

**Institutional measures to improve staff-student feedback and advising:**

**Identifying best practises**

Paper presented in track 1 at the

**EAIR 40<sup>th</sup> Annual Forum in Budapest, Hungary**

**26 till 29 August 2018**

***Name of Author(s)***

**Mr Pål Bakken  
Mr Kristoffer Fretland Øygarden**

***Contact Details***

Mr Pål Bakken / Mr Kristoffer Fretland Øygarden  
Norwegian Agency for Quality Assurance in Education (NOKUT), NORWAY  
Postboks 578,  
1327 Lysaker,  
Norway  
E-mail: [pal.bakken@nokut.no](mailto:pal.bakken@nokut.no) / [Kristoffer.Fretland.Oygarden@nokut.no](mailto:Kristoffer.Fretland.Oygarden@nokut.no)

***Key words***

Assessment/evaluation, feedback staff to students, student experience, institutional performance measures

## ***Abstract***

### **Institutional measures to improve staff-student feedback and advising: Identifying best practises**

Feedback and advising are recognized as crucial components in ensuring quality in higher education, both politically and in the empirical literature. Improving feedback and advising has been a priority of educational reforms in several countries, including Norway. Yet, results from the national student survey indicates that students are less satisfied with feedback than with other aspects of their studies. The variation between study programmes are considerable, however. This paper examines three study programmes with exceptionally high student satisfaction on feedback. Which initiatives and measures have been taken at these programmes? What characterises these high performing programmes?

# **Institutional measures to improve staff-student feedback and advising: Identifying best practises**

## **Introduction**

The research literature highlights feedback on academic work as a central component of educational quality, which seems to have positive effects on learning outcomes, motivation and student retention. The Norwegian government's educational policy in recent years also indicates that feedback and academic supervision is a political priority in the higher education sector.

Despite this, results from the national Norwegian student survey ('Studiebarometeret') indicates that students are, largely, relatively dissatisfied with the quality of feedback in higher education. Moreover, these results are stable over time. That being said, there is still considerable variation between study programmes in student satisfaction with feedback. Some study programmes achieve outstanding scores, compared with national averages within their respective subject fields.

The Norwegian Agency for Quality Assurance in Education (NOKUT) has conducted Studiebarometeret since 2013, based on a commission by the Norwegian Ministry of Education and Research. The survey is sent out annually to all bachelor's and master's degree students in their second year of study at all higher education institutions. In 2017 the survey was sent out to approximately 64 000 students and completed by 48% of the recipients. Studiebarometeret asks for the students' perceptions of educational quality in their study programs, and includes questions on academic feedback and counselling.

Our primary aim in this paper is to identify examples of 'best practice' in academic feedback and counselling. We examine and describe practices within a selection of study programmes with high student satisfaction with feedback, by using data from Studiebarometeret as well as interviews with students and staff. One of the main considerations being that other academic communities may draw inspiration from these examples in their own work.

## **Background**

The research literature shows that feedback may have a positive impact on students' motivation, learning outcomes and retention (Bjorklund, Parente, and Sathianathan 2004; Fowler and Boylan 2010; Hattie and Timperley 2007; Kot 2014; Shute 2008). Furthermore, the literature shows that some types of feedback appear to be more effective. Formative feedback, in which students receive constructive and learning-oriented feedback during the course of their work, is more conducive to learning outcomes than summative feedback (Shute 2008; Chan and Lam 2010; Elliot and Dweck 1988). This indicates that universities and university colleges should make feedback from academic staff to students a priority, and that the focus should be on process-oriented, formative feedback.

Formative feedback has also received considerable attention in academic circles in Norway. Learning environments that have received the status of Centres for Excellence in Education have generally emphasised student engagement in learning, fostering good learning environments and constructive feedback to students. A recently published Norwegian case study (Nerland and Prøitz 2018) highlights systematic and constructive feedback to students as a key factor in ensuring high quality in education.

