

Running head: SELF-EFFICACY, FEEDBACK PERCEPTION AND INTRINSIC MOTIVATION

The relation between self-efficacy and feedback perception and between feedback and  
intrinsic motivation

Group 16

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## Abstract

The present quantitative study examined the relation between self-efficacy before a written feedback intervention, feedback perception, and intrinsic motivation after the feedback intervention. Participants were 46 students of the Faculty of Social Sciences of Utrecht University. Participants received a questionnaire including some hypothetical feedback. One group of students (N = 20) read positive feedback, while the other group of students (N = 26) read negative feedback. In one questionnaire, firstly self-efficacy of participants was measured. After that they read some feedback fragments and answered questions about the perception of that feedback, based on the developmental, encouraging and fair aspects of the feedback. Finally, intrinsic motivation in relation to the assignment on which feedback was given was measured with items based on the Intrinsic Motivation Inventory. Correlation measurements, t-tests and ANOVA's showed no relation between the three concepts.

*Key words:* self-efficacy, positive feedback, negative feedback, feedback perception, intrinsic motivation

## Introduction

Feedback is seen as an important aspect of students' learning processes and it is a contributor to student experience of learning (Higgins, Hartley, & Skelton, 2002; Lizzio & Wilson, 2008). Feedback is an essential feature in reaching 'deep' learning (Higgins et al., 2002). Therefore, research in the area of feedback is important in order to reach satisfying learning results. Giving effective feedback involves more than just the type of feedback and characteristics of a feedback giver. Both feedback givers and feedback receivers can have different views on the usefulness of feedback, which is a determiner for the potential that feedback has for learning (Carless, 2006).

The present study examines feedback on students' writing, while most feedback literature concerns other tasks than writing (Duijnhouwer, Prins, & Stokking, 2010a). Writing is a very important aspect of a study at university because most assessments are written assignments. Feedback on writing assignments can appear in a number of ways. For example, only a grade can be given, some feedback stated in a few catchwords can be given, or extensive feedback can be given. It is interesting to examine different kinds of feedback, because some kinds of feedback are found to have a more positive effect on learning than others (Lipnevich & Smith, 2009; Kluger & DeNisi, 1996; Straub, 1996).

The above shows there is not one known way of giving the most effective feedback. What kind of feedback is most effective for students depends on their perception of the feedback (Lizzio & Wilson, 2008). The area of feedback is still under researched, and this particularly applies to students' perspectives on feedback (Higgins et al., 2002). Therefore, student feedback perception is interesting to examine. Since the perception of feedback does not depend on age or gender of a student but does depend on year of enrolment (Lizzio & Wilson, 2008), it might be that other student characteristics also have a role in feedback perception. The goal of the present study is to examine whether a relationship can be found

between the motivation constructs self-efficacy and intrinsic motivation and feedback perception of two kinds of feedback. Those motivation constructs are included in the study, because both self-efficacy and intrinsic motivation have impact on learning (Bandura, 1997) and the concepts are related to each other (Deci & Ryan, 1980). The topic of the study is schematically drawn in Figure 1. The dotted lines show the order in which measurements are taken. Two questions are addressed in the present study: (1) Does a relation exist between students' self-efficacy before a feedback intervention and their perception of that feedback? The second question is: (2) Does positive feedback, compared to negative feedback, contribute more to students' intrinsic motivation? The first question examines relation 1 in the figure and the second question examines relation 2.

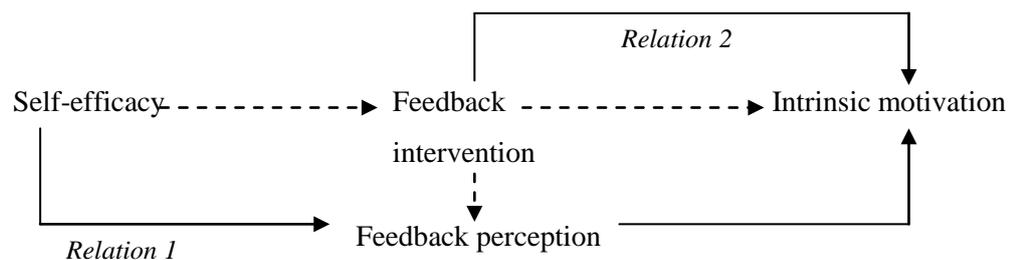


Figure 1. Relation between self-efficacy, feedback, feedback perception and intrinsic motivation.

### ***Feedback and its perception***

Kluger and DeNisi (1996, p. 255) define feedback interventions as “actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one’s task performance.” According to Kluger and DeNisi (1996), a feedback intervention includes knowledge of results interventions, which can be seen as a confirmation of result(s) by someone else than the writer. A knowledge of result intervention is an important part of feedback, but a feedback intervention is broader because it also contains comments on how a result is achieved.

Different researchers hold different views on feedback and its effectiveness. Kluger and DeNisi (1996) argue that feedback centred towards the self, instead of the task, focuses the student's attention on other things than the learning process and has a negative influence on learning. According to Straub (1996, p. 224) feedback is either "directive or facilitative, authoritative or collaborative, teacher-based or student-based. One is encouraging and good, the other critical and bad." Chin (2006) argues that teacher led discourse has a positive influence on students' contribution to learning, while teacher dominated discourse is less positive in stimulating productive talking (i.e. conversations about the content of the lesson).

In addition to those different views, one aspect of feedback is commonly acknowledged; it should contain detailed, clear and specific comments in order to reach the desirable result (Straub, 1997; Zacharias, 2007; Lipnevich & Smith, 2009). Some similar result was found by Lizzio and Wilson (2008). Following from a literature review, they stated that effective feedback should involve performance-gap information and a positive component such as praise. Further, it should be clear and fair; which involves transparency and objectiveness. These are overall conclusions about effective feedback and it does not mean that every student perceives feedback in this way. The perception of feedback is a student's reaction at received feedback (Lizzio & Wilson, 2008). Feedback is a social process and may be perceived differently by receivers and givers (Carless, 2006). More factors, such as the goals of a class, the individual student and teacher's style of giving feedback (Straub, 1996) may affect the effectiveness of a feedback intervention. The definition of feedback perception in the present study is: 'The extent to which someone thinks that received feedback is either valuable or not, and the reaction at the feedback that this results in.'

