Secondary school students' reactions to descriptions of engineering and nursing in university catalogues

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Abstract

The underlying assumption in the study is that it is not only the technical content of engineering education, but also the educational framework that deters young people, and particularly girls from engineering studies. Descriptions of engineering programs and nursing programs in Swedish university catalogues were compared. The results show that both descriptions draw on gendered professional and educational discourses, creating distinctively different descriptions. A questionnaire study among secondary school students showed that when the subject content was removed, engineering and nursing programs were equally attractive to both boys and girls. However, nursing programs in general were more attractive than engineering programs.

Background

This study is ultimately based on the notion that it may not be (only) technology that puts off girls from studying engineering, but that the notion of engineering and engineering education is associated with a number of other characteristics which may seem less desirable to them.

To find out what kind of characteristics engineering programs associate themselves with, this study analyses what is offered to presumptive students in the recruitment catalogues[1] about engineering programs from different universities. In this examination it is not the content of the educational program that is interesting, but the framework - teaching methods, study environment, connection to working life – in which the content appears and what kind of language is used to describe it. The second part of the study examines how secondary school students evaluate such descriptions of educational programs – how girls and boys comment on descriptions of the educational framework and the language, if they cannot relate it to the gendered area of the subject matter.

For this study, not the high status graduate engineering education, but the three year program leading to the bachelor of engineering degree was chosen. This engineering program is a relatively new phenomenon, created in the 1990's, and not very well researched. Most research has been done on the graduate engineering programs, which have a much longer history. There are also a number of gender analyses of graduate engineering education (Dryburgh, 1999; Sagebiel & Dahmen, 2006; Salminen-Karlsson, 2003).

The Swedish three year education was a development of a two-year education which, in turn, partly substituted an earlier four year technical program in secondary education. The main difference in the national degree requirements for bachelor engineers and graduate engineers, respectively, is seen to be the phrase 'design and manage products, processes and systems…' for the bachelor level and 'develop and design products, processes and systems…' for the graduate level (The Higher Education Ordinance, Annex 2), even if there are also other differences in the descriptions. In short, the bachelor of engineering education is seen as supplying the industry with engineers who are both hands-on and well educated enough to handle modern, complicated technology. While the two engineering degrees were strictly separated during the 1990's, it is now often possible to continue from a bachelor de-

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[1] When this text refers to brochures or catalogues, it is because the actual study was done on university program catalogues. In most cases the same information was available on the Internet.

gree to a graduate degree. This indicates that the hands-on aspect has become less prominent.

The student population of bachelor engineering programs is quite different from that of graduate engineering programs: the students come mainly from lower middle class (Högskoleverkets årsrapport, 2008), they are older (22% are 25 years or older when they start on the program, Statistics Sweden, 2009b) and thus, many have some working background before they start their studies.

The two engineering programs can, to some extent, be expected to mirror Wajcman's (1992) description of two kinds of technical masculinities – middle class intellectual technical masculinity and working class practical technical masculinity. This means also that the studies on gender in graduate engineering education do not directly apply to bachelor of engineering education.

To highlight the possible special characteristics of engineering education, a material for comparison was needed. The education for hospital nurses was chosen as the program for comparison for several reasons: the programs are both three-year programs and are offered by a number of regional university colleges. They recruit the bulk of their students from the same socio-economic group. And, of course, both these programs are gender segregated, the percentage of women in engineering programs being 23% and the percentage of men in nursing programs being 15% in 2006 (Statistics Sweden, 2009a).

In Sweden, a number of projects have been conducted to make both engineering education and nursing education more gender balanced. However, the ordinary gendered discourses of the education and the professional fields counteract these efforts. The different histories have formed the regulatory and material practices of the different programs. The programs are organized differently, and this naturally shows in program descriptions. But also similar phenomena are described in different ways in the different program descriptions, using different vocabularies, because the different educational programs connect to different discourses (see, for example Perelman, 1999 about engineering discourse and Dufva, 2004, about nursing discourses in Sweden during different periods). An example of the different vocabularies are words like 'responsibility', 'leadership' and 'stimulating' which are common in presentations of nursing programs but do not appear in engineering programs, and 'advanced', 'competence' and 'exciting', used by engineering education but not nursing education. This is in spite of the fact that nurses use advanced technology and have special competencies and that nursing can be exciting as well as stimulating. Correspondingly, some engineers will have leadership positions, they are also responsible for different things in their profession and engineering is stimulating as well as exciting. Thus, the different descriptions could to some degree be interchangeable, but are restricted by the discourses from which they draw their vocabulary.

