

The effect of positive and negative feedback on self-efficacy, cognitive trust and affective trust.

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A theoretical model of feedback including self-efficacy, affective trust and cognitive trust was developed indicating the importance of these variables to feedback. A cross sectional study then explored the relations between leader positive and negative feedback and self-efficacy, cognitive trust and affective trust of followers using coded video-based observations for feedback durations and questionnaires for measuring self-efficacy, cognitive and affective trust. The degree of consistency within measurements between various items was high, indicated by Cronbach's alphas between 0.879 and 0.919. The leader sample included 31 leaders and the follower sample included 405 employees of a big Dutch public sector organization and were mostly men (above 70 percent). Regression analysis was conducted. Positive feedback was found to be possibly positively related to affective trust, but other results were in contrast with theoretical expectations, suggesting that negative feedback is negatively related to self-efficacy and cognitive trust. Such results demonstrate the importance of examining the complex cognitive mechanisms relating to feedback. Possible moderating variables and other explanations affecting results are discussed. Examples are locus of control, and the feasibility for followers to match the feedback to the task the feedback was intended on. Outside of the main purpose of the study, there was checked for correlation between cognitive and affective trust. This correlation was indeed found.

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Keywords

Positive / Negative Feedback, Self-efficacy, Cognitive trust, Affective trust

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1. INTRODUCTION

Much research has been done on goal-setting in relation to subsequent performance (Locke and Latham, 2002). However, until approximately 40 years ago there was little attention to the explanations behind the influence of goal-setting on performance (Campion and Lord, 1982). To gain more thorough insights into these underlying explanations, the combination of goal-setting with other motivational concepts is made (Campion and Lord, 1982). For example, more often the idea arose that goal-setting and feedback are interlinked. The type of feedback depends upon the (organizational or team) goals that are set and simultaneously goals can be adjusted in response to feedback (Tolchinsky and King, 1980; Ilgen, Fisher, & Taylor, 1979; Locke and Latham, 2002). Without feedback, one cannot know how good he/she is performing towards a goal. For example, when the goal is to cut 30 trees in a day, but one does not know how many trees have been cut, there is no way to tell if the individual is on target or should put more effort in to attain the goal (Locke and Latham, 2002). Furthermore feedback can be goalsetting of itself. If the goal is not known, the follower can still try to construct the non-communicated goal of the leader, by combining feedback of the leader about the followers past performances. For example, the non-communicated goal can be to cut down 30 trees. The follower does not know of this goal, but every time he cuts down 28 or 29 trees he gets negative feedback, and every time he cuts 30 and 31 trees he gets positive feedback. After a while, the follower can make up from the feedback that the non-communicated goal of the leader is 30. Hence, feedback has a goalsetting function from itself (Ilgen et al., 1979). Concluded, goals set the performance norm, feedback gives information about how far current performance approaches this performance norm. This idea is elaborated on, across a variety of theoretical orientations, whether it is goal setting theory (Locke and Latham, 1990), social cognition theory (Bandura and Cervone, 1986) or control theory (Podsakoff and Farh, 1989).

Powers (1973) has elaborated on this idea, by integrating goal-setting with feedback and behavioral (or cognitive) change. His model is originated from control theory, but the main concepts, like performance goals, feedback on goals and the gap between feedback and goal are widely acknowledged (Kluger and Denisi, 1996). The model gives insight in how particularly negative feedback can lead to higher performance. Before the model is explained, the dynamics of goal-setting and feedback are worked out.

A lot of researchers have proposed that an individual can accept, modify and reject goals put out by the environment (e.g. Locke and Latham, 2002; Hattie and Timperley, 2007). Every individual has their own individual goals regarding various tasks. These individual goals are made up by a lot of different variables, like ability, past performance, comparisons to others, social modelling and higher objectives (Katz and Kahn, 1978; Deci, 1975). The management by objectives trend in the 70's and 80's imagined goals to be static, but goals are not as static as they were imagined to be (Campion and Lord, 1982). A study of Early and Kanfer (1985) about social modelling can support this, by showing the effect of social comparison on individual goals. It contains an experiment with a group of participants watching a film about a non-motivated student, and a group watching a film about a motivated student. The participants that watched the film with the motivated student in it, set higher goals than the participants who watched the film with the non-motivated student in it. Self-set goals are dependent upon a range of different factors, making them dynamic in nature and able to shift over time (Bandura and Cervone, 1983; Campion and Lord, 1982; Fedor, Eder, & Buckley, 1989; Ilgen et al.,

1979). Based on the above described insights, it can be stated that the extent in which environmental goals are acted upon by individuals can be influenced by the self-set goals. From a motivational perspective, individual goals are far more important than environmental goals, because an individual in principle responds to self-set goals (Bandura and Cervone, 1983). Of course, the self-goals can be the same as the goals laid upon the individual by the environment, if the individual has accepted these environmental goals and makes the environmental goals his/her own self-set goals.

Powers' model of control systems and goal setting (see Figure 1) shows how feedback comes together with self-set goals (in the model referred to as referent goal). When the environmental feedback (goal) is compared with the self-set goal, there can be a gap/a discrepancy/self-dissatisfaction (Bandura and Cervone, 1983; Campion and Lord, 1982; Locke and Latham, 2002). In the case of negative feedback, the individual to which the feedback is directed, than has, roughly taken, two options. He can put in more effort to minimize the gap (behavioural change) or he can choose to lower the self-set standard under the standard set by the environment (cognitive change). The idea is that the more often someone gets negative feedback, the more likely it is he will lower the self-set goal, under the goal set by the negative feedback (Campion and Lord, 1982; Ilgen et al., 1979). In case of positive feedback, there is no negative gap between the environmental feedback (goal) and actual performance. Hence, there is no need to increase effort. Normally, the recipient acts upon the feedback by enhancing the same behaviour, or even chooses to lower his effort (Campion and Lord, 1982; Kluger and Denisi, 1996). Feedback is intended to motivate, or to direct, towards the environmental set goal, so performance increases (Ashford and Tsui, 1991). Added up this leads to the following definition of feedback: *"Feedback is information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way (Ramaprasad, 1983)"* In case of positive feedback, there is no negative gap to alter, so there is a slight adaptation needed to this definition. The entity can, next to adjusting its current behaviour, enhance its behaviour as well, when getting positive feedback.