Some studies investigated the way in which students perceive feedback that is given by their teacher. A very important factor in feedback perception is the feedback giving style which depends on personality and teaching style of the teacher (Straub, 1996). Lipnevich and

Smith (2009) investigated whether students' thoughts about the effectiveness of different kinds of feedback differed from each other. All participants in that study agreed that detailed comments on their written work were the most effective way of feedback. Students also prefer feedback from a teacher, because that is the person who grades them (Zacharias, 2007).

Straub (1997) examined whether the way that feedback was stated made students prefer one kind of feedback over another type. He divided comments of feedback in a controlling form (corrections, criticism, and commands), a somewhat less controlling form (qualified evaluations, advice, praise, closed, and open questions) and the non controlling form (interpretations, reader responses, lessons, and explanations). Students ranked corrections as least preferable while they preferred explanations the most. Something else Straub (1997) found is that all students appreciated it when praise was included in feedback. Another study that examined what students find effective feedback on writing assignments was done by Lizzio and Wilson (2008). Students in that study were asked to reflect on the feedback they received and after analysis was found that students discerned three dimensions in effectiveness of feedback: it should be developmental, encouraging and fair. A developmental focus means that feedback identifies learning goals and strategies. The encouraging factor denotes the level of interest or engagement in the assignment. The fairness of feedback means that the criteria are transparent and objective (Lizzio & Wilson, 2008). In the present study, those three dimensions are used because they are indicators for the extent to which feedback is seen as effective. The dimensions are relevant, because it might be that not every student appreciates the same aspects in feedback and this might be related to students' characteristics.

In investigating feedback perceptions, Straub (1997) made no distinction between characteristics of respondents. Lizzio and Wilson (2008) included some personal and academic characteristics, for example age and gender, academic experience, and self-reported academic achievement, in their analysis of perception. No effect of these factors on, or

correlation with, feedback perception was found. What Lizzio and Wilson (2008) did not include in their study was beliefs of competency on the specific task on which feedback was given. It might be that different students react differently if they receive the same kind of feedback and it is interesting to investigate possible causes for those differences in perception. In addition to student characteristics, certainly the feedback intervention itself is important for its perception. Different kinds of feedback contain different aspects and different developmental, encouraging and fairness levels.

### ***Positive versus negative feedback***

Together with student characteristics, certainly the type of feedback intervention influences its perception. The influence that feedback has on a learning process depends on the kind of feedback given to students (Straub, 1997). Some kinds of feedback have a positive influence on students' learning and motivation, while others influence the learning process in a negative way (Kluger & DeNisi, 1996). The distinction between positive and negative feedback is made by Van-Dijk and Kluger (2004). In this distinction, positive feedback focuses on success, while negative feedback emphasizes failure. Kluger and DeNisi (1996) argue that both positive and negative feedback interventions should improve performance, because the first reinforces the correct behaviour, while the latter punishes the wrong behaviour. However, Van-Dijk and Kluger (2004) related the distinction between negative and positive feedback to the self-regulation theory of Higgins (1997, 1998, as cited in Van-Dijk & Kluger, 2004) which states that it is possible for humans to have two goals: the prevention goal where punishments are being avoided, and the promotion goal where rewards are tried to be achieved. Van-Dijk and Kluger (2004) developed the idea that positive feedback is congruent with the promotion focus and negative feedback is congruent with the prevention focus. This means that someone who tries to avoid punishments will find negative feedback most effective or fitting because that person wants to improve the negative parts.

Someone who tries to achieve rewards finds positive feedback most fitting because that person wants to be skilled and in positive feedback, the good parts are highlighted.

In other studies, positive feedback was shown to increase intrinsic motivation in comparison to no feedback (Boggiano & Ruble, 1979; as cited in Deci & Ryan, 2000). Additionally, in another experiment was found that negative feedback decreased intrinsic motivation in comparison to no feedback (Deci & Cascio, 1972; as cited in Deci & Ryan, 2000). Ilgen and Davis (2000, p. 561) conclude that negative performance feedback is a 'dilemma'. They argue that some negative feedback is necessary for the desire to improve, but the result is not predictable; sometimes the response is opposite from the one desired. Instead of improving the performance, negative feedback then decreases performance. According to Ilgen and Davis (2000) it is critical that the delivery of negative feedback makes the receiver aware of and responsible for performance under the standard, but the feedback should not decrease someone's self-efficacy. From this literature, there seems to be a relation between feedback sign (i.e. positive or negative feedback) and intrinsic motivation. It is interesting to examine this relation in detail. Feedback perception might be dependent of a student's self-efficacy, which is addressed in the next paragraph.

### ***Self-efficacy and feedback perception***

A motivational construct that is important in the academic achievement of students is self-efficacy. According to Bandura (1986), self-efficacy is a self-evaluative reaction to one's own behaviour and perceived self-efficacy is the judgement about one's capabilities. Self-efficacy is context and task specific, which means that when someone thinks he is capable of doing for example a presentation that person might think that he does not have the skills to write a qualitatively good paper.

Bandura (1997) stated that self-efficacy influences motivation, thought processes and affective states. Therefore, it can be said that self-efficacy is an important factor in a learning

process. Self-efficacy beliefs are thought to play an important role in the prediction of writing achievement of adolescents (Klassen, 2002). This researcher argues that in classrooms, when a teacher comments on students who do not work adequately, this is often in relation to a writing task. This might occur because writing demands a lot of knowledge of language and a high level of belief in own abilities.

Feedback is thought of being important in influencing self-efficacy beliefs and progress feedback on writing, feedback that points at improved parts when compared to previous work, is seen to have a positive effect on self-efficacy beliefs (Duijnhouwer, Prins, & Stokking, 2010a). This shows the relation between self-efficacy and feedback, but it is interesting to investigate whether there also is a relation between self-efficacy and feedback perception. Duijnhouwer, Prins and Stokking (2010b) found an interaction effect between self-efficacy beliefs before feedback was received and self-efficacy beliefs after feedback was received. Students who reported moderate or low self-efficacy when writing a first draft, had decreased self-efficacy beliefs after they had received feedback providing improvement strategies. This result appeared because students saw improvement strategies as feedback from a teacher with low confidence in them and for students with low self-efficacy, this confirmed their feelings of low competency (Duijnhouwer, Prins, & Stokking, 2010b). This shows that not every student reacts at feedback in the same way. Self-efficacy beliefs may influence this reaction and the extent to which someone thinks feedback is developmental, encouraging and fair.

### ***Intrinsic motivation and feedback perception***

Motivation is an important quality to possess when learning. Teacher feedback clearly contributes to motivation and attitude towards writing (Zacharias, 2007), which makes feedback an important factor of learning. Csikszentmihalyi (1975; 1979, as cited in Bandura, 1997) found that almost any activity can be intrinsically motivating, as long as it is

challenging and when feedback including improvement strategies is given. According to the interpretation of motivational constructs in social cognitive theory, intrinsic motivation is fostered by self-efficacy and self-reactive mechanisms (Bandura, 1997). Therefore, when a student has a high sense of self-efficacy for writing, his intrinsic motivation increases. For a student with low self-efficacy beliefs this will not happen (Deci & Ryan, 1980). This shows that these motivation constructs are very much related to each other.

According to Deci and Ryan (2000, p. 233), intrinsically motivated activities are “those that individuals find interesting and would do in the absence of operationally separable consequences.” Different theories about intrinsic motivation exist; examples are self-determination theory (Deci & Ryan, 2000), flow theory (Csikszentmihalyi, 1988, as cited in Eccles & Wigfield, 2002) and a 2x2 achievement goal framework (Elliot & McGregor, 2001). Deci and Ryan (2000) state that human behaviour, and with that also intrinsic motivation, depends on certain needs. One of those needs is the need for competence, which has a close connection with the belief in one’s ability on a certain task: self-efficacy. In the present study the idea about intrinsic motivation as proposed by Deci and Ryan (2000) will be used as description of intrinsic motivation.

Following from the literature, it appears that self-efficacy and intrinsic motivation are related to each other. Feedback and motivation are also related; positive feedback increases intrinsic motivation, while negative feedback decreases intrinsic motivation, as research by Deci (1971, as cited in Deci & Ryan, 1980) showed. Intrinsic motivation of the group of participants that received positive feedback including praise increased, while intrinsic motivation of the group that received no reward decreased. Deci and Ryan (1980) do not completely support the statement that negative feedback always decreases intrinsic motivation. They argue that this only happens when negative feedback signifies ones incompetency. There is some evidence that verbal rewards affect males differently than

females, but also contradicting evidence exists (Deci & Ryan, 1980). The present study investigates the relation between feedback sign, positive or negative, and intrinsic motivation. The participants are mainly females and it is interesting to analyze whether different results will be found than in the study by Deci and Ryan (1980).

### *Hypotheses*

The two research questions of the present study are: (1) Does a relation exist between students' self-efficacy before a feedback intervention and their perception of that feedback?, and (2) Does positive feedback, compared to negative feedback, contribute more to students' intrinsic motivation?

Four hypotheses are stated, based on the research questions. The first and third are general hypotheses which should be supported according to previous research. The first hypothesis is that irrespective of student characteristics, on average, positive feedback is perceived as more developmental, encouraging and fair than negative feedback. This is stated because Straub (1997) showed that students prefer explanations with praise (non-controlling) over corrections (controlling). The three dimensions on which the perception is measured were, according to Lizzio and Wilson (2008) the most important characteristics of effective feedback. In addition, praise and positive feedback should contain the most of these factors, because they are preferred by students.

To answer the first research question, the second hypothesis is stated. It states that self-efficacy beliefs before a feedback intervention, relate to perception of that feedback. This is the expectation because feedback and self-efficacy are seen as related aspects (Duijnhouwer, Prins, & Stokking, 2010a). It is expected that students with high self-efficacy beliefs will perceive positive feedback as more developmental, encouraging and fair than negative feedback because positive feedback fits their view at themselves and their work. This means that the expectations of a student with high self-efficacy beliefs are confirmed after

positive feedback. Students with low self-efficacy beliefs will interpret negative feedback as more developmental and fair, but will see positive feedback as more encouraging. This is in agreement with the distinction between the promotion and prevention focus made by Van-Dijk and Kluger (2004). It is based on the idea that the feedback condition should be suitable for the thoughts of own ability and on theory that argues that every student appreciates praise in feedback (Straub, 1997).

The third hypothesis is that intrinsic motivation has a relation with self-efficacy, as found in studies by Bandura (1997) and Deci and Ryan (1980). In the present study, it is expected to find that someone with high self-efficacy beliefs also has high intrinsic motivation.

The last hypothesis answers the second research question. It states that intrinsic motivation of participants who received positive feedback will be higher for that particular task than intrinsic motivation of participants who received negative feedback. This is the finding as research by Deci (1971, as cited in Deci & Ryan, 1980) showed. That research was carried out with just male participants, while the present research has almost only female participants. However, an effect of gender on intrinsic motivation is not expected.

