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Formative assessment and feedback: Making learning visible

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ABSTRACT

The study explores how assessment information is received and attended to. The research is linked to a 2-year intervention project involving six Norwegian upper secondary schools, and with a particular focus on vocational training and the three core subjects: English, Norwegian and Mathematics. Survey data was collected from five schools, including both vocationally and academically oriented education. Other sources of data are focus-group interviews in three of the five schools, involving students, teachers and school leaders. Findings show that there are significant differences in how students and teachers perceive feedback practices. There are also significant differences between boys and girls, as well as within the various school subjects. Students experience more feedback in vocational training than in the more traditional academic subjects.

Feedback is seen as a primary component in formative assessment and one of the factors that have the strongest influence on learning (Black & Wiliam, 1998; Crooks, 1988; Hattie & Timperley, 2007; Hattie, 2009). This stance is increasingly being emphasised in policy documents, trusted by teachers and expected to be ingrained in the cultures of educational institutions (Crisp, 2007). However, positive effects of feedback are not always the case. Kluger and DeNisi (1996) found that more than one third of the effects indicated negative impact of feedback on learning. Shute (2008) uses the term 'formative feedback' which she defines as "information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improving learning" (p. 154). In her article she draws attention to aspects of feedback that actually have positive impact on learning. She wraps up the article by synthesising lists of interventions like "tings to do", "things to avoid", "timing issues" and "learner characteristics". Hattie and Timperley (2007) also address aspects of feedback that influence learning in a positive way and develop a model of "feedback to enhance learning" (p. 87). Both these influential articles have one common trait: the focus is on the provision of feedback and characteristics of the feedback as information provided mainly to the learner. Inherent in Shute's (2008) definition is the assumption that it is the message that modifies thinking and behaviour. By focusing on timing and learner characteristics she also emphasises that the delivery of the information building on a transmission model of learning needs to be examined, and the feedback provider should take into consideration that different learners interpret feedback information in diverse ways. We find the same pattern in Hattie and Timperley's (2007) model; they bring the feedback information or feedback message up-front. These perspectives are well grounded in research and bring forward useful information that is needed to understand how feedback enhances learning. However, there is an element that is missing – or silenced – in these well-known review articles: the role of the agentive learner is not explicitly elaborated (Sadler, 1989a,b; Wiliam, 2011). There is an implicit assumption that for feedback to be formative (Shute) and feedback to enhance learning (Hattie and Timperley) the feedback needs to be formulated, delivered and framed in such a way that it invites learners' active engagement with the feedback.

In a recent article Sadler (2010) emphasised the need to include in the analysis of formative assessment students' understanding of the feedback information and the active use of it in further learning. Earlier, Ramaprasad (1983, p. 5), from an organisation theory perspective added the active use of feedback as a necessary condition: "The information [...] is feedback only when it is used to alter the gap" between the actual level of performance and the reference level (see also Sadler, 1987). Boud (2000, p. 158) claims that "unless students are able to use the feedback to produce improved work, through, for example, re-doing the same assignment, neither they, nor those giving the feedback, will know that it has been effective". Even though claims have been made that the receiver of feedback is the one who decides if the feedback is to be of use or not, we still know

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little about the learners' response to feedback (Jonsson, forthcoming).

In this paper the centre of attention is the use of feedback, as viewed by those who give feedback (teachers) and those who receive feedback (students). The specific questions to which we sought answers are: How do teachers and students in the same context (secondary school) perceive feedback practice? Are there differences in feedback practices across subjects and across programmes (academic *versus* vocational)? These questions generate four analytical categories: teacher–student diversities, subject diversities, programme (academic *versus* vocational) diversities, and diversities across schools.

Context of the study

The article reports from a research and development project that was conducted in the context of a two years development project focusing on assessment in six upper secondary schools in Western Norway. The development project was run in collaboration with the regional county. All upper secondary schools in the county were invited to apply for participating in the development project. The six project schools were selected according to the following criteria:

- Mixture of rural and city schools
- Mixture of academic and vocational oriented schools
- Mixture of small and larger schools
- Engagement in emphasising assessment for learning, as expressed in the school's development plan

Each school had selected six participating teachers for the development part of the project, ensuring that there were at least one from each of the subject areas dealt with in the study, and from the school leadership. The project focused on conceptualising ongoing practices and strategies for improvement of feedback practices in the three core academic subjects in secondary schools in Norway: English, Norwegian and Mathematics. In addition to differences across subjects, there was also a mix of academic and vocational (*e.g.* cookery, carpentry and hairdressing) programmes.