Feedback has also been a political priority for the Norwegian government for the past years. The 2003 Quality Reform, described in Government White paper no. 27 (2000-2001), had a clear focus on the improvement of student feedback and academic counselling as a key provision to raise the quality of

higher education. Government White paper no. 16 (2016-17), Quality Culture in Higher Education, also emphasises feedback from academic staff as a crucial factor in educational quality.

In summary, this indicates that feedback and academic counselling are important aspects of quality in higher education.

### **Mandatory and optional feedback questions in Studiebarometeret**

Since Studiebarometeret was launched in 2013, two questions have consistently been among those with the lowest scores: satisfaction with 'the academic staff's ability to give constructive feedback on your work' and 'the guidance academic staff gives you in your academic work'. The relatively low scores persist despite the considerable focus on feedback in Norwegian higher education since the early 2000s. These relatively broad questions are given to all recipients, we refer to them as the *mandatory* questions.

In the 2017 survey, we asked students about the scope of different kinds of feedback and had a corresponding set of questions about their satisfaction with the same kinds of feedback. These detailed questions are *optional*; each institution could choose to let their students receive them. In 2017, ten institutions chose to include these batteries.

We present results from both the mandatory and the optional questions. The mandatory questions have more recipients, and thus more respondents, and allow us to present data on more observation units. The optional questions give us more detailed information about feedback, but only have ten institutions as basis, thus can data for fewer observation units be presented. However, the optional questions were the basis for the cases we chose.

### **Research questions**

Studiebarometeret shows differences in satisfaction with feedback across the academic fields. The variation in satisfaction is even more evident across study programmes. It is therefore likely that some academic communities are doing better than others in terms of providing their students with high quality feedback.

On this basis, we examine these high-performing academic communities more closely. Our approach has been to select and investigate study programmes with particularly high scores on feedback, compared to other study programmes within their *subject field*.

For each selected study programme, we cover the following overarching questions:

- 1) What characterises study programmes with high student satisfaction with feedback?
- 2) Which measures and initiatives have these study programmes implemented?

The purpose of this paper is not to provide a representative overview of feedback in higher education in Norway, but rather to identify, examine and present cases of 'best practice' with regard to academic feedback. We have only explored three study programmes but believe some of the findings can be useful for and inspire staff at other study programs.

### **Methodology**

When selecting which study programmes to examine more closely, we used data from the optional feedback questions in Studiebarometeret. We assured that the selected cases had a sufficient number of respondents and that there were several similar programmes in the respective subject fields with enough respondents. In addition, our cases had satisfaction scores that were considerably higher than the average scores in their subject field.

We conducted semi-structured group interviews with academic staff and students at each study programme. Interviews were conducted separately for staff and students at two programmes, while a common interview was conducted at one programme. Each interview covered, with minor variations, the same set of topics. Among them were:

- The extent to which the programme emphasises feedback and academic guidance
- What forms of feedback are being used
- Which measures are taken in order to obtain high quality feedback
- Was the focus on feedback initiated locally (at study programme level) or at the institutional level
- What constitutes high quality feedback and guidance?
- The learning environment

### How satisfied are Norwegian students with feedback and counselling from academic staff?

The Studiebarometeret questionnaire consists primarily of questions on student satisfaction on different aspect of educational quality: teaching, study environment, relevance, learning outcomes etc. The questions have 5-point Likert scales (with 'do not know / not relevant' as an option). The answer 1 indicates 'not satisfied', while 5 indicates 'very satisfied', which implies that average scores above 3.0 can be interpreted as that the student population are more satisfied than dissatisfied.

Norwegian students are, in general, quite satisfied with their study programme; the average scores for each question lies normally between 3.5 and 4.0. The questions on feedback, however, have lower average values.

The results are very stable over time; changes in scores for individual questions are negligible on national and subject field levels. The changes only occasionally exceed 0.2 points (on a 1-5 scale). There are, however, considerable variation among study programmes.

#### Satisfaction with feedback and counselling across subject fields

Figure 1 shows the average score on the *optional* feedback questions, across subject fields. Subject fields are sorted from the highest to the lowest (aggregated) scores. Only subject fields with 80 or more respondents per individual question in the battery have been included in the figure.

