

Chapter 4

Student survey

To investigate the needs of the FMNS student regarding their study and career orientation, we put together an online survey. The questions can be found in Appendix C.

4.1 Survey objectives

The goals of this survey are to:

- i. Find out how conscious and informed are students when they make study choices.
- ii. Determine whether the information is provided through the right channel (the one that students expect us to use) and at the right moment.
- iii. Find out what students view as a typical career preparation.
- iv. Determine whether the negative results from the National Student Survey emerge from the lack of information/activities provided by the faculty or from the lack of visibility or integration of existing efforts.

4.2 Methodology

Target audience

The target audience of the online survey is all bachelor and master students enrolled at the FMNS. We have the total number of students per degree programmes of 2014 as provided by the student assessor of the FMNS 2015-2016, Carolien Kerstholt. Because the numbers are outdated and more recent numbers are not available we approximate the number of students as 110% the numbers of 2014. The total number of FMNS students was $N=4439$ in 2014, so we approximate it with 4883 students in 2016.

Distribution

Once the relevant questions regarding the student career needs were clearly formulated, a digital survey was created using Google Forms. A student could only submit one response so we could guarantee the uniqueness of the results. This was then sent for review to the career officer of FMNS, dr. Marion van Rijssel, who validated its content.

In order to ensure that the number of responses would be large enough for giving significant results, we have decided to test the effectiveness of the survey on a smaller group consisting of

only Chemistry and Chemical Engineering bachelor and master students. For this particular group, the survey was available for completion in the period March 7-21, 2016. A link to the survey was sent to them by e-mail via the Education Support Centre. Since the response rate of this trial was sufficiently high (38 responses of the 390 chemistry students), we became confident that the digital survey would be successful.

The survey was open for all science students from March 21, 2016 until April 11, 2016. It is worth mentioning that on April 1, 2016 a reminder was sent to all initially targeted students. By that date, 390 students have responded to the survey. This proved to be a very effective action as on the first of April 122 students submitted their responses. Overall, including the first trial on the chemistry students group, 576 responses were received.

4.3 Data quality

In order for the survey results to correctly describe the student opinion, certain conditions were imposed on the sample size. That is, we wanted to have a low error margin so that we can be confident in our results. For a population of 4883 students, a 95% confidence level and 5% error margin, the sample size was computed¹ to be 357. This was in the end far exceeded by our total number of respondents of 576 students. This translates to a 95% likelihood that for a given response of $X\%$ of the respondents corresponds to $(X-4) < Y < (X+4)$ per cent of the entire FMNS student population would give the same response.

In the realm of survey research, the response rate represents the number of people who completed the survey divided by the sample size. An online survey distributor called FluidSurveys² estimated the average response rate for their email surveys on 24.8%. However, an often encountered rule of thumb is a response rate between 10 and 20 %. In the case of our survey, the response rate was 14.4%.

A breakdown of the number of responses and the response rate³ per degree programme is depicted in figure 4.1 and 4.2. As can be seen, not all degree programmes reach the 10% threshold. We refrain from making degree programme specific conclusions in these cases, but in the figures where degree programme specific results are shown they are included.

Preferably one takes into account two more statistics. First, there is the number of views that a survey receives divided by the total number of people contacted. This reflects the capacity of the email to urge people to enter the survey. Beyond factors reliant on the survey topic and its creator, things like spam filters, dummy email accounts, and unreliable email browsers can make it difficult to receive a survey view rate beyond 50%. Unfortunately, data of the first statistic is unavailable to us.

The second statistic is represented by the number of people who completed the survey divided by the number of people who actually entered it. This measures the survey's overall completion rate. An average completion rates below 80% indicate that re-design of the survey might be useful. Unfortunately, we found out during the period the survey was online that the option to make every question mandatory was switched off. This allowed students to skip questions of the survey. Putting the completion rate of the entire survey equal to worst answer rate of a question, we still have a completion rate of 96%.

