The Impact of Feedback on Goal Setting and Task Performance

Testing the Feedback Intervention Theory

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Abstract. This research project was undertaken in response to Kluger and DeNisi’s (1996) call for more primary studies to investigate specific propositions of the feedback intervention theory (FIT). To study the assumptions of FIT on the level of task-motivation processes, we analyzed the impact of combined positive and negative feedback. Participants (N = 413) performed a series of tasks in which they were to indicate the number of athletes appearing in short video sequences of different sports. After each task performance the participants received manipulated feedback and were to choose between predetermined options (e.g., raise the level of difficulty, maintain the level of difficulty). We found that the participants most frequently raised the difficulty level after receiving positive feedback and maintained the level after receiving negative feedback. There were no significant differences in the performance of participants who raised and those who maintained the difficulty level after receiving positive or negative feedback. However, the performance of participants who raised the difficulty level after receiving positive feedback increased more than that of those who maintained the difficulty level after receiving negative feedback. In addition, we observed an increase in participants’ avoidance behavior in response to repeated negative feedback.

The results partially confirmed the assumptions of the FIT.

Keywords: feedback intervention theory, task choice, goal orientation, motivation, avoidance behavior

The influence of feedback on human behavior is extensive. Various studies have shown the impact of feedback on different behavioral aspects, such as motivation (e.g., Butler & Nisan, 1986; Deci, Koestner, & Ryan, 1999; Jussim, Soffin, Brown, Ley, & Kohlhepp, 1992; Narciss, 2004), learning (e.g., Black & Wiliam, 1998; Goodman & Wood, 2004; Narciss & Huth, 2004; Pashler, Cepeda, Wixted, & Rohrer, 2005; Wulf, Shea, & Lewthwaite, 2010), and goal orientation (e.g., Cron, Slocum, VandeWalle, & Fu, 2005; Phillips, Hollenbeck, & Ilgen, 1996; Senko & Harackiewicz, 2005; VandeWalle, Cron, & Slocum, 2001). Feedback allows one to compare the actual state with the target state and discover a discrepancy between actual and desired achievement. Thus, it enables one to evaluate one’s previous performance in relation to a specific goal or standard. The perception of a possible discrepancy influences subsequent performance.

Feedback information can originate from external sources (e.g., teacher) or internal sources (information derived by task processing itself, e.g., proprioceptive perceptions in a motor task) (Butler & Winne, 1995; Magill, 2001; Narciss, 2008). In line with this notion, Narciss (2008) suggested the existence of two feedback loops: one that involved the comparison of internal feedback to an internal reference value derived from a subjective estimation of task demands and another that involved the comparison of external feedback to an external reference value mainly derived from external information (i.e., instructional goals). Thus, external feedback loops may correspond or conflict with internal feedback loops. Both processes interact and together determine the impact of feedback. In particular, Butler and Winne (1995) called attention to the significant role of internal feedback in enabling self-regulated learning, where a high amount of self-regulation is tied to an effective and economic learning process. Such learners monitor themselves and their process of engagement by creating and analyzing internal feedback (see also Hattie, 2002). Thus, external feedback primarily assists the perception of discrepancies between the internally represented actual and target state. It represents additional information confirming or moderating internal feedback and may help the learner to successfully execute self-regulated learning (Butler & Winne, 1995; Ilgen & Davis, 2000; Narciss, 2008).

Numerous studies (see Bangert-Drowns, Kulik, Kulik, & Morgan, 1991; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Mason & Bruning, 2001; Mory, 2004; Narciss,
2008; Shute, 2008) have revealed conflicting findings where feedback could have a positive, negative, or even a debilitating effect on performance. For example, Shute (2008) pointed out that despite a large amount of feedback research, many conflicting and minor findings continue to exist. So far, several theoretical frameworks have been proposed and adopted that specifically try to explain these controversial feedback effects (e.g., Bangert-Drowns et al., 1991; Butler & Winne, 1995; Hattie & Timperley, 2007; Mason & Bruning, 2001; Narciss, 2008). The feedback intervention theory (FIT), developed by Kluger and DeNisi (1996), is one of the most important of these theories. The authors called for more primary studies to investigate specific propositions of their theory. This research paper is a response to this call. To study the assumptions of FIT with respect to task-motivation processes, we examined the immediate influence of possible combinations of positive and negative feedback (consistent and inconsistent) on task performance and goal-setting.

