

## The relation between feedback perceptions and the supervisor–student relationship in master’s thesis projects

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Research supervision can be investigated from social–emotional and cognitive perspectives, but most studies include only one perspective. This study aims to understand the interplay between a social–emotional (supervisor–student relationship) and cognitive (feedback) perspective on the outcomes of master’s thesis supervision in specific, by investigating student perceptions of both perspectives. Questionnaire data ( $N=1016$ ) were collected and analysed using regression analyses. For student satisfaction (SS) and students’ perceived supervisor contribution to learning (PSCL), affiliation by far is most important, followed by control for SS and feedback-forward for PSCL. Also, interaction effects between feedback and interpersonal perceptions were found, indicating that the role of feedback perceptions is most important in situations in which no optimal supervisor–student relationship could be established. Findings imply the importance for master’s thesis supervisors of creating friendly and helping relationships with students and if this is problematic, extra care should be taken with giving feedback.

**Keywords:** student perceptions; feedback; supervisor–student relationship; master thesis; supervision

### Introduction

In most academic higher education institutions in Europe, a master’s thesis is the final element of a master’s degree programme (Meeus, van Looy, and Libotton 2004). A master’s thesis can be characterised as a complex research task in which a good supervision process is indispensable (e.g. Heath 2002; McCormack 2005; Seagram, Gould, and Pike 1998). Mostly, this supervision entails supervision meetings between supervisor and student and sometimes this is complemented with written feedback via email. In order to understand the effects of the supervision process, this can be investigated from several perspectives; for instance, from social–emotional perspectives such as giving thanks (e.g. Unsworth et al. 2010), and the supervisor–student relationship (de Kleijn et al. 2012; Nelson and Friedlander 2001), or from cognitive perspectives, such as the discourse between a supervisor and a student (Vehviläinen 2009), and the feedback that is provided by a supervisor (de Kleijn et al. 2013; Pyhältö, Stubb, and Lonka 2009). Most studies aiming to understand the process of research supervision, view supervision from one of such perspectives. However, arguably, in order to gain more understanding in the complexities of the supervision process, more than one perspective may need to be

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included. Therefore, in order to understand the outcomes of the supervision process in the context of master's theses in specific, in the present study both a social–emotional perspective and a cognitive perspective are included: the supervisor–student relationship and student perceptions of feedback. More specifically, whether it is possible for the relation between feedback perceptions and the quality of the supervision process to vary depending on the supervisor–student relationship as perceived by the student is explored. For instance, consider the following feedback message: ‘You might need to rewrite your introduction section so that it better fits your research question’. This feedback might be interpreted differently when it is said by a supervisor that is perceived as highly insecure compared to a supervisor that is perceived as demanding and steering. To the best of our knowledge, so far no studies have addressed this interplay between student perceptions of feedback and of the supervisor–student relationship. By both investigating feedback perceptions and perceptions of the supervisor–student relationship, this study therefore aims to provide more comprehensive understanding of the quality of the supervision process, compared to studies that only included one of such perspectives.

### **Theoretical framework**

#### ***Outcomes of the supervision process***

In previous studies concerning the outcomes of research projects and research supervision, a wide variety of outcome measures are used, including both objective measures, such as time to complete (Seagram, Gould, and Pyke 1998), number of publications (Martinsuo and Turkulainen 2011) and final grade (de Kleijn et al. 2012), but also more subjective measures, such as student satisfaction (SS) (Kam 1997; de Kleijn et al. 2012; de Kleijn et al. 2013; Armstrong 2004), perceived research skill development (Drennan and Clarke 2009), perceived supervisor contribution to learning (PSCL) (de Kleijn et al. 2012, 2013) and student well-being (Nelson and Friedlander 2001; Pyhältö, Stubb, and Lonka 2009). But, if we want to measure the outcome of research supervision which measure would be most suitable?

de Kleijn et al. (2012) argued that the use of final grades might be problematic as the goals of thesis projects are often twofold, namely learning and assessing. They argue that it remains implicit whether a grade represents growth (learning) or the objective quality of a thesis (assessing). In this regard, Hamilton, Johnson and Poudrier (2010) also argue that appraising theses and dissertations in order to establish educational quality would be problematic for two reasons: students' pre-existing attributes, such as verbal ability, can be mistaