

# Feedback for Everybody?

## – Group Variations in Students' Perception of Feedback. Results from PISA 2012

**Network:**

**9. Assessment, Evaluation, Testing and Measurement**

27. Didactics - Learning and Teaching

24. Mathematics Education Research

**3-5 keywords:**

Feedback, perception, student perspective, gender, ethnicity

**General description on research questions, objectives and theoretical framework (up to 600 words):**

Many studies have shown that feedback is a key determinant for student learning and achievement (Hattie & Timperley, 2007; Muijs et al., 2014; among others). Feedback can broadly be defined as information from the surroundings about the learning process that is available to an active learner (Ramaprasad, 1983; Scriven, 1967; Shute, 2008). This information can be offered to the learner by different agents (e.g. teacher, parents, peer, textbook) (Hattie & Timperley, 2007). Two international meta-studies have found that feedback is among the single most influential factors in relation to explaining the learning outcome of the individual student (Hattie, 2009; Meyer, 2005).

Despite this enormous body of research on feedback, few studies have explored whether the reception of feedback is equally distributed among all groups of students in the

classroom. Furthermore, most of the literature so far did not analyze whether different types of feedback (such as formative vs. summative) are equally distributed within the classroom. Finally, few studies have explored feedback from the perspective of students. Against this background the aim of this paper is to examine how 15 year old students with different background characteristics and mathematic ability receive and perceive feedback in different ways. More specifically, I will use data from the OECD Programme for International Student Assessment (PISA) 2012 to examine whether gender, ethnicity, socioeconomic background and demonstrated mathematical ability are related to how much and what type of teacher-student feedback the individual student perceives in the context of mathematics lessons. In order to minimize within school homogeneity in student background characteristics due to, for instance ability sorting, I focus my analyses on the Nordic countries (DK, IS, N, S, FIN).

#### Theory/Assumptions

Drawing on social constructionist theory, I view learning from a student perspective as an active process in interaction with the surroundings (Palincsar, 1998; Vygotsky, 1978). I therefore expect variations between students with different background characteristics in proportion to how much and what types of feedback they perceive (Bernstein, 1975; Bourdieu & Passeron, 1990; Frykman, 1998). This standpoint also implies that intended feedback from the teacher is not always equal to the perceived feedback of the individual student. I focus on the feedback that is given by the teacher and perceived by the student. While summative and formative feedback are both components of the concept of feedback (e.g., Scriven, 1967), I distinguish between these two types of feedback when examining how these two types are distributed among students.

The paper will thus be one of the first empirical studies on systematic group differences in the distribution of feedback (Black & Wiliam, 1998).

#### **Methods/methodology (up to 400 words):**

The data used in this paper is from the OECD Programme for International Student Assessment (PISA) 2012. A special component of the 2012 edition of PISA is a focus in the student questionnaires on topics like feedback and formative assessment in relation to mathematics lessons.

The dependent variable ‘feedback’ is constructed using three items from the PISA 2012 student questionnaire on the basis of ‘how often do these things happen in your mathematics lessons?’. The three questions are; “The teacher tells me about how well I am doing in my mathematics class”, “The teacher gives me feedback on my strengths and weaknesses in mathematics” and “The teacher tells me what I need to do to become better in mathematics”. These three items capture the phenomenon of perceived feedback from a student’s point of view in accordance with my interpretation hereof as each of the three questions deals with different dimensions of the phenomenon feedback. These variables are used to build a student level feedback index. Furthermore, I construct two indexes to discriminate between two types of feedback, namely formative and summative.

I run multi-level models (Snijders & Bosker, 2012) separately for each country using the individual student as level one and the school as level two. I start by running a null model to estimate the within- and between-school variance and then add covariates on both analytic levels:

$$\gamma_{ij} = \beta_0 + \beta_1 SC_j + \beta_2 ST_{ij} + \mu_j + \varepsilon_{ij}$$

where  $\gamma_{ij}$  is the perceived amount of feedback of student  $i$  in school  $j$ ,  $SC_j$  are school level characteristics,  $ST_{ij}$  are student level characteristics including gender, ethnicity, socio-economic background and mathematic ability,  $\mu_j$  are unobserved characteristics of school  $j$ , and  $\varepsilon_{ij}$  are unobserved characteristics of student  $i$  within school  $j$ . Finally, I check for interactions between student level characteristics such as gender crossed with mathematic ability.

**Expected outcomes/results (up to 300 words):**

Preliminary analyses reveal significant group differences in the amount of perceived feedback: Boys perceive more feedback than girls; students not born in the test country as well as students that do not speak the majority language at home perceive more feedback than their counterparts; students with low socioeconomic status perceive more feedback than the rest of the students; and, low ability students perceive more feedback than the rest of the students. These differences apply for the majority of the selected countries.

These results indicate that students with characteristics that usually correlate with low school achievement perceive more feedback. One exception is gender as boys perceive more feedback than girls even though they outperform the girls in mathematics in all countries except Iceland. I expect even more nuanced results when differentiating between the two types of feedback and theoretically motivated combinations of group traits (for example high/low mathematic ability boys vs. girls).

**Intent of publication:**

Educational Research and Evaluation

**References (400 words):**

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