Studiebarometeret: Rapport 5–2015

Personal feedback and advising in Norwegian higher education: Explaining student dissatisfaction

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Summary

The Norwegian Agency for Quality Assurance in Education has completed an annual student survey about the perceived quality of education in Norwegian bachelor and master programs. Based on the national student survey and interviews with students, faculty, and program leaders at seven different study programs in medicine and engineering in Norway, we show that while students are dissatisfied with the feedback and advising they receive, this dissatisfaction do not affect the students' overall perception of the quality of their study programs. We argue that the main reason for this is that students do not expect formative feedback and individual advising to play a major role in their university education.

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1 Introduction

The Norwegian Agency for Quality Assurance in Education (NOKUT) runs an annual student survey about the perceived quality of education in Norwegian bachelor and master programs. The 2014 results were published in February 2015. One of the most striking result is that students, while very satisfied with the overall quality of their programs, are dissatisfied with the feedback and individual counselling they receive as students. This is a surprising result considering that feedback and counselling has been the focus of Norwegian and international education policies for many years.

Around the turn of the century, Norway began a significant reform process of its higher education system culminating in the "Quality reform" of 2003. The objectives of the reform was to improve the quality of the both education and research, reduce students' time to completion, and increase international cooperation. To improve the quality of education, the government wanted all higher education institutions to move away from an evaluation system of final exams and only summative evaluation, and towards a system of much more formative feedback and evaluation, such as portfolio evaluation, take home exams and essays. In addition, the government wanted the institutions to focus more on the individual student through an increased focus on individual advising (Ministry of Education and Research 2001).

In the more than 10 years that have passed since the reforms were initiated a number of evaluations have shown that Norwegian higher education institutions still rely heavily on final exams and summative evaluations (Michelsen and Aamodt 2007). A large number of politicians, student interest groups, and other interest groups have for years advocated that the higher education institutions need to refocus their methods of evaluation and increase their focus on individual advising, but it seems, to no avail. However, until now, we do not know what students themselves think about the amount and quality of the feedback and advising they receive, and whether student satisfaction with feedback and advising affects their perception of the overall quality of their study program. We answer those questions in this paper.

Based on the national student survey, Studiebarometeret, and interviews with students, faculty, and program leaders at seven different study programs in medicine and engineering in Norway, we show that while students are dissatisfied with the feedback and advising they receive, this dissatisfaction do not affect the students' overall perception of the quality of their study programs. We argue that the main reason for this is that students do not expect formative feedback and individual advising to play a major role in their university education. In other words, when asked about their satisfaction with quantity and quality of the feedback and advising they receive students indicate that they are dissatisfied, but because they did not expect much—and are largely unaware of the positive effects of feedback and advising—this dissatisfaction do not reduce their satisfaction with the overall quality of their study program.

In the remainder of this paper, we first discuss some research findings on the positive effects of formative feedback and individual advising. We then discuss our research design and case selection. In the third section, we present our findings before we conclude with some thoughts about the way forward.

2 Background

A significant amount of research shows that formative feedback and individual advising can have a positive effect on student skill and knowledge acquisition, learning, motivation, retention, and overall satisfaction. In this brief section, we detail some of this research.

The goal of formative feedback is to modify the student's thinking or behaviour to enhance learning (Shute 2008). According a large body of research show that feedback can "facilitate students' development as independent learners who are able to monitor, evaluate, and regulate their own learning" (Evans 2013 p. 72; see also Shute 2008; Black and William 2009; Hattie and Timperley 2007; Nicol and Macfarlane-Dick 2006). It is important to note that this research also indicates that not all feedback works. The effects of feedback are varied and research indicates that only certain types of feedback given under the right conditions is likely to have the desired effects. Even though these are important points we do not discuss it further as the effects of feedback is outside the scope of this paper.

In addition to enhance learning, feedback can also improve student motivation. Positive feedback can increase students' motivation and negate the potentially adverse effects of negative feedback (Lizzio and Wilson 2008). Other researchers (see for example Narciss and Huth 2004; Wigfield and Eccles 2000; Lepper and Chabay 1985) have also found similar effects. Wigfield and Eccles (2000), argue that timely and constructive feedback can increase a student's interest and motivation for problem solving. Nicol and Macfarlane-Dick (2006) suggests that for formative feedback to have positive effects, feedback should encourage, amongst other things, positive motivational beliefs and self-esteem. Even though we have not found any research that explicitly connects student motivation and self-esteem to student retention and completion, the connection seems logical. A student who gains confidence and motivation in her study program is more likely to complete the program.

Formative feedback is not the only way to enhance student learning, motivation, and overall satisfaction. Another important factor is student-faculty interaction. A significant number of studies have shown that student-faculty interaction has a positive effect on student learning, personal development, and overall satisfaction (Astin 1993; Kuh and Hu 2001; Bjorklund et al; Endo and Harpel 1982; Thompson 2001; Kuh 1995; Pascarella and Terennzini 1980, Tinto 1987). In there much cited article from 2001, Kuh and Hu argue that increased student-faculty interactions increase the educational and personal achievement of students, as well as their overall satisfaction with their education. Bjorklund et al. (2004) show that student-faculty interactions coupled with constructive feedback increased engineering students' problem solving skills, group skills, occupational awareness, and engineering competence. Other studies have shown that the frequency of informal contact between students and faculty can lead to intellectual growth and student satisfaction (Endo and Harpel 1982). Pascarella and Ternezini (1980) found that the quality of interactions is more important than the quantity, but that high quality interactions increased students' intellectual development, as well as, first-year student persistence. In his 1987 seminal book "Leaving College: Rethinking the Causes and Cures of Student Attrition", Vincent Tinto examines the role of student-faculty interaction and finds that the quality of student-faculty interaction and the student's integration into the university are central factors limiting student attrition (see Hovdhaugen and Aamodt 2005 for a similar argument).

Other research on student satisfaction shows that other factors than feedback and student-faculty interaction affect how satisfied students are with their study programs and higher education

institutions. In a study of first-year students in Norway, Wiers-Jenssen et al. (2010) find that student satisfaction is a function of the social environment, various features of the physical infrastructure and support facilities, and the quality of teaching and instruction (189). In their study of student satisfaction at an U.S. university, Elliot and Healy (2001) finds that student centeredness—that is, the degree to which the students feel welcome and value—is an important predictor of student satisfaction. In addition, they find that the campus climate and instructional effectiveness are other important predictors.

In sum, formative feedback and student-faculty interaction (individual advising), are critical factors that under the right conditions can increase student learning, motivation, retention and overall satisfaction. In addition, other factors such as the quality and effectiveness of teaching, the overall quality of the campus, and the degree to which students feel welcomed and valued explain student satisfaction. In the next section, we describe our research design and case selection for the qualitative study.