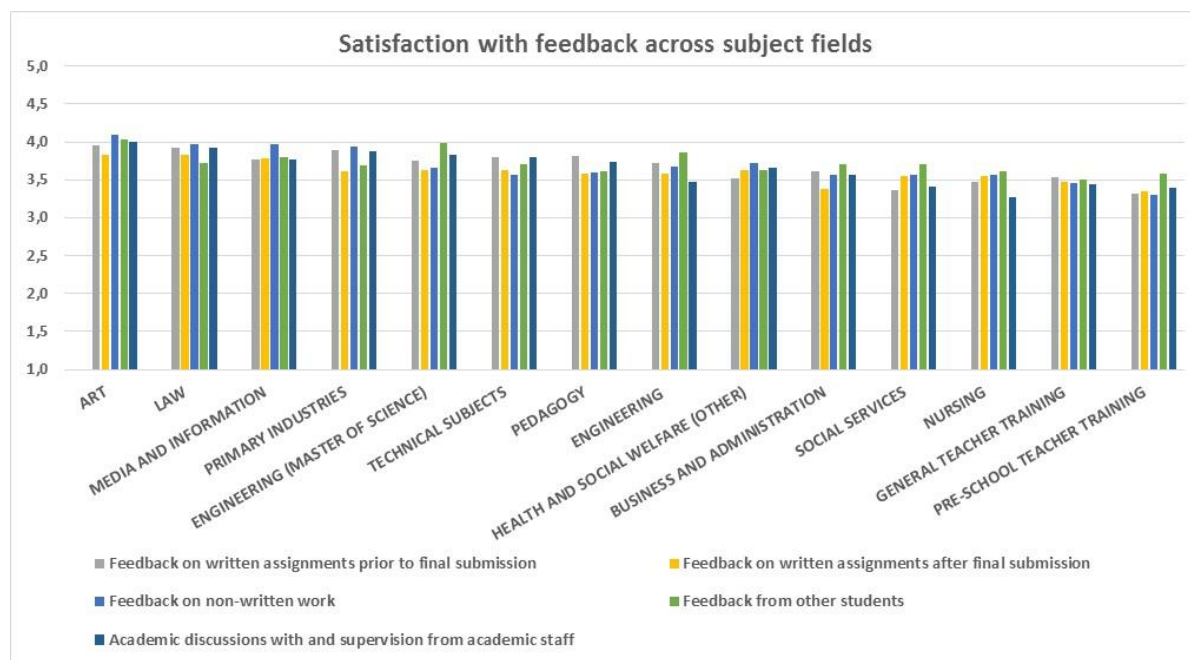


Figure 1: Scores for individual questions in the battery 'Satisfaction with feedback and academic supervision' 2017, presented by subject field. Values scale from 1 (not satisfied) to 5 (very satisfied).

The differences between the subject fields are not very large, except for a couple of questions. On the right-hand side (lower scores) we see subject fields such as nursing, primary school and pre-school, with scores primarily in the range 3.0-3.5. On the left-hand side (higher scores), we see subject fields such as art, law and media and information, with scores primarily in the range 3.5-4.0.

The number of subject fields displayed in Figure 1 are not exhaustive, since only a subset of higher education institutions (representing only a subset of all subject fields) chose to include the optional batteries on feedback in Studiebarometeret in 2017. However, these questions give us detailed information about different kinds of feedback and were the basis for our choice of cases.

Underneath we present the results from one of the mandatory questions on feedback, to give a better picture of the differences between *all* subject fields and (later) all study programmes.

Figure 2 shows the average score on one of the questions from the mandatory question battery; ‘How satisfied are you with the academic staffs’ ability to give constructive feedback on your work’. Subject fields (numbered, not named) are sorted from the highest to the lowest scores.



Figure 2: Satisfaction with the academic staffs' ability to give constructive feedback. Data from 2017 presented by subject field 1 - 40. Values scale from 1 (not satisfied) to 5 (very satisfied).

By using one of the mandatory questions, we can show the variation through all subject fields. The student satisfaction varies from 4.2 (Police education) to 2.4 (Medicine). These two subject fields can be considered as outliers and consist of few and quite similar study programmes. Among the rest of the subject fields there are also considerable variation; from around 4.0 (Art and Physics) to around 3.0 (Psychology and Dentistry). The subject fields on each side of the scale in figure 1, like Art and Pre-school teacher training, have approximately the same place in figure 2.

#### *Satisfaction with feedback across study programmes*

Each subject field encompasses a variety of programmes, and there is ample reason to assume that there is considerable variation in student satisfaction within each subject field. Figure 3 shows the variation among all study programmes, using the same mandatory question as above.

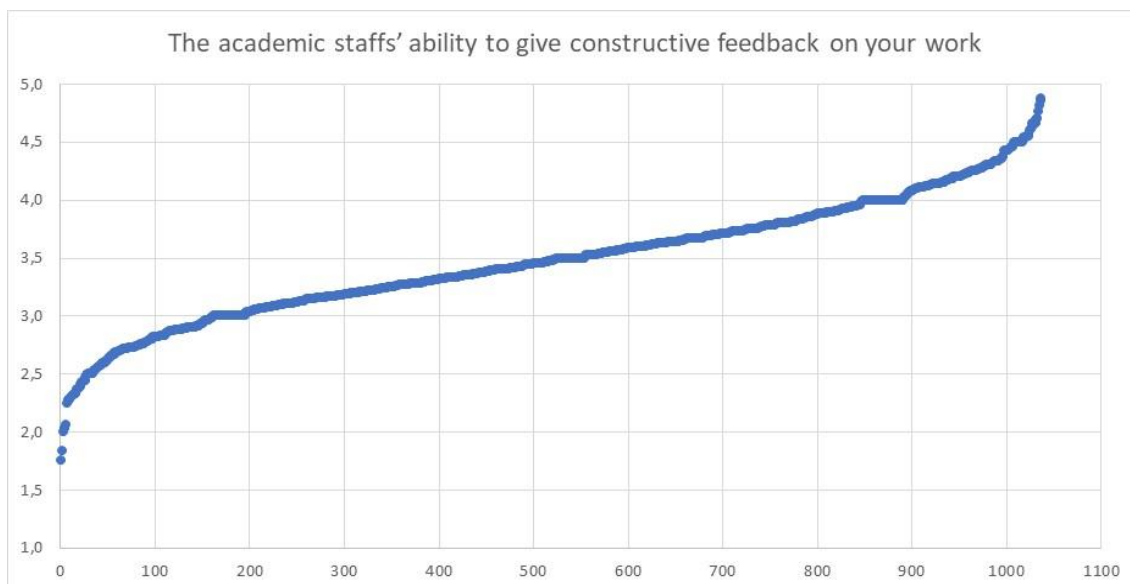


Figure 3: Satisfaction with the academic staff's ability to give constructive feedback. Data from 2017 for each of the 1038 study programmes with most respondents. Each programme is represented by a dot. Values scale from 1 (not satisfied) to 5 (very satisfied).

There is considerable variation among the study programmes. Although most programmes scores near the average (3.4), there are about 150 that score over 4.0 and about 150 that score under 3.0. These programmes belong to many different subject fields, though the subject fields with the highest and lowest scores obviously are well represented.

The same pattern of variance as shown above can be found between study programmes within most subject fields. This can be exemplified by showing data on one subject field. Figure 4 under shows student satisfaction among programmes in the subject field Child welfare.