Gendered descriptions in the university catalogues

For this study, all university catalogues for the autumn term of the year 2006 from universities offering a nursing program or a bachelor of engineering program in engineering technology or computer engineering were examined. These two engineering programs were chosen because the program in engineering technology is program in a traditional area of engineering and because the program in computer engineering is even more male dominated than most other engineering programs. The descriptions of these programs were coded with the program Atlas.ti and the following opposite categories emerged as a result of an inductive examination of those codes and categories.

1) Engineers are supposed to be interested in the subject area of the education, i.e. in some more or less defined technical area. Nurses are not expected to be interested in the subject area of medicine or even in the subject area of care. They are expected to be interested in people. The subject area of care is introduced in the texts, as the subject area for those who are interested in people. However, in the opening lines of the texts, an interest in people and sometimes (but not very often) helping people is what you are expected to have, to be an addressee of the text and read further.

Studies on gender in engineering have discussed the people-things divide that seems to be so important in the making of engineering identities (Faulkner, 2001, 2007, Lagesen, 2007). This study shows how this divide is established already in the program catalogues, when describing the area of study for presumptive students. Rommes et al. (2007), find that girls can choose technology as long as they can keep their identity as people-oriented and caring. However, the descriptions of engineering in the program catalogues do not address these individuals.

2) Engineers need competencies, nurses need qualities. This is well in accordance with the national degree requirements, where nurses but not engineers are supposed to have personal qualities such as 'demonstrated self-awareness and the capacity for empathy' (Higher Education Ordinance, Annex 2). This means that those young people who choose to become nurses have to be prepared not only to learn knowledge and skills, but also to undergo a socialization process to make them to the right kind of persons – something that is not required of engineers. It is also in accordance with the societal tendency to regard women's skills as innate characteristics and men's skills as acquired competencies.[2] Even the idea of girls being more adaptable and submissive may play in here.

3) Engineers work with production, nurses work with reproduction. The division production – reproduction was central for second-wave feminism in their argumentation how both politics and economy have prioritized the productive, public sphere where men dominate, while the reproductive, private sphere that long has been women's has been neglected.[3]

When it comes to descriptions of the educational programs, the link between engineering and production becomes almost over-explicit. This is well in accordance with Perelman's (1999) description of engineering discourse and its concentration of production. According to the catalogues you can learn about production technology, production flows, production systems, production compilation systems, production strategies, production logistics, production quality, production preparation and high-performance production. Production can be improved and developed. One can specialise in production or industrial production or lean production. During the education one can work in the production at a company. To be an engineer, one obviously has to have an interest in producing things. The texts do not mention the fact that many engineers actually are, in a way, engaged in reproductive work: sustaining and servicing things that others have produced.

The corresponding word for nurses is (nursing) care, which is not producing but sustaining and preferably improving the health of other people.

4) Engineers are supposed to deliver quality, nurses are supposed to be responsible. The different sides of the production – reproduction divide can be seen as functioning in different ways and producing requiring different characteristics. One example of this is the idea of ethic of care, used predominantly by women, in contrast to the ethic of rights, used predominantly by men (Gilligan, 1982). Girls are still more often than boys socialized to having responsibility, not only for themselves but also for other people (Wahlström, 2004). The female dominated nursing education can be said to continue this socialisation. Responsibility is a word that appears often in the texts about nursing. In texts about engineering it is almost non-existent. Obviously, engineers are not supposed to feel overall professional responsibility. Their approach to their work and what is expected of them is, instead, described in terms of quality. Thus, their 'responsibility' is more particular.

5) Still one difference connected to the production – reproduction sphere is the way the need of communicative skills is described. According to the catalogues, nurses need to know how to 'inform', 'instruct', 'tutor', and 'co-operate in groups', while engineers need to learn how to put their message forward to gain support for their ideas (Jang et. Al, 2009; Peterson, 2008). Interestingly, even though much of engineering texts in the catalogues deal with project work, the importance of learning to co-operate (instead of just co-operating) appears seldom.

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[2] See, for example, Kelan, 2008, about social skills in engineering.
[3] This has been elaborated by, for example, Ehrenreich, 1984 and Walby, 1990. Mulinari & Sandell, 2009, write about how present day societal research still connects women with reproduction and not with production.