3 Research Design

In this paper, we answer three separate, but connected research questions. First, why are Norwegian students dissatisfied with the feedback and advising they receive? Second, how important is feedback and advising in students assessment of the overall quality and what further explains the students overall satisfaction? Finally, why are students satisfied with the overall quality of the program when they are dissatisfied with important elements of their education (feedback and advising)? To answer these three questions, we combine insights from the national student survey, Studiebarometeret, with interview data from seven different study programs in engineering and medicine.

We use a nested analysis design (Liberman 2005), where we first examine the quantitative data to select cases for the qualitative analysis. We then use insights from the interviews to develop hypotheses that we test with the data from survey. The mixed-method design allows us to better answer the questions we pose in this paper. Whereas the survey allows us to say something about student satisfaction and dissatisfaction, the interviews provides us with a better understanding of what students value with their study programs and to understand why they are satisfied or dissatisfied with key aspects of their study programs.

Studiebarometeret is an annual national level student survey run by the Norwegian Agency for Quality Assurance in Education (NOKUT). NOKUT invites all second year bachelor and master students, as wells as 5th year students in 5-year integrated masters programs and 6-year professional programs to answer the online survey. The survey consists of approximately 90 questions regarding the students' perception of the quality of the study program. NOKUT does not ask questions about individual courses, institutional issues, or student welfare.1 NOKUT asks every student to assess different aspects of the quality of the study program on a 5-point Likert scale. NOKUT divides the majority of the answers into seven indexes: (1) learning culture/environment, (2) stimulation and coherence, (3)

1 For more information about the survey, see Lid et al (2014) and Damen (2015). See also http://www.nokut.no/en/About-Studiebarometeret/ for a detailed description of the survey.

working life relevance, (4) teaching and academic counselling, (5) examinations and assignments, (6) learning outcomes, and (7) student influence and participation.

In 2014, the population consisted of 58,000 students and approximately 25,000 students completed the survey (42%). Norwegian students are overall very satisfied with the quality of their study programs. The average score on the statement "I am, all things considered, satisfied with the program I am currently attending" was 4.1, and 75% of the respondents scored the statement 4 or 5. Despite the students' overall satisfaction, the average scores for the questions "How satisfied are you with feedback on your work from your teachers?" and "How satisfied are you with individual student counselling by the teacher?" were only 3.3 and 2.9 respectively. Making them among the lowest scoring items in the survey. In figure one we display the distribution of the answers to the three questions.

Figure one: Distribution, whole sample

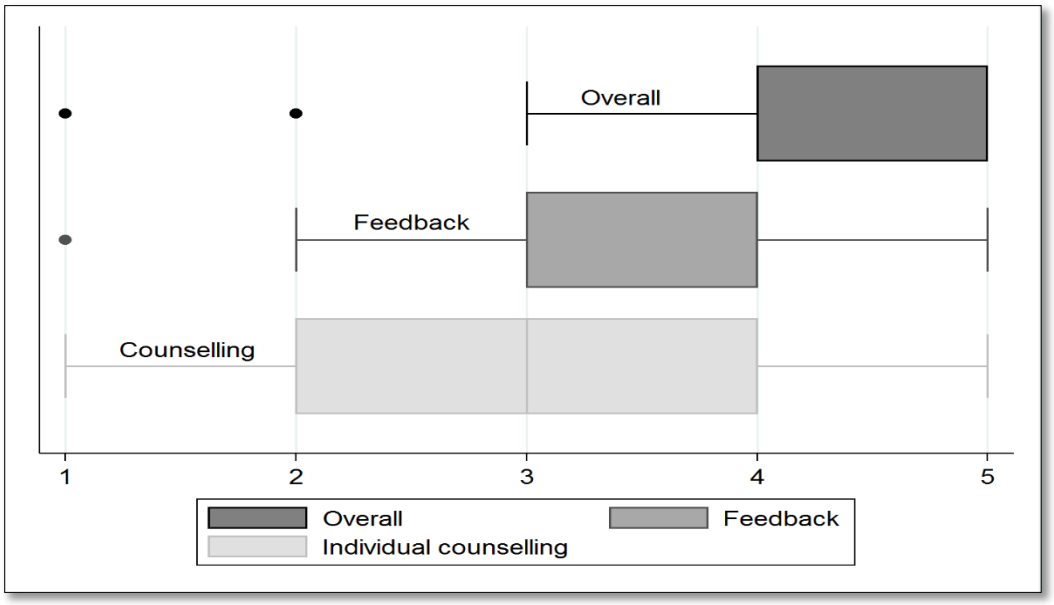


Figure one illustrates the significant difference in student satisfaction on the three items. Whereas 75 percent of the respondents answer four or five for overall satisfaction, 75 percent of the respondents answer three or four on satisfaction with feedback, and 75 percent answer two, three or four on satisfaction with individual counselling. This gap and the lack of a relationship between feedback, counselling, and overall satisfaction is contrary to what the literature suggests that it should be.

3.1 Case selection

We furthered explored these results to identify which study programs to examine in debt. First, we disaggregated the data by academic fields. The analysis of academic fields showed that students in medicine, psychology, and engineering had the largest difference in scores between overall satisfaction and feedback and counselling. We further disaggregated the data by study programs and from there we chose 10 study programs to investigate further. Of the 10 programs, seven invited us for interviews. These study programs were two medical programs (medical doctor programs at the University of Oslo (UiO) and the Norwegian University of Science and Technology (NTNU)). Two 5-year master programs in engineering at NTNU (Product and product development and Materials

science and engineering, and three bachelor programs in engineering (Chemical and materials technology engineering at the Sør-Trøndelag university college (HiST) and Oslo and Akershus university college (HiOA), and civil engineering at HiOA). These seven programs allowed us to examine programs at both the masters and bachelor level and at university and university college level. In addition, the case selection provide us with variation in terms of student satisfaction on all three indicators. Table one lists the programs and the average scores for each of the three indicators, as well as, the difference between overall satisfaction and feedback and counselling.

Table 1: Score per program on key indicators

Program	Overall	Feedback	Counselling	Overall-feedback difference	Overall-counselling difference	Institution type	Degree
UiO medicine	4,19	2,25	1,96	-1,94	-2,23	University	Professional
NTNU medicine	4,43	2,7	1,8	-1,73	-2,63	University	Professional
NTNU product	4,04	2,71	2,22	-1,33	-1,82	University	5-year master
NTNU material	4,46	3,31	3,3	-1,15	-1,16	University	5-year master
HiST chemical and material	4,3	3,42	3,26	-0,88	-1,04	College	Bachelor
HiOA chemical and material	4,5	3,33	2,9	-1,17	-1,6	College	Bachelor
HiOA civil engineering	4,01	2,29	2,15	-1,72	-1,86	College	Bachelor

As we can see from table one, both medicine programs had the largest difference between overall satisfaction and satisfaction with feedback and counselling. There is also a significant difference between the two engineering programs at NTNU in satisfaction with feedback and counselling. While students in product design score relatively low, this is not the case for the students in material engineering. Students at the two programs in chemical engineering are significantly more satisfied with feedback and counselling than the civil engineer program at HiOA. Since students score all indicators on a Likert scale, we also show the distribution for each program in box plots below.

Figure two: Distributions for seven selected programs

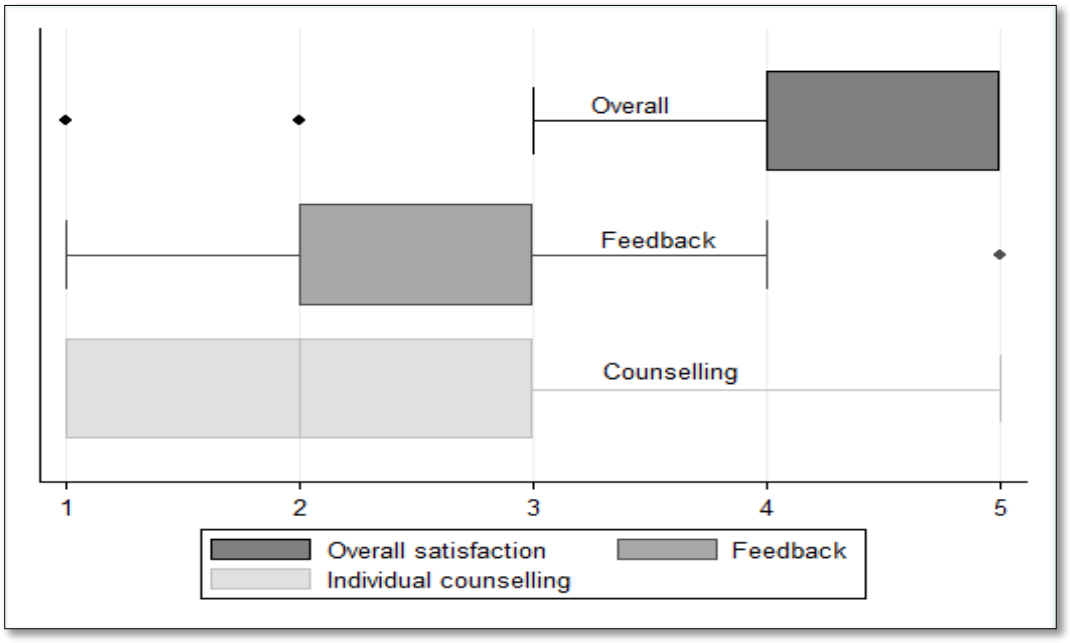


Figure two, shows the distribution for all student in the seven programs we chose to interview. The figure illustrates, not only that students in these programs were much more dissatisfied with counselling and feedback, than with the overall quality of the program, but also that the students vary much more in their assessment on feedback and counselling than on overall satisfaction.

We asked each of the seven programs for permission to interview students, faculty and program leaders. We also asked for help with recruitment of 5-7 students and 2-3 faculty members with teaching obligations. For the professional and 5-year master programs, we interviewed two student-groups. One consisting of students currently in their 4th semester and one consisting of students currently in their 10th semester. For the bachelor programs, we interviewed one student-group consisting of students currently in their 4th semester. We selected students in their 4th and 10th semester because only students in those semesters answered the survey in the fall of 2014. There was no requirement that students had to have answered the survey to participate in the interviews, and indeed, we do not know whether they did or not. The interviews, except for the program leaders, were all semi-structured group interviews. We recorded all interviews, one of the authors transcribed the interviews, and all three authors coded and organized each interview. We then created organized a summary of our findings together as a group.

By focusing exclusively on only two academic fields in our qualitative analysis we clearly reduce our ability to generalize based on the findings from our interviews. However, the main purpose of the interviews is to generate alternative explanations and hypotheses to test with the entire sample of our survey. In the end, it is our belief that this back and forth between our quantitative and qualitative data provided us with the most robust research design.

4 Analysis

In this section, we first discuss why students are dissatisfied with feedback and advising. We then explain why students are satisfied with the overall quality of their study program. Finally, we explain why students' dissatisfaction with feedback and advising does not affect their assessment of the overall quality of their study program.

4.1 Feedback

Of the programs we have selected four are university degrees and three are college degrees. Two of the university programs are 5-year integrated master degrees (engineering) and two are 6-year professional degrees (medical doctor). The three college degrees are all bachelor degrees in engineering.

All the engineering degrees (bachelor and master) are similarly organized. During the first year students take introductory classes in several natural science fields (math etc.), then from year two, student specialize more in their respective fields. Most courses are taught in a lecture format, and for nearly every class throughout the program, students have to turn in weekly or bi-weekly assignments. These assignments are graded on a pass/fail basis and students must pass a certain number of assignments to sit for the final exam.2

The medical programs are organized very differently than the engineering programs. At both universities, the students have a mix of lectures, problem based learning, and practical training at hospitals and general practitioner clinics. The only form of student assessment is a final exam at the end of each year, and students do not hand in assignments or projects except for a master thesis in their fifth year.

In general, the students at all seven programs, are relatively dissatisfied with the feedback they receive. The mean score on feedback for the entire sample is 3.28 (sd. 1.1), while the mean score for the programs we interviewed is 2.49 (sd. 1.1). The mean score for the least dissatisfied program is 3.43 (sd. 0.87), while the mean score for the most dissatisfied program is 2.18 (sd. 1.04). Our interviews with students indicate the lack of constructive or formative feedback is the most important source of the students' dissatisfaction. When we asked students what kind of feedback they receive, the most common answers were "we only receive a letter grade after our final exam", or "we don't receive any feedback" (or some variation of these two answers). Only after the students discussed the question among themselves, did they think of other sources of feedback. The weekly assignments engineering students, both university and college, hand in, is a potential source for feedback. However, the student assistants who grade the weekly assignments do not have time to write detailed feedback. Instead, students only receive a pass or fail on the assignments. All students agreed that the weekly assignments were valuable in terms of preparation for final exams, but they also agreed that the pass/fail notation do not constitute feedback. Indeed, most student do not even pick up the graded assignments.

Students at the two bachelor programs in chemical engineering was somewhat more satisfied with the feedback they received compared to students at other programs. The main reason for this was the

2 For most of the classes, the grade on the final exam is the only grade the students receive. For some classes students also complete individual or group projects. These projects sometimes count towards the student final grade.