CONTROL SYSTEMS AND GOAL SETTING

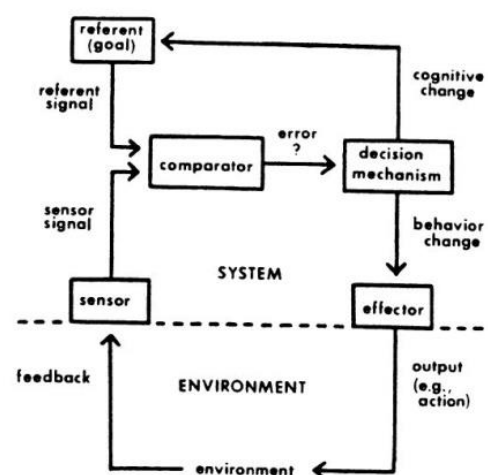


Figure 1: Model by Powers (1973)

We can draw from the model, that to act upon feedback an individual has to accept the feedback first. If the negative feedback is not accepted and taken seriously, there is no reason to make any comparison to the goal. To accept the feedback, the

source has to be trusted so the message will be accepted. The individual has to believe in his/her own abilities to put in more effort from there. Following feedback consist of three parts. These three parts are the source, the message and the recipient of the feedback. In the model of Powers (1973), these are indirectly referred to as: (1) the environment as the source, (2) the comparator as the recipient, and (3) the sensor and sensor signal as the message. From this model it can be deduced that individual aspects are very important in giving feedback. The source has to be trusted so the message can be accepted and the individual needs to have confidence in his/her own ability. This becomes clear in the theoretical framework, where there will be zoomed in on the source, the message and the recipient of the feedback.

This study aims to contribute to the extant, limited literature on the effects of different types of feedback. First the important aspects in relation to feedback are examined. This part elaborates on the main predictors of feedback effectiveness (input). From there on, the study will focus on the effects of feedback (output). The core of the study is to explore whether the main predictors of feedback effectiveness simultaneously might be influenced by feedback. By the application of this explorative approach, hopefully a part of the gap in the literature can be filled. Another valuable addition of this study is the use of video-based observations to examine the effects of feedback, because this is a highly recommended approach for leadership research (Hunter, Bedell-Avers, & Mumford, 2007).

2. THEORY AND HYPOTHESES

2.1 Input side of feedback

2.1.1 Source

The model of Powers (1973) has shown us that a follower has to accept the feedback and therefore trust the feedback source, for the feedback sensor signal to be triggered and to adapt his goal or effort. In other words, when the feedback is not accepted, there is no reference point to hold current performance against. The current performance is accepted as it is, so there is no gap. (Ilgen et al., 1979; Campion and Lord, 1982 ;Fedor, Eder, & Buckley, 1989). There are multiple sources of feedback, including self-feedback, task-feedback leader feedback, co-worker feedback and formal organization feedback. Self-feedback is the easiest to trust and accept. After self-feedback comes task feedback and leader feedback (Greller and Harold, 1975). Hence, A very important source of interpersonal feedback is the leader, as recognized by followers (Fedor et al., 1989). This has to do with the fact that the leader has final responsibility for the performance of his followers, so that the (organizational or team) goals are reached. Leaders thus are expected to have shared interest with followers, feedback is then trusted more, because giving constructive feedback is consistent with the role held (Hogan, Fisher, & Morrison, 1971). One of the powerful tools the leader can use to influence performance is feedback (Hattie and Timperley, 2007). For this reasons, in this study we focus primarily on the leader as a source of interpersonal feedback. For the feedback given by the leader to be accepted and acted upon by the recipient, interpersonal trust plays an important role. Both cognitive and affective trust are dimensions of interpersonal trust. Cognitive trust is grounded in expectations of peer reliability and focuses especially on the cognitive aspects such as professionalism and expertise of the leader. Cognitive trust can be seen as trust in a person based on perceived content experience (i.e. task experience) or intellect. Affective trust is grounded in the exchange of care and concern and focuses more on the affective working relationship between follower and leader. The reason

behind affective trust is emotional. After a while, humans, as social beings, start to invest emotionally in a relationship, for example by being open about feelings to each other, which is referred to as affective trust (McAllister, 1995; Erdem and Ozen, 2003). For the initial relationship to start a small cognitive trust base is needed. Affective trust becomes increasingly important as the relationship develops over time (McAllister, 1995; Erdem and Ozen, 2003). Cognitive trust raises the motivation to perform and it also stimulates feedback seeking behaviour of employees (Fedor et al.,1989). A high degree of affective trust raises the urge and motivation of employees to perform better (Fedor et al., 1989). Next to that, trust enhances co-operation, solidarity and protection of the team spirit (Erdem and Ozen, 2003). Lastly, both cognitive and affective trust provide an atmosphere of psychological safety, where there is room for discussion, criticism and free expression of thoughts (Edmondson, 1999). All in all, it can be stated that both cognitive and affective trust are important moderating variables for the relationship between the feedback provided by the leader and whether the feedback is accepted by the recipient or not (see relation 1 and 2 in Figure 2 and 3).