6) A thoroughgoing difference between the texts is the presentation of the program as an academic study program or as a program close to working life. The texts describing engineering education make it seem as if the academic content were almost superficial, something that has to be there to make it a study. For example, the word 'company' appears far more times than the word 'teacher'. In engineering texts the buzzword is 'project work', which seemingly is the method to learn everything that is needed – even if project work actually might be a minor part of the education, when the text is read more carefully. The texts about nursing write much more about teachers, teaching methods and the subject matter.

In this context it is understandable why the periods of practical work during the education are called 'education in work context' the nursing texts – it is still education that the student is engaged in. For engineers it is a question of an 'internship', and the texts give the impression that the student will be part of a company and possibly even a useful part of it, instead of being a learner, as the nursing texts suggest.

The engineering texts give the impression that they are targeted at young men, tired of school but willing to make a career. Engineering education is presented as an individual, educational project. In contrast, the nursing texts seem to be targeted to studious girls who do not mind continuing school, willing to both pour over books and to train practical skills under competent supervision.

7) Connected to the work – school divide is also the general impression that engineering education fosters individuals, while nursing education fosters members of a collective. The great number of elective courses in many engineering programs contributes to this – sometimes it seems that there are not two engineers with the same education, while the nurses are expected to follow a well laid out path through their studies. But the idea of an individual career vs. being a member of a collective is indicated even in other ways. For example, there is a common promise that after an engineering education the student will be 'attractive' in the job market. Nurses, for their part, never become 'attractive' in the texts. Most often they become 'well prepared' or 'in demand'. The engineers are sent out to sell their individual attractiveness, while the newly graduated nurses are a commodity for which there is a demand.

Thus, to be attracted by the descriptions of bachelor of engineering education, it is an advantage if a student is not only interested in technology, even if this is one of the prerequisites. She should also be interested in producing and not servicing, accept that the education does not contribute to personal development but only to development of skills and knowledge, she should accept that responsibility is not a characteristic that is particularly cherished and that communication equals assertion. She should also feel independent and competent enough to navigate through a number of subject choices, to assert herself in project work and to easily integrate in a company environment and after the education go out to a labour market where she will need to sell her individual competence. It is also an advantage if she is not of the studious 'good girl' type, not a reader but a doer.

The recruitment texts for both nursing and engineering seem to be targeted at the (gendered) group now dominating on the program. This is hardly surprising: the texts are advertisements, and advertisements still often take the safe way of using traditional stereotypes (Plakoyannaki, 2008; Wolin, 2003).

Questionnaire study

Introduction and methodology, questionnaire study

However, young people of today may not conform to old gender stereotypes. There actually may be a fair number of girls, who might feel comfortable with the implicit requirements of a bachelor of engineering program. The descriptions may conform to gendered stereotypes, but does that affect the educational choice of secondary school students? To find out, four descriptions of educational programs were created, none of them stating the subject matter of the program, but only describing the program and the job market in general terms. Two of

them used phrases from descriptions of nursing programs, and two used phrases from engineering program descriptions.[4]

These descriptions were distributed to 366 secondary school students, 205 girls and 157 boys[5], on social science and science programs (the two secondary school programs which are the main track to higher education). 117 of the students attended school in a middle sized town, with an industrial history but now also having a university college, and the rest in five rural municipalities. Having a good representation from rural areas was seen as an advantage in this context, as it is these students that many of the nursing and bachelor of engineering programs target.

It was not apparent when recruiting the schools to take part in the study that two of the schools had a special profile in sports, and thus enrolled a somewhat a-typical student body. Some of those girls who were enrolled in the sports profile (the percentage is unknown) may have other interests than the 'typical' secondary school girl.[6]

The students were asked to read the descriptions, choose one of the programs, motivate their choice and preferably also comment on the other programs (which many of them did). In addition they got a questionnaire with 37 different aspects relevant for an educational program, also derived from descriptions of nursing and engineering education, and were asked to mark on a scale how important these aspects were for their choice of education.

Results of the questionnaire study

The results show that even if the descriptions appear gendered, the different programs attracted approximately the same numbers of girls and boys. It was only one of the nursing programs that attracted significantly more girls than boys. However, when motivating their choices, girls and boys drew on somewhat different details in the descriptions.

The two nursing programs attracted significantly more students than the two engineering programs: 68% of the students chose a nursing program and 32% an engineering program. Thus, descriptions based on formulations used in nursing programs were more attractive even for boys than descriptions based on engineering programs, when references to the subject matter were removed.