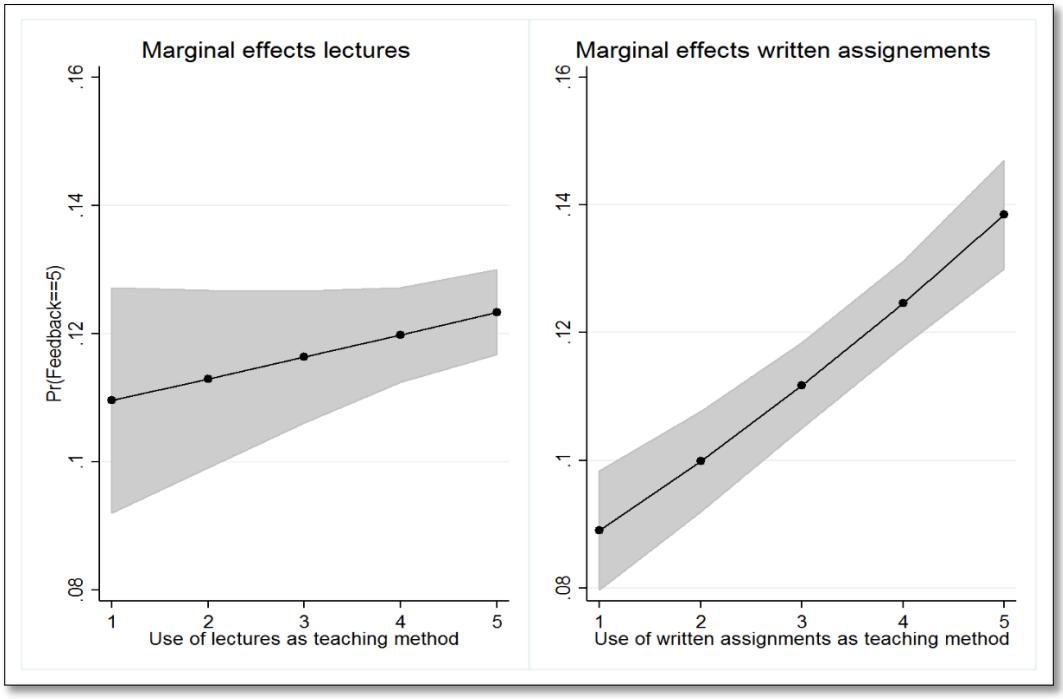
feedback they received on their laboratory reports. Rather than pass/fail, students receive detailed comments on their lab-reports and are required to revise their reports based on the feedback and turn them back in for approval. Though time consuming, students found this to be helpful for their learning.

The medical students receive no written feedback other than a grade on their annual exams. Students spend a significant amount of time with faculty and medical doctors, and the potential for oral feedback is significant. However, students report that most of the interaction takes place in a group setting and there is little time for individual feedback.

From our interviews with the students, it seems clear that the main reason for student dissatisfaction with the feedback they receive relates to the quantity of feedback more than the quality of feedback. Students indicate that they are satisfied with the feedback they receive on laboratory reports and other projects, but in general, they receive a limited amount of formative feedback.

Unfortunately, we do not ask students about the quantity of feedback they receive in their study program, but we do ask students how much different types of teaching and learning methods are used. This allows us to statistically test whether different types of teaching methods are more conducive to providing feedback to students. Figure three is based on an ordinal logistic regression of where feedback is the dependent variable and different types of teaching methods are the independent variables (due to space constraints we show the regression table in the appendix).

Figure three: Marginal effects of teaching methods on feedback



The dots represents the predicted probabilities of the logit coefficients. The shaded area represents the 95% confidence interval.

The figure shows the probability of a student scoring "5" on feedback dependent on a student's assessment of how much lecture and written assignments the program uses. The left panel shows that the probability of scoring "5" on feedback increases from approximately 11 percent if lectures are rarely used to 12.3 percent if lectures are frequently used. In other words, lectures, as a teaching

method does not increase the probability of students being more satisfied with feedback very much. Indeed as we see from the confidence intervals, the relationship is not statistically significant. The right panel shows that the probability of scoring "5" on feedback goes from approximately 9 percent when a program use written assignments sparingly to nearly 14 percent when a program use written assignments frequently. These results, and other results from the model (see appendix), largely supports the findings from the interviews.

4.2 Individual advising

Norwegian students are dissatisfied with the individual advising they receive in their programs. This holds true for the whole sample and for all of the programs we interviewed for this project. For the whole sample, the mean score on individual counselling is 2.85 (sd. 1.2), while for the programs we interviewed the mean score on this question was 2.17 (std. dev 1.07). Of the seven programs, the most satisfied programs scored 3.3 (sd. 1.4), while the most dissatisfied program scored 1.82 (sd. 0.96).

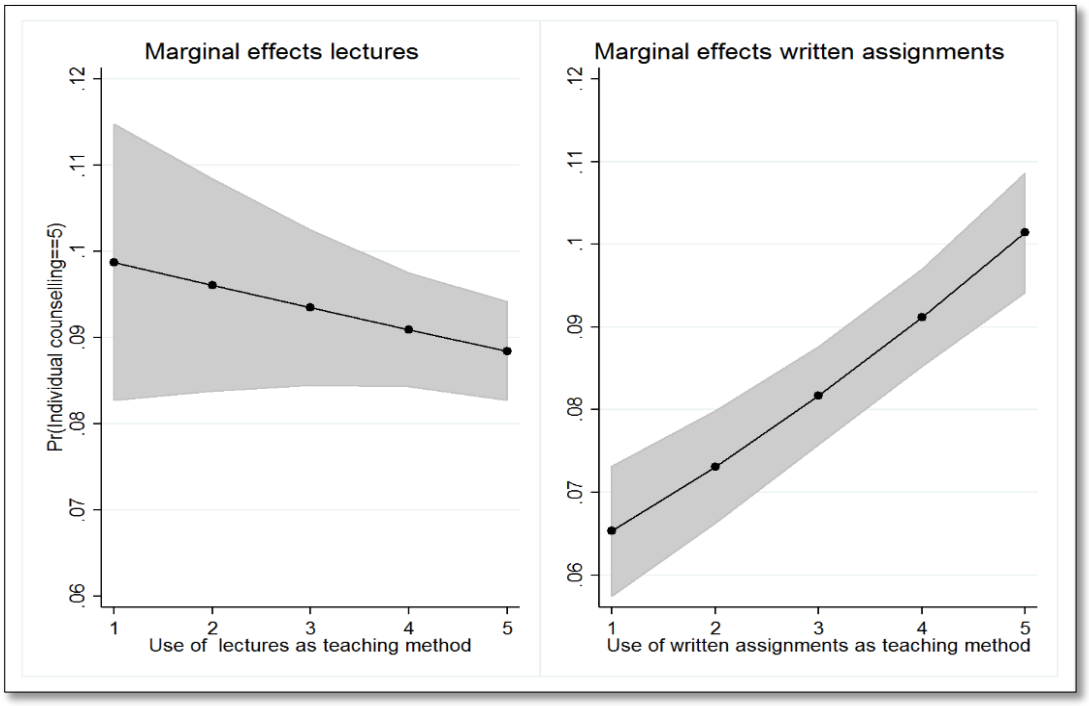
As with feedback, the main reason—according to the interviewees—for students' dissatisfaction with individual advising is the lack of advising and not with the quality. The most satisfied program in terms of individual feedback is the 5-year integrated master program in Material Science and Engineering. However, there is a significant difference between the second year students (2.75/sd. 2.0) and the fourth year students (3.56/sd. 1.0). The second year students are dissatisfied, while the fourth year students are relatively satisfied. The fourth year students told us that they were quite satisfied with the advising they receive with their master's thesis and projects related to their thesis. However, they agreed with the second year students that during the first years of the program they received very little advising, especially considering the small size of their cohorts.