## **Method**

### ***Participants***

Questionnaires were handed out to 90 university students in total and 46 students participated in the study, because they returned the questionnaire (response rate = 51%). Those participants were chosen, because university students have to write many papers. Students attending the course “Management of educational change” at the time of the present study were asked to participate. This particular course was chosen because the course contained a writing assignment on which feedback was given. Participants were assigned to

either one of the feedback conditions on the basis of randomization. The first condition was positive feedback ( $N = 20$ ) and the second condition was negative feedback ( $N = 26$ ). The Participants were educational studies premaster students (55.6%), second year educational studies undergraduate students (26.7%), and students of other studies (17.8%). All participants were studying at the Faculty of Social Sciences of Utrecht University. Most participants were female students (88.4%). This is representative of the amount of women attending studies of the Faculty of Social Sciences. The age of participants varied between 19 and 47 years ( $M = 22.74$ ,  $SD = 4.31$ ). Students were asked about the amount of writing assignments (e.g. a papers or essays) they had done during the past year. The answers ranged between 1 and 15 writing assignments ( $M = 4.70$ ,  $SD = 2.98$ ). The estimated grade for writing assignments earlier this year rated by students themselves ranged between 6 and 8.2 ( $M = 7.19$ ,  $SD = 0.50$ ).

### ***Instruments***

#### *Positive and negative feedback*

Participants were given some hypothetical feedback on a written text. Due to time restrictions, it was not possible to wait until students had handed in their own work to comment on. The feedback was given by the researcher on a small piece of a draft version of a paper that was likely to be written by the participants. The text on which feedback was given was a combination of an introduction and a part of the theory section of an advisory paper of the researcher herself, who had attended the course “Management of educational change” during the previous year. The length of the text was approximately half a page long, having taken into consideration that the text should be long enough to give some credible feedback and that participants would not read a text that was longer.

There were two versions of the feedback. Half of the participants read a paper draft including positive feedback, while the other half of the participants read that same text with negative feedback. Both kinds of feedback were given on the same sentences in the text. Furthermore, both feedback versions were of the same length and used the same words as much as possible. Every participant read half a page A4 which contained seven feedback fragments. This means that when taking a quick look at the text, both versions looked the same. Students received one kind of feedback and did not know of the existence of two versions. An example from the text with positive feedback can be seen in figure 2, whereas an example of negative feedback at the same part of the text can be found in figure 3.

Since nine months, the faculty of Education of the 'Hogeschool Utrecht' works in a new environment, consisting of flexible workplaces. The introduction of flexible workplaces was accompanied by very much resistance from both students and teachers. And still, the new way of working does not function perfect yet. An often heard complaint is that employees create their own 'solid workplace', and because of that, flexibility is almost inaccessible. In addition, students and teachers think it is difficult that it is sometimes hard to find a colleague or a student, because no one has their own room. Next to this, holding personal conversations is hard, because of the lack of privacy due to flexing workplaces which are created in open space.

Comment [31]: Good that you distinguish between student and teacher.

Comment [32]: The described problems are very clear.

*Figure 2.* An example of positive feedback as given in this study.

Since nine months, the faculty of Education of the 'Hogeschool Utrecht' works in a new environment, consisting of flexible workplaces. The introduction of flexible workplaces was accompanied by very much resistance from both students and teachers. And still, the new way of working does not function perfect yet. An often heard complaint is that employees create their own 'solid workplace', and because of that, flexibility is almost inaccessible. In addition, students and teachers think it is difficult that it is sometimes hard to find a colleague or a student, because no one has their own room. Next to this, holding personal conversations is hard, because of the lack of privacy due to flexing workplaces which are created in open space.

Comment [31]: What are the biggest (dis)advantages for students?

Comment [32]: Expand on the described problems somewhat more.

*Figure 3.* An example of negative feedback as given in this study.

### *Questionnaire*

Data for this study were gathered using a questionnaire which was divided into three subscales; self-efficacy, feedback perception and intrinsic motivation. Table 1 shows the

items on all scales that were retained after reliability and factor analyses were conducted. In addition to these three subscales, two control-items about the manipulation of the feedback were included. Those statements were: The feedback is positive, and the feedback is negative. They were included to make sure that the feedback differed per condition. On all subscales, participants answered on a 5-point scale, which ranged from (1) I totally disagree until (5) I totally agree. The middle answer stated, (3) I agree as much as I disagree. Because a score of 1 was the lowest 5 was the highest score, all data from the questionnaire were measurements at the interval level.

The set of items used by Duijnhouwer, Prins and Stokking (2010a) served as a foundation for the items about self-efficacy in the present questionnaire. Items were adapted to the task of writing a paper and specifically to the idea of writing an advisory paper like the one presented with feedback in this study. It is important that self-efficacy measures are specific, in order to achieve high predictability of self-efficacy beliefs and stability of the measurement (Klassen, 2002). Twelve items about self-efficacy were included in the questionnaire. After a reliability analysis was found that the item-total correlation was positive for all items. Based on the inter-item correlations, which were all positive, and based on the content, all items from the questionnaire were used in the analysis of self-efficacy. The self-efficacy scale ( $M = 3.78$ ,  $SD = 0.41$ ) had a considerable reliability ( $\alpha = .81$ ). A minimum score of 2.42 and a maximum score of 4.67 were reported. The data were approximately normally distributed.

The three dimensions, developmental, encouraging and fair, as found by Lizzio and Wilson (2008) served as a basis for measuring feedback perception. Statements were based on the items of Lizzio and Wilson (2008), because they made a reliable distinction between the

developmental and encouraging factors and fairness of feedback. Lizzio and Wilson (2008) included in their study seven statements about the developmental aspects, four statements about the encouragement and four propositions about the fairness of feedback. In the present research, six propositions about every dimension were stated. This meant that for the encouraging and fairness factor, new items had to be made. The new items on the encouraging scale were: 'The comments would encourage me to improve this written text' and 'After receiving this feedback, I would work harder to achieve a good result'. The new items on the fairness scale were: 'Sometimes, the feedback contradicts itself', 'The text is of such quality that it deserves the comments with it' and 'The feedback feels as a personal attack at the writer instead of a correction of the written work'. The statements which were derived from Lizzio and Wilson (2008), who stated their items in past tense, were changed into future tense because participants in the present research only received hypothetical feedback. Furthermore, items were translated into Dutch. Questions about the three dimensions were posed in random order and participants did not know about the underlying dimensions.