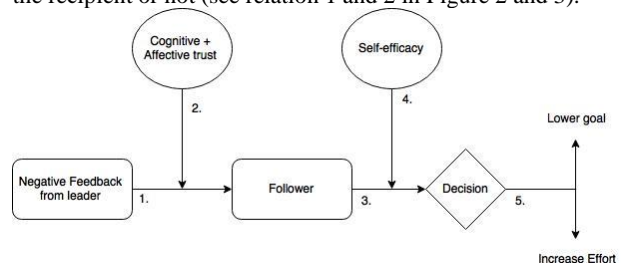


Figure 2: Process of negative feedback

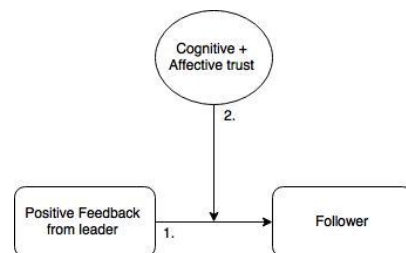


Figure 3: Process of positive feedback

2.1.2 Message

The message of the feedback can be classified in several ways, like content (detailed/not detailed) and type (positive/negative) (e.g. Gist, 1987; e.g. Kluger and Denisi, 1996). Whether the feedback type is positive or negative, is very important for the way in which the feedback is perceived by the recipient. When the message is positive, it is accepted more often and people can remember the feedback better like it is communicated, then when the message is negative (Halperin, Snyder, Shenkel, & Houston, 1976; Shrauger and Rosenberg, 1970). When providing positive feedback, the source's intentions with the recipient are perceived in a more positive way than with negative feedback (Fedor et al., 1989). Furthermore, leaders tend to give more positive and less negative feedback, which is known as the 'mum'-effect (Moss and Martinko, 1998). However, feedback with a negative message makes people adapt their behaviour more and put in more effort, where positive feedback makes people repeat their task behaviour more in the same way with the same effort (Ilgen et al., 1979; Campion and Lord, 1982). These interesting insights are the

reason this study is focusing on the differences in impact of feedback with a positive or negative message.

2.1.3 Recipient

As seen before, in case of interpersonal feedback from leader to follower, it is very important that the message of the feedback is accepted by the recipient (the follower). In case of negative feedback and assuming the message is accepted, the follower has to make a decision between put in more effort to minimize the gap or not to adapt the self-set goal to the goal set by the feedback. For this decision, self-efficacy can be seen as moderating variable (see relations 3, 4 and 5 in Figure 2). In case of positive feedback, when the feedback is accepted by the follower, there is no further decision to make (see Figure 3). Before explaining this relations, is it important to get clear the difference between self-efficacy and self-esteem, because these concepts are often used interchangeably in the scientific literature. Self-efficacy is not solely about the skills a person has, but about the person's judgments about what there can be accomplished with those skills, especially ascribed to certain sets of tasks and the performances on those tasks (Bandura, 1977). Self-esteem is more about feelings of self-worth, and of self-satisfaction (Rosenberg, 1965). The focus in this study is on self-efficacy. Self-efficacy has three dimensions: magnitude, generalizability and strength (Compeau and Higgins, 1995). Magnitude relates to seeing oneself as able to accomplish highly difficult tasks. Strength refers to how easy the self-efficacy is influenced by counter information, like a difficult problem or other obstacles. Generalizability refers to the width of particular situations the self-efficacy is applicable to. For example, one only could believe he is able to accomplish a task under certain circumstances (Compeau and Higgins, 1995).

Self-efficacy is the most important variable for accepted feedback to be effective (e.g. Weiss, 1977). Hence, if the employee scores high on self-efficacy the feedback will be more effective. Assuming the message of the feedback is received and accepted from the source, a follower with higher self-efficacy is able to better translate this into valuable action (Shrauger and Rosenberg, 1970). If a follower has low self-efficacy (trust in his own ability to perform to a norm), he will rather choose not to adapt the self-set goal to the goal set by the feedback instead of being motivated to perform and put in more effort. When the recipient's self-efficacy is high there is more chance there will be a behavioural response. Furthermore, people with high self-efficacy find more creative ways to reach their goals and show more commitment to reaching goals (Locke and Latham, 1990). This makes self-efficacy one of the main predictors of performance (Bandura and Cervone, 1983; Podsakoff and Farh, 1989).

2.2 Output side of feedback

We have seen that individual aspects, such as self-efficacy, cognitive trust and affective trust, play a very important role in the extent to which feedback is effective. It can be stated all of the above is about the input side of feedback, as showed in Figure 4. This means these variables influence feedback; to make feedback more or less effective in relation to performance. As described above, in the scientific literature there is relatively much knowledge about the input side of feedback (the way in which cognitive trust, affective trust and self-efficacy influence the effectiveness of feedback), while the output side (the way in which feedback influences self-efficacy trust, affective trust and cognitive trust) is relatively unknown.

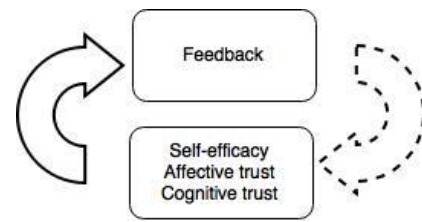


Figure 4: Input side of feedback

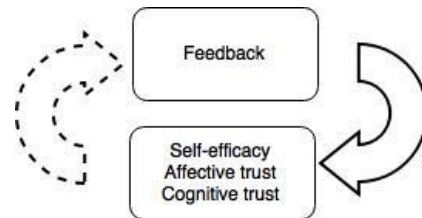


Figure 5: Output side of feedback

This is the main reason in this study we will examine how self-efficacy, cognitive and affective trust are influenced by feedback (see Figure 5). In this respect, a distinction is made between feedback with a positive and negative message. By doing this the study aims to contribute to the current literature in the following ways. Mainly, by exploring in whether the specific types of feedback have different effects, specifically providing insight in how these types of feedback are related to important individual aspects (such as self-efficacy, cognitive trust and affective trust).