Students at the bachelor program in chemical engineering at Sør-Trøndelag University College are quite satisfied with the advising they receive. For these students the relatively small size of the program and the collegiality between students and the teaching staff allow students to meet regularly with faculty members to discuss assignments, and projects. Students in the program felt that they knew the teachers and the teachers new them, and this made it easier to seek individual advice when necessary. Students at the bachelor program in chemistry at Oslo and Akershus University College largely agreed to these sentiments.

For many of the other programs, the lack of collegiality and familiarity with faculty members is a key reason for the students' dissatisfaction with the advising they receive. In several programs, the students were frustrated that no faculty members knew their name, and that students could spend five years in a study program without getting to know any teachers nor would any teachers know them.

As with feedback, we did not ask students about the frequency with which they received individual counselling. However, based on our interviews it is clear that some teaching methods are more conducive for individual counselling than others are. To test this statistically we ran an identical model as with feedback, but changed the dependent variable to individual counselling. Figure four, illustrates, in even starker terms, how much more conducive, written assignments are to provide students with individual counselling than lectures.

Figure four: Marginal effects of teaching methods on individual counselling



The left panel shows that there is no statistically significant relationship between lectures and individual counselling, whereas the left panel shows that the probability of scoring "5" on individual counselling increases from approximately 6.5 percent to over 10 percent for a program that use written assignments frequently rather than rarely. As with feedback, these results, and other results from the model (see appendix), largely supports the findings from the interviews.

4.3 Overall satisfaction

Norwegian students are generally very satisfied with the overall quality of their study programs. The average score for the whole sample is 4.05 (sd. 0.98). Students at the seven programs we interviewed were even more satisfied, with an average score of 4.21 (sd. 0.91). The average score of the most satisfied program was 4.54 (sd. 0.68), while the average of the least satisfied program was 4.04 (sd. 0.92). In general, students in all programs were very satisfied with the overall quality and the variation among the programs is very small.

According to our interviews, the most important factors explaining students' overall satisfaction are coherence of the program, relevance of the program, that the program and teaching methods were stimulating, and the learning and social environment. The majority of the students felt that the programs were well structured, offered a good mix of courses and assignments and learning methods, and that these where stimulating. The students also felt that the study programs were very relevant to the labour market and this was an important factor in their assessment of the overall quality. Finally, students, especially those studying in Trondheim, emphasized the social environment in their

evaluation of the overall quality of their programs. Many students, especially those studying at colleges, also emphasized the environment between teachers and students as an important factor.

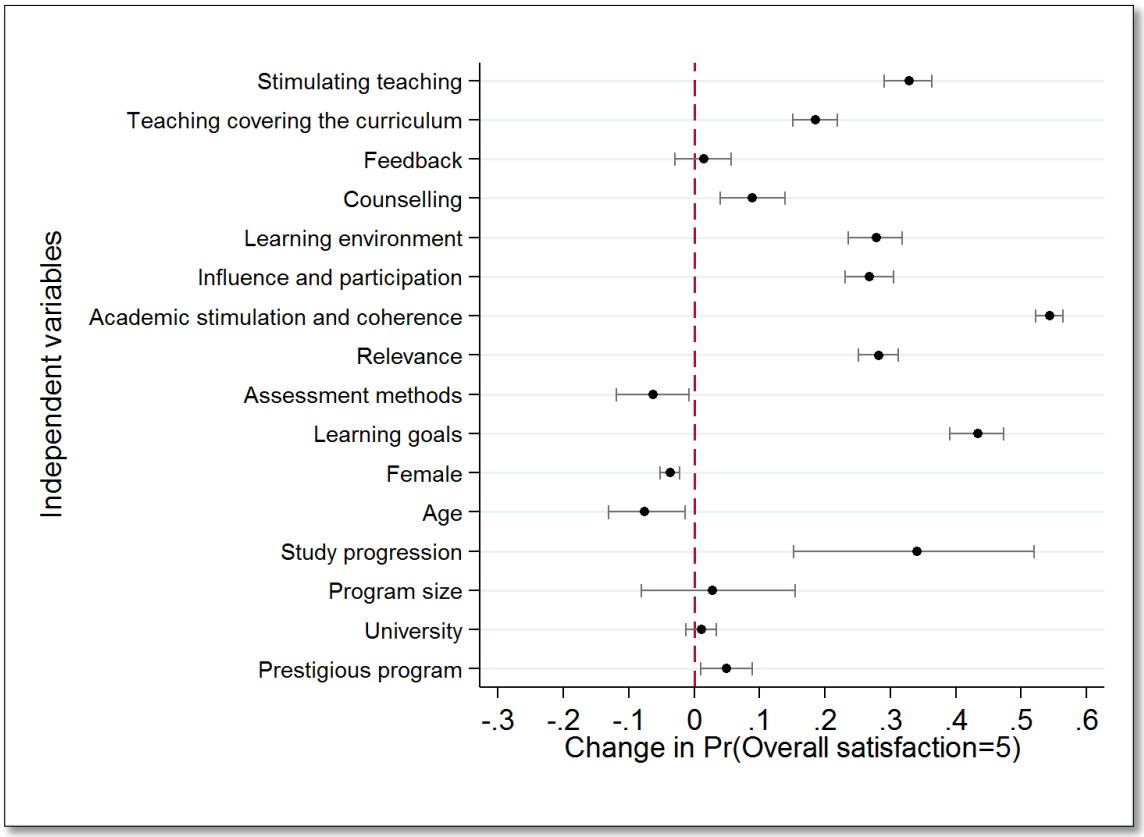
Interestingly, none of the students we interviewed mentioned feedback and/or individual advising as an important factor for overall satisfaction. When we asked students to discuss positive and negative issues related to the program, none of the students referred to feedback or advising as a negative or positive factor.

In addition to the factors already discussed, it is clear that being admitted to prestigious or very competitive programs such as medicine or 5-year integrated master degrees at NTNU influence student satisfaction. Many of the engineering students at NTNU and the medicine students at NTNU and Oslo prefaced any critique of their programs by pointing out that the programs were Norway's best in in its field. As one student said, "When you ask how satisfied I am with the program, then all I can say is, I'm crazy satisfied! I am going to become a medical doctor, and I was admitted to this program. You will never say that that you are dissatisfied about being a student in this program" (medical doctor student at the UiO). Our statistical analysis shows the same result. Students enrolled in prestigious fields and schools are more satisfied with the overall quality of their program when we control for various other factors.

