Feedback revisited: Adding perspectives based on positive psychology. Implications for theory and classroom practice

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HIGHLIGHTS

- Consequences of the perspective of positive psychology on feedback.
- The importance of taking into account the emotions evoked by feedback.
- Challenging the over-simplification of feedback about the self and praise.
- Feedback on character strengths as a type of feedback on the self.
- Progress feedback as a complement to "gap" feedback.

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ABSTRACT

Teacher feedback has mainly been described from the point of view of cognitive psychology. We aim to add to the body of knowledge on teacher feedback by considering the perspective of positive psychology. We describe possible consequences of two concerns of positive psychology: (1) the importance of (positive) emotions and (2) character strengths. We argue that emotions are an important issue in the discussion about feedback and challenge the over-simplification of feedback about the self. As a way of stimulating positive emotions and character strengths, we propose to focus on progress feedback as a complement to gap feedback.

1. Introduction

Feedback is a fundamental aspect of everyday teaching. Researchers from all over the world, for instance from New Zealand (Hattie & Timperley, 2007), the United States (Black & Wiliam, 1998), Sweden (Shute, 2008), the Netherlands (Voerman, Meijer, & Korthagen, 2012a), the United Kingdom (Hounsell, McCune, Hounsell, & Litjens, 2008), and Germany (Brand, Reimer, & Opwis, 2007) acknowledge the importance of feedback. Hattie (2012b) even describes feedback as one of the most influential factors in learning — it is higher on the list of influential teacher interventions than, for instance, the quality of instruction.

The body of knowledge on feedback is extensive, as a lot of research has been done during the last decades, culminating in review articles covering a large number of studies. Examples of such review studies include the works by Kluger and DeNisi (1996), Black and Wiliam (1998), Hattie and Timperley (2007), and Shute (2008). The aim of feedback is generally described as being to close the gap between current performance and a goal and effective (learning-enhancing) feedback is described as specific and goal-related (Alder, 2007; Black & Wiliam, 1998; Duijnhouwer, 2010; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Sadler, 1989; Shute, 2008). In this article, we will follow Duijnhouwer's definition of feedback (2010): "information provided by an external agent regarding some aspect(s) of the learner's task performance, intended to modify the learner's

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cognition, motivation and/or behavior for the purpose of improving performance" (p. 16).

Giving learning-enhancing feedback may be more difficult than most teachers realize. The existing body of knowledge reveals that over one third of all feedback interventions have a negative impact on learning (Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008). This phenomenon can be illustrated using the following example (Voerman & Faber, 2010):

> *Cheerful and full of positive expectations, Isabel entered her new school. After just one week, she came home crying each day…What happened?*
>
> *In this first week, she got acquainted with her new teachers and fellow-students. She also received feedback from her mathematics teacher several times. Basically, although she could not reproduce the feedback literally, she understood from his messages that she was clumsy and stupid. Whether or not he really said or even meant to say this, her conclusion was clear: she was stupid. The impact was dramatic. She hated math, she felt teachers were stupid, school was awful and she wanted to go back to her primary school. And concerning mathematics she stated: "I will never learn math, it's just too difficult."*

The feedback Isabel's teacher gave her apparently did not serve its purpose: it did not enable her to learn better, nor did it motivate her to perform mathematics. On the contrary, she was ready to give up on mathematics and even on school. Boud (1995) describes this phenomenon as follows: "We write and say things which can readily be taken as comments about the person rather than their work and in doing so we link in to the doubts and uncertainties which they have of themselves and our remarks are magnified at a great cost to the self-esteem of the persons concerned" (Boud, 1995, p. 44). Hounsell (2003) also described the influence of feedback in defining self-perceptions:"…… feedback could also have powerful effects on students' self-confidence, buoying up some, while leaving others 'devastated'" (p. 72). Thus, feedback not only has an impact on learning, but also on the emotions a person experiences and their views of their strengths and weaknesses.

Most studies on feedback appear to be based on a cognitive view of learning. And although important, we felt that this emphasis on cognitive views might also lead to a limited understanding of the concept of feedback, as the example above might illustrate. Hence, our goal is to contribute to the existing body of knowledge about feedback by introducing another perspective on learning into the discourse by discussing the consequences of this perspective on the conceptualization of feedback. There are several possible perspectives that might add to our understanding of feedback, such as positive psychology, social constructivism, or social psychology. Because describing all possible alternatives is beyond the scope of this article, we chose the perspective of positive psychology to revisit the concept of feedback and to discuss consequences of this view for both theory and practice of giving feedback.

Positive psychology in general revolves around three concerns: positive emotions, positive individual traits or character strengths, and positive institutions (Seligman & Csikszentmihalyi, 2000). We will discuss the first two of these concerns: (1) positive emotions and (2) character strengths in relation to the concept of feedback. By considering these two concerns of positive psychology, we reflect on three themes with regard to the concept of feedback. The first theme is the relation between (positive) emotions, learning, and feedback (see the example above).

A second theme refers to the types of feedback that have negative effects on learning according to five main reviews of

research on teacher feedback: Black and Wiliam (1998); Hattie and Timperley (2007), Kluger and DeNisi (1996), Sadler (1989), and Shute (2008). These include praise and feedback about the self. Based on the outcomes of research in positive psychology regarding the influence of positive emotions and awareness of character strengths on learning, we aim to reconsider the views of the impact of praise and feedback about the self for learning.

A third theme is based on the views of positive psychology about positive emotions which are broadly described as being content with the past, happiness in the present, and hope for the future (Seligman & Csikszentmihalyi, 2000). In line with this view, we will discuss *progress feedback* as a complement to gap feedback. Duijnhouwer (2010) defined progress feedback as information that performance has improved compared with previous performance in a similar task. This type of feedback might stimulate students to believe that they might not yet have mastered the subject or skill, but in due course they will. In this way, progress feedback contributes to hope for the future as a positive emotion.

2. Method

First, we studied five reviews of research on feedback that were cited in most other articles on feedback, based on the SSCI (Social Sciences Citation Index). These were the meta-analyses by Kluger and DeNisi (1996) based on 131 articles, and Hattie and Timperley (2007) based on a synthesis of 500 meta-analyses. Moreover, we studied the literature reviews by Sadler (1989) based on 49 articles, by Black and Wiliam (1998) based on 250 articles, and by Shute (2008) based on 103 articles and 24 books and book chapters.

Second, we searched for sensitizing concepts, based on the combination of (1) descriptions of effective and ineffective feedback, as described in the five main review studies on feedback, and (2) the main concerns of positive psychology. These sensitizing concepts were feedback and emotions, praise, feedback about the self, and progress and discrepancy feedback. Subsequently, we established keywords and search terms. For feedback and emotions, the keywords were positive and negative feedback, emotions, positive emotions and learning. For praise and feedback about the self, the keywords were character strengths, praise, nonspecific feedback and self-efficacy. For progress and discrepancy feedback, we used progress feedback, gap feedback, feedback and goals, and goals and learning as keywords. We used a search engine that combined several other search engines including those of primary importance: ERIC, Journal Citation Reports (JCR), Science & Social Edition, Google Scholar, PsycINFO, Scopus and Web of Science. From the articles we located based on these keywords, we analyzed the abstract and the conclusion. Articles were selected based on topical relevance for the sensitizing concepts we described above. Consequently, we used the "snowball method" to expand the number of articles forming the basis for our research. We arrived at 26 articles from positive psychology which met the following criteria: (1) the article was cited more than once, and (2) the conclusions found in the article were also found in other articles.

3. Findings

3.1. Emotions, and in particular positive emotions, and feedback

We will explore the relationship between emotions and feedback by discussing (a) the impact of emotions on learning and (b) the impact of feedback on emotions. We will specifically describe the impact of positive emotions.

3.1.1. The impact of emotions on learning

From various descriptions and definitions of learning, the importance of emotions in learning has become clear. Emotions are increasingly seen as an inseparable part of learning (e.g. Hoekstra, 2007; Korthagen, 2010; Meriam, 2008). Dirkx (2008) describes an emotion as "a neurophysiological response to an external or internal stimulus, occurring within and rendered meaningful through a particular sociocultural context and discourse and integral to one's sense of self" (Dirkx, 2008, p. 13).

With respect to positive emotions, positive psychologists Isen, Daubman, and Nowicki (1987) found that positive emotions can influence the way in which cognitive material is processed, having an impact on creativity. These authors also found evidence of better performance and improved learning when people are in a positive emotional state rather than in a negative one. Bryan and Bryan (1991) stated that there is a growing body of literature indicating that positive emotions can influence thoughts, cognitive processes and social behavior. Empirical research by Fredrickson (2001) showed that negative emotions tend to narrow a person's momentary thought-action repertoire, whereas positive emotions broaden it and provide the person with enduring personal resources. Hence, according to Fredrickson's so-called *broaden-and-build model*, it is important to promote people's awareness of positive meaning, and to build learning processes on this awareness (Fredrickson & Losada, 2005). The crucial factor seems to be the broadening of one's scope of attention and the promotion of creativity through positive emotions (Fredrickson, 2013).

Other perspectives on learning support the view that emotions have an impact on learning. Neuroscience shows that cognition and emotions are closely related. For example, Immordino-Yang and Damasio (2007) state that important aspects of cognition in learning (for instance, attention, memory, and decision-making) are profoundly affected by emotions: "Contrary to a long philosophical tradition in which rational thought ruled (…), we now know that emotions involve the largely automatic and often nonconscious induction of behavioral and cognitive packages, which percolate into and out of our conscious minds, influencing our decision making, our thinking, our memory, and learning" (Immordino-Yang & Damasio, 2007, p.7).

Research findings in motivational psychology, and especially from Pekrun, Goetz, and Titz (2002), may add an interesting distinction to the view of positive psychology regarding the impact of positive emotions on learning. Pekrun et al. performed a large-scale research study on the influence of emotions on learning and found differential effects of emotions on learning. In their cognitive-motivational model, they distinguished between two dimensions of emotions, namely (1) positive versus negative emotions, and (2) activating versus deactivating emotions. By activating or deactivating, positive or negative emotions might activate or deactivate motivation to continue academic work. In this way, they arrived at four types of emotions listed in the left-hand column of Table 1. The right-hand column describes the effects on learning for each type of emotion.

Table 1
Overall effect of emotions on learning (Pekrun et al., 2002).

Emotions	Effect on learning
Positive activating emotions (e.g. joy, hope and pride)	Positive
Positive deactivating emotions (e.g. relaxation, relief)	Variable
Negative activating emotions (e.g. anger, anxiety and shame)	Variable
Negative deactivating emotions (e.g. boredom, despair)	Negative

Pekrun et al.'s research (2002) showed that positive activating emotions have positive effects on learning and that negative deactivating emotions have negative effects on learning. The influence of positive deactivating emotions and negative activating emotions depends on the characteristics of the individual and the support from their environment. We will explore these aspects more fully in the next section.

In summary, we conclude that emotions tend to influence learning. Positive emotions seem to positively influence learning and negative emotions tend to negatively influence learning. In support of this, we found indications not only from positive psychology, but also from neuroscience and motivational psychology.

3.1.2. The impact of feedback on emotions

Because feedback has an effect on emotions and emotions have an impact on learning, we will explore more fully the influence of feedback on emotions. To accomplish this, we will take a closer look at the impact of positive and negative feedback on the receiver's emotions. Research articles seldom include a clear definition of positive and negative feedback. An exception is the work of positive psychologists Losada and Heaphy (2004) who define positive feedback as showing support, encouragement or appreciation, and negative feedback as showing disapproval. We will follow this description in this article. One might think that positive feedback elicits positive emotions and negative feedback elicits negative emotions. However, this is not always the case as whether feedback arouses positive or negative emotions is not only determined by the content of the message, but also, for example, by the characteristics of the individual and the support from their environment as indicated by Pekrun et al. (2002). First, receivers of feedback construct their own perspective of reality and thus of the feedback given and their emotions are, as a result, activating or deactivating (Pekrun et al., 2002). For instance, a teacher might provide feedback to a group of students on the great progress they have made. This feedback may evoke in students a positive activating emotion such as hope and that there is a good chance they will pass the exams if they just keep on working as they have been. But the same feedback may also lead to positive deactivating emotions such as relaxation. Students may feel relaxed and decide to take some time off. Similarly, negative emotions triggered by feedback may be deactivating ("I give up") or activating ("I will show that I can do it after all"). Moreover, feedback that is meant to be positive can be perceived as negative. For instance, when a teacher tells a student that the essay is better than the previous one in terms of style, the receiving student may interpret this as meaning that the style may be better, but apparently the content is inadequate.

Secondly, the context in which the feedback is provided may also influence the emotions a student experiences. For instance, a student might experience a negative deactivating emotion such as shame as a result of a teacher's specific positive feedback on his zest in the classroom, because his peers hold a negative evaluation about showing zest.

Thirdly, feedback takes place within a communication process. The emotions experienced by a person receiving feedback are also influenced by his or her relationship with the person providing the feedback and by the context, as stated by social psychologists Watzlawick, Beavin, and Jackson (1967) in their well-known handbook on communication. They emphasize that all communication has a *content* and a *relationship* aspect. For instance, a student who has a good and trusting relationship with a teacher will experience negative feedback differently from a student who does not trust the teacher. It is therefore not enough to make a distinction between positive and negative feedback from the viewpoint of the provider of feedback. The receiver of the feedback both

experiences emotions and constructs meaning that may differ from the provider's intentions.

In conclusion, feedback may elicit positive and negative activating and deactivating emotions. These emotions will influence learning in predictable ways. In general, positive feedback evokes positive emotions and negative feedback negative ones. However, as we have seen, this is not always the case, because the impact of feedback is also determined by the context and the relationship with the provider of the feedback. We will return to the importance of this conclusion later in the article.

3.2. The confusion between praise and feedback about the self

There is overwhelming evidence that, in order to enhance learning, feedback should be specific and related to a goal. In their review study, Hattie and Timperley (2007) stress this goal-relatedness and specificity and show that feedback on the process of learning and feedback on self-regulation seem to be the most effective types of feedback. They describe praise and feedback about the self as ineffective or even detrimental to learning. Many authors, for instance Butler (1987), Duijnhouwer (2010), Kluger and DeNisi (1996) and Shute (2008) agree with these findings on the effect of feedback about praise and feedback on the self for learning. The general conclusion is that praise and feedback about the self are not beneficial to learning because they direct attention away from the task (Butler, 1987; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008). However, these authors did not include an explicit definition of the two concepts they were using, although Hattie and Timperley (2007) provided some examples, such as "well done!" or "good girl!". In these examples, no distinction is made between praise and feedback about the self. We find it important to first make a clear distinction between these concepts as we believe this confusion leads to misconceptions.

3.2.1. Praise
Praise is one of the most frequent feedback interventions. Hattie and Timperley (2007) stated that if feedback is given, it is likely to be praise (see also Bond, Smith, Baker, & Hattie, 2000; Pauli, 2010; Voerman et al., 2012a). Kluger and DeNisi (1996) were the first to show that praise may not enhance learning but may even be detrimental to learning. Many other studies (e.g. Hattie & Timperley, 2007; Shute, 2008) that have made this claim are based on the Kluger and DeNisi study. However, the study by Kluger and DeNisi was primarily based on tasks carried out in a laboratory setting (Sol & Stokking, 2009) and focused on, for instance, memorizing information and reacting to stimuli. The difference between laboratory and classroom settings makes it difficult to translate the results of Kluger and DeNisi to classroom practices. Besides clarifying the concept of praise, the conclusion that praise does not enhance learning should, in our view, be nuanced.

In order to clarify the concept of praise, we will return to two other distinctions made in the discussion about feedback, namely the distinction between positive and negative feedback, and the distinction between specific and non-specific feedback. Praise can first be described as a type of positive feedback and further, based on examples in the literature, praise is usually non-specific. In our view, the lack of specific information creates the sometimes unhelpful (learning-decreasing) effect of praise found in research (Hattie & Timperley, 2007). The following example might illustrate this. This example provides the replies of two students in the first grade of secondary education to the question of what was the last compliment they received from their teacher (Voerman, Meijer, & Korthagen, 2012b).

Interviewer: What was the last compliment you received from your teacher?

Student: "Well done" for my French assignment. We had to make a card. I can't find it now, but… (trying to find the card to show it to the interviewer)

Interviewer (reacting to the student's pleasure about the teacher's compliment): You're still glowing a bit, now that you think of the compliment!

Student: Yeah!

Interviewer: And do you know why your card was well done?

Student (sighing deeply): Um, no, not exactly what I did right.

In this case, praise like "well done!" seemed to arouse a positive emotion in the student, even when thinking about the compliment afterward which might be of importance to learning. However, this praise or non-specific feedback does not seem to be enough to enhance learning as the student does not know what the "well done" feedback was about.

A second example from another student responding to the same question about the last compliment he received from a teacher:

Student: Very nice, that you're doing that extra assignment on biology, and also that you're doing that cooperating with other students.