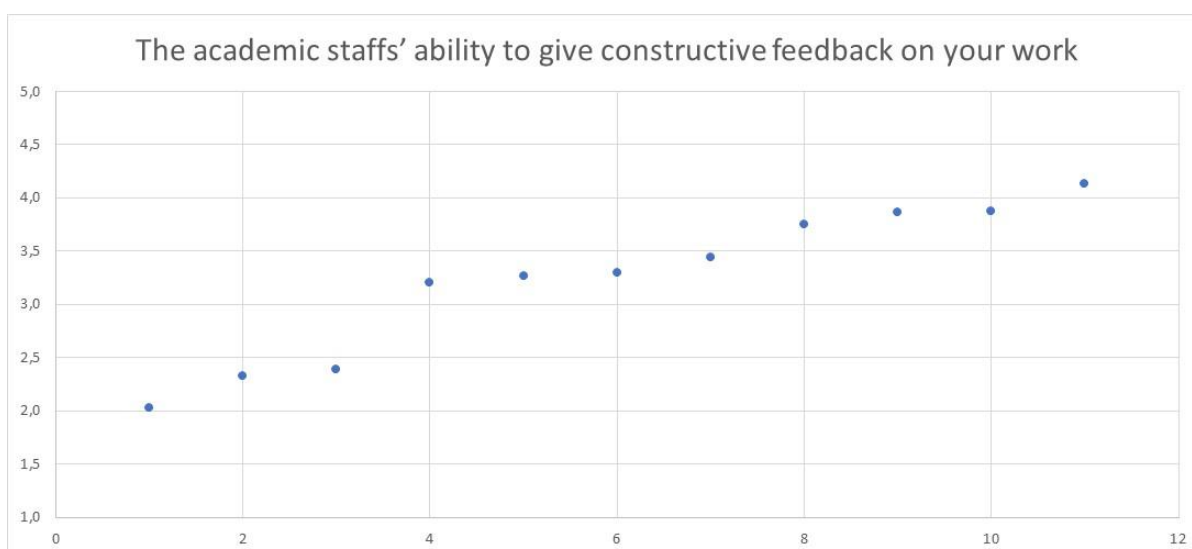


Figure 4: Satisfaction with the academic staff's ability to give constructive feedback. Data from 2017 for each of the 12 Child welfare study programmes. Each programme is represented by a dot. Values scale from 1 (not satisfied) to 5 (very satisfied).

Data on programme level within one subject field shows that the variation between the programmes in student satisfaction with feedback is considerable. The same pattern can be found in most subject fields. The considerable variation among programmes in each subject field indicates that staff at different institutions uses different measures and methods.

### *The relationship between scope and satisfaction*

Studiebarometeret had corresponding – to the satisfaction questions – questions about the *scope* of academic feedback. Students were asked to report an estimate of how many times they had received different forms of feedback.

The average satisfaction score is considerably higher when students report higher frequency of feedback. We find the same relationship for all the pairs of questions on feedback. This indicates that an increase in scope is also likely to entail an increase in satisfaction.

The bivariate correlations between the corresponding questions from the two batteries may be characterised as moderate in strength (they range from 0.33 to 0.43). The correlations are positive, indicating that respondents who report a high frequency of feedback tend to report a high satisfaction with feedback (and *vica versa*).

### **Examples of ‘good practice’ on the study programme level**

#### *Case 1: Master in Entrepreneurship and innovation (NMBU)*

Our first example is Entrepreneurship and Innovation at the Norwegian University of Life Sciences (NMBU). The master is one of the programmes in Studiebarometeret where the students are most satisfied with the feedback they receive. The programme enrolls approximately 25 students a year. In 2017, 20 out of 24 students answered Studiebarometeret.

The programme has relatively high scores for all the questions in the feedback battery. Scores for individual questions are between 0.5 and 0.8 higher than the national average for its subject field, which constitutes a notable difference. The difference is particularly large for satisfaction with feedback after final submission of written assignments.

The students enrolled in the programme are also markedly more satisfied with other aspects of their study programme, compared to their peers within the subject field. This includes questions on social and academic environment, working life relevance and teaching. Unsurprisingly, this is also the case for the mandatory questions on feedback and academic counselling.

Students in the programme reports a much higher frequency of feedback and academic advising than their peers in other business and administration master’s programmes. The frequency of feedback from other students seems to be particularly high.

The programme’s director and academic staff point out that the unique character of the academic discipline makes it natural to focus on project work and hands-on experience in the study programme, which goes hand in hand with an emphasis on feedback and academic guidance. The focus is on formative rather than summative assessment; students are given constructive and learning-oriented feedback continuously, rather than summative assessments at the end of their work. Students receive a considerable amount of feedback during project periods, both from academic staff, external experts and other students.