¹<http://fluidsurveys.com/survey-sample-size-calculator/>

²<http://fluidsurveys.com/university/response-rate-statistics-online-surveys-aiming/>

³Again note that for this calculation we approximated the current number of students as 110% the numbers of 2014.

CHAPTER 4. STUDENT SURVEY

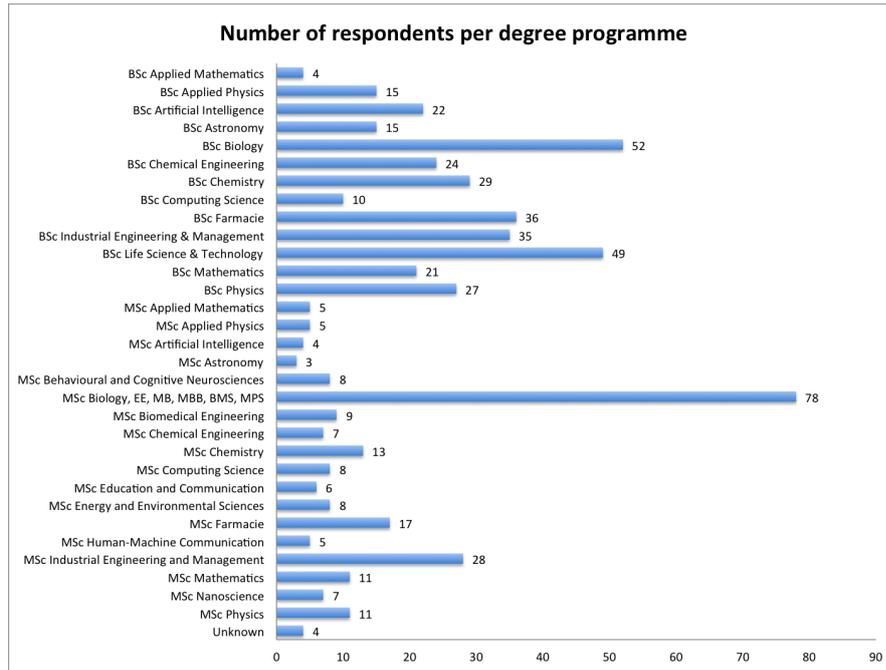


Figure 4.1 – Number of respondents per degree programme. The total number of respondents is $N = 567$ FMNS students.

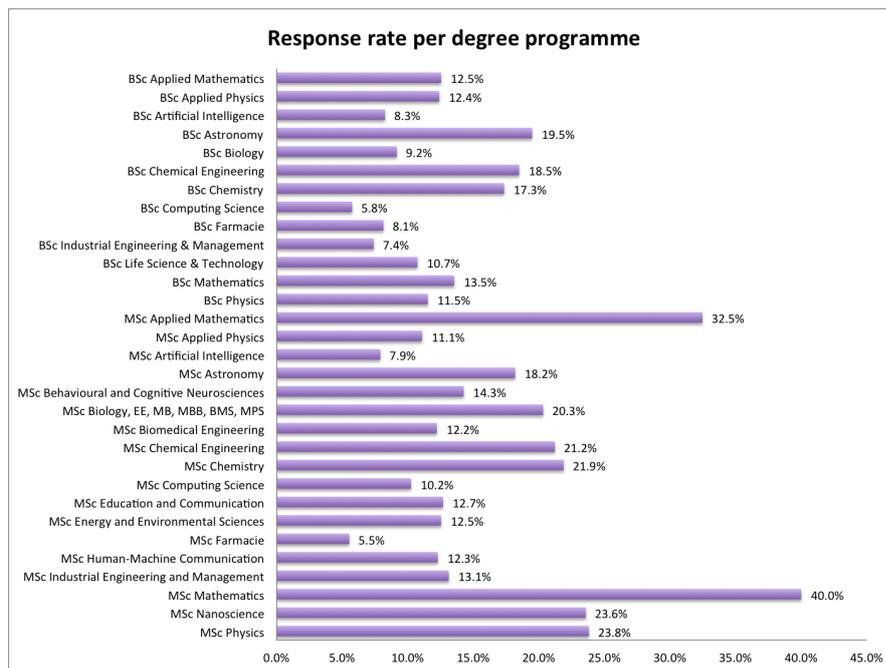


Figure 4.2 – Response rate per degree programme.