Interviewer: And what happens then, what is the effect of such a compliment?

Student: I like it very much! And then I think, I want to go on working. It's good for my results if I do more, it gives me spirit, and the courage to work on (smiles broadly).

Interviewer: I can see that you're enjoying it, while you're talking!

Student (smiles even more and nods).

In this case, the feedback was specific and related to a goal (stimulating students to do extra assignments and work together in groups) and also evoked a positive emotion in the student. The student again showed joy and knew exactly why the compliment was paid. The chance that this specific feedback will lead to enhanced learning seems greater.

Returning to our discussion on the impact of positive and negative feedback on emotions, we should not neglect that this type of non-specific positive feedback indirectly influences learning. In their observations of management teams, Losada and Heaphy (2004) found that high ratios of positive to negative feedback were a crucial factor for high-performing teams, and that low ratios were characteristic of low-performing teams. They made no distinction between specific and non-specific positive feedback. Losada and Heaphy (2004) linked the ratio of positive and negative feedback to the creation of "emotional spaces." As they stated: "Positivity and negativity interact as powerful feedback systems to generate different emotional spaces" (Losada & Heaphy, 2004, p. 744). They concluded that positive feedback generates expansive emotional spaces that open up possibilities for learning. Negative feedback, however, creates restricted emotional spaces that close down possibilities for learning. Earlier, we described similar findings by Fredrickson (2001) about the narrowing influence of negative emotions on a person's momentary thought-action repertoire.

Non-specific and specific positive feedback both seemed to influence the "emotional space" necessary for learning. We

hypothesize that non-specific feedback does indirectly influence learning via emotional spaces. These effects will not appear in laboratory studies nor in studies where the dependent variables are short-term learning results.

In this section, we made an attempt to show that nuancing our knowledge of feedback is necessary. We proposed referring to praise as non-specific positive feedback and discussed the possible indirect influence of praise or non-specific feedback on learning through the emotions it evokes and the possible creation of expansive emotional spaces.

3.2.2. Feedback about the self and character strengths

Research seems to show that feedback about the self is not very effective for enhancing learning (Black & Wiliam, 1998; Butler, 1987; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008). The main reason for this detrimental effect on learning is that the focus is not relevant to the task: the feedback draws the attention of the learner away from the task and onto him or herself (Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008).

Based on our discussion on the impact of feedback on emotions, in this respect taking into account the emotions that feedback about the self can arouse is of interest. Pekrun et al. (2002) showed that emotions such as enjoyment and pride (emotions that could be aroused by positive feedback about the self) are negatively correlated to task-irrelevant thinking and hence do **not** draw the attention of the learner away from the task. Negative emotions, however, such as anxiety, shame, boredom and hopelessness (emotions that can be aroused by negative feedback about the self) are positively related to task-irrelevant thinking. The claim that feedback about the self draws attention away from the task might be too general. Moreover, the examples of feedback about the self found in the literature are non-specific in nature ("good girl!"). It is noteworthy that there is little attention given in the feedback literature regarding the possibility that feedback about the self might also be specific. It would be interesting to explore whether feedback about the self, provided that it is positive and specific, can have a beneficial effect on learning. In the next section, we wish to proffer this alternative perspective.

With respect to feedback on the self, we would like to explore the second concern of positive psychology: the study of positive traits and the impact of these positive traits on well-being and learning. Positive personal traits are described as people's personal qualities or *character strengths*, such as kindness, self-control, creativity or curiosity. Character strengths refer to those aspects of personality that in various cultures are considered important moral values (Peterson & Seligman, 2004; Seligman, 2002). There are several interesting findings in the field of character strengths that may be of relevance in the discourse on feedback. First of all, in a variety of empirical studies, consistent evidence has been found that promoting people's awareness of their own character strengths stimulates growth, and that this is an enduring effect even after relatively small interventions. Scales, Benson, Leffert, and Blyth (2000), for instance, conducted a study based on a sample of 6000 young people, and found that awareness of character strengths contributed meaningfully to — among other things — success at school. Park and Peterson (2009) also found that a focus on students' character strengths is associated with success at school.

Secondly, it is possible to create awareness through feedback on character strengths. Ruit and Korthagen (2013) conducted a study in which 600 primary school students received feedback on their character strengths. After three months, more than 80% of the students still remembered the character strengths they were made aware of, and nearly 60% still consciously put forward those character strengths. Park and Peterson (2009) suggested that teachers

should enable students to build their self-esteem by emphasizing the strengths the students already possess.