2.2.1 Feedback on self-efficacy

In previous studies, feedback effects on self-efficacy were significant. It is regarded as one of the main predictors of self-efficacy (Podsakoff and Farh, 1989; Ilgen, et al., 1979; Campion and Lord, 1982). These studies all report that negative feedback lowers self-efficacy and positive feedback raises self-efficacy. Furthermore, positive feedback makes people raise their self-set goals, where negative feedback makes people lower their self-set goals (Podsakoff and Farh, 1989; Ilgen et al, 1979; Campion and Lord, 1982). These effects are easily explainable. Positive feedback implies that a task is done right. When people do a task right, confidence in doing the next task right rises. Logically the opposed effect for negative feedback is the same. As an illation from other studies, the same effect is expected for this study. The positive effect of positive feedback on self-efficacy might be diluted, for people with low self-esteem and self-efficacy search for negative feedback, and even positive feedback is more often received as negative for people with low self-esteem and self-efficacy (Robinson and Smith-Lovin, 1992; Smith and Sarason, 1975). Theoretically, a difficulty from a leaders perspective is that negative feedback shows the performance gap to subordinates, but lowers self-efficacy. Hence it is important to give positive feedback as well as negative feedback. When feedback is perceived as genuine and constructive, it raises affective trust and self-efficacy and these variables helps to handle negative feedback and perform better (Podsakoff and Farh, 1989). Concluded, the following effects are hypothesized:

H1: Positive feedback from the leader is positively related to self-efficacy from followers.

H2: Negative feedback from the leader is negatively related to self-efficacy from followers.

2.2.2 Feedback on affective trust

Affective trust is grounded in the exchange of care and concern and focusses more on the affective working relationship between follower and leader (McAllister, 1995). For the effectiveness of feedback, the perceived trustworthiness of the leader is more important than the actual trustworthiness. The leader can be very trustworthy, but if the follower does not perceive the leader as trustworthy, then still the feedback received from this leader will not be accepted by the follower. Therefore, it is important how the follower estimates the leader's intentions (Ilgen et al., 1979). Positive feedback is experienced as more supportive, than negative feedback. Support, for example by given clarified information, raises affective trust (Fedor et al., 1989). Positive feedback is more often experienced as constructive intended (Fedor et al., 1989). Although even positive feedback can be intended or perceived in a manipulative way (Ilgen et al., 1979; Hattie and Timperley, 2007). This might especially be the case in front of a group (Clark and Wells, 1995).

Positive feedback, lead to more positive affect (Lyumbomirsky, King, & Diener, 2005). Negative feedback leads to more anxiety and distrust within follower groups and to more relational conflict (Johnson and Nawrocki, 1967; Peterson and Behfar, 2003). This distrust and anxiety might be the same towards the leader as well, for the team leader is generally a role model, especially when it's coming to trust. The leader's behaviour and attitude affect the team climate (Erdem and Ozen, 2003). Concluded, the following effects are hypothesized:

H3: Positive feedback from a leader is positively related to follower's affective trust in that leader.

H4: Negative feedback from a leader is negatively related to follower's affective trust in that leader.

2.2.3 Feedback on cognitive trust

Negative feedback is harder to accept and makes people blame others more. Positive performances are seen as self-created, where negative performances are seen as possibly caused by others (Hattie and Timperley, 2007). The negative feedback people get is blamed on others, for example on the leader. Hence, cognitive trust in a leader might be lowered when a leader displays a lot of negative feedback (Johnson and Nawrocki, 1967; Peterson and Behfar, 2003). Negative feedback leads to more task conflict on a cognitive level, people disagree more and doubt the cognitive skills of others (Peterson and Behfar, 2003).

Leader positivity appears to induce higher levels of cognitive trust (Norman, Avolio, & Luthans, 2010) Other theoretical predictors of positive feedback effect on cognitive trust were hard to find. Concluded, the following effects are hypothesized:

H5: Positive feedback from a leader is positively related to follower's cognitive trust in that leader.

H6: Negative feedback from a leader is negatively related to follower's cognitive trust in that leader.

2.2.4 Cognitive and affective trust

Although it is not the main purpose of this study, it is expected that a correlation between cognitive and affective trust exists, based on the work of McAllister (1995), who claims that the variables are interrelated. As he argued, the mean of affective trust is expected to be lower than the mean of cognitive trust,

for there is a cognitive trust base needed for affective trust to develop. Concluded the following is hypothesized.

H7: Cognitive trust in a leader is positively related to affective trust in a leader.

Graphically, the following conceptual model is drawn from the hypotheses (Figure 6):

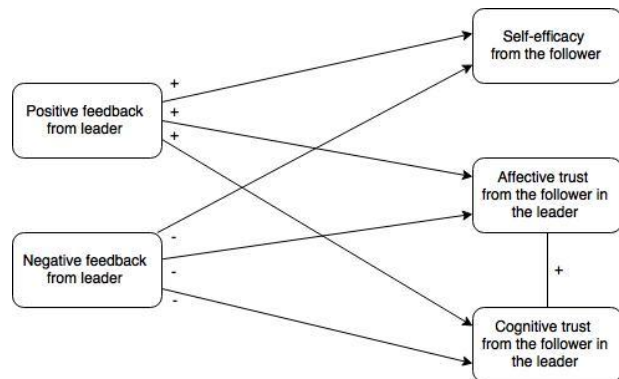


Figure 6: model of hypotheses

2.3 Practical relevance

This study is of practical relevance, because it brings more insight on when to give positive or negative feedback, to stimulate feedback effectiveness and to make the feedback process, and thereby performance, better as a whole.

2.4 Theoretical relevance

This study is of theoretical relevance because it gives an exploration of how some of the important variables, tied to feedback, work together, instead of only knowing that these variables are the most important predictors of the effectiveness of feedback.

3. METHOD

3.1 Design

In this study a cross-sectional design is applied. Within this design, three sources of data are used: 1) a validated survey, measuring follower perceptions on cognitive trust and affective trust, 2) follower self-reports on self-efficacy and 3) video recordings of staff meetings, monitoring behaviour of the leaders. For analysis purposes, the videos have been coded in a systemic way. There is made a combination of quantitative and qualitative methods. The purpose of this approach, also referred to as triangulation, is to eliminate the limitations of the one method, with the benefits of the other method. This will reduce common source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

3.2 Sampling

This study includes two samples, one of leaders and one of followers. The leader sample consists of 31 leaders, employed in a large Dutch public sector organization. Within this sample, there are 22 men (70,97%) and 9 women (29,03%). The age of the leaders ranges from 42 to 61, with an average age of 50,9 (SD = 5,28). The job tenure of the leaders ranges from 0,5 years to 43 years, with an average of 21,8 years (SD = 12,6). The follower sample consists of 405 employees, employed in the same organization as the leaders. Directly after the video recorded staff meetings, the followers are asked to fill in a

survey. In total, 366 followers filled in the survey (including the self-report), which means a response rate of 90,4%.