Feedback from other students constitutes a significant part of the guidance students receive. ‘Peer mentoring’ has been the key focus of an internal project in the programme. The staff points out that it is not ideal that the same individual gives feedback during a project while also determining the final grade. Using more experienced students to provide feedback is one way of circumventing this challenge.



Emphasis is on creating and maintaining a good learning environment between students and between staff and students. This is done by peer mentoring, a joint (for both students and staff) excursion and division in project groups from the start of the first semester.

The staff communicates clearly to the students from the very beginning of the programme what is expected of them concerning active participation in learning activities. This contributes to increase students' focus on learning outcomes, not just the final grade, which in turn ensures steady and consistent work effort over time. Students are enrolled based on admission interviews, to ensure that students are sufficiently motivated for a work-intensive study programme. This in turn ensures that the programme consists of highly motivated and engaged students.

The programme belongs to the business school at NMBU. The business school has a strategic emphasis on student engagement. The 'peer mentoring' initiative, a key component in the feedback work, has been initiated and implemented by the programme itself.

#### *Case 2: Bachelor's programme in child welfare (HINN)*

Another study programme with exceptionally high scores on feedback is a programme in child welfare at the Inland Norway University of Applied Sciences (HINN). This programme enrolls approximately 90 students a year. In 2017, 52 out of 72 students answered Studiebarometeret.

The programme has comparatively high reported student satisfaction for all questions on feedback and academic advising. Scores are between 0.3 and 0.8 points higher than the national average for the subject field, representing a considerable difference. The difference is particularly large on the questions relating to feedback before and after final submission of academic work, academic discussions with staff.

The students enrolled in the programme also report higher scores than their peers for other quality indicators. This includes questions on learning environment, student assessment, inspiration, teaching, and overall satisfaction. This is also the case for the mandatory questions on feedback and academic counselling.

The programme has a high frequency of feedback and academic guidance compared to similar programmes. The programme also compares favourably to other study programmes at the institution.

The programme director and other academic staff at the programme emphasise that they prioritise feedback and academic guidance of students based on an understanding of dialogue and counselling as key competences of people looking to working in the child welfare sector. The staff has had more and more focus on guidance rather than the teaching past years, which complies better with the role the students will have in the child welfare sector.

The emphasis on feedback and counselling is mainly the result of measures initiated by the study programme itself and not based on any institution-wide strategies.

The study programme emphasises formative feedback, in particular oral feedback and discussions, which also complies with an understanding of the role of social welfare workers. In addition, students receive written assessments on mandatory academic work.

A key characteristic of the programme is the emphasis on fostering a good learning environment. The staff are easily available, and there is a low barrier for discussing academic topics with lecturers and other academic staff at the programme. Staff recognise the students as 'future colleagues', and strive to provide good advice, feedback and guidance. During basic skill training, academic staff works closely with students. To ensure a healthy environment among students and among staff and

students, the programme uses measures like a hotel seminar at the very beginning of the study program and they divide the students into small groups. The staff also learn the names of all the students and they distribute their phone numbers etc.

The staff communicate what they expect and demand from students at the programme at an early stage. The staff think good feedback relates to clear expectations. The staff consider themselves quite strict, and give the students counselling so they can improve.

### *Case 3: Bachelor in Bioengineering (UiT)*

Our third case is from the University of Tromsø – The Arctic University of Norway (UiT). Bioengineering is one of the programmes with the highest reported scores for student satisfaction with feedback in Studiebarometeret in 2017. The programme enrolls approximately 30 students a year. In 2017, 28 out of 37 students answered Studiebarometeret.

The students in the programme report comparatively high satisfaction with all aspects of feedback and academic guidance. Scores for questions on satisfaction with feedback are between 0.4 and 0.9 points higher than the national average within their subject field, a considerable difference. The difference is particularly large on the questions on feedback before and after final submission of academic work, and on feedback from other students.