In addition to the interviews, we also examine the results from the student survey statistically. Since the dependent variable—overall satisfaction with the study program—is measured on a 5-point Likert scale we run an ordinal logit model.3 Due to space constraints, we present the full model in the appendix. Here we show the predicted probabilities of the key variables.

3 Since the data is clearly hierarchical — that is, students are enrolled in programs at different universities—we also run multilevel regression models as robustness checks. The main results of these models are very similar to the ordinal logit models. See the appendix for these models too.

Figure five: Predicted probabilities model 3, overall satisfaction



The figure displays the predicted probabilities of a student answering, "fully agree" to the question: "I am, all things considered, satisfied with the program I am currently attending", when each variable in model three moves from the minimum value to the maximum value, holding all other variables constant. In substantive terms, we see from the model that a student is approximately 35 percent more likely to being very satisfied with the overall quality of her program when she is very satisfied with how stimulating the teaching is, than when she is very dissatisfied with how stimulating the teaching is. The model shows that academic stimulation and the coherence of the program has the strongest effect, while feedback has no effect. Individual counselling does have a small positive effect, but it is the least important of the quality indicators we ask students to assess. Of the other control variables, we see that females and older students are less likely to be very satisfied with the overall quality of the program. Interestingly the program size has no effect on students' perception of the overall quality of the program, and neither does it matter whether students attend a college or university. Finally, we see that being enrolled in a prestigious program has a small positive effect on students' overall satisfaction. These results are remarkably similar to what we found in our interviews of the seven programs described above.

4.4 The missing link between feedback, counselling and overall satisfaction

As mentioned above, the students we interviewed did not cite feedback or advising as a contributing factor to their evaluation of the overall quality of the program. The results from our statistical model supports this too. Model three in the appendix, shows that feedback has no effect on overall satisfaction, while individual counselling only has a very small positive effect. Why do students ignore their dissatisfaction with feedback and counselling when they evaluate the overall quality of their

study programs, when prior research indicates that feedback and counselling affects overall satisfaction (see discussion above)?

Prior to our interviews, our working hypothesis was that student dissatisfaction with feedback and advising was due to their high expectations. In other words, because this generation of students are used to being catered to at the primary and secondary level of schooling, they expect a significant level of feedback and personal advising at the tertiary level of education as well.4 In order to test this hypothesis we asked students at all seven programs about their expectations to feedback and counselling prior to enrolling at their programs. The answers were surprising and uniform across all programs. The students had very low expectations. That is, they did not expect any regular feedback or counselling. Indeed, they had been warned prior to enrolling in higher education, that at the university they would be completely responsible for their own learning.

The low expectations students had about feedback and counselling, and the lack of a relationship between student dissatisfaction with feedback and counselling and overall quality makes logical sense. If high expectations about feedback and counselling explained the low scores, we would expect there to be a relationship between feedback and counselling, and overall quality. However, if students had low expectations about feedback and counselling, then they can still be dissatisfied with these aspects of their program, without the dissatisfaction affecting their assessment of the overall quality of the program. Several interviewees indicated this to us as well. Multiple students in different programs told us that though they were dissatisfied with the feedback and counselling they received they were still satisfied with the program. Other students told us that feedback and counselling was something they did not think about until they saw the questions on the survey. A third group of students, in particular students at NTNU and UiO, seemed to excuse the faculty members for not providing more feedback and counselling. These students indicated that though they were dissatisfied with the limited feedback and counselling they received, they accepted this because of the resources it would take to provide more feedback and counselling.

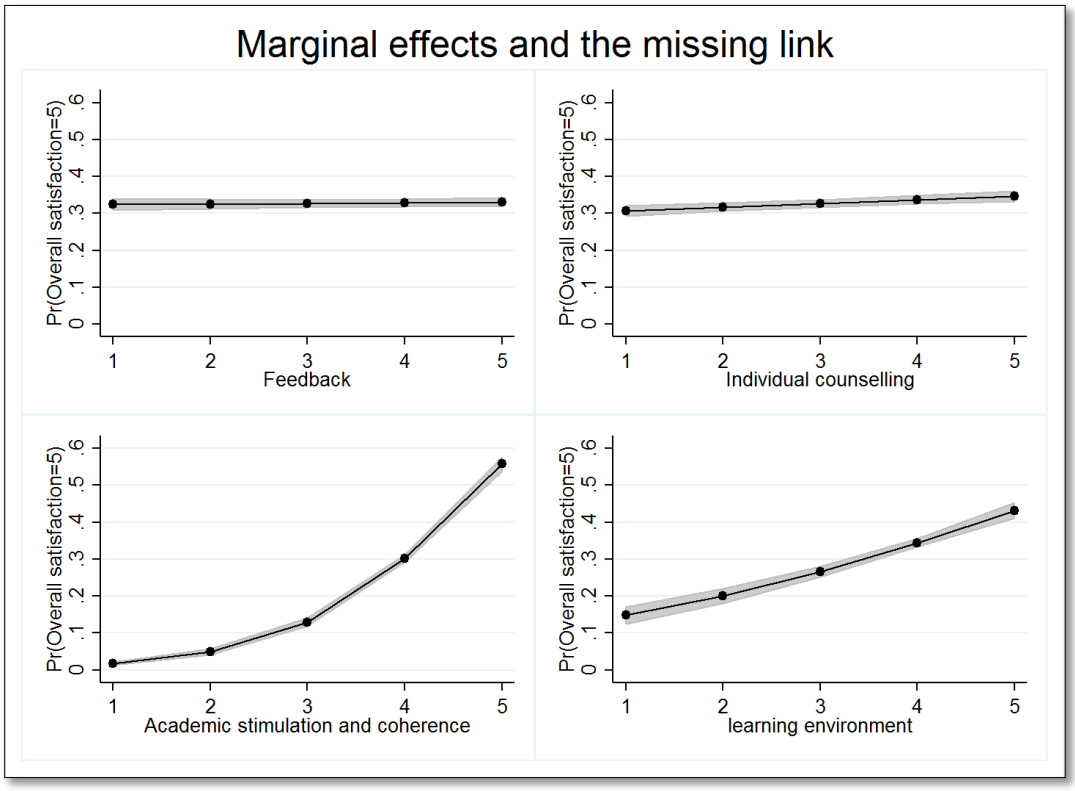
While our initial hypothesis, that high student expectations affect student satisfaction with feedback and counselling was incorrect, expectations is still part of the explanation of the missing link between feedback, counselling, and overall satisfaction. However, rather than high expectations, students do not expect to receive significant amounts of feedback and counselling at the university level. Neither, does it seem, are students aware of the positive effects feedback and counselling can have on skill and knowledge acquisition, learning, and motivation.5 Thus, when we ask students to assess their satisfaction with the feedback and counselling they receive, they are dissatisfied because they receive limited amounts of both. Yet, this dissatisfaction, because feedback and counselling is relatively unimportant to the students, do not affect their assessment of the overall quality of their programs.