Within this sample, there are 261 men (71,5%) and 104 women (28,5%). The age of the followers ranges from 21 to 64, with an average age of 49,25 (SD = 10,18). The job tenure of the from ranges from 0 years to 46 years, with an average of 24,77 years (SD =13,47).

3.3 Measures

The measures regarding to cognitive trust and affective trust are adapted from the validated scale developed by McAllister (McAllister, 1995). For cognitive trust, six measures are used. Sample measures for cognitive trust are 'Given this person's track record, I see no reason to doubt his/her competence and preparation for the job' and 'Most people, even those who aren't close friends of this individual, trust and respect him/her as a co-worker'. For affective trust, five measures are used. Sample measures for affective trust are 'If I shared my problems with this person, I know (s)he would respond constructively and caringly' and 'We can both freely share our ideas, feelings, and hopes'. The measures regarding to self-efficacy are adapted from the validated scale developed by (Spreitzer, 1995). For self-efficacy, three measures are used. Sample measures for self-efficacy are 'I have mastered the skills necessary for my job', 'I am self-assured about my capabilities to perform my work activities' and 'I am confident about my ability to do my job'. Followers are asked to rate their trust in their direct leaders (cognitive trust and affective trust) and their trust in one's own capabilities (self-efficacy), based on a seven-point scale from 1 (strongly disagree) to 7 (strongly agree). In order to test the reliability of the results with respect to cognitive trust, affective trust and competence/self-efficacy, the Cronbach's α is calculated. This measurement indicates the degree of consistency between various items that measure the same concept. A Cronbach's α of 0.6 or higher is used as a rule of thumb for sufficient consistency (Field, 2005). The measures which have been used for cognitive trust (Chronbachs $\alpha = 0.919$), affective trust (Chronbachs $\alpha = 0.891$) and competence/self-efficacy (Chronbachs $\alpha = 0.879$) are sufficiently consistent so it can be concluded that the results with respect to these concepts will be reliable.

3.4 Video observations

For the feedback measures, observations of videotaped behaviour during staff meetings were used. This was done by installing three video cameras at randomly selected staff meetings. Directly after those meetings, the follower had to fill in a questionnaire, questioning the representativeness of this meeting leader and follower behaviours, compared to other meetings, to make sure the camera did not influence the meeting behaviours heavily. This data selection method has a great benefit. By video-observations, it is possible to code the behaviours more objectively, then through perceptions of behaviours, measured with a questionnaire. Perceptions of the behaviours of others are biased by opinions, so measuring behaviour via questioning followers perceptions, will not reflect the actual behaviours precisely (Lord, Shondrick, & Dinh, 2010).

Furthermore, the setting is not staged, the meeting is not staged, and the follower and leader behaviour is far less staged than in a laboratory setting, this is recommended for leadership studies (Hunter, Bedell-Avers, & Mumford, 2007).

3.5 Coding Scheme

For the analysis a coding scheme, with twenty behavioural codes and one null-behaviour code (for non-attributable behaviour), was used. These behavioural codes can be divided in three different groups. The first groups is self-defending and negative feedback ought to this group. The second group is steering, and in-forming for example ought to this group. The last group is supporting and positive feedback ought to this group.

In the code book, negative feedback is described as every behaviour that is sceptical, filled of disappointment, irritation, distrust, doubt and critical towards another person, especially towards their results.

Positive feedback is was coded by the coders, when someone had something positive to say about someone else's job performance. Every time on second a person was giving this negative or positive feedback during a meeting was coded. Two coders watched the same video independently, determining what behaviour is best fitting for a particular individual on a particular timeframe. The computer program Observer XT from Noldus was used for this purpose. The observer's determinations are compared, and by deliberation some tense moments are re-analysed together, to make sure every behaviour is promptly included. The observers observation were above 85% equal, but most of the time even above 90% or more equality was hit.

3.6 Duration

For feedback is more effective when it is more specific, there is chosen to make use of feedback duration percentages, instead of feedback frequency percentages, for longer feedback implies more detailed feedback.

Because meetings are in different group sizes, as well as in different time durations, individual behavior durations are expressed in percentages of the total duration. This way, meetings are better comparable. The percentages are expressed in the total negative/positive feedback duration of a leader during a meeting, divided by total behavior duration of a leader. Hence, the feedback duration percentages are towards all followers together.

4. RESULTS

4.1 Feedback

The mean percentage of feedback duration is 1,21 percent with a standard deviation of 1,44 percent. This means, on average a leader spends 1,21 percent of his time during a meeting on giving negative feedback. For positive feedback the mean is 1,21 percent, with a standard deviation of 1,48 percent. There are three leaders in who's video's the followers are not numbered, or there were other complications that made the videos uncodable. For this reason, these leaders and their followers have not been taken into account.

4.2 Aggregating variables

For self-efficacy, affective trust, and cognitive trust, the different questions where combined into one score per individual. After that, this scores where aggregated to teamleaders. The average competence scores measured on a 7-point scale had a mean of 5.88 with a standard deviation of 0.23. The lowest aggregated competence score was 5.38 and the highest score was 6.29. Concluded, there were no big differences in self-efficacy between teams. For cognitive the

mean was 5.50 (std. 0.51) and for affective trust the mean was 5.65(std. 0.41). This is not in conformity with McAllister (1995), who theorized that the mean of cognitive trust should be higher than the mean of affective trust, for there is generally a small cognitive trust base needed, for affective trust to develop. Looking at the standard deviations, this markable difference seems not significant.

4.3 Test of normality

First a test of normality was ran on all the different variables. With the sample size smaller than 50, the Shapiro-Wilk test was used. Since this test assumes that the variables are normally distributed, a significance lower than 0.05 will contradict this null-hypothesis, assuming the variable is not normally distributed.