The Feedback Intervention Theory (FIT)

The FIT (Kluger & DeNisi, 1996) is based on the assumption that behavior is regulated by comparisons of feedback to goals or standards that are organized hierarchically. The authors distinguished three hierarchical levels at which the impact of feedback on performance differs: task-learning processes, task-motivation processes, and meta-task processes. Attention is usually directed to the intermediate level of the hierarchy (task-motivation processes), whereas specific feedback interventions can change the locus of attention. Therefore, the style of feedback plays a crucial role in regulating human performance (Brunot, Huguet, & Monteil, 2000; Lipnevich & Smith, 2009; Podsakoff & Fehr, 1989; Shute, 2008; Venables & Fairclough, 2009). For example, feedback focused on the details of a task (e.g., information about the position of one’s fingers when one is learning to play the guitar) directs one’s attention to the level of task-learning processes. Additional information about the appropriate handling of a specific task facilitates the learning process. Hence, the feedback recipient can use this information to improve his or her performance (Butler & Winne, 1995). Numerous studies confirmed this assumption: Feedback has been found to have more influence when details about how to improve performance are provided (Hattie, 2002; Hattie & Timperley, 2007; Lipnevich & Smith, 2009; Magill, 2001; Narciss & Huth, 2004).

On the level of task-motivation processes, feedback is at first compared to the individual task standard. If a positive feedback-standard discrepancy is revealed, the person has the opportunity to pursue other goals. Depending on the occurrence of such an opportunity, the person either raises the standard and increases his/her effort or maintains the standard and reduces his/her effort (see Bandura, 1991, 1997; Erez, 2005; Hattie, 2002; Ilies & Judge, 2005; Locke & Latham,

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Figure 1. Summary of the basic assumptions of the feedback intervention theory (FIT).
Feedback research has shown that feedback mostly increased performance (see Bangert-Drowns et al., 1991; Hattie & Timperley, 2007; Mason & Bruning, 2001; Mory, 2004; Narciss, 2008; Shute, 2008). However, Kluger and DeNisi (1996) revealed in their meta-analysis that at least one third of the included studies reported decreasing effects (see also Ilgen & Davis, 2000). According to these results, not only the style of feedback, but also the specificity of goals (e.g., Erez, 2005; Hattie & Timperley, 2007; Ilies & Judge, 2005; McCalley et al., 2011; VandeWalle et al., 2004) and the characteristics of the task (e.g., DeShon & Alexander, 1996; Hattie & Timperley, 2007; Magill, 2001; Vancouver & Tischner, 2004) have been identified as important factors that moderate feedback effects. The biggest influence on performance may be expected when performing a low-difficulty task and goals are attainable, clear, and specific (see DeShon & Alexander, 1996; Ilgen & Davis, 2000; Kluger & DeNisi, 1996). Previously, Erez (1977) demonstrated that feedback had a significant impact on goal-setting and pointed out its role in the relationship between goal-setting and performance (Carver & Scheier, 1981; Cron et al., 2005; Erez, 2005). Goals represent levels of performance that are attained by individuals. Hence, they enable a person to evaluate his/her actions and efforts (Locke & Latham, 1990). Therefore, feedback is necessary for evaluating discrepancies between selected goals and actual achievement by showing one’s progress toward the goal. It seems helpful to adjust effort, achievement, strategies, or tactics to meet the target, but also to set reasonable goals. In this regard, it was shown that not only does goal-setting affect the impact of feedback but that feedback influences subsequent goal-setting (Cron et al., 2005). Positive feedback was found to enhance recipients’ decision to set more difficult goals, whereas negative feedback resulted in a tendency for them to lower their goals (Donovan & Williams, 2003; Ilies & Judge, 2005; Phillips et al., 1996; Tolli & Schmidt, 2008; VandeWalle et al., 2001; Williams, Donovan, & Dodge, 2000; see also Ilies, Judge, & Wagner, 2010). The setting of more difficult goals after receiving positive feedback is tied to social cognitive theory (Bandura, 1997), according to which individuals create positive discrepancies (set higher goals than in previous task performances) and try to succeed, as long as they assess the more difficult goals as attainable. Indeed, more difficult goals go along with a lower probability of success but nevertheless greater stimulation by reaching this goal at a higher level of performance (Bandura, 1997; Kluger & DeNisi, 1996). On the other hand, creating less challenging goals increases the probability of success. Thus, the chance to rebuild or maintain one’s self-concept is augmented (Baumeister, 1996; Hattie, 2002; Kluger & DeNisi, 1996; Vancouver & Tischner, 2004). In addition, Klein (1997) demonstrated that normative positive feedback – as opposed to normative negative feedback – enhanced participants’ decision to persevere instead of switching to another task. However, these results have to be interpreted carefully considering the individual’s assessment of feedback: Podsakoff and Fehr (1989) demonstrated that feedback credibility mediated the relationship between feedback and goal-setting as well as performance.
Aims of the Current Study

This study examines the assumptions of the FIT on the level of task-motivation processes. Kluger and DeNisi (1996) presumed that changes in achievement and goal-setting occur as a result of both positive and negative feedback-standard discrepancies. The following hypotheses were deduced:

- H1: Following positive feedback, participants raise their standard more often than following negative feedback.
- H2: Participants who raise their standard after receiving positive feedback enhance their performance more than participants who maintain their standard after receiving positive feedback.

In contrast to positive feedback, raising the standard after receiving negative feedback offers the possibility of decreasing the relevance of repeated negative feedback due to awareness of the increased level of difficulty. Therefore, our next hypotheses were:

- H3: In the negative feedback condition, participants who practice or maintain their standard enhance their performance more than those who raise their standard.
- H4: Repeated negative feedback causes avoidance behavior more often than a single reception of negative feedback.

The FIT assumes an increase in performance when raising the standard after receiving positive feedback or maintaining the standard after receiving negative feedback. As an additional approach and a possible expansion of FIT, we were interested in a comparison of both scenarios.

- H5: Participants who raise their standard after receiving positive feedback show an improvement in performance equal to that of participants who maintain their standard after receiving negative feedback.

Method

Participants

The study was conducted at the University of Vienna (Austria) with 413 students (247 female, 166 male) participating in exchange for course credit. The participants were students of sports science (n = 242) and psychology (n = 171). The average age of the participants was 21.90 (SD = 3.42) years, ranging from 18 to 43. Data collection took place from November 2009 to April 2010.

Application of the Feedback Intervention Theory

To investigate the impact of positive and negative feedback on performance and goal-setting, a computer-assisted adaptation of the FIT was constructed. Figure 2 illustrates the configuration schematically. Overall, a task was performed three times and manipulated feedback was presented after the first two task performances. After receiving feedback,
participants were asked to choose between predetermined options. Thus, two feedback loops were created in which the impact of feedback on goal-setting and performance could be tested: The feedback received after the first time the task was performed allowed us to analyze the impact of feedback on subsequent goal-setting and on task performance when the task was performed the second time (first feedback loop). The second feedback loop included the feedback received after the second time the task was performed, subsequent goal-setting, and task performance when the task was performed the third time.

Feedback Conditions

The study was limited to investigating the impact of positive and negative feedback-standard discrepancies. Therefore, the manipulation of feedback was appropriate. The feedback interventions used were either positive or negative, irrespective of actual performance. Before performing the task, participants received information concerning the expected average performance on the subsequent task (e.g., average performance represents a correct response to eight out of 15 items). This information was given to establish a standard of performance. Feedback interventions were based on this standard: In the negative feedback condition, participants were told that they had given two or three correct responses, and that their performance was very below average. In the positive feedback condition, participants were told that they had given 13 or 14 correct answers, and that their performance was very above average. Providing negative or positive feedback after the first two task performances resulted in four different feedback conditions. In the first condition, participants received positive feedback twice (positive-positive); in the second, they received negative feedback twice (negative-negative). Participants in the third condition received negative feedback after performing the first task and positive feedback after performing the second task (negative-positive). In the fourth condition, participants received positive feedback after the first task performance and negative feedback after the second task (positive-negative).

Task Performance

To investigate the impact of feedback on performance, we chose a task to measure selective attention. The importance of selective attention for several cognitive performance parameters (e.g., concentration, memory, perceptual speed) and the possibility of an economical and less time-consuming measurement prompted this decision. The items represented short videoclips showing different kinds of sports that had been selected from television broadcasts. The participants’ task was to indicate the number of athletes appearing in each clip by pressing the corresponding number key on the computer keyboard. The number of athletes shown ranged from four to nine. The difficulty was to distinguish between active athletes, referees, and substitutes as well as offcourt viewers. Moreover, the duration of the presented videoclips was very short (1,941 ms) and the reaction time was limited (2,000 ms). After the participant’s reaction or after time had elapsed, the next videoclip was started. The duration of 1,941 ms resulted from specific characteristics of the software programs for editing and presenting the videoclips. Two tasks were devised, both consisting of 15 items. In previous studies, the internal consistency of both tasks was Cronbach’s \(\alpha = .78\). Based on tetrachoric correlation, a split-half reliability of \(r = .90\) was achieved. The correlation of the tasks was \(r = .82\). Because of the demand of performing three different tasks in the computer modulation of the FIT, the first task was repeated at the end of the second feedback loop.

Goal-Setting

After the first and second feedback intervention, participants were asked to choose between predetermined options. These options were deduced from the task-motivation processes of FIT and differed with respect to type (negative or positive) and loop of feedback. There were five options to choose from, whereas three alternatives were presented continuously: maintain the standard, raise the standard, and abort. Maintaining the standard meant choosing a task with the same difficulty level. Raising the standard meant increasing the difficulty level: Participants were told that the following task would be more difficult than the previous one and that the task standard would be higher. This information was simulated; all participants performed the same task in the second feedback loop. This deception was necessary to compare task performance with respect to different decision behaviors. The third option, which was always presented, was to abort the task. An additional alternative was provided in the negative feedback condition: practice and maintain the standard. Participants who chose this option received an additional sequence of three trial items in which immediate feedback for correct answers was presented. Afterwards they were to perform a task with the same level of difficulty. In the repeated negative feedback condition, participants were also given the chance to perform an alternative task, which was a short pair-based game. This alternative was offered to introduce the additional possibility of handling repeated negative feedback in contrast to aborting the task.

Procedure

The experiment was conducted under laboratory conditions and for each participant separately. Depending on when they arrived at the laboratory, participants were assigned to one of four feedback conditions. In the run-up to the experiment, participants were told that the research was about
the development of a task to measure selective attention. After being welcomed, the participants were asked to provide informed consent to participate in the study. The following task was performed on a computer. Participants were told to follow the instructions on the screen. During the experiment, a supervisor stayed in the laboratory to assist with problems or answer participants’ questions. At the end of the semester, the actual research objective was revealed to the participants.

Results

Statistical Analysis

Pearson’s chi-square tests (χ²) were conducted to compare goal-setting behavior in different feedback conditions. The assumption of an expected cell count of at least five was met consistently. To investigate the effect of the chosen options on achievement, we carried out repeated-measures analyses of variance (ANOVA). The sums of correct reactions for each task were included as dependent within-subject variables. The chosen options were used as between-subjects factors. The assumptions of repeated-measures ANOVA were met and are not specifically reported. Statistical significance in all cases was p < .05.

The First Feedback Loop

Two conditions were analyzed in the first feedback loop. After performing the first task, participants in two feedback conditions (NN and NP) received negative feedback, while those in the other two conditions (PP and PN) received positive feedback. Table 1 shows the frequency of the chosen options with respect to the feedback condition. To examine the first hypothesis, the options “maintain standard” and “practice and maintain standard” in the negative feedback condition were collapsed. One participant aborted the task and was excluded from further data analysis. Pearson’s chi-square test of the 2 × 2 contingency table revealed a significant difference between the two conditions, χ² = 212.86, df = 1, p < .001. After receiving positive feedback, 84.5% of the participants raised their standard, whereas only 12.7% chose this option after receiving negative feedback. Thus, Hypothesis 1 was confirmed: Participants who received positive feedback raised their difficulty level significantly more often than those who received negative feedback.

A repeated-measures ANOVA was conducted for the positive and the negative feedback conditions separately to test Hypotheses 2 and 3. In the positive feedback condition, we assumed that participants raising the standard would show a greater increase in performance than those maintaining the standard. Repeated-measures ANOVA revealed a significant effect of performance in both tasks, F(1, 205) = 44.91, p < .001, η² = .18, but no significant interaction between performance and the chosen option, F(1, 205) = .79, p = .375. Differences in time between participants raising the standard and those maintaining the standard were not significant. The between-subjects effect was significant, F(1, 205) = 12.85, p < .001, η² = .059. It should be noted that, due to the unequal number of participants raising versus maintaining the standard, the results of repeated-measures ANOVA have to be interpreted carefully. Hypothesis 2 had to be rejected. In the negative feedback condition, we hypothesized that participants practicing or maintaining their standard would enhance their performance more than those raising the standard. There were no significant differences in performance between participants selecting different options, F(2, 202) = .27, p = .766, and there was no significant interaction between the chosen options and task performance, F(2, 202) = 2.47, p = .087. The effect of performance of the first and second task was significant, F(1, 202) = 17.41, p < .001, η² = .079. Thus, Hypothesis 3 was rejected. Table 2 shows the means and standard deviations of performance on the first and second task with respect to the selected option and feedback condition.

Table 2

<table>
<thead>
<tr>
<th>Feedback Selected option n</th>
<th>T1 SD</th>
<th>T2 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Raise standard</td>
<td>175</td>
<td>7.15</td>
</tr>
<tr>
<td>Maintain standard</td>
<td>32</td>
<td>5.53</td>
</tr>
<tr>
<td>Negative Raise standard</td>
<td>26</td>
<td>6.54</td>
</tr>
<tr>
<td>Maintain standard</td>
<td>113</td>
<td>7.03</td>
</tr>
<tr>
<td>Practice and maintain standard</td>
<td>66</td>
<td>6.77</td>
</tr>
</tbody>
</table>

The Second Feedback Loop

Corresponding to the feedback intervention in the first feedback loop, four different conditions were tested in the second loop: two consistent and two inconsistent feedback conditions. In the consistent feedback conditions, participants were confronted with either repeated positive feedback
back (PP) or repeated negative feedback (NN). A combination of positive and negative feedback was presented (negative before positive, NP, and positive before negative, PN, feedback) in the inconsistent feedback conditions. After the second feedback intervention, participants were to decide again. To test Hypothesis 4, participants’ second decisions in the repeated negative feedback condition and the positive-negative feedback condition were compared. We assumed that repeated negative feedback would cause more avoidance behavior than a single reception of negative feedback. The options “alternative task,” which was limited to the repeated negative feedback condition, and “abort” were collapsed because of their similar meaning of avoidance behavior. The chi-square test of the 2 × 4 contingency table revealed a significant difference in decision behavior between the two conditions, χ² = 24.15, df = 3, p < .001. Thus, Hypothesis 4 was confirmed: Avoidance behavior increased after repeated negative feedback. Table 3 shows the frequencies of the chosen alternatives for each feedback condition.

To examine Hypothesis 5, performance on the first and second task (feedback loop 1) were initially compared between participants maintaining the standard after having received negative feedback (n = 113) and those raising the standard after having received positive feedback (n = 175). We hypothesized that both groups of participants would show an equal improvement in performance. Repeated-measures ANOVA revealed a significant effect of task performance and chosen options, F(1, 286) = 9.79, p = .002, η² = .033. Participants who raised the standard after receiving positive feedback performed better than those who maintained the standard after receiving negative feedback. In addition, to enable a more specific analysis, a repeated-measures ANOVA with all three task performances as within-subject variables was conducted. Three groups were included as between-subject factors: participants who had raised the standard twice in the repeated positive feedback condition (n = 81); participants who had maintained the standard after receiving negative feedback and raised the standard after receiving positive feedback in the negative following positive feedback condition (n = 47); and participants exhibiting the same decision behavior in the positive following negative feedback condition (n = 56). Participants who maintained the standard twice in the repeated negative feedback condition were not included because of the small sample size (n = 17). The between-subjects effect was not significant, F(2, 181) = .70, p = .499). The difference in performance of the three tasks was significant, F(2, 362) = 25.21, p < .001, η² = .122, as well as the interaction between performance and group membership, F(4, 362) = 6.79, p < .001, η² = .070. Therefore, Hypothesis 5 was rejected. Raising the standard after receiving positive feedback and maintaining the standard after receiving negative feedback had different impacts on performance. Table 4 shows the means and standard deviations of performance on the first, second, and third task for these three groups. Figure 3 illustrates the differences in performance of the tasks.
Discussion