What nursing programs had and engineering programs lacked

The most popular nursing programme (which was number one in the brochure presented to the students) opened with the paragraph:

> The program is right for you if you are outgoing and find it stimulating to meet people, and if you wish to have freedom of choice in regard to your future workplace. You will be able to work with information, supervision, planning and leadership, as well as research and development. Most probably you will work in a team with responsibility for your own area. You will be able to work in Sweden, in the EU or anywhere in the world.

A large number of the students, both girls and boys, perceived themselves as outgoing and chose this nursing education for that reason. The descriptions of the engineering programs did not address this identity at all. (However, there were also students who did not identify themselves as outgoing and were therefore not interested in a nursing program.)

The promise of personal development offered by the nursing programs was also mentioned by a number of the girls, when commenting on the descriptions. In the questionnaire, where 37 different statements were rated by the students, the statement "the education develops you as a person" was the issue that was most important for the girls when

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[4] The only conscious 'manipulation' of the texts was including a phrase about working with people in both descriptions of engineering education. Both phrases came from original descriptions of engineering education programs, but there are still many such descriptions that do not mention working with people, and, thus, a random pick of two engineering descriptions would unlikely have resulted in two descriptions mentioning people.

[5] Four students did not specify their gender.

[6] For example, becoming a police officer was a popular future option among the girls, and there were also a few who planned to go into the military. Nursing was not a popular choice – however, such typical female professions as teacher and social worker were popular.

choosing an education and even among boys' answers it came high up, ranking number five. There is a total absence of references to personal development in engineering texts. (For boys, the most important issue was the possibility to get a job after the education - which was number two for the girls.)

Nursing programs generally advertise the possibility to spend one term abroad and many of them list the countries with which they have co-operation. Engineering programs almost never do this, even if all Swedish universities have exchange programs for students. The possibility to study abroad was mentioned as one of the main reasons for choosing a nursing program, particularly by the girls. In general, Swedish secondary school students are interested in studying abroad, nationally, more than 60% of the students on the two secondary school programs in this study, girls more often than boys, are interested in doing some of their university studies abroad (Statistics Sweden, 2007). The fact that a Swedish nursing certificate is recognized in all EU countries is also often mentioned in program descriptions and many young people, particularly girls, even from these rural communities, obviously are attracted by the possibilities to move abroad to work after graduation.

Nursing texts also often stress the aspects of leadership and independence – presumably because of the long lasting professional struggle to assert the special position and competences of nurses in the medical hierarchy. Some of the students were attracted by these possibilities expressed in the description. However, if these students had known that the leadership and independence were to be executed in a position as a nurse, the words might have got a different flavour.

What were attractive features in the engineering texts?
The first of the engineering programs presented itself as a program with strong ties to working life, with sponsoring companies and even a possibility to have periods of practical work with an ordinary wage integrated in the program. There were even a large number of elective courses. These characteristics were appreciated most by the students who chose the program. The number of electives was appreciated even more than the ties to a workplace, particularly by the girls. Connections to industrial companies, though prominent in the text, were seldom mentioned in the students' motivations for choosing the education. There were even a few students (who did not choose one of the engineering programs) who explicitly did not want to choose an educational program which was connected to industrial companies.

Instead of the connection to companies in itself, the promise that it would result in *real problems* being taken up in the education was much appreciated. 'Real problems' was one of the code phrases that caught many students. Another such phrase was 'your degree weighs heavily on the labour market', which was quoted word by word by several students.

Other code words were *freedom* and *breadth*. While girls more often mentioned 'breadth', boys appreciated 'freedom' more.

'Breadth' is a very frequent word when different engineering programs are described. A broad education is also something that is assumed to interest female students. According to the results of the questionnaire this seems to be true. In traditional descriptions of engineering education 'breadth' denotes a broad technical competence, but today engineering programs assert that even many non-technical subjects and features are included. However, when reading an ordinary recruitment text about an engineering program, it becomes clear that the 'breadth' still primarily concerns different technical areas. It is not sure whether the girls in the study would have reacted as positively to the word, if they had realised that it actually would be limited to a certain area.

The word 'freedom' is not as frequent in program descriptions as 'breadth' and it is interesting to see that it was perceived so positively. However, some of the students (who did not choose an engineering program) also commented on the number of elective courses as something negative, and stated that they would find it difficult to choose among them, because there did not seem to be many guidelines.