After analyzing the factor structure of the data of the present study, the three factors that were expected to be found, were not found. Some items did not correspond exactly to the factors. Therefore, a new distinction between items was made based on factor loadings above .40 and a minimum inter-item correlation of .27. These numbers were accepted because they appeared from analysis. This resulted in the removal of items fair1 (The feedback is consistent, good parts are always praised and wrong parts are always corrected) and fair3 (Sometimes the feedback contradicts itself). The other items all loaded high on one factor. Using principal components analysis with Varimax rotation, three factors were found based on the scree plot and expectations from literature. The third factor consisted of two items (fair2: I understand the feedback and fair6: The feedback feels as a personal attack at the

writer instead of a correction of the written work) with a very low reliability ( $\alpha = .35$ ).

Therefore it was decided not to include this factor in the analyses. The two included factors consisted after analysis of the items as shown in Table 1. The table also shows the new factor names and reliability of the scales. The first factor included 10 items and explained 42.62 percent of the variance. The second factor existed of 4 items and explained 20.26 percent of the variance. On both factors, one score missed ( $N = 45$ ).

Intrinsic motivation was measured with items based on the interest/enjoyment section of the intrinsic motivation inventory (IMI) (University of Rochester, n.d.), including some extra items that specifically addressed the paper in this course. The items were translated into Dutch and set in the right (future) time phrases. The scale intrinsic motivation in the present study involved 7 items. The IMI was used by Deci and Ryan in several studies. The present study defined intrinsic motivation according to Deci and Ryan's definition, and therefore, the same instrument could be used. The interest/enjoyment questions are the subscale that is the self-report measure of intrinsic motivation (University of Rochester, n.d.). In the IMI, participants state their opinion on a 7-point scale. Because the present research has used 5-point scales for the other constructs, intrinsic motivation was also measured on a 5-point scale. Item 6 on the intrinsic motivation scale (The writing of the advisory paper will have my attention during the whole course), was removed after factor analysis. Two factors appeared of which item 6 was the only item on the second factor. This item was also the only one with a low correlation on the first factor (.16). Based on the unclear content and low and some negative inter-item correlations, the decision to remove this item was made. After removal, Cronbachs Alpha of the factor intrinsic motivation was .70, which was good. The intrinsic motivation scale ( $M = 3.73$ ,  $SD = 0.53$ ) had a minimum score of 2.00 and a maximum of 4.83.

Table 1

*Factors with names, items, reliability, means and standard deviations*

Factorname	Items	$\alpha$	M	SD
<i>Self-efficacy</i>	I have confidence in my ability to write the advisory paper. Looking at previous writing assignments, I expect to write a good advisory paper. When I write an assignment for a course, I am well able to express my thoughts on paper. I have no problem writing clear and correct Dutch sentences. I expect to receive a good grade for the advisory paper in this course. I am convinced that I have the writing skills which are necessary when writing an advisory paper. Considering the level of the assignment and my own writing skills, I expect to write a good advisory paper. I think that I am able to write an advisory paper with a good content. I think that I am able to write a convincing advisory paper. I expect to be able to write a linguistically correct advisory paper. I expect that I am able to write a well-structured advisory paper. Writing an advisory paper will be easy for me.	.81	3.78	0.41
<i>Improvement oriented</i>	The comments would help me to focus on parts of the paper that need to be improved. The comments clearly state how to look critically at the text. Wrong parts are not only highlighted, but it is also stated how to improve those parts. I could use this feedback when I am writing the advisory paper. The feedback is critical with respect to the written text. The comments would help me to think in more depth about the subject. The comments would encourage me to improve this written work. After receiving this feedback, I would work harder to achieve a good result Based on this feedback I understand what is expected from me when writing this part of the advisory paper. The text is of such quality that it deserves the comments with it.	.95	2.90	1.02
<i>Encouraging</i>	The feedback points at good parts and ideas in the text. The feedback indicates what the writer did well. The feedback takes into account the effort that was made to write the text. Positive comments are often made.	.80	3.03	1.04
<i>Intrinsic motivation</i>	I look forward to writing the advisory paper. I would like to start writing the advisory paper as soon as possible. I think writing the advisory paper is an interesting assignment. Writing the advisory paper will be fun. I want to learn how to write an advisory paper. I think writing the advisory paper is boring.	.70	3.73	0.53

***Design and procedure***

According to criteria used by Robson (2002) this study had a fixed design. It was decided beforehand which group of students would be asked to participate and it was clear in which way data were to be gathered. Also, according to Robson (2002), the design was

experimental because the kind of feedback was manipulated, there were two different conditions and the influence of those conditions on intrinsic motivation was measured. The part of the study where self-efficacy was seen in relation to feedback perception was a non-experimental strategy, because there was no manipulation of variables. Neither self-efficacy nor feedback perception was a manipulated variable; therefore this relation was of a descriptive nature. There where manipulation of the feedback type was included in analyses, the design had experimental aspects. In conclusion, this research had a fixed design, using both experimental and non-experimental strategies.

The procedure of gathering data went as following. Participants were randomly assigned to one of the conditions by the researcher. All students received a questionnaire during the first lecture of the course. The intention was for the students to complete that questionnaire during the lecture, but because of an inconvenience in communication, students filled in the questionnaire during their seminar that day or two days later. Questionnaires were handed out before students left the lecture room and students were asked to return the completed questionnaire during their next seminar. Instructions for completing the questionnaire were written on the first page, just as the e-mail address of the researcher for possible questions. Students could take as long as they wanted to complete all questions, but the average time spent was ten minutes. Firstly, students completed some questions about their self-efficacy. Secondly, they read the feedback and looked at it carefully. Thirdly, they scored their views on the items about the perception of that feedback and finally, participants completed some items about their intrinsic motivation after receiving the feedback. Finally, the researcher collected together with the lecturer the questionnaires during several seminars.