This study investigated specific propositions of the FIT on the level of task-motivation processes. Kluger and DeNisi (1996) assumed that, in the case of positive feedback and the existence of an opportunity to attain other goals relevant to the self, people would seize this opportunity and therefore raise the standard of subsequent performance as well as increase their effort. In contrast, people who do not identify with an opportunity to attain other goals relevant to themselves would reduce their effort. The results of the present study partially supported these assumptions. In the case of positive feedback, participants raised their standard for the most part. This finding is in line with several results from previous studies (e.g., Ilies & Judge, 2005; Phillips et al., 1996; Williams et al., 2000) and the assumption of the FIT. However, the hypothesized impact on performance was not found. There was no significant difference in the progression of performance on the first and second task between participants who raised the standard and those who maintained it after receiving positive feedback. Participants who maintained the standard performed much more poorly on the first task than those who raised the standard. Hence, we suspect that participants who maintained the standard after receiving positive feedback were implicitly aware of their poor performance and, for this reason, maintained the standard rather than seizing the opportunity to attain a higher goal. This interpretation is in line with the model proposed by Narciss (2008; see also Butler & Winne, 1995). In this case, the internal feedback would have been more negative than the external feedback. As a consequence, at least two opposing feedback-standard discrepancies existed, each of which had an individual impact on performance. Thus, the external feedback loop contradicted the internal feedback loop. The interaction between the two processes lessened the total impact of feedback. As a result, the predicted progression of performance was not observed, and Hypothesis 2 was rejected, although due to the unequal number of participants compared in the ANOVA this result has to be interpreted carefully.

The assumptions of the FIT on task-motivation processes following negative feedback are more complex than expected after a positive feedback-standard discrepancy. The FIT hypothesizes that people increase their effort after receiving negative feedback. Furthermore, people maintain or increase their effort when they believe that the negative feedback-standard discrepancy can be reduced if they increase their effort. This belief would result in decisions to either “maintain the standard” or to “practice and maintain the standard,” whereas a decision to “abort” would disprove this belief (see Hattie 2002; Ilgen & Davies, 2000; Klein, 1997; Pulfrey et al., 2011; Venables & Fairclough, 2009). Raising the standard after receiving negative feedback represents a chance to override the failure by receiving positive feedback at a higher difficulty level. Therefore, the primary focus of this decision is to lessen negative feedback: Performing poorly at a low difficulty level results in even more negative feedback than performing poorly at a high difficulty level. We assumed that, due to a sizeable discrepancy between performing worse at the lowest difficulty level and reaching the standard at a higher difficulty level, belief in success had to be reduced when participants raised the standard after receiving negative feedback. Thus, we hypothesized that, as a result of negative feedback, participants who “practiced and maintained the standard” or “maintained the standard” would perform better than those who raised the standard. This hypothesis was rejected.
differences between these groups in first and second task performance were not significant. It seems possible that participants who raised their standard after receiving negative feedback nevertheless tried to perform better on the second task even when the ostensible difficulty level was higher. However, although the chance to receive positive feedback at a higher difficulty level was small, they may have tried to override the previously received negative feedback. Therefore, their decision could represent a very risky way of handling negative feedback. On the other hand, Ilgen and Davis (2000) mentioned that negative feedback may also lead to purposeful thinking and strategies for solving actual problems. Thus, setting higher immediate goals and increasing effort may also be a way of handling negative feedback that does not represent avoidance behavior. Due to the manipulation of feedback, doubling of feedback credibility (Podsakoff & Fehr, 1989) or discrepancies between internal and external feedback loops (Butler & Winne, 1995; Narciss, 2008) may also explain the rejection of this hypothesis. Hence, results have to be limited to the condition of not measuring any internally provided standards or goals concerning task performance. Participants’ goals may have contradicted the presented normative standard: Some participants’ internal goal may have been lower (e.g., 5 correct reactions) or higher than the normative standard (8 out of 15). Thus, the power of external feedback intervention (e.g., negative feedback: two or three correct responses) was diminished by decreasing or increasing the goal-feedback discrepancy. However, in agreement with the FIT, we showed that significantly more participants maintained the standard than raised it or quit after receiving negative feedback. Moreover, we verified that repeated negative feedback caused significantly more avoidance behavior than single occurrences of negative feedback. This result is consistent with Ilgen and Davies’ assumption (2000) that an increase in negative feedback also increases the tendency to protect one’s self-image (see also Hattie, 2002; Ilgen & Davis, 2000; Klein, 1997; Pulfrey et al., 2011; Venables & Fairclough, 2009).