The fact that feedback on the self can have such important and enduring effects need not surprise us. In psychology and psychotherapy, it is commonly accepted knowledge that messages from important people have a great impact on what a person comes to believe about him or herself (e.g. Bergner & Holmes, 2000). In this respect, the concept of the *dialogical self* (Hermans & Dimaggio, 2007) is interesting: the dialogue between a person and important others tends to become an inner dialogue within the person (Akkerman & Meijer, 2011; Lewis, 2002). This can have negative effects as seen in the first example provided above in our introduction, but also beneficial effects. A teacher who is able to convey to a student a positive image of his or her capacities may promote a positive and supportive internal dialogue within this student. Bergner and Holmes (2000) stated that, when approached as someone who has, for example, a great potential for change, a person starts to live according to this "status." In Hattie's (2012b) recent meta-analysis, building high expectations for success is the factor contributing the most to learning success (delta = 1.44).

Hence, there is evidence that teacher feedback about the self can have an important positive impact on a student's experience of him or herself, and that feedback about the self may enhance learning. Such a positive impact might not be restricted to short-term learning or might not even work in the short-term, but it potentially has a long-term influence. The kind of feedback about the self that is needed is not the non-specific type such as "good girl!," but is specific feedback on a student's character strengths, with the aim of creating a positive view of the students' own capacity for learning. A teacher might say, for instance: "In the last few weeks, I have seen that you have made a tremendous effort to master this subject. That's why you succeeded. You are a real go-getter!". In this feedback, the insights from positive psychology are combined with the other general guidelines that feedback should preferably be specific and related to performance or to the task at hand. We hypothesize that feedback on character strengths is even more beneficial if it is related to performance or to the task at hand.

4. Progress feedback as a complement to gap feedback

In an earlier article (Voerman et al., 2012a), we introduced a model to describe the combination of two interesting aspects of feedback. The first aspect refers to the aim of feedback as closing the gap between the current level of performance and the goal. Sadler (2010) stresses the function of feedback as closing the gap between a student's performance and learning goals. He explains that it is necessary for students, in order to close this gap, to: (a) possess a concept of the standard (or goal, or reference level) being aimed for, (b) compare the current level with the standard, and (c) engage in an appropriate action which leads to some closure of the gap. We have called this *discrepancy feedback* (Voerman et al., 2012a). Other authors too have emphasized the importance of feedback that aims to close the gap between performance and the intended learning goal (e.g., Askew, 2002; Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Shute, 2008). An example of such feedback is: 'You do not know the exact conjugations of the irregular verbs yet. This is really necessary to get a good mark on your test.' Discrepancy feedback is goal-related and aims to close the gap between current performance and a goal. In classrooms, the sole emphasis on discrepancy feedback might lead to teachers mainly telling students what is missing in their work, and we would like to suggest a complementary type of feedback.

In addition to discrepancy feedback, feedback might also be provided on what students have already achieved. Schunk and Schwartz (1993) have called this *progress feedback* described as

confirming progress and conveying that goals are attainable. We will follow the description of Duijnhouwer (2010) who defines progress feedback as information that performance has improved compared with the previous performance in a similar task. A teacher might, for instance, say: 'This week, you already know a lot of German words, compared with last week. You have learned well!'. Duijnhouwer stated that progress feedback raises self-efficacy because it suggests that individuals are competent and can continue to learn. Progress feedback is thus an additional way to provide feedback but has hardly been described in the general literature on teacher feedback.

From a positive psychologist stance, feedback on what has already been achieved might create 'hope for the future.' As Jenson, Olympia, Farley, and Clark (2004) stated: "Optimism is a person's hope for the future. Having a positive outlook on the future has been linked to positive mood, perseverance, effective problem solving, academic success, and a long life" (p.68). These authors reviewed research showing that teachers and students have high rates of negative interactions, which in light of the impact of positive emotions on learning, might not be beneficial for learning. In conjunction with this, they state that teachers tend to pay attention to what is wrong (or in other words to the discrepancy with the goal) and neglect providing feedback on what is right.