4.4 Analysis

The first couple of questions of the survey are set to determine how students receive their study information and how content they are with its quality, format, and the time at which it is provided. We shall list below the most important findings. From now on we distinguish between study information (aspects concerning only the degree programme, curriculum and the choice of tracks) and career information (instruction on internships, self development, career possibilities and so on).

4.4.1 Study information

First we asked whether students were aware of their study options and the results are shown in figure 4.3. The students that answered in the affirmative (N= 513, blue and purple category) were asked to assess the quality of information by giving a grade on a scale from 1 (poor) to 10 (excellent). The average score was 6.8. Of the respondents approximately 10% rated the quality of the study information with a 5 or lower. As expected, the students that were aware of their study choices rated the quality higher (7.0) than the students that are aware but either don't know all the options or their consequences (6.3).

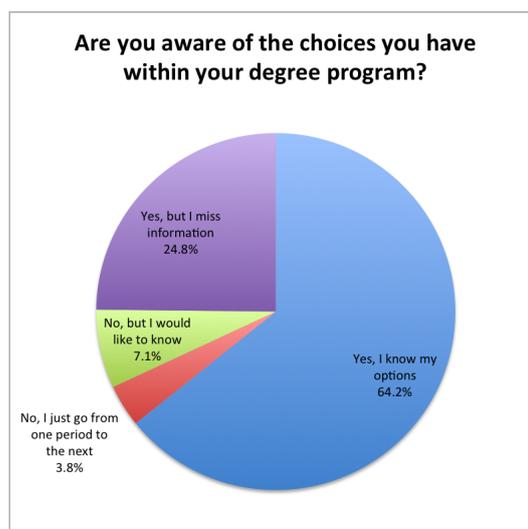


Figure 4.3 – Study choice awareness

From both categories a significant number of students expressed a preference for both oral and written information (65.7%) as is shown in figure 4.4. From our investigation on the current curricular situation (Chapter 2.3), we pointed out that many degree programmes offer their information during bulk presentations for a lot of students. Some degree programmes, e.g. BSc Biology and BSc Life Science and Technology, then also publish these presentations online. From the survey we can thus recommend that all degree programmes offer their information on study choices in both an oral and a written format.

The results of the survey revealed that most of the students admit to have received the necessary information about their study choices in good time (46.6% of the respondents). However, almost as many students wish that they would have been informed earlier (44.6%) as is depicted in figure 4.5. When summarizing the informing and deciding moments in each degree programme we have noticed that usually the amount of time passing between a relevant information being provided by the faculty or degree programme and a decision being made by a student is less than 1 period. This might be insufficient for many students who wish to plan ahead the activities that they want to engage in during their study (semester abroad, board year etc.).

So the majority of respondents is aware of his/her study choices (89%) of which some (24.8%) miss information regarding e.g. all their options or the consequences. Both categories exist in all degree programmes. This discrepancy is quite strange as all students of a particular degree programme (should) have access to exactly the same information. It seems to suggest that some students might be able to receive all the information they require, not by the means of the faculty, but from fellow colleagues or study associations. This hypothesis is supported by the fact that 57.3% of all the respondents acquire information about study choices and track options from

fellow students. They appear to be the most popular source of information, surpassing Nestor (56,9%), the study guide (52.2%), the academic advisors (37.8%) and the Student Portal/Infonet (21.1%).