Students enrolled in the programme are also clearly more satisfied than their peers in the subject field when it comes to other aspects. This includes questions pertaining to teaching, student involvement and overall satisfaction. This is also the case for the mandatory questions on feedback and academic counselling.

The subject field the programme belongs to encompasses a wide range of study programmes. However, the reported satisfaction with feedback is higher for the bioengineering programme at UiT also when compared to other bioengineering programmes. The programme at UiT has average scores around 0.4 points higher than other bioengineering programmes.

The programme has a higher frequency of feedback and advising than other programmes in the subject field. Worth noting is that other bioengineering programmes have approximately the same scope of feedback as the programme at UiT.

The academic staff are deeply engaged with their students, and express adherence to the idea that feedback and guidance is a crucial component of educational quality. The programme is relatively small, with only about 30 students enrolled each year, and only eight permanent academic staff. This contributes to a tight-knit academic community characterised by small group sizes and close contact between staff. The learning environment is good, with particularly enthusiastic and engaged academic staff that are always ready to assist students when they need it. To illustrate the prevalent attitude among staff, no one uses the term 'duty' when discussing teaching.

The programme structure incorporates mandatory assignments in most subjects, which also includes continuous, formative feedback and guidance. If the quality of the students' work is not up to par, they must redo assignments and go through another round of feedback. Feedback is primarily provided in written format, but sometimes orally or through video recordings. Much of the feedback is given in connection with laboratory work.

The comprehensive use of portfolios and portfolio assessment is seen by the staff as a key factor for good feedback and counselling.

Staff clearly inform students early on what they can expect in terms of mandatory academic work during the course of the programme. Staff emphasise that students will have to work hard and

continuously to be able to keep up with teaching and mandatory assignments and to be allowed to take the final exam. This approach contributes to a healthy study culture characterised by motivated, hardworking students.

The second-year students for the current academic year have established a particularly excellent group dynamic. They work very hard and are exceptionally engaged. They often contact staff with questions and academic problems they wish to discuss. The staff attributes this in part to the high number of applicants in the past couple of years, which has led to increased competition between applicants and, in turn, that the enrolled students have been exceptionally motivated.

### **Lessons learned**

At the beginning of this paper, we introduced two main overarching questions:

- 1) What characterises study programmes with high student satisfaction with feedback?
- 2) Which measures and initiatives have these study programmes implemented?

We believe that the case study gives some indication on both questions, and that staff at other programmes can be inspired by the initiative and measures we describe.

The three study programmes all belong to subject fields with a high number of respondents in Studiebarometeret, several programmes within each subject field are represented. Consequently, it is possible to compare the scores for our chosen programmes with national scores for similar programmes. Our cases display high scores for all questions pertaining to feedback and counselling, both compared to study programmes within their subject field and at their own institutions.

Our cases represent different levels of study (bachelor/master) and three subject fields: child welfare, business and administration and bioengineering. At the surface level, the programmes have little in common. There are however some similarities regarding feedback and academic guidance.

All our cases are practice oriented professional studies. Data from Studiebarometeret shows that the variation in satisfaction with feedback within subject fields with practice-oriented programmes are about the same as the variation within fields with more academically oriented university programmes. All subject fields have programmes with high or relatively high scores on feedback. This indicates that staff at many traditionally university studies also have a strong focus on – or good measures to secure – good feedback and counselling.

The interviews supported all the findings from Studiebarometeret. The students and the staff sometimes had different perspectives and put different weight on factors, but there was not a single example of disagreement between the two groups.

Below we discuss some findings from the cases. This includes examples of ‘best practice’, but also other elements that influences the basis for good feedback, and which may contribute to the high satisfaction scores. With only three cases, the potential for generalisation is sparse. That being said, we do believe there are some common elements across all three cases that may be of use to other programmes looking to improve the quality of feedback and academic guidance.

*What characterises the three cases and which measures have been implemented?*

#### 1) Locally driven initiatives

None of the three programmes indicated that strategies at the institutional level had been the driving force behind their high emphasis on feedback and guidance of students. It appears as, by and large, it is the academic staff at the programmes themselves that has been responsible for initiating work to improve feedback practices. Staff that are highly motivated for working with feedback might develop the best fit methods and thereby get the best student satisfaction scores.

