multiple contacts already.

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[2]The FA assessor referred to it as 'Bureau Communcatie', however online information states that this is an UG organization. The tasks and responsibilities attributed to 'Bureau Communicatie' by the assessor seem to coincide with the responsibilities of the faculty organization known as 'Career Strategy' which we will therefore assume to be meant.

UU Faculty of Science

In general the organizational structure of the University of Utrecht is similar to that of the UG. The University is divided into seven faculties and three teaching institutes. The faculties are dived into departments which are responsible for the research and teaching programmes of a specific field of science. The Dean is in charge of the Board Team of the Faculty. This Board Team also has a student member and it was the student member of the Faculty of Science to whom we directed our questions.

The University of Utrecht has started with a Career Services project in september 2015 to prepare their students for their future careers as well as bring them in contact with potential employers. Every faculty has its own Career Services lead by a Career Officer (Miss Simone Kastelein for the Faculty of Science). Besides answering questions regarding the start of a professional career, Career Services will organize a variety of events and workshops on personal development. Internships are also handled by the Career Officer. Career activities like lectures and company visits are also organized by the respective study associations.

UT

The organizational structure of the University of Twente is also similar to that of the University of Groningen except that there are no student board members. UT has 5 research institutes and 5 faculties, besides which there is also the University College and the Twente Academy (responsible for outreach towards elementary and highschool students). The Student Union is the overarching body of all students and student organizations. They are given the mandate to write the policy on UT student activities and services, meaning that the Student Union is also involved in the development of the career policy of the UT. Therefore, we have directed our questions regarding this subject to the board of the Student Union.

At the UT, they recently started with the Career Service University Twente which will have two tasks. First it will provide front office visibility to companies that are interested in any kind of student related activities, noting that the Career Service entity will function as the single door for companies into student related activities. Its second task is the support and career preparation of students on future career, e.g. Career Service can help writing a resume. Currently the main focus is on offering jobs, internships, and graduate assignments and a more extended career service will be provided in the near future. They do already link to a number of interesting websites and start the first workshop.

Industry is involved in career service in the sense that they can reach out to the service desk and enquire about the different options for collaboration. Similar to the FMNS, Career Service UT is not intended to operate on the same market as study associations nor to provide active matching between industry and students, instead fulfilling the role of a hub for all parties involved in career orientation and development.

Recommendations

i. Investigate whether the organization of the internships should be centralized possibly within the FMNS career organization.

ii. Investigate the potential added value of social media in promoting Career Services and/or internships.

3.3   Career activities and information

UG Faculty of Arts

For both the Faculty of Arts as the FMNS, general career information is offered via the Student Portal. At a degree programme level there is a lot of information provided via oral presentations as well as via mail contact. In the smaller degree programmes information is also provided in personal interaction between the student and his/her teacher. This way, information on very specific fields is distributed. This interaction is limited at the larger degree programmes.

Upon reflection of the NSE results, the FA assessor feels that visibility of the career information and activities is important and lack thereof could very possible be (one of) the cause(s) of the low scores.

To remedy the low scores, Network of Arts[3] initiated the organization of the Career Event[4]. Together with the study associations, NEXT and Bureau Communicatie, they organize the first Career Event in May 2016. Check There will be stands, lectures about entrepreneurship, etc. Alumni and the industry will also be involved and the day should be surpassing the degree programme level.

Besides this Event and the activities offered by NEXT, are the other career activities mainly organized at a degree programme level by the different study associations. Their two main activities are company visits and lectures by guest speakers (often alumni) on their career choices. It is important to establish a balance between what is offered by the associations, the faculty and NEXT: their activities should be complementing each other. Furthermore, students should be stimulated to see all these efforts as part of one organization (associations are a part of the faculty).

UU Faculty of Science

The UU Career Services will offer workshops and tests as well as internship and vacancy databases, an alumni network and information on career perspectives[5]. A webpage (figure 3.4) showing the possibilities per Bachelor/Master programme exists.

The student starts with a career check which creates an action plan and offers advice on what to do during your studies in terms of 'Reflect, Explore, Connect and Get Skilled'. The first two are primarily based during the Bachelor/Master while the other two play an important role once the student is closer to graduating. The student-ID as well as the other services stay available for 6 months after graduating.

- *Reflect* consists of different workshops, i.e. Self-Analysis for Career Development, Exploring the Job Market & Networking, The Art of Job Applications and also a workshop LinkedIn.

- *Explore* gives information about the master choice, links to an internship database and shows different career paths (Entrepreneur, Teacher, PhD or in industry).

- *Connect* links to a coachnetwork of alumni, but also shows a vacancy database. Here the student can also find some tips on networking.

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[3]This is the Faculty of Arts' equivalent of Betastuf, an overarching organization for all student representative organs.

[4]This event should not be mistaken with the Career Day, which is a mandatory information session for students that want to do an internship.

[5]Original quote "een stagebank, vacaturebank, coachnetwerk van alumni, tests, trainingen, cv-checks en informatie over carrièreperspectieven per opleiding." retrieved from http://www.uu.nl/nieuws/career-services-arbeidsmarktorientatie-voor-utrechtse-studenten, 28 April 2016.