Our statistical analysis supports this view. If we look at the marginal effects of the variables that most affect overall satisfaction and the marginal effects of feedback and counselling we see how feedback has no positive effect on overall satisfaction, and how counselling only has a very minor effect.

4 Nearly every faculty member and program leader believe that students have high expectations when it comes to feedback and counselling, and that these expectations affect student assessment. One faculty member referred to students as the "kindergarten" generation to illustrate this.

5 See Price et al. 2010, and Cotten & Wilson 2006 for similar findings.

Figure 6: Marginal effects of feedback, counselling, academic stimulation and learning environment



The figure shows even more clearly than figure five above, how student satisfaction with feedback and counselling has no (or very little effect) on students' overall satisfaction. In contrast, we see that the probability of students being very satisfied with the overall quality of the program rises from approximately zero to almost sixty percent when they are very satisfied with academic stimulation and coherence rather than very dissatisfied.

5 Conclusion

While Norwegian students are dissatisfied with the quantity and quality of the individual feedback and counselling they receive, they are nonetheless very satisfied with the overall quality of their study programmes. Considering the importance of individual feedback and counselling on student skill and knowledge acquisition, learning, motivation, retention, and overall satisfaction, we found this to be a very interesting puzzle. In this paper we have shown, through qualitative and quantitative evidence, that students are dissatisfied with feedback and counselling because they receive little of both and that the feedback they receive often has limited value to their learning. I.e. it is not very constructive. At the same time, we found that students do not expect, and seem unaware of the benefits individual feedback and counselling can have on their learning. These low expectations means that students do not consider the amount and quality of feedback and counselling as important when they assess the overall quality of their programmes. Rather, the academic stimulation and the coherence of their programs, teachers' ability to engage the students, the social and academic environment, the perceived relevance of their education, and the degree to which they are satisfied with what they are learning are the key factors students use to assess the quality of their programmes.

These are interesting and important findings, but should not be used in the wrong way. Norwegian institutions of higher education cannot, and should not take these results to mean that they do not need to care about feedback and counselling. Students' lack of expectations and unawareness of the benefits of feedback and counselling have on skill and knowledge acquisition, learning, and motivation does not mean that higher education institutions should deprioritize feedback and counselling. Rather, they should increase both the quantity and quality of feedback and counselling they provide to their students, while simultaneously make the students aware of the benefits, so that students take full advantage of the opportunities the study programmes provide.

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Appendix

In this appendix, we present the full regression models discussed in the paper, as well as the multilevel regression models we have run as robustness checks. First, we describe the variables we use in all the models. We then present the models.

Data

In model one we use student answers to the question "How satisfied are you with feedback on your work given by the teachers (is the feedback constructive)" as the dependent variable. Students answered on a 5-point Likert scale from "not satisfied" (1) to "very satisfied" (5). As the principle independent variables, we use student answers about the frequency of different teaching and learning methods in their programs. The question was "To what degree are these teaching and learning methods used in your programme?" Here to the response alternatives were on a 5-point Likert scale, from "to a low degree" (1) "to a high degree" (5). The students could also answer, "not used". We transformed the variable to a six-point Likert scale were "not used" equals zero.

In model two we use student answers to the question "How satisfied are you with individual student counselling given by the teachers» as the dependent variable. The response alternatives and principle independent variables were the same as for model one.

As control variables, we included both individual level variables, and program and institution variables. We controlled for gender, age and study progression. Study progression is the average number of credit hours a student has taken during the last three semesters. At the program level, we control for whether students are bachelor students, second year master students, or fifth year master students in a 5-year integrated master or professional program. To control for the size of the program we used the total number of students in each program that received the survey. Finally, we controlled for whether the program was a prestigious program or not. In the list of prestigious programs, we included the four medical programs in Norway, all 5-year integrated engineering programs at the Norwegian University of Science and Technology, all professional psychology degree programs, and all professional law degree programs. At the institutional level we control for whether the institution is a university of not, and the size of the institution in terms of the total number of students.

In model three, we use student answers to the question "To what degree to you agree that, I am, all things considered, satisfied with the programme I am currently attending?" Here too students answered on a 5-point Likert scale from "do not agree" (1) to "fully agree" (5). In this model the principle independent variables are student responses to questions regarding the quality of the program. We divided the questions into seven indexes, which we used as the independent variables. We use the same control variables in model three as in model one and two.

Model one and two: Ordinal logistic regressions. Feedback and counselling

	Model 1 Satisfaction with feedback		Model 2 Satisfaction with counselling	
	B	SE*	B	SE*
USE OF TEACHING METHODS				
Lectures	0,03	0,02	-0,03	0,02
Seminar	**0,11**	0,01	**0,11**	0,01
Group work without teacher	0,02	0,01	**0,03**	0,01
Written assignments	**0,13**	0,01	**0,12**	0,02
Projects	0,01	0,01	**0,05**	0,01
Field work/data collection	**0,03**	0,01	**0,05**	0,01
Laboratory	**-0,04**	0,01	-0,02	0,01
Other practical work	**0,08**	0,01	**0,12**	0,01
Case	**0,03**	0,01	**0,02**	0,01
Simulation/role play	0,00	0,01	0,02	0,01
Practice training	-0,02	0,01	**-0,03**	0,01
Digital work methods	**0,06**	0,01	**0,08**	0,01
INDIVIDUAL BACKGROUND				
Female	0,00	0,03	**-0,09**	0,03
Age	**0,01**	0,00	**0,02**	0,00
Study progression	-0,00	0,00	-0,00	0,00
PROGRAM BACKGROUND				
Bachelor	**-0,15**	0,06	-0,14	0,07
Master 2nd year	0,06	0,07	**0,30**	0,08
Master 5th year	**-0,28**	0,09	0,04	0,10
Program size	-0,00	0,00	-0,00	0,00
Prestigious program	**-0,30**	0,10	**-0,37**	0,12
University	**0,13**	0,05	-0,01	0,05
Institution size	**-0,00**	0,00	**-0,00**	0,00
N	18611		18643	
Clusters	1584		1585	

* Robust standard errors, clustered on study program.
Bold coefficients are statistically significant at the 95% level.