We would like to suggest that the two types of feedback are complementary: on the one hand, there is progress feedback which compares the actual level of performance with the initial level, highlighting the improvement, and on the other there is discrepancy feedback which compares the actual level of performance with the desired level of performance pointing out what is missing or what still has to be done. Both types of feedback are, in our view, important for enhancing learning (see Fig. 1).

However, teachers do not often provide these two types of feedback, as we found in an earlier study (Voerman et al., 2012a). We found that only 6.4% of the teachers in the study provided progress feedback and 41% of them provided discrepancy feedback. All observed progress feedback was positive, and the observed discrepancy feedback was negative. This is consistent with the examples found in the work by Schunk and Schwartz (1993). In their opinion, progress feedback clarifies for the student that a goal is attainable. We hypothesize that progress feedback can have an impact on a student's experience of oneself by supporting his or her belief in the capacity to learn thus stimulating his or her learning.

To conclude, we propose that teachers should find a balance between progress and discrepancy feedback. Progress feedback might stimulate the students' learning by supporting the students' belief in their capacity to learn.

5. Conclusion and discussion

The aim of this article was to explore teacher feedback from the perspective of positive psychology by discussing three themes: (1) the impact of feedback on emotions and thus on learning, (2) the

confusion about praise and character strengths and the over-simplification of the view of feedback about the self, and (3) progress feedback as a complement to gap feedback. We might ask what our discussion of these themes adds to the extensive body of knowledge about feedback.

We have first discussed that feedback evokes emotional reactions in the receiver of feedback that might influence learning. Basing our views on the influence of emotions on learning as shown by for instance Fredrickson (2001) and Pekrun et al. (2002), we have discussed how feedback can arouse positive and negative activating and deactivating emotions. Feedback should preferably evoke activating emotions or be embedded in a context that generates expansive emotional spaces. This might be achieved by providing positive feedback more frequently than negative feedback.

Secondly, we made an explicit distinction between praise and feedback about the self. We described praise as non-specific feedback, which might be helpful for learning because of the positive emotions it elicits. This is supported by a later publication from Hattie (2012a), wherein he suggested that teachers should keep on providing praise as non-specific feedback, but should also add specific feedback to their repertoire.

We thirdly nuanced the conception that feedback on the self has a negative impact on learning. There is evidence that teacher feedback about the self can have an important positive impact on a student's experience of him or herself, and that feedback on the self may potentially enhance learning. The kind of feedback on the self that is needed is not the non-specific type such as "good girl!," but specific feedback on a student's character strengths with the aim of creating a positive view of his or her own capacity for learning.

And finally, we discussed that researchers and teachers need to give more attention to progress feedback striking an essential balance between progress and discrepancy feedback. We hypothesize that progress feedback can have an impact on a student's experience of the self, supporting the student in believing in his or her capacity to learn, and thus stimulating his or her learning.

5.1. Limitations and suggestions for further research

A first limitation of our study is our choice of positive psychology in which to discuss feedback. We also could have taken a social-constructivist and interactionist view on feedback, which could have led to yet other valuable additions. We suggest a further analysis based on these views of learning to balance our view on feedback and have an even broader basis to guide teachers in how to provide effective feedback to their students.

A second limitation of our study is that most of the research on feedback that we used originates from western countries. It would be interesting and challenging to compare the views on feedback in western countries with the concepts of feedback and its use in the classroom in other parts of the world with different cultural backgrounds and classroom conditions. We might then be able to
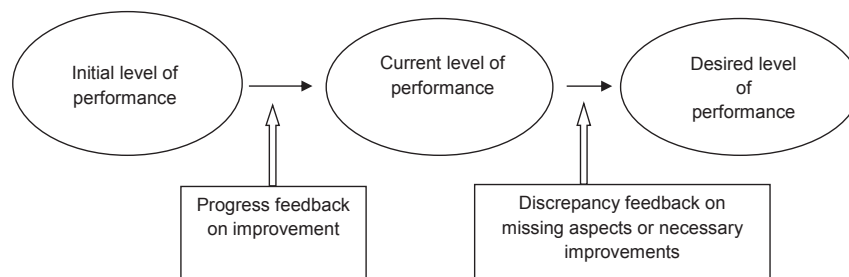

Fig. 1. Progress feedback and discrepancy feedback (based on Voerman et al., 2012a).

answer how the effect of feedback depends on the cultural background and context of both the provider and the receiver of feedback.