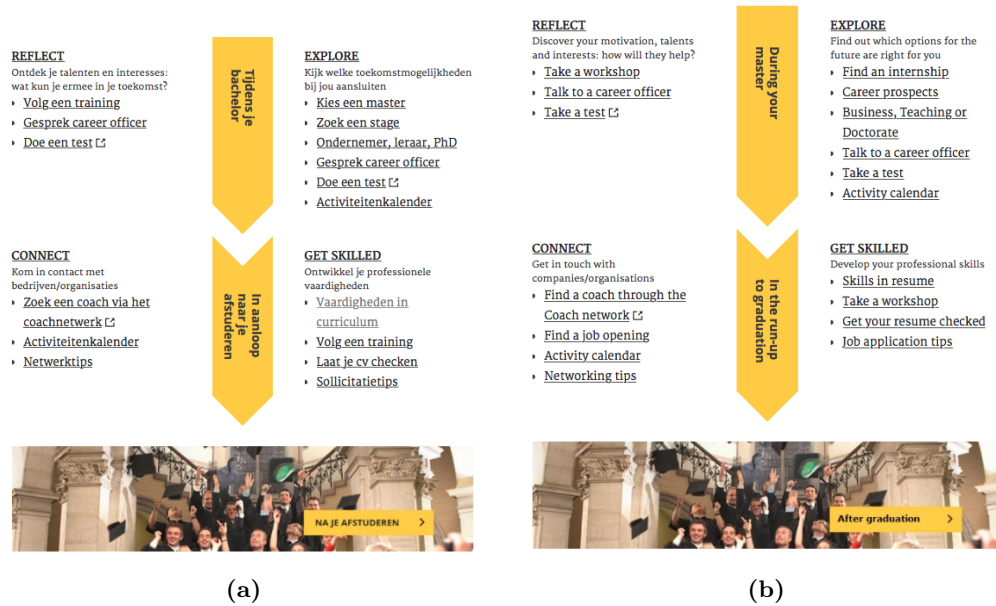**(a)**   **(b)**

Figure 3.4 – *Career pages for (a)* Bachelor students *and (b)* Master students*.*

- *Get Skilled* is all about acquiring professional skills. It includes a list of skills acquired during the study will be made available which students can put on their resume (which can also be checked), job application tips and again a link to the workshops.

Interesting to see is that the activity calendar of Career Services, which can be found under 'Explore', does not include the efforts of the study associations. This in contrast to the activity calendar of FMNS Career Services/NEXT.

Another event offered by Career Services is Future-proof Skills[6] which is a 'course' developed in close collaboration with the job market. In May and June twelve organizations will offer a free three-hour workshop on a specific professional skill. These skills vary from leadership to sales&negotiations, and from life balance and project management. Attending three workshops will earn the student a certificate.

Also in Utrecht there is a Careers Day[7] which is organized for the entire University. A recent poll showed that the students have little need for a faculty specific career event, probably because employers that are interested in science students are abundantly present at the Careers Day: in 2016 there were 79 organizations present. Students could connect with them on the fair, via workshops or a personal interview with recruiters. There was also a special area on the fair focused on entrepreneurship. Furthermore, students can have someone to check your CV, take a professional photograph or receive advice for their thesis.
The idea and set-up of the UU Careers Day corresponds to the Beta Business Days as described in the previous chapter.

Besides all the above there are four science related study associations which organize alumni events, career and research lectures, and much more.

UT

The Career Service page of the UT is depicted in figure 3.5 and shows the different activities that are being organized. As stated previously, UT Career Service functions as a hub and therefore

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[6]http://students.uu.nl/nieuws/meld-je-aan-voor-het-future-proof-skills-programma-van-career-services
[7]http://www.careersdayuu.com

CAREER SERVICE

- Career Service Twente voor studenten

Academische/professionele vaardigheden	Activisme & Bestuur
- Board Improvement Program	- Student Union
- Create Tomorrow	
- Skills Certificate	**Ondernemerschap**
	- Studenten Kennis Portal
Carrière ontwikkeling	- Kennispark Twente
- Study & Career	- Studentondernemer
- Bedrijvendagen Twente	
- Trainingen door Kivi Niria	
- Kennispark	
- Wetenschapswinkel	
- Business Courses, Integrand	

Figure 3.5 – *UT Career Service* main page

the page redirects to other organizations that offer different type of activities. A selection is given below:

- *Skills Certificate*: This committee of the Student Union organizes workshops on e.g. creating your own success, leadership or public speaking. The Student Union also organizes workshops specifically for board and committee members of the different student bodies of the UT.

- *Study & Career*: The TCP Language Centre offers workshops, trainings and events in both English and Dutch for students to develop their skills. Subjects include presentation skills, language courses, academic writing, brain training, entrepreneurial skills, business model thinking, visual thinking or project management.

- *Twente Company Days* is similar to the Beta Business Days, but bigger (>150 companies) and longer (5 weeks).

- Internships and job offerings are also presented here.

As the organization is very young and because of the chosen organizational structure, we see that information is spread over a multitude of places. Career information and employability information is available to every degree programme as well as it is present at the different study associations, according to the Student Union representative. However, the information provided is quite general as it only explains the two or three general directions most graduates end up.

Considering the fact that the UT scores high on employability, yet information is for an outsider difficult to find, we can only speculate on the reason(s) behind this. Two possibilities that immediately come to mind are the facts that (i) (nearly) all degree programmes have a mandatory internship or (ii) industry is quite involved in the area, the university and the research thus possible career options for students are more apparent and abundant. However, at this point there is no way of telling how these things influence the given NSE scores.

Recommendations

iii. Career information should be easily accessible, degree programme specific and complete on at least one medium, i.e. Student Portal. As students are inclined to regularly check the course section on the Student Portal, this is also a preferred location for career information.

iv. Where possible, career information and activities by both Career Services, the degree programme and the study associations should be accessible via the same place.

v. The needs of students with respect to career information and activities depend on their study phase. This should be taken into account when presenting the information and activities.