One particular focus of this study was the comparison of the impact of positive feedback when participants decided to raise the standard with that of negative feedback when they maintained the standard. In both conditions, the FIT proposed that feedback will have an enhancing effect. An analysis of the participants who raised the standard after receiving positive feedback and those who maintained the standard after receiving negative feedback indicated an unchanged effect of negative feedback. Figure 3 illustrates that participants who received negative feedback followed by positive feedback maintained their performance level in the second task, whereas their performance improved in the third task after receiving positive feedback. Participants in the positive followed by negative feedback condition showed an inverse progression. It is interesting that this group, in addition to the participants who received repeated positive feedback, performed worse in the third task than in the second one. This decrease in performance was slightly smaller in participants in the repeated positive feedback condition. Negative feedback following positive feedback combined with the decision to raise the difficulty level may lower the level of effort invested because of the considerable discrepancy between these two feedback interventions. For example, a person who raises the standard as a result of positive feedback and continues to receive only negative feedback at this higher difficulty level could start to believe that this difficulty level is too high, whereas the previous level was too easy. Therefore, the participant would probably maintain the standard and try again, even if his/her belief in success was reduced. In this situation, participants may have felt overwhelmed and not believed that the actual feedback-standard discrepancy could be reduced if they increased their effort. They did not see a chance to reach the standard and so they lowered their effort, which led to a decline in performance (see DeShon & Alexander, 1996; Hattie, 2002; Ilgen & Davies, 2000). So, they reduced their effort by abandoning the goal or attaching less importance to the task to protect their self-concept (Baumeister, 1996; Hattie, 2002; Kluger & DeNisi, 1996; Vancouver & Tischner, 2004).

Participants who raised their standard twice in the repeated positive feedback condition lowered their performance in the third task. This result contrasted with the assumptions of the FIT. On the one hand, the repeated incentive of setting and attaining higher goals may have disappeared and prompted participants to maintain or even decrease their effort. On the other hand, the participants’ belief in success may represent a crucial factor not only in the negative feedback condition but also in the repeated positive feedback condition: In the first feedback loop, we showed that participants who maintained the standard after receiving positive feedback performed worse in the first task than those who raised the standard. We assumed that these participants felt overwhelmed by negative internal feedback (resulting from performance of the task itself) and as a consequence maintained their standard instead of raising it. Thus, participants may have raised their standard even more after receiving repeated positive feedback even if their belief in success was low. This could have resulted from knowing about the highest difficulty level and feeling overwhelmed in the second task. Thus, participants with little belief in success maintained or even lowered their effort instead of increasing it (see Bandura, 1997). As a result, performance was maintained or decreased.

Limitations

This study has several limitations. First, the analysis of task performance on the first and second task in all feedback conditions revealed better performance in the second task. This result may be attributable to a practice effect. Thus, irrespective of the feedback condition, the tendency was found to increase or at least maintain performance. We assume that this practice effect lessened the effect of deci-
sions that should lower performance and reinforced the ef-
fect of decisions that should increase performance. For ex-
ample, even participants in the negative feedback condition
who raised the standard after the first task performed better
in the second task. Therefore, the exclusive analysis of the
progression of task performance should be conducted care-
fully. In addition, a comparison of different feedback con-
ditions or different decision behaviors seems especially ad-
visable.

Another limitation concerns the briefness of the tasks
and the entire experiment. Due to there being 15 items in
each task, and participants’ knowledge about the duration of
the experiment, their motivation to complete the task may
have increased. In this case, the motivation to perform
better could have interfered with the desire to complete the
task. As a result, the expected improvement in performance
may have been reduced.

Conclusion

The results of this study partially support and partially re-
ject assumptions of the FIT. The study showed that people
mostly raised their standard after receiving positive feed-
back and maintained their standard after receiving negative
feedback. In contrast, the expected improvement in perform-
ance after receiving positive feedback and the decision to
raise the standard in comparison to participants who
maintained the standard after receiving positive feedback
was not found. In the negative feedback condition, an in-
crease in avoidance behavior in participants who received
repeated negative feedback was observed. However, we
did not find the expected impact on performance. There
was no significant improvement in the participants who
“practiced and maintained the standard” or who “maintained
the standard” in comparison to those who “raised the
standard.” In addition, the impact of raising the standard
following positive feedback and maintaining the standard
following negative feedback were compared: We found an
increasing impact on performance of raising the standard
after participants received positive feedback, whereas
maintaining the standard after they received negative feed-
back caused their performance to remain constant or even
worsen. However, this result is not in line with the FIT.
Future studies should clarify the differential impact of these
decision behaviors in relation to received feedback as well
as investigate the impact of repeated positive feedback
more comprehensively.

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