Competence (0.349) and affective trust(0.87) can be assumed to be normally distributed for their significance is >0.05 . Cognitive trust (0.26) cannot be assumed normally distributed based on the Shapiro-Wilk test, not even after applying a log-transformation on the variable (0.007). The percentage of negative feedback frequency during a meeting, is not normally distributed according to the Shapiro-Wilk test (0.015). Neither is the percentage of positive feedback frequency during a meeting(0.005), nor the percentage of positive feedback duration (0.000), or the percentage of negative feedback duration (0.000). After a log transformation, Only the percentage of the negative feedback duration(0.202) and the percentage of negative feedback frequency (0.640) were assumed to be normally distributed based on the Shapiro-Wilk test, after a log transformation.

4.4 Correlations

	1.	2.	3.	4.
1. Positive feedback				
2. Negative feedback	0.37 [†]			
3. Self-efficacy	0.06	0.21		
4. Cognitive trust	0.18	0.45 ^{††}	0.18	
5. Affective trust	0.12	0.33 [†]	0.13	0.78 ^{**}

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

† $p < .05$, one-tailed. †† $p < .01$, one-tailed.

Table 1 shows the correlations, between the used variables. For feedback the log transformations were used, for then negative feedback was normally distributed. The other variables are the variables aggregated to individual leaders, without any other transformation. The same is true for the regression analysis. The correlation between positive feedback and negative feedback was significant at the one-tailed $p < .05$ level. Hence it could well be that leaders who give more positive feedback, also give more negative feedback. Second, the correlation between negative feedback and cognitive trust was significant at the one-tailed $p < .01$ level. If there is a positive correlation, this result was not expected. Third, there was a significant correlation between positive feedback and affective trust at the one-tailed $p < .05$ level. This was hypothesized, if the direction of this correlation is positive. Last, the correlation between cognitive trust and affective trust are significant at the two-tailed $p < .05$ level. This is supported by McAllister (1995), who claims that although cognitive and affective trust are different variables with their own attributes, they do affect each other (as hypothesized in $H7$).

4.5 Regression

A regression analysis was done for every hypothesized dependent variable, while controlling for age and years of

employment, to investigate the causality as proposed in the theoretically model. For every dependent variable a table was drawn, containing the coefficients from the controlling variables and the hypothesized independent variables: positive and negative feedback. Next to that the R square and R square change from every model are included in the tables.

For self-efficacy (table 2a), only negative feedback was a significant explanation. The positive relation found conflicts with $H2$.

Table 2a. Regression results self-efficacy (n=29)

Variable	Model 1	Model 2	Model 3
Primary sequence			
Age	-.03	-.39	-.54
Employment years organization	.13	.12	.16
Employment years department	-.14	-.28	-.29
Employment years team	.35	.48	.49
Negative feedback		.60 [†]	.66 [†]
Positive feedback			.24
R^2	.18	.47	.51
ΔR^2	.18	.29 [†]	.04
Alternative sequence			
Age	-.03	-.06	-.54
Employment years organization	.13	.15	.16
Employment years department	-.14	-.14	-.29
Employment years team	.35	.35	.49
Positive feedback		.31	.24
Negative feedback			.66 [†]
R^2	.18	.19	.51
ΔR^2	.18	.00	.33 [†]

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

† $p < .05$, one-tailed. †† $p < .01$, one-tailed.

For cognitive trust (table 2b), negative feedback is found to be the only significant explanation. Again this is in disagreement with the hypothesis ($H6$). Explanations for these findings will be discussed later on.

Table 2b. Regression results cognitive trust (n=29)

Variable	Model 1	Model 2	Model 3
Primary sequence			
Age	.58	.16	.28
Employment years organization	-.10	-.09	-.05
Employment years department	-.02	-.19	-.81
Employment years team	-.24	-.08	-.08
Negative feedback		.70 ^{††}	.66 [*]
Positive feedback			-.19
R^2	.22	.63	.65
ΔR^2	.22	.40 ^{††}	.03
Alternative sequence			
Age	.58	.75	.28
Employment years organization	-.10	.03	.05
Employment years department	-.02	-.04	-.18
Employment years team	-.24	-.23	-.08
Positive feedback		-.37	-.19
Negative feedback			.66 [*]
R^2	.22	.33	.65
ΔR^2	.22	.10	.33 [*]

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

† $p < .05$, one-tailed. †† $p < .01$, one-tailed.

For affective trust, positive feedback seems to be a significant explanation, as hypothesized ($H3$), but only when negative feedback is not taken into account. Furthermore the same truth holds for the control variable age. No other significant effects were found. Hence, all other hypothesis will be rejected ($H1, H4, H5$).

Table 2c. Regression results affective trust (n=29)

Variable	Model 1	Model 2	Model 3
Primary sequence			
Age	.68	.45	.73
Employment years organization	-.23	-.24	-.33
Employment years department	.25	.15	.17
Employment years team	.01	.10	.09
Negative feedback		.40	.29
Positive feedback			-.47
R ²	.31	.44	.60
ΔR ²	.31	.13	.15
Alternative sequence			
Age	.68	.94*	.73
Employment years organization	-.23	-.34	-.33
Employment years department	.25	.23	.17
Employment years team	.01	.03	.09
Positive feedback		-.54†	-.47
Negative feedback			.29
R ²	.31	.54	.60
ΔR ²	.31	.22†	.06

*p < .05, two-tailed. **p < .01, two-tailed.
 †p < .05, one-tailed. ††p < .01, one-tailed.

5. DISCUSSION

5.1 Correlation and regression

By making use of self-reports for self-efficacy, questionnaires about trust in the leader and coded video-based observations of actual follower and leader behaviours, there were three different methods of data collection used for this study. It is the first known study of feedback that makes use of video-based observations of actual behaviours, determining positive and negative feedback frequencies and durations of leaders in a meeting. Pearson correlation coefficients were used to investigate the significance of relationships between the different variables studied. Regression analysis was used to examine to what extent changes in negative and positive feedback significantly predicted changes in cognitive trust, affective trust and self-efficacy. Regression analysis also predicted in what direction negative and positive feedback were related to cognitive trust, affective trust and self-efficacy. Significant relations between negative feedback and cognitive trust and self-efficacy were found, but in the opposite direction as hypothesized. Positive feedback was a significant explanation for affective trust if negative feedback was not taken into account. This was the only significant regression found conforming with the premeditated hypotheses. All other hypotheses could not be confirmed by significant statistical results.