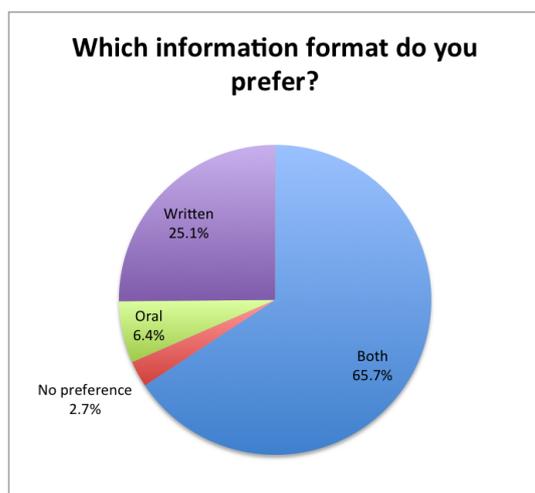


Figure 4.4 – Format of the information

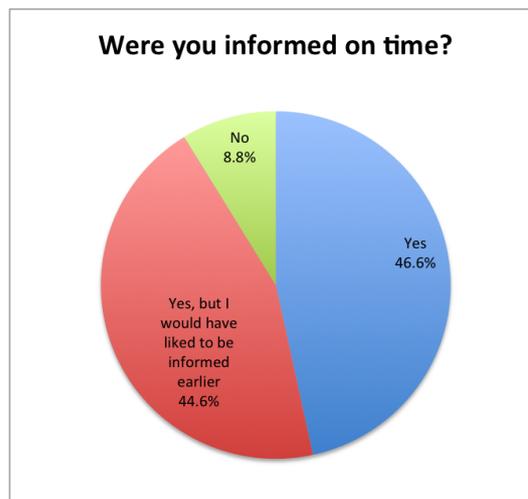


Figure 4.5 – Timing of the information

Now we focus on the fact that 31.9% (N=184) of all the respondents indicate that they miss information on many important aspects of the study: career possibilities related to study choices (59.1%), internships (56.4%), going abroad (50.3%), research possibilities (48.6%), minors (46.6%) and majors or tracks (32%). From the investigation of study programme specific information we anticipated this result for internships, research possibilities and career possibilities related to study choices. That also the information for minors and going abroad is missed is surprising as these information moments are consistently organized for all degree programmes. It could be that the timing or format of the meeting is not adequate for what the students needs to hear.

For internships the result can be interpreted in two ways: (1) Students have an internship but miss information of the organization of this study element or (2) students wish they could do an internship, but miss information of the possibilities. In the last case, study associations have tacitly assumed the role of providing such opportunities for students.

When asked where they would look for the missing information, students especially indicate Nestor (68.7%), followed by the study guide (44.5%), the university website (42.3%) and the academic advisor (40.7%) as the top preferences. More alarming is perhaps that 15.9% does not know where to look for this information. These numbers support the earlier recommendation of using one obvious place to present study information.

During the final question of this part of the survey, students could leave comments and suggestions. The following paraphrased examples were mentioned most:

- Information is on multiple places, sometimes wrong, missing or outdated.
- Information should be more transparent, readily available and on time.
- It would be nice if courses/tracks/minors stronger link to the potential work field. In this a better and stronger cooperation with and visibility of NEXT, alumni etc. is helpful.
- Information should be more programme specific or more detailed.
- Providing a time frame from the start of the Bachelor onwards on when certain choices have to be made.

4.4.2 Career information and activities

In view of the career preparation, it was surprising to see that 61.5% of the respondents have not yet started to prepare for their career. Most of them later stated that they will start preparing towards the end of their master programme. However, we find that for a science student, this might be a little too late. This delay is a natural consequence of the fact that most programmes do not provide any degree specific information on career perspectives in an earlier stage of the study. Exceptions are the Industrial Engineering and Management and Pharmacy programmes.

The students who have started to prepare for their career (N=222) have created a LinkedIn profile (77.8%) and more than 40% did a resume check, visited the Beta Business Days or joined a company excursion of one the study associations. An overview of what these students, as well as those that have not done any career preparation so far, are still planning to do can be found in figure 4.6. Note that this figure does not take into account what students have already done: the number of students that consider e.g. a LinkedIn profile as part of their career preparation is thus much higher.

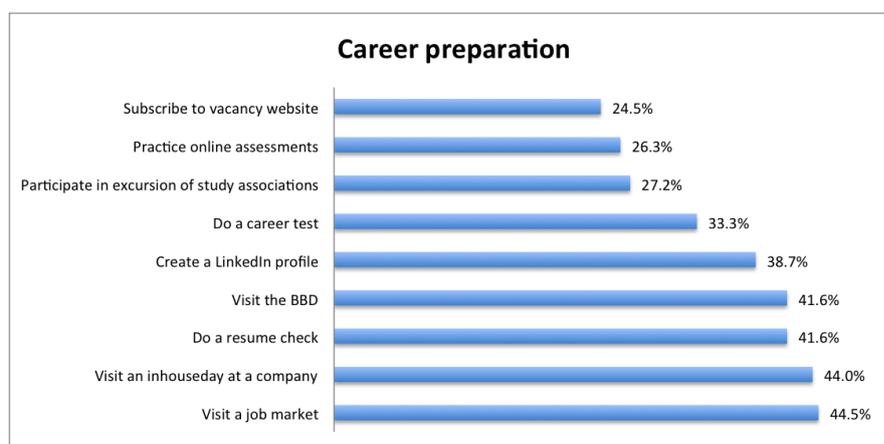


Figure 4.6 – Career preparation that students (still) plan on doing (N = 555 respondents).

Although many students have not initiated any career preparation yet, the results of the survey suggest that they do expect the faculty to fulfil a more active role in this matter. We have asked the students what type of career information the Faculty should provide and almost every option was ticked by more than 50% of the students. This is shown in figure 4.7. In terms of career activities that should be organized by the faculty, students are most interested in internship possibilities within their degree programme (77% of the respondents), see figure 4.8.

Note that for these two questions students were asked to consider study associations and NEXT as part of the Faculty. Knowing the information and activities these bodies provide, one can deduce what can still be improved. Most of the popular activities (> 40%) are already organized except for career tests⁴. A course that prepares for the job market is already there but part of the Science Business and Policy track and maybe therefore less familiar or accessible to all FMNS students. The low NSE scores on career preparation are at least not caused by the lack of activities.

Looking at the information students would like to see provided by the Faculty, we see that we can gain a lot. Job openings that are known are posted at the study association websites and/or in Career ConNEXT (My Career tab in the Student Portal). More general vacancy databases are not mentioned. Information about alumni, the labour market and doing a PhD is

⁴A test to see what type of job fits you best.



Figure 4.7 – Career information the Faculty should provide according to the student ($N = 575$ respondents).

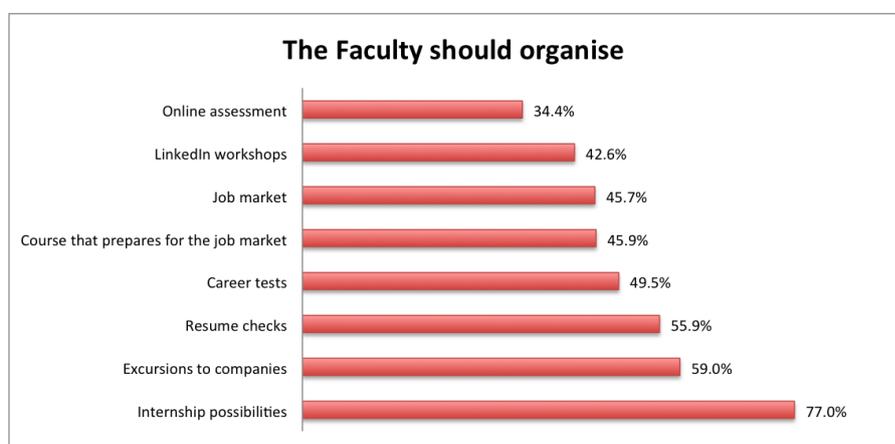


Figure 4.8 – Career activities the Faculty should organize according to the student ($N = 564$ respondents).

scattered over a multitude of sites if present at all. In close collaboration with all stakeholders one should decide how and where to present the missing information.

Some interesting or often mentioned comments and suggestions regarding career information are (besides what was already mentioned before):

- A lot of activities, information and experience regarding career preparation is already present at e.g. study associations, the BBD, NEXT and the SBP track of the Master. The Faculty should combine and coordinate these efforts rather than interfere and organize too much themselves.
- There is already a lot of career information available in- and outside the UG websites albeit wide-spread. With some work and time, students can find what they are looking for on their own initiative. We shouldn't pamper them.

The university is an institute for education and research and not a university of applied sciences (HBO) and thus not necessarily prepares for a specific profession. This of course affects the way students are prepared for a career later on. A balance between staying true to the identity of a university but also preparing students for the (broader) labour market needs to be found. Above we looked at what the student wanted and to certain extent needed. However, in finding the mentioned balance these student expectations regarding career preparation at a university need to be addressed as well: maybe what students want, is not what a university provides.

The overall conclusion is therefore that students try to make conscious choices of their study. However, gathering all the necessary information to make a decision can be a very challenging task because of the complexity of the information network. The late distribution of information is also seen as an obstacle by many students who are trying to plan their academic life ahead.

Recommendations

- vi All degree programmes should offer their information on study choices in both an oral and a written format.
- vii Information on study choices should be provided earlier than is currently done (< 1 period).
- viii Students rely on Nestor for providing information on all types of study choices. This would be the preferred medium for providing written information.
- ix Information on important aspects of the study including career orientation is still found to be lacking eventhough information meetings are held for all important study choices. Degree programmes are therefore urged to reevaluate the way they distribute this important information.

Chapter 5

Framework for career and study orientation

Having considered the stakeholders, the current study and career activities as well as the student needs and having compared this with some other faculties inside the Netherlands, the final framework can now be presented. This will be a five-level orientation system (Section 5.1) that functions as an information hub on all possible study and career related choice a FMNS student faces (Section 5.2). In the last section we will highlight some aspects of the implementation.

5.1 Five levels of orientation

The following considerations are based on the recommendations and observations we have made and will form the basis of the framework:

- i. It must be a general faculty wide framework in which individual degree programmes can implement the specifics.
- ii. Students need to be obliged to spent some time on study and career planning and preparation.
- iii. The needs of students with respect to career information and activities depends on their study phase. The process of study and career orientation therefore needs to be discretized.
- iv. The above has to be realized without creating a sense of micromanagement by the degree programme/academic advisor/mentor.

This has lead to the conclusion of discretizing the orientation process in a five-level system linked to the student's study progress. Each level symbolizes that the student has acquired a certain insight in his/her study and career development and is able to make the appropriate study and related career choices. Each level should be reached in the indicated period based on 2.2. This is visualized in figure 5.2.

The student that starts in year 1, period 1a is assumed to have no idea on study or career path besides the already made choice of the bachelor. The subsequent levels are:

Level 1: The student has acquired the necessary information to choose their track/major. He/she is furthermore aware of the curriculum of the remainder of the bachelors and knows when important study choices have to be made.

Level 2: The student should be able to decide whether to do the minor abroad. If not, he/she should know which minor he/she wants to follow.