Another buzzword in many engineering program presentations is *project work.* This was not at all popular among the students. Only 8 students of the 138 who chose an

engineering program stated that project work attracted them to the program, and there were several students who explicitly stated that they did *not* choose an engineering program because of project work. This is particularly true in regard to girls who were even more negative to project work than boys. Thus, recruiting more girls into engineering is not likely to succeed by increasing the amount of project work.[7]

The possibility to earn money during the program was appreciated, but not as much as the electives, the breadth and the freedom. When it was mentioned, it was often the last item on the list, as an extra bonus.[8]

Those who chose the second engineering program rather than the first did it because it was seen as more *oriented towards people* and as more *practical*. There was a slight difference in how the 'people aspect' in the working life was expressed: The first program mentioned 'co-operation with others' and the second mentioned 'contact with other people, at your workplace as well as all over the world'. None of the students who chose the first program described it as oriented towards people. The phrase in the second description was given by some of the girls as the reason why they chose the second program. Thus, just a slight difference in stressing the 'people aspect' made the second engineering program more attractive than the first for some students.

While the first program described its co-operation with different companies, the second promised profound practical knowledge. This promise of practical knowledge appealed first and foremost to boys. The second engineering program mentioned the degree project and several students commented on it. According to them, it appeared to be too much work. Obviously, the students did not know that all university programs have a degree project, and mentioning it in the description gave the program a negative image. This is an example of how the different frames of reference in the university sphere and among the presumptive students can lead to unintended consequences.

Some more differences between girls' and boys' preferences

The questionnaire about the importance of different aspects when choosing an education was created because all the aspects where descriptions of engineering and nursing education were different, could not be squeezed into the four fake descriptions. Even these statements were fetched from actual descriptions of educational programs in nursing and engineering. They shed further light on what young people of different genders value when choosing an education.

According to these results several aspects promoted in nursing descriptions are more important for girls than for boys, and they mostly have to do with the social aspects of the education, which is not promoted in descriptions of engineering education. Girls more often than boys thought that values and ethics are an important area learn to about, and that it is important to receive training in communication skills. They would appreciate more than boys the efforts of the university to create a good social climate among the students. And girls more than boys thought it an advantage if the education promoted critical thought. Such things are only offered in nursing descriptions. Girls also thought it more important than boys to have an job with 'independence', and this is also offered in nursing descriptions – even if it may be doubted whether nursing jobs actually are more independent than engineering jobs.

Something that emerges from the study is the importance of information about the future labour market. Descriptions of educational programs normally give quite short information about the future profession, compared to the information given about the educational program itself. The fictitious descriptions followed this pattern. However, what was written

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[7] I presented the results in two classes who had taken part in the study and asked about the dislike for project work. I found out that these students had had lots of ill organized project work during their secondary school studies, and were not interested in having any more.

[8] In my presentation in the two classes I also expressed my astonishment that such an offer did not awaken more interest. The students' response was, basically, that they did not expect economic matters to be of primary importance: 'The economic side will always get sorted out in some way'. The offer of paid work might be more attractive for older, returning students, which also are an important target group for three year engineering programs.

about the labour market was important for many students in their choice of a program. The possibility to get a job after the education was of primary importance according to the questionnaire, and what was said in the very short description of the future job was often cited as a reason to choose a certain program. It is possible that this weight given on the labour market is, in part, due to the non-academic background of the students. They have probably realised that while secondary education formerly was sufficient for getting a good job, higher education is now required. For them the aim of educating oneself still seems to be to get a good job. And even for these teenagers from the rural Sweden, the possibility to study and work abroad plays an important role.

Discussion

The underlying assumption for this study was that it is not only the subject content that is perceived as gendered in, for example, nursing and engineering education, but also that the way an educational program is organized and described has gendered meanings.

In the first part of the study it was shown that the descriptions of nursing and engineering programs actually conform to societal gender norms: nursing descriptions stress characteristics which are associated with women and the female dominated sphere of care, and engineering descriptions stress characteristics which are associated with men and the male dominated sphere of production. Thus, it could be expected that descriptions of nursing programmes, even without knowledge of the subject matter, would attract more girls and that, correspondingly, engineering programmes would attract more boys.

The second part of the study showed that this is not necessarily the case. In this sample (with reservations for the possible bias of girls with special interests) nursing attracted only slightly more girls than boys and the fictitious descriptions of engineering education were equally attractive for boys and girls.