As part of the development project each school set up a development plan that involved conceptualising ongoing practice and trying out new strategies for formative assessment in the subjects. The current paper focuses on an early stage in the project, while the schools were planning interventions in the feedback system and practices.

The authors of the paper were involved in setting up the development project. There was a division of responsibilities in that the school region was responsible for monitoring and directing the development project, and the university researchers were responsible for the research part. However, the researchers supervised the project leaders, had presentations about research on formative assessment and gave feedback to plans that the schools presented. In some occasions we were also invited to give talks in schools.

Research design, data gathering and analyses

A mixed approach was used to elicit complementary data from the respondents. A mixed-method design (Johnson, Onweuegbuzie, & Turner, 2007) combines "the broad purposes of breath and depth of understanding and corroboration" (p. 3). Quantitative survey data were collected from five of the schools (one school was not able to organise the data collection). Qualitative data (focus group interviews) were collected from three schools, including both vocational training and academic oriented schools. The quantitative data were gathered halfway into the first year of the project period; in February 2010.

The data collection process can be summarised as follows:

- A survey questionnaire to all teachers in the five selected schools ($N = 192$).
- A survey to all students in the first year of upper secondary schools in these five schools ($N = 391$).
- Focus group interviews with groups of teachers and leaders (one group of each from each school), and two groups of students (separately) in the three schools.

The survey questions framed assessment and feedback practice in the context of tests and assignments. In the interviews a wider spectrum of assessment and feedback contexts was introduced, which allowed us to explore the concepts of assessment and feedback and expand the analysis to classroom practice and interaction between teachers and students and among students in the context of teaching, learning and problem solving.

The questionnaire was validated in two ways. First, an expert on surveys critically examined a draft. Next, the survey was piloted with a group of students and teachers from a school that was not among the sample schools or involved in the development project. The pilot included subsequent discussion with participating teachers and students. The surveys were revised according to comments made, and ambiguous questions were removed. The web-based questionnaire consisted of a set of 29 statements addressing diverse aspects of assessment and feedback systems and practices. The respondents were asked to consider whether the statements were correct or not, according to their experience. For each statement the respondents could tick one of four boxes: (1) correct, (2) nearly correct, (3) correct only to some extent and (4) incorrect. There was also an open space for comments at the end of the survey. By using a shared set of statements, reframed for the teacher and student groups, we were able to both register teachers' and students' responses and compare their views on specific aspects of assessment and feedback. All students, both those in academic programmes and those in vocational programmes, ticked off for each of the three academic subjects (Norwegian, English and Mathematics), while students in vocational programmes also responded on a fourth category: vocational training. Teachers were asked to respond to one of the subjects and identify which subject (including vocational training) they referred to when replying.

The questionnaire was administered to the students during classroom time within a given time period for each school. Teachers accessed the survey according to their own convenience. The study was accepted by the Norwegian Science Data Services. Written information about the study was provided for students, parents and teachers ahead of data collection.

SPSS was used for analysing the quantitative data. Using factor analysis allowed us to condense a large set of variables to four categories, which we framed as dimensions of students' and teachers' engagement with feedback. (1) *Quality of feedback* (*e.g.* length of feedback, with or without mark, informing about strengths and weakness, and system variables like timing and grade *versus* purely formative feedback). Cronbach's alfa coefficients were .68 for teachers and .75 for students. (2) *Students' use of feedback* (*e.g.* working on feedback on assignments in class, following up students' use of feedback, using feedback to adjust teaching). Cronbach's alfa coefficients were .69 for teachers and .77 for students. (3) *Peer-feedback* (commenting on the work of their peers). Cronbach's alfa coefficients were .74 for teachers and .88 for students. (4) *Student-involvement in assessment practice* (discussing criteria, students setting their own learning goals, assessing their own work using the criteria). Cronbach's alfa coefficients were .78 for teachers and .87 for students.