Model three: Ordinal logistic regression. Overall satisfaction

	Model 3 Overall satisfaction	
	B	SE*
INDEXES		
Teaching and counselling:		
Stimulating teaching	**0,41**	0,02
Teachers providing good explanations	**0,17**	0,02
Teaching covering the curriculum	**0,22**	0,02
Feedback	0,00	0,01
Individual counselling	**0,04**	0,01
Index learning environment	**0,36**	0,03
Index influence and participation	**0,31**	0,02
Index stimulation and coherence	**1,06**	0,03
Index relevance	**0,41**	0,02
Index assessment methods	**-0,06**	0,02
Index learning goals	**0,62**	0,03
Individual background		
Female	**-0,16**	0,03
Age	-0,00	0,00
Study progression	**0,00**	0,00
Program background		
Bachelor	**0,19**	0,06
Master 2nd year	0,06	0,07
Master 5th year	0,01	1,00
Program size	0,00	0,00
Prestigious program	**0,27**	0,09
University	0,06	0,06
Institution size	0,00	0,00
N	17842	
Clusters	1569	

* Robust standard errors, clustered on study program.
Bold coefficients are statistically significant at the 95% level.

Multilevel regression analysis

Since we deal with data collected in a hierarchical nested structure (students within study programs within institutions), meaning that we do not have completely independent cases at the individual level. When performing regression analyses, it is necessary to take the clustering of individuals into account. Ordinary linear regression analysis (OLS) assumes that individual cases are completely independent from each other. If this is not the case (as in our data), you overestimate the standard deviations, which can lead to a wrong decision on the significance of effects. We therefore performed multilevel regression analysis, which takes into account the nested structure of the data.

We discerned background characteristics at three ‘levels’ of analysis. Some characteristics represent the level of institutions: type and size of institutions. Other characteristics represent the program level: bachelor-master, program size, whether the program is prestigious or not. The third category of background characteristics represent the individual level (gender, age, and study progression).

The satisfaction indexes (overall satisfaction) and teaching methods (satisfaction with feedback and with individual counselling) function as explanatory variables, in order to explain the overall satisfaction of students and their satisfaction with feedback and individual counselling.

Multilevel modelling starts with a zero-model, without any explanatory variables. The basic model shows the unexplained variance at the different levels of analysis. The unexplained variance is largest at the individual level and smallest at the institutional level. This means that individual characteristics are more influential in explaining individual differences in satisfaction than institutional or program characteristics are.

In order to facilitate the interpretation of the effect sizes, we standardized the dependent variables (overall satisfaction, satisfaction with feedback and with individual counselling) to a scale from 1 to 100 (percentile scores). The effect sizes now show how many points on a scale from 1 to 100 the satisfaction scores increases or decreases under influence of the specific variable, controlled for all other variables in the model.

The results of the multilevel models shown below are highly comparable to the results of the ordinal logit models in the paper, which strengthen our conclusions.

Multilevel regression analysis: dependent variables feedback & individual counselling

	FEEDBACK (1-100)				INDIVIDUAL COUNSELLING (1-100)			
	Model 0		Model 1		Model 0		Model 1	
	B	SE	B	SE	B	SE	B	SE
USE OF TEACHING METHODS (0-5)								
Lecture			**0.669**	0.270			-0.79	0.262
Seminar			**1.867**	0.155			**1.916**	0.151
Group without teacher			**0.561**	0.152			**0.753**	0.146
Written assignments			**2.654**	0.202			**1.731**	0.196
Project work			**0.807**	0.166			**1.181**	0.161
Field work/data collection			**0.855**	0.159			**1.163**	0.154
Laboratory work			**-0.349**	0.165			0.013	0.162
Other practical work			**1.258**	0.152			**1.538**	0.147
Case			**0.611**	0.158			**0.576**	0.154
Simulation/role play			0.166	0.197			**0.457**	0.191
Practice training			0.074	0.167			-0.093	0.165
Digital (electronic) work methods			**0.985**	0.138			**1.109**	0.133
INDIVIDUAL BACKGROUND								
women (ref)			0				0	
men			0.666	0.432			**1.976**	0.416
age			**0.177**	0.036			**0.218**	0.035
study progression			-0.007	0.028			0.027	0.027
PROGRAM BACKGROUND								
bachelor (ref)			0				0	
master 2nd year			**3.799**	0.798			**8.554**	0.823
master/professional study 5th year			1.345	1.175			**7.404**	1.174
program size			**-0.016**	0.005			**-0.029**	0.005
prestigious program			**-10.046**	1.945			**-11.925**	2.049
INSTITUTIONAL BACKGROUND								
new university (ref)			0				0	
university college			-1.476	2.480			-0.674	2.838
specialized university			0.268	2.794			-0.241	3.159
other university			0.557	2.296			0.352	2.624
< 350 (ref)			0				0	
< 950			**-4.907**	1.787			**-5.522**	1.928
< 2000			**-8.990**	1.925			**-10.616**	2.113
> 2000			**-9.928**	2.257			**-13.226**	2.505
intercept	**56.50**	0.775	**25.804**	3.363	**56.701**	0.997	**28.376**	3.627
Institutional level (N=58)	**52.77**	7.190	**8.905**	3.075	**54.860**	12.824	**12.500**	3.991
Program level (N=1738)	**127.43**	5.748	**61.463**	4.906	**130.279**	7.329	**77.397**	5.449
Individual level	**673.39**	6.506	**626.034**	6.904	**641.016**	6.150	**576.150**	6.343
N students	23767		17749		23261		17872	
-2* log likelihood	224123.8		165345.7		218284.8		165145.0	

Multilevel regression analysis: dependent variable overall satisfaction (scale 1-100)

	Model 0		Model 1	
	B	SE	B	SE
INDEXES				
Teaching and counselling:				
Stimulating teachers			**3.701**	0.241
Good explaining teachers			**1.578**	0.238
Teaching covers curriculum			**1.576**	0.214
Feedback on your work by teachers			0.004	0.188
Individual student counselling			**0.675**	0.184
Learning environment			**3.696**	0.280
Influence and participation			**2.699**	0.222
Academic stimulation and coherence			**9.852**	0.314
Working life relevance			**4.092**	0.271
Student assessment			-0.593	0.273
Learning goals			**5.430**	0.354
INDIVIDUAL BACKGROUND				
women (ref)			0	
men			**1.126**	0.331
age			-0.007	0.028
study progression			**0.060**	0.021
PROGRAM BACKGROUND				
bachelor (ref)			0	
master 2nd year			**-1.620**	0.506
master/professional study 5th year			**-2.541**	0.806
program size			0.004	0.003
prestigious program (0-1)			**2.543**	1.074
INSTITUTIONAL BACKGROUND				
new university (ref)			0	
university college			-0.432	0.915
specialized university			1.426	1.149
other university			**2.801**	0.852
< 350 (ref)			0	
< 950			0.330	0.953
< 2000			-1.465	0.953
> 2000			-1.887	1.031
intercept	**51.613**	0.768	**-75.210**	1.974
Institutional level (N=58)	**28.990**	7.211	0.427	0.420
Program level (N=1738)	**69.839**	4.878	**11.944**	1.706
Individual level	**651.447**	6.281	**372.557**	4.191
N students	22927		16847	
-2* log likelihood	214943.1		147969.2	