The statistical results not conforming the hypotheses set will be discussed. First, the results show a positive relationship between negative feedback and self-efficacy. The relationship found between negative feedback and self-efficacy is different than any predicted effect found in the literature. This might be due to the ‘mum’-effect where leaders tend to delay and distort negative feedback especially towards underperformers who already received lots of negative feedback before, but do not seem to improve (Moss and Martinko, 1998; Ilgen et al., 1979).

Second, another unsuspected regression was found between negative feedback and cognitive trust. Negative feedback positively predicted cognitive trust. It was predicted that negative feedback leads to less cognitive trust towards a leader, because negative feedback led to less cognitive trust within groups. Strikingly negative feedback leads to more cognitive trust in the leader. The found positive relation between negative feedback and cognitive trust, could be explained by more feedback seeking behaviour of followers, who have more cognitive trust in leaders (Fedor et al., 1989). The followers

who seek more feedback, get more negative feedback from leaders. Leaders are hesitant to give negative feedback in the first place, and this makes the chances rise that leaders only give negative feedback to feedback-seekers (Moss and Martinko, 1998). The feedback seekers receive more negative feedback and report more cognitive trust afterwards. Indeed, the cognitive trust in that leader is the very reason they sought negative feedback in the first place. Leaders who have got high cognitive trust put in them by followers, usually have higher qualifications (McAllister, 1995). Hence, feedback seekers with high cognitive trust in the leaders have high chances to receive useful negative feedback. Cognitive trust in the leader will then increase even more. In next studies, there should be controlled for feedback-seeking behaviour, to ensure this is indeed the explanation of the found effect.

Furthermore, some expected effects were not found. In the following section some other forces influencing effects on feedback variables are discussed, for these effects might relate to the expected effects that were not found.

5.2 Complexity of feedback systems

It was already known that there are complex forces behind trust (McAllister, 1995). All in all, although the hypothesis of self-efficacy are well theoretically investigated and underpinned, this study finds contrary effects. This only sheds light on the complexity of feedback systems (Kluger and Denisi, 1996). Therefore some possible explanations about the contrary findings in this study will be discussed.

5.2.1 Locus of control

The leader as a feedback source is high in power. Feedback reactions, can be response on a trust, intrinsic-motivational base, but can as well be a response on a sometimes manipulative, reward style, punitive, extrinsic-motivational base. People who respond on an intrinsic motivational base, who have an internal locus of control, are called internals. People who respond on an extrinsic-motivational base, who have an external locus of control, are called externals. Feedback responses from these groups are completely different. Externals are more worried about the approval of others, so they cannot cope with negative feedback, affecting their self-efficacy and trust. Furthermore they associate negative feedback with lesser rewards to come (Ilgen et al., 1979). Internals perform better through negative feedback, and their goals and their self-efficacy are not easily reduced by negative feedback (Campion and Lord, 1982). This makes leaders give feedback in a different, more constructive way as well (Podsakoff and Farh, 1989). People who display more effort, gain feedback in a more constructive way, for example (Moss and Martinko, 1998). Theoretically, constructive feedback is affective trust raising (Fedor et al., 1989). Hence, the locus of control turns out to moderate effects of positive and negative feedback on affective trust and self-efficacy (and possibly cognitive trust). From a meta-analysis it was subtracted that using feedback as rewards and punishments has their effects on the locus of control. Rewards let peoples motivational base shift from intrinsic to extrinsic. That is because rewards seems to undermine peoples own responsibility for motivating themselves (Deci, Koestner, & Ryan, 1999). Conclusively, the way a leader gives feedback seems to influence the locus of control, which in turn influences affective trust and self-efficacy. Because positive and negative feedback can have different effects on affective trust and self-efficacy through the locus of control, it is hard to predict how

negative or positive feedback will affect affective trust and self-efficacy without taking the locus of control into account.

5.2.2 Influence of group/meeting setting

In this study, it has to be taken into account, that negative feedback tends to make people more anxious and stressed. People tend to blame others, when getting negative feedback (Ilgen et al., 1979; Peterson and Behfar, 2003). Being in a group can make people even more anxious and stressed, some people even have this phenomenon called social anxiety. Negative feedback given in a group setting might be disastrous because of the added up anxiety (Clark and Wells, 1995). Second, when feedback is delivered in a group, the perceptions of relevance of the feedback towards oneself or towards others groupmembers are different for every individual. Most of the time it's perceived irrelevant to the individual's performance (Nadler, 1979).

5.3 Limitations

5.3.1 Codebook

Negative feedback and positive feedback can be even better specified in the code book in accordance with the feedback literature. Maybe this will lead to a positive normality check for example, due to some sort of coding bias and maybe it will lead to results better corresponding with theory. Every positive value statement somehow directed at the job and task performance can be counted as feedback, could be some sort of code description. Negative feedback should be the opposite of positive feedback in the codebook.

5.3.2 Meeting setting

The theoretical model focuses on feedback from the leaders towards individuals, for individually accepted goals are the best predictors of performance. The data however focuses on feedback from the leaders towards the whole group. Furthermore, feedback can be different during meetings then outside of meetings. Feedback durations compared to total behaviour durations for instance might be different outside of the meeting setting. Feedback effects could be different outside of meetings as well.

5.3.3 Hypotheses

As explained, the scientific literature focuses way more on the input side than on the output side of feedback. So, because this study focuses on the output side, hypotheses were partially subjected to interpretation. This means that based on the existing insights about the influence of cognitive trust, affective trust and self-efficacy on the effectiveness of feedback, the idea is derived that there may be a reinforcing effect, because on the other side feedback might influence these aspects. Especially the effects of positive and negative feedback on cognitive and affective trust are not yet studied a lot. Hence, the hypotheses mostly had to be subtracted and interpreted from alike studies that do not exactly fit the hypotheses.