### *Analyses*

The analyses consisted of correlation measurements, T-tests and ANOVA's. According to the first hypothesis of this research, it was expected to find a positive relation

between the type of feedback and the perception measures of developmental aspects, encouragement and fairness of feedback. This was measured with two independent samples t-tests, because only two factors were included after factor analysis. The independent variable was feedback condition and the dependent variables were improvement oriented and encouraging feedback.

The second hypothesis was that there is a relation between self-efficacy and feedback perception. This hypothesis was tested with the measurement of the interaction effect between self-efficacy and feedback condition. Also a Pearson correlation measurement was conducted to examine the possible correlations between self-efficacy and improvement oriented and encouraging feedback.

The third hypothesis was that self-efficacy and intrinsic motivation are positively related to each other. To find out whether this relationship occurred, a second Pearson correlation measurement was conducted. According to the hypothesis, it was expected that a positive, linear correlation would be found between the two variables.

The last hypothesis stated that positive feedback has a more positive influence on intrinsic motivation than negative feedback. In order to find out if the two kinds of feedback had an effect on intrinsic motivation of students, an independent t-test was conducted. In addition, independent samples t-tests were conducted with improvement oriented and encouraging as independent variables and intrinsic motivation as dependent variable.

## Results

### *Descriptive statistics*

After factor and reliability analyses, four constructs were included in the analyses: self-efficacy, improvement oriented feedback, encouraging feedback and intrinsic motivation. The minimum and maximum scores, the means, and standard deviations are shown in Table

2. The table shows that the positive feedback condition scored particularly different from the negative feedback condition on the improvement oriented and encouraging factors. Table 3 shows the correlations between the factors and the amount of writing assignments in the previous year and the grade for the assignments.

Table 2

*Most important constructs with means, standard deviations, minimum and maximum scores*

	Condition											
	Positive feedback				Negative feedback				Overall			
	M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.
S-eff	3.75	0.42	2.42	4.33	3.79	0.41	3.08	4.67	3.78	0.41	2.42	4.67
Impr	2.12	0.98	1.00	4.20	3.47	0.58	2.00	4.70	2.90	1.02	1.00	4.70
Enco	4.05	0.49	3.25	5.00	2.29	0.59	1.00	3.67	3.03	1.04	1.00	5.00
Intri	3.87	0.48	2.83	4.83	3.62	0.56	2.00	4.50	3.73	0.53	2.00	4.83

*Note:* S-eff: self-efficacy, Impr: improvement oriented, Enco: Encouraging, Intri: Intrinsic motivation.

Table 3

*Correlations between self-efficacy, perception, writing assignments and grade, per condition*

	Impr		Enco		Intri		Writ assign		Grade	
	1	2	1	2	1	2	1	2	1	2
	S-eff	-.08	.42*	-.00	-.27	.12	.06	-.25	-.07	.60**
Impr			-.39	.12	-.05	.06	-.25	-.35	-.47*	.31
Enco					-.27	-.29	.05	-.20	.30	-.40*
Intri							-.34	-.08	-.27	.21
Writ assign									.05	-.06

*Note:* S-eff: self-efficacy, impr: improvement oriented, enco: encouraging, intri: intrinsic motivation, writ assign: the amount of writing assignments during the previous year.

\* =  $p < .05$ , \*\* =  $p < .001$

As shown in the Table 2 above, the negative condition scored higher than the positive condition on the improvement oriented factor. However, the positive condition scored higher

on the encouraging factor. A Pearson correlation measurement showed a significant negative relation between the factors improvement oriented and encouraging ( $r = -.61, p < .05$ ). This means that a participant who scored feedback as very much improvement oriented, was likely to have scored that feedback as not encouraging at all. The other way around it is the same, a participant who scored feedback as very encouraging, is likely to have scored that same feedback as not improvement oriented at all.

Another interesting finding was that, as shown in Table 3 above, a correlation between self-efficacy and the grade received for writing assignments in the previous year was found ( $r = .48, p < .05$ ). From the scatter plot a linear relation between the two variables appeared. This correlation was positive, which suggests that high self-efficacy is related to high received grades. After regression analysis was found that the grade for writing assignments in the previous year can predict the level of self-efficacy ( $\beta = .48, p < .05$ ).

### ***Manipulation of the feedback***

The manipulation of the kind of feedback was successful. Students in the positive feedback group ( $M = 4.21, SD = 0.63$ ) scored the feedback as significantly more positive than the students in the negative feedback group ( $M = 2.68, SD = 0.99$ ),  $t(40.94) = 6.25, p < .05$ . Students in the negative feedback group ( $M = 3.48, SD = 0.96$ ) marked the feedback as significantly more negative than students in the positive feedback group ( $M = 0.63, SD = 1.01$ ),  $t(42) = 6.17, p < .05$ .

### ***Difference in perception of positive and negative feedback***

The first hypothesis stated that positive feedback is perceived as more developmental, encouraging and fair than negative feedback. Two analyses of variance were conducted to examine this hypothesis. The first test showed that the positive feedback group ( $M = 4.05, SD = 0.49$ ) perceived feedback as significantly more encouraging than the negative feedback

group ( $M = 2.28$ ,  $SD = 0.59$ ) did,  $F(1, 43) = 114.23$ ,  $p < .05$ . However, the negative feedback group ( $M = 3.47$ ,  $SD = 0.58$ ) perceived feedback as more improvement oriented than the positive feedback group ( $M = 2.12$ ,  $SD = 0.98$ ) did,  $F(1, 43) = 33.27$ ,  $p < .05$ .

### ***Relation between self-efficacy and perception of feedback***

To test the second hypothesis, Pearson correlation coefficients were calculated. The hypothesis stated that someone with high self-efficacy perceives positive feedback as more developmental, encouraging and fair, while someone with low self-efficacy perceives negative feedback as most developmental and fair but positive feedback as most encouraging. Those correlations showed no significant relations between the three concepts. The correlation between self-efficacy and encouragement of feedback was  $r = -.13$ ,  $p = .40$ . The correlation between self-efficacy and improvement orientation of feedback was  $r = .14$ ,  $p = .38$ . Separate correlations for the two conditions were conducted, and only showed a significant correlation between self-efficacy and the improvement oriented scale in the negative feedback condition,  $r = .42$ ,  $p < .05$ . The correlation between self-efficacy and encouraging scale in the negative condition was non-significant,  $r = -.27$ ,  $p = .19$ . In the positive feedback condition, non-significant results were found for the relation between self-efficacy and the improvement oriented scale,  $r = -.08$ ,  $p = .75$ , and for the relation between self-efficacy and the encouraging scale,  $r = -.00$ ,  $p = 1.00$ .