## 2) Professional identity

Two of our cases also emphasise the individual study programme's distinctive characteristics in terms of future professional practice. It appears that the staff's understanding of their own scholarly traditions and academic identity contributes to the particular focus on feedback and academic guidance. On the other hand, we do not see clear patterns of high satisfaction in similar study programmes within the subject fields, indicating that the extent to which scholarly tradition and identity informs programme focus and organisation varies within the same subject field.

## 3) The student population

One of the cases has extremely motivated students, which are carefully filtered in admission interviews. Another program has seen a change over time in student motivation and to what extent the students actually make use of the opportunities for feedback and guidance that are available, the change corresponds to the increase in applicants, which has led to a more academic oriented student group. It is reasonable to assume that characteristics of the student population, as well as group dynamics, can influence the quality of the learning environment in a study programme.

## 4) Group size

Two of our cases have cohorts well below the median number of students in Norwegian study programmes, and the third reduces the staff-student ratio by dividing cohorts into smaller groups early in the first semester of study. It might be that study programmes with few students are more likely to have higher satisfaction scores on feedback, as academic staff would be able to dedicate more time to each student.

Data from Studiebarometeret indicates a noteworthy, if not large, effect of group size on satisfaction with feedback on written assignments prior to final submission, as well as satisfaction with academic discussions with staff. We did not find comparable effects for satisfaction with feedback on written assignments after final submission and on non-written work. One interpretation of these differences is that smaller group sizes may be more conducive to more time-intensive forms of feedback, such as formative feedback, but have little impact on shorter, summative forms of feedback.

## 5) Expectations

All three programmes emphasised that they clearly communicate what they expect from their students early, usually within the first few weeks. The method and focus vary, but clear communication of expectations is a common element in all cases. One programme mentioned that staff expect active participation from students throughout the course of the study, which contributes to a steady workflow. Another programme emphasised mandatory, periodic assignments, which was coupled with continuous assessment and feedback. Two of the programmes also emphasise that students in the study programme work hard, which they attribute (in part) to the clear and timely communication of expectations.

## 6) Formative feedback

All the programmes emphasise extensive, formative feedback rather than summative feedback.

## 7) Scope

All programs have a high frequency of feedback, which is likely to contribute to the high scores on reported satisfaction with feedback.

## 8) Learning environment

Students in all three programmes are exceptionally satisfied with their learning environments, especially the relationship between students and staff. The staff put emphasis on the learning environment as a key factor that makes students readier and more willing to contact staff for academic discussions or specific feedback. The programmes – from the first semester start – facilitate a good student environment through measures like excursions and division into groups.

## References

Bjorklund, S. A., Parente, J. M., & Sathianathan, D. (2004). Effects of faculty interaction and feedback on gains in student skills. *Journal of Engineering Education* **93(2)**, 153-160.

Chan, J. C., & Lam, S. F. (2010). Effects of different evaluative feedback on students' self-efficacy in learning. *Instructional Science* **38(1)**, 37-58.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology* **54**, 5-12.

Fowler, P. R., & Boylan, H. R. (2010). Increasing student success and retention: A multidimensional approach. *Journal of Developmental Education* **34(2)**, 2.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of educational research* **77(1)**, 81-112.

Kot, F. C. (2014). The impact of centralized advising on first-year academic performance and second-year enrollment behavior. *Research in higher education* **55(6)**, 527-563.

Nerland, M and Prøitz, T (2018). Pathways to quality in higher education. Case studies of educational practices in eight courses. Nordic Institute for Studies in Innovation, Research and Education (NIFU).

Shute, V. J. (2008). Focus on formative feedback. *Review of educational research* **78(1)**, 153-189.

Government White paper no. 27 (2000-2001). 'Gjør din plikt - Krev din rett. Kvalitetsreform av høyere utdanning'. Ministry of Education and Research (2001).

Government White paper no. 16 (2016-17), Quality Culture in Higher Education. Ministry of Education and Research (2017).