5.4 Further research

There are a lot of individual source, message and recipient characteristics that can influence the self-efficacy and trust very drastically, which makes it important to have a big sample for a next study: to exclude all those effects. Our study sample, although quite big, is probably too small to average all those

effects out. In the next sections, a couple of important influencers of feedback variables are narrated to take into account for further study.

5.4.1 Hierarchy of goals

Time is of big influence of the effects of feedback. Short term feedback effects are hard to predict, where long term effects of feedback are easier predictable (Campion and Lord, 1982). This has to do with the hierarchy of goals, that every individual has. Sometimes, a promotion can be a higher goal, then performing on a task. For example, a student needs a far better result for an exam, that that's student current average, to go through to the next year of a study. Hence, in the last quartile, the student start compensating for the bad results in other quartiles. The better results in the last quartile and the extra effort the student put in, are not completely accountable to the feedback of the students teacher, or by the students motivation to perform better on individual exams. The student just wanted to accomplish a higher goal, for example going to the next year of study, to get a well-paid job later on. For another student, a need of accomplishment could be a higher goal, which wants to make the student perform better on every exam, not taking into account his results are already sufficient. Studies that look at the effects of feedback have to take this hierarchy of goals into account (Campion and Lord, 1982; Fedor et al., 1989).

5.4.2 Message characteristics

There are a lot of things that make the feedback message more, or less effective. The timing of negative feedback is very important for example. People tend to respond defensive as a first reaction to negative feedback, which makes them listen less to the actual message. This is why people find it harder to remember the actual message of negative feedback. This way, it's harder to improve and build self-efficacy, or the self-efficacy might be to dramatically lowered (Ilgen et al., 1979).

It is important for followers to remember how they were actually doing the task they got feedback on. This makes giving feedback closer after the task, more effective (Buchwald and Meagher, 1974). It might be good to use a video system, to show the actual behaviour, so it is possible to show reliable feedback and making feedback communicated on the task and not on the person (Fedor et al., 1989). Video- audio- or computer- assisted feedback were the most effective forms of feedback in a meta-analysis (Hattie and Timperley, 2007). Specific feedback is namely building more affective trust (Fedor et al., 1989; Ilgen et al., 1979). When people don't know where the negative feedback came from, uncertain self-images are the result (Hattie and Timperley, 2007). When people don't know why they got certain positive feedback, they match it to the wrong behaviours, which can lead to increases in self-handicapping strategies (Smith, Snyder, & Handelsman, 1982). Logically this is not building any form of trust in the leader, nor building self-efficacy. A study that looks at positive and negative feedback, should take into account that a follower must be able to match feedback to the actual task the feedback is given on, for it influences results when the follower cannot match the feedback to the task.

5.4.3 Level of detail

To add some knowledge to the scientific knowledge base, further study on feedback has to look on a far more detailed level to feedback. The effects have to be measured on an individual level, studied for a longer time and with a large dataset, due to the complexity of feedback.

5.4.4 Video observations

This is the only study known to make use of video observations of actual behaviours. This is a very big advantage of the present study. The data is coming from different reliable sources, probably reported in the best known ways per variable. There should be more studies constructed with video observations, if possible even outside meetings, during work time, although this is ethically not accepted at this moment.

5.4.5 Sample

Over 70 percent of the sample were men over the age of 40. Further research is needed to examine the generalizability of our findings. Longitudinal studies then are needed to see if the causality determination found still holds. Possible improvement in the determination of the mechanisms behind feedback systems is still needed.

5.5 Practical implications

From this study we found that feedback is very complex, because the results of this study are contrary to the results of others studies. therefore, it is very useful to make use of video systems for feedback. Feedback can be better recalled and observed this way. This is supported by theory. The more specific and better to remember the feedback is, the more performance raising the feedback will be (Fedor et al., 1989). Invite followers to interact with the leader on the feedback given by the leader, this increases trust (Locke and Latham, 2002). Individually measuring trust and self-efficacy of followers, and adapt feedback to it as a leader might be very effective, for individual characteristics can make followers respond to the same feedback in a completely different way (Locke and Latham, 2002; Campion and Lord, 1982) (Fedor et al., 2001; Ilgen et al, 1979). Perceived intentions are of big influence on how feedback is processed. This perception is build over time, and constructed from a lot of information known about the leader. So as a leader it is best to make sure the actual intentions are good, followers probably eventually will notice over time.

6. CONCLUSION

The study first started by reviewing the most important literature on feedback, focussing on the leader as a feedback source. Most notably were effects of cognitive trust and affective trust, because they affect the follower's acceptance of feedback given by the leader. When feedback is accepted from the source, self-efficacy is the biggest determinant whether the follower estimates if he/she is able to attain the goal communicated by the feedback and pursue the goal or estimates not being able to attain the goal and chooses not to pursue the goal and keep performance levels as they are. Earlier studies had a focus on the effects of self-efficacy, cognitive trust and affective trust on feedback and showed that these variables were very important to performance. Leaders are, in the end, co-responsible for performance of their followers. This study was one of the first studies to explore the effects of feedback on self-efficacy, cognitive and affective trust. This was done from a leader's perspective, for leaders want to be able to alter self-efficacy, cognitive trust and affective trust, for earlier studies showed the importance of these variables to feedback. Effects found were mostly unexpected. Negative feedback was found to affect cognitive trust and self-efficacy. Positive feedback was found to influence affective trust. The question will be if these

findings maintain with bigger samples and in longitudinal studies. Furthermore it is still questionable what theoretical explanations are behind the findings. In next studies there should be controlled for possible explanations argued and other possible explanations should be investigated. Confirmed by this study, results of feedback studies are contradictory and seldom straightforward (Kluger and Denisi, 1996). Hopefully complex feedback mechanisms can be increasingly understood, by investigating important cognitive feedback mechanisms more in the future.

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