In addition to correlation measurements, also the interaction effect between self-efficacy and the feedback condition was examined. This was done using a homogeneity of regression slopes test. The interaction between condition (positive or negative) and self-efficacy was non-significant ( $p = .18$ ). This means that self-efficacy did not interact with condition. Therefore, no relation between self-efficacy and feedback perception of participants in different conditions was found.

### ***Relation between intrinsic motivation and self-efficacy***

The third hypothesis stated that self-efficacy and intrinsic motivation correlate positively; when someone has high self-efficacy beliefs, intrinsic motivation is also high. This hypothesis was tested with a Pearson correlation measurement. No significant correlation between the two concepts was found, ( $r = .07$ ,  $p = .65$ ). In fact, these results show that the two concepts were almost not correlated.

### ***Effect feedback condition on intrinsic motivation***

The last hypothesis stated that participants who receive positive feedback have higher intrinsic motivation than participants who receive negative feedback. The relation between feedback condition on intrinsic motivation was analyzed with an ANOVA. Participants who received positive feedback had a higher intrinsic motivation ( $M = 3.87$ ,  $SD = 0.48$ ) than participants who received negative feedback ( $M = 3.62$ ,  $SD = 0.56$ ). The effect was not significant,  $F(1, 44) = 2.44$ ,  $p = .13$ . This means that the present study found no difference in the effect of feedback condition (positive or negative) on intrinsic motivation. On the basis of a linearity test, which consisted of a scatter diagram, a linear relationship between intrinsic motivation and self-efficacy was found. This relationship was, however, this weak that conducting an ANCOVA was not necessary.

As showed, the perception of feedback did not have a relation with the intrinsic motivation. In this section, the possible relation between improvement oriented and encouraging and intrinsic motivation is examined. For the factor improvement oriented, a division between low and high scores was made based on the median of the frequency distribution. This median was 3.30 and in an independent samples t-test, 3.30 was taken as the separation point. Only a small difference in score between the improvement oriented group that scored under 3.30 ( $M = 3.66$ ,  $SD = 0.62$ ) and the group that scored over 3.30 ( $M = 3.75$ ,  $SD = 0.40$ ) was found. The t-test showed a non-significant effect of perception of the

improvement oriented aspect on intrinsic motivation,  $t(43) = 0.56$ ,  $p = .58$ . This means that participants who scored feedback as very much improvement oriented, did not score differently on intrinsic motivation than participants who scored feedback as not improvement oriented. This same result was found for the effect of the encouragement score on intrinsic motivation. The median of the frequency distribution of the factor encouragement was 3.00. The group that scored under 3.00 on encouraging, scored only a little bit lower on intrinsic motivation ( $M = 3.69$ ,  $SD = 0.43$ ) than the group that scored over 3.00 ( $M = 3.72$ ,  $SD = 0.59$ ). The t-test found no significant results,  $t(43) = 0.17$ ,  $p = .86$ . This means that the intrinsic motivation did not differ significantly between a participant who scored low on encouragement and someone who scored high on this factor.

## Discussion

### *Conclusion*

The present study examined two questions about self-efficacy, feedback perception and intrinsic motivation. The first question was: Does a relation exist between students' self-efficacy before a feedback intervention and their perception of that feedback? After analyses, only a significant correlation between self-efficacy and the improvement oriented feedback scale in the negative feedback condition was found. This was such a small result that no significant interaction effect was found. Therefore, it seems that there is no relation between self-efficacy and feedback perception for the participants in this study. The second research question was: Does positive feedback, compared to negative feedback, contribute more to students' intrinsic motivation? Analyses showed no significant effect of feedback type or feedback perception. This means that the feedback interventions did not contribute to the level of intrinsic motivation. From the present study has to be concluded that there is no relation between any of the concepts self-efficacy, feedback perception or intrinsic motivation.

Feedback perception was originally operationalised into three factors: the developmental, encouraging and fairness factors. After factor analysis, only two somewhat modified factors were included in analyses. These were named 'improvement oriented' and 'encouraging'. This implicates that the analyses in the present study did not follow Lizzio and Wilson's (2008) three factors. On the other hand, an advantage of the two factor solution was that the structure of the data was followed.

Analyses of the four hypotheses were conducted. A first analysis showed that the group of participants who received negative feedback thought that feedback was significantly more improvement oriented than the group who received positive feedback. This is in contradiction with the first hypothesis, which has stated that the positive feedback group would receive feedback as more developmental, encouraging and fair than participants in the negative feedback condition. Students in the negative feedback condition did think the feedback they received was less encouraging than the students who were in the positive feedback group. The quantity of praise and positive comments may have had an effect on the degree to which the feedback was encouraging. Positive feedback contained more praise than negative feedback and might therefore have been more encouraging. However, the negative feedback group scored feedback as more improvement oriented than the positive feedback group. Kluger and DeNisi (1996) said about this that feedback interventions increase someone's performance unless the feedback is too negative. Following from this, it might mean that the negative feedback presented in the present study was not too negative. According to Ilgen and Davis (2000), feedback receivers either can or can not improve their performance after received negative feedback. This depends on the way in which someone frames the received feedback. An explanation for the result of the analysis may be that positive feedback contained only positive aspects, and no points where improvement was needed. Negative feedback, on the other hand, only emphasised points where improvement

was needed. Therefore, it is logical that this type of feedback was scored as more improvement oriented.