We only found one description of the concepts of positive and negative feedback (Losada & Heaphy, 2004). A further dialogue on the topic of positive and negative feedback might be fruitful. In this respect, the study by Ellis (2000) on confirmation and non-confirmation might be of interest. She describes as clusters of confirmation: (a) recognition, (b) acknowledgment, and (c) endorsement. As clusters of disconfirmation, she describes: (a) indifference, (b) imperviousness, and (c) disqualification. We propose discussing the value of the concepts confirmation and disconfirmation for a better conceptualization of positive and negative feedback.

An interesting issue arises when reconsidering the findings of Losada and Heaphy (2004). We would like to hypothesize that providing more positive feedback than negative feedback might be an effective tool for enhancing learning, and suggest that studies researching this theme in the classroom be designed. In this respect, research could also account for feedback occurring in the interaction of relational, emotional and content meaning as constructed by the receiver of the feedback (Van der Schaaf, Baartman, Prins, Oosterbaan, & Schaap, 2011). As a consequence, research on feedback should not only be about the interventions themselves, but also about the way in which receivers construct their own interpretations of the feedback and the impact of these constructions on learning. In this way, a socio-constructivist view could be introduced.

Regarding the issues of progress feedback and feedback on character strengths, we hypothesize that both types of feedback can stimulate a positive view of one's capacity for learning. As a result, learners may more easily develop the idea that they are on the right track, furthering their belief in the attainability of the learning goals and the development of their character strengths. The discussion about feedback on character strengths as a way to provide feedback on the self opens up interesting lines of research for both short-term and long-term effects. We suggest undertaking further research about the influence of both feedback on character strengths and progress feedback on the views students have about their own capacity for learning and the way that those views might change as a result of this feedback.

We have discussed the importance of emotions as aroused by feedback in the receiver of feedback and the implications for learning. We have not discussed other important aspects such as the emotions of the provider of feedback, resounding in the feedback provided, or the possibility of providing feedback on the students' emotions. Studying these aspects of feedback and emotions would help us understand more about the interrelatedness of learning, feedback and emotions.

5.2. Implications for teaching

There seem to be two main implications for teaching. The initial finding that praise and feedback about the self have a negative impact on learning might have an important impact on teacher feedback behavior in the classroom as praise is the most frequently used type of feedback in the classroom (Hattie & Timperley, 2007; Pauli, 2010; Voerman et al., 2012a). In the Netherlands, recent articles written especially for teachers and their use of feedback in the classroom state that praise and feedback on the self are detrimental to learning. We need to nuance this view and help teachers decide when and how to use various types of feedback. Since non-specific feedback such as "well done" might influence the emotional space in a classroom, we would suggest that non-specific feedback should *not* be avoided in classrooms. Instead we propose that this type of

feedback should be used sparingly and used in conjunction with specific feedback. We would also encourage teachers to use feedback on character strengths as a type of feedback to enhance learning. And lastly, we suggest the use of progress feedback as a type of learning-enhancing feedback, as a complement to discrepancy feedback in the classroom.

Secondly, teachers might be challenged to be more aware of the impact that their feedback has on the emotions aroused in the receiver. Also, the context in which teachers provide feedback, and the relationship they have with their students, might influence the way feedback is perceived by the students. Teachers might increase the use of feedback that arouses the activating types of emotion, like pride, hope and joy, and be aware that emotions evoked by feedback like anger and anxiety can have both an activating and a deactivating effect. It might be helpful for teachers to check the impact of their feedback on their students regularly by observing and asking questions about the students' perception of the feedback they received.

5.3. Final remarks

Returning to our initial example of feedback provided at the beginning of this article, we would like to question how applying the views described in the discussion above about feedback would change the example. Isabel would perhaps not have come home crying each day if the teacher had seen her zest and curiosity and had mentioned these qualities to her (feedback on character strengths). Alternatively, the teacher could have pointed out the things she did right in her work (specific positive feedback on task), or the way she went about doing her assignments (processing of the task). He also could have noticed her resistance and said to her: "I can see that you do not like this, can I help you?" (reacting to the emotion that she was clearly experiencing and combining feedback with a question).

The use of an additional perspective, namely that of positive psychology, helps us to revisit the concept of feedback both in a theoretical sense and in terms of its practical use in classrooms. The combined attention on cognition, emotions, and character strengths seems, in particular, to lead to a more balanced and more effective view of learning-enhancing feedback. We believe this is highly relevant for teaching.

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