The first part of the study puts forward issues about the self-image of the engineering programs. It shows clearly that it is not only technology as a subject matter that makes the image of engineering education mirror different masculine aspects in the society. This can form a background for self-reflection. Why is the focus so heavily on production? Is responsibility really not a characteristic to be promoted in engineers? Is engineering really only about skills and knowledge and not at all about personal characteristics? Is it always advantageous to propose (or require) so much individualism? Looking at a male dominated program in the light of a female dominated program can illuminate the unreflected genderization of the program.

The first conclusion from part two of the study is that even if the descriptions are formulated in a gender-biased manner, this in itself is of minor importance. They attract female as well as male students. The main reason why students make traditionally gendered educational choices is the subject matter. That is, we are still faced with the problem of loosening the ties between technology and masculinity if we want to recruit more girls into engineering. Alternatively, we can try to loosen the ties between engineering and technology (which has, to some extent, been done in Swedish graduate engineering education).

However, paying attention to the formulations in recruitment texts is also of some importance. When choosing between two engineering programs, with similar subject matter, students may well look into aspects that have to do with the organization of studies and the language used to describe them. The descriptions in the catalogues have two target groups: those secondary school students who still do not know which profession to choose and those who know what they want to study, but who have to be attracted to a particular university. According to this study, it would be difficult to make the students who still are in the process of choosing a profession to make a gender a-typical choice by the design of the educational program and the way it is described in a university catalogue. However, when it comes to those students who already have decided to become engineers, it is possible that the way an educational program is described in a catalogue can play a part in directing them to a certain university. Thus, they may still have some impact in attracting, for example, students of minority gender to a certain university. Using broader descriptions, borrowing expressions

even from other discourses than the one prevalent on the educational context, may increase the number of those who get interested in the education.

One reason why program descriptions are stereotypical is probably the competition between the programs. In such a situation, addressing the presumed target group of students similar to those which the program already has managed to recruit is the safest strategy. Engineering educators might be interested in recruiting women, but maybe not on the expense of losing potential male applicants, particularly when these are scarce.

In that light the results of this study are encouraging. Using, for example, formulations more common in descriptions of nursing education, should not 'scare away' male applicants from engineering, as such formulations in the context of the study actually managed to attract more than half of the boys. To further emphasize this point it can be mentioned that, of those 37 students in this study who stated that they actually planned to go into engineering, more than half did choose a nursing program among the four descriptions.

Actually, the students reported very few statements used in the program descriptions making a negative impact. Some students reacted negatively to academic expressions like 'research', 'science', 'specialist knowledge' – which may in part be due to the fact that these students came from environments where adults with higher education are not common. Other students were negative towards project work. However, in general different statements were rated as more or less positive or neutral and few of them would make the impression of the program more negative.

The study has several limitations. For the first, the students only got two kinds of program descriptions to relate to. If the material had included descriptions from, for example medical education or political science, some aspects that were not included here would have come up in the material and been evaluated by the students in relation to the present aspects and might have proven to be even more important. For the second, some of the students' opinions have probably been affected by the way the descriptions were written and presented. For example, some aspects that really are not that important may have got extra weight as there only were a restricted number of aspects with which to motivate the choice of the program.

The program descriptions in university catalogues represent, to a large extent[9] the prevailing self-image of the programs. The results of this study should not be regarded as recommendations for changing catalogue descriptions. The fact that young people, even those who plan to study engineering, are more attracted by what nursing programmes advertise, than what is advertised by engineering programs, is a cause for concern for those who work to attract more students, and particularly girls, to engineering. However, rather than reflecting on how texts could be improved, the results call for a more deep going reflection on how engineering programs conceptualise themselves and what they want to provide the young people and their future employers. In some cases the issue is about paying notice to features that already exist on the program but largely go unnoticed (such as the possibility for studies and work abroad), in other cases the issue is about whether a certain feature that does not have an important position on the program would be beneficial for the students and their future employers (such as broader communicative skills, or more attention to students' personal development in general).

The young people in this study were gender transgressing in their choices, within the framework that was provided by the material they responded to. They are still not gender transgressing when it comes to different occupational spheres, such as care or technology. But it is important for the educational programs to be aware that gender norms and preferences seem to become less rigid among the applicants and consider it when they plan for their recruitment of future students.

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[9] This article has not dealt with the fact that program descriptions are also affected by the opinions of the PR department of the university. From of the large differences between engineering and nursing descriptions, it can be concluded that the PR departments probably have an influence, but not a decisive one.

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