The second hypothesis stated that participants with high self-efficacy would perceive positive feedback as most developmental, encouraging and fair while students with low self-efficacy would perceive negative feedback as most developmental and fair, but positive feedback as most encouraging. Results showed that all participants had pretty high self-efficacy beliefs ( $M = 3.78$  on a 5-point scale). Only in the negative feedback condition, a correlation between self-efficacy and improvement oriented feedback was found. This means that in the negative feedback condition, participants with high self-efficacy beliefs, also scored high on the improvement oriented factor. No correlation was found between self-efficacy and the improvement oriented and encouraging scale when taking both conditions together. Due to the small range in scores on self-efficacy beliefs of participants it was difficult to distinct between low and high self-efficacy and with that, a distinction between the perception of feedback between those groups.

According to the third hypothesis, a correlation between self-efficacy and intrinsic motivation was expected. This relation was not found after analysis. This finding contradicts research by Bandura (1997) and Deci and Ryan (1980) and implies that those two aspects of motivation are separate from each other, which is a striking finding. It might be that this result was influenced by the fact that participants answered questions about something that had to happen in the future; the writing of an advisory paper. The feedback they read was hypothetical and not given on their own work. This might have made it difficult to answer questions about their intrinsic motivation after receiving the presented feedback.

The last hypothesis, stating that the type of feedback is related to intrinsic motivation, was not confirmed. Van-Dijk and Kluger (2004) found that for people who are in promotion focus motivation increases the most after positive feedback, while for people in the prevention

focus, negative feedback seems to increase their motivation. Self-efficacy of participants in the present study was quite high, which might indicate that they all try to achieve rewards, since they felt competent. Participants also could have been in promotion focus because they had not started the assignment yet and all wanted to achieve a good result. This might be an explanation why no effect of feedback on motivation was found.

Furthermore, the present study found a negative correlation between the encouraging and improvement oriented factor of feedback. This means that if feedback is perceived as improvement oriented, it is not perceived as encouraging. This is a dilemma, because feedback should contain both these elements. Some improvement oriented information is needed (Ilgen & Davis, 2000), but praise is also part of effective feedback (Straub, 1997). These two things should both be present in feedback and this might indicate that feedback should not be completely positive or negative, but that feedback should contain both positive and negative elements.

### *Limitations*

The first evident limitation of the present study is the small sample. Due to miscommunication and time restrictions, it was not possible to generate a larger sample. Finally, 46 participants were included in the sample, which was intended to be almost the double number. This may have caused the difficulties in finding support for the hypotheses or finding any significant results. The small sample affected the external validity of the study, when trying to generalize for a larger group of students.

A further limitation is that predefined constructs did not appear after factor analysis. This suggests that the constructs that were used were not completely appropriate. The items in the questionnaire were derived from Lizzio and Wilson (2008), but changed in the way as described in the method section. This might have caused problems in finding the defined factors, which happened for the encouragement and fairness factors. Another reason why the

predefined factors were not found in the present study might have been that in Lizzio and Wilson's research, the developmental factor explained 31.6 per cent of the variance, but the encouraging factor (7.9 %) and the fairness factor (6.8 %) explained remarkably less of the variance. For future research, it would be helpful to conduct a pilot study and factor analysis before data are gathered to make sure that factors are adequate.

The manipulation of the feedback was successful, but could have been done better. Some positive and negative feedback was given on an already written text. It happened in this way based on the time schedule. An ideal in measuring feedback perception would be to give feedback on the written work of students themselves. In that case, it would be necessary to have two (or more) measurements. The first moment before feedback is given and when self-efficacy and intrinsic motivation are tested, and the second moment when self-efficacy, feedback perception and intrinsic motivation are measured after feedback is given. An advantage of the use of hypothetical feedback in the present study was that every student received the same feedback. This contributed to the reliability of the measurement. Future research could examine feedback perception of genuine feedback using a pre- and post-test.

### ***Implications for further research***

The study did not find effects of, or relations between, self-efficacy, feedback perception and intrinsic motivation. This could mean that there is no relation between those three concepts. Previous research, however, already showed a relation between self-efficacy and intrinsic motivation (Bandura, 1997). According to the present study, this statement might be questioned. This might be dependent on the group of participants in a study, or the lack of results might depend on the small sample size. Despite these factors, it is interesting to investigate the relation between those two concepts in detail in future research. This research might be qualitative research in which participants are interviewed to endorse a more detailed view on the relations.

The present study showed a difference in perception of different aspects of feedback. The improvement oriented aspect was perceived differently from the encouraging aspect. This is an interesting finding because it may be an indicator that there are more aspects to feedback than just the distinction between negative and positive types. It is acknowledged that feedback should contain positive elements (Straub, 1997) and some improvement oriented aspects in order to raise performance (Ilgen & Davis, 2000). More aspects may be discovered which are important in giving qualitative feedback that is perceived as most effective. Therefore, it would be interesting to investigate which aspects, apart from the encouragement and improvement aspects feedback contains, are perceived as effective by students.

The other way around than in the present study, it would be interesting to examine whether the perception of feedback is a predictor of self-efficacy and intrinsic motivation. Research already showed the ability to predict self-efficacy beliefs after a feedback intervention including improvement strategies (Duijnhouwer, Prins, & Stokking, 2010b). It is an interesting question whether this also holds for different feedback interventions. Feedback perception is an important part in the feedback process because not everyone, giver or receiver, perceives feedback as the same (Carless, 2006). Because this perception is not the same for everyone, it may also have an effect on self-efficacy and intrinsic motivation. Future research can find out what this precise relation between the three concepts is.

As Lipnevich and Smith (2009) state, in educational setting it is a luxury to know techniques that always work out in the best way. This is also true for feedback, but by conducting research into the relation between self-efficacy, feedback perception and intrinsic motivation is, much more becomes clear about the most effective aspects of feedback. This information can be used in educational setting. The present study did not find relations between the three concepts, but the answer to the question which feedback is perceived best, and what that has to do with self-efficacy and intrinsic motivation, is an still interesting one.

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