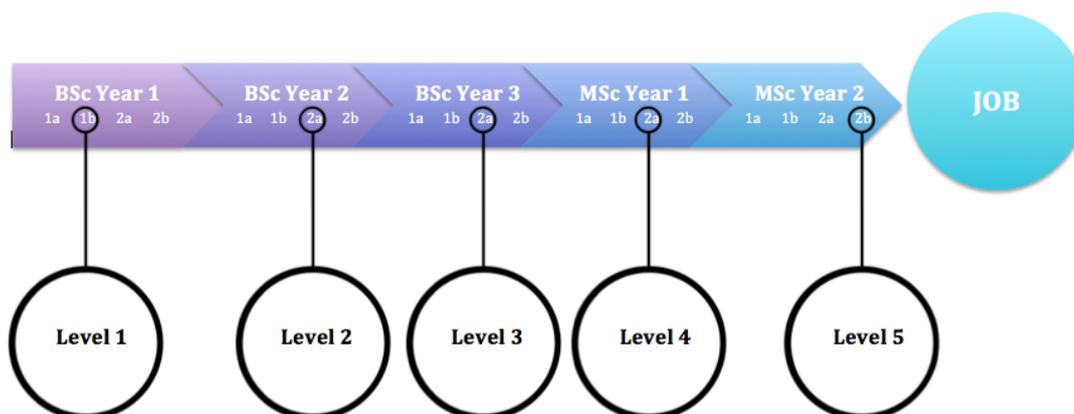


Figure 5.1 – Visualization of the five levels of study and career orientation and their time frame.

Level 3: Regarding the bachelor thesis and/or research, the student should be aware of the different research fields and possible subjects and have contacted the group of his/her interest. Information on graduation process and deadlines is known. Furthermore, the student should have a clear idea on type of field (industry, research, education, etc.) he/she wants to work in. This allows the student to make the appropriate master choice.

Level 4: Student should know the specific sector or field of research he/she wants to end up in. This will then allow the student to choose the research group for his/her master thesis as well as an appropriate internship if applicable.

Level 5: The student has acquired the necessary skills and knowledge to successfully find a job that he/she wants.

Additionally to the above, it is strongly recommended that students hand in a planning at the start of their master's programme especially where it concerns degree programmes with an internship or otherwise great freedom in structuring their programme (e.g. MSc Biology).

Two important side notes need to be made. Firstly, the degree programmes will have to add their information to the framework such that its content and time frame optimally match. Secondly, the framework is based on a student completing his/her bachelor nominally in three years. The effects of students deviating from this need to be considered, possibly leading to a different formulation of the framework.

Each degree programme is free to decide the exercises and activities they wish to employ. A few examples follow from our investigation of the current study and career activities, namely an assignment in which the student reflects on the chosen study path and its ramifications, a portfolio assignment to stimulate the student to visit different career orienting activities and lastly a course on career related topics. These examples are not designed to fit into the framework, but do show which activities a degree programme could employ to get students from one level to the next.

- *Major assignment* (BSc Biology and LS&T). This assignment consists of two parts. The questions of the first part include reflection on the study and major choice, preferred minor and master choice and concludes with the study progress so far. The second part consists of making a time schedule of next year that meets the Examination Board requirements. Not successfully completing the assignment will lead to deregistration of electives. The assignment is thus mandatory, though no ECTS are awarded. A Dutch version of the assignment can be found in Appendix D.
- *Career portfolio* (BSc Mathematics and Applied Mathematics). Students are required to at

least attend 6 career activities. The portfolio includes what the student has learned from these career events. A list of possible activities is on Nestor and includes preselected events from the study association. The assignment is part of the course Bachelor Workgroup and is separately awarded 1 ECTS (mandatory except for those students that go abroad).

- *Course ‘Career Related Topics’* (MSc BCN). From Ocasys we read: “Each of four different topics is introduced by invited lecturers, who serve as master class teachers in the afternoons. The students use the forenoons for acquaintance with the topic and for preparing efficient interaction in discussions with the teachers. The topics are related to research such as writing grant proposals, project management, ethics and career perspectives.” The course is awarded 5 ECTS and is mandatory for all MSc BCN students.

Besides the above examples the mentor, tutor and/or learning community can play an important role in guiding the student through his/her study choices. As students rely on their fellow students for information and advice, the mentor group or learning community can provide the support system as well as challenge the student to actively orient himself on his study and career choices.

Before proceeding, we also wish to stress the important role study associations can play in this process as they already organize an abundance of activities which fit or can be fit within the proposed framework. The Mathematics degree programme already uses this in the above mentioned example, but we have also seen that study associations organize the seminars/symposia/information sessions where students receive important information concerning their study. This cooperation results in a highly involved study associations and also optimally uses the strengths of the stakeholders involved.

5.2 Information hub

The final framework is based on one additional consideration that followed directly from the student survey:

- iv. Information regarding study choices including consequences for the possible career path as well as general 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. This ensures that written information is always available, complete and easy to find.

The proposed level system structures the study and career orientation process of the FMNS students as it interlinks all the important study and career choices which the student faces. However, it will also function as an information hub. Fitting the framework in a ‘course’ format on the Student Portal as we propose will ensure that all information needed to make a decision can be easily found and be accessible from one location.

An example of the lay-out could be as given in figure 5.2.

The subjects are related to the study and career choices. Here, one is advised to take into account the results of the survey regarding information the student wishes the Faculty would provide (figure 4.7) as well as the information which is currently hard to find, not available in written format or otherwise unclear e.g. information on internships.

The activities displayed should fit the degree programme in which the student is enrolled and should be automatically displayed. A possibility is to also include progress bars to show where the student is regarding his/her orientation process.

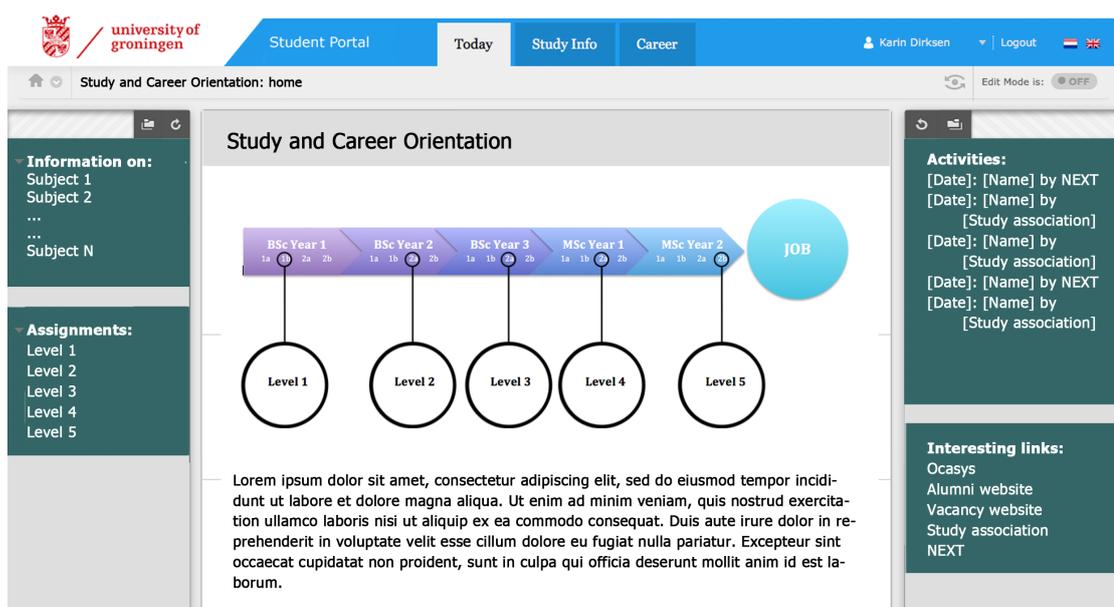


Figure 5.2 – Visualization of the Framework for Study and Career Orientation.

5.3 Implementation

Implementation of the described framework requires at least the following steps by the involved stakeholders:

1. Approval of the concept by Portfolioholder of Education (in consult with the Director of the USS and GSS)
2. FMNS career services should then further develop the framework by
 - Discussing the exact content of each orientation level (in collaboration with the academic advisors)
 - Identifying the necessary information on a faculty level
 - Deciding and developing the format in which the information is presented
3. At a degree programme level the programme director will have to decide the activities or assignments he/she wants to employ in guiding the student from level 0 to level 5. Study associations and NEXT can help in shaping the activities.
4. Once decided, the assignments have to be developed. In close conversation between the degree programme, NEXT and the study associations the still missing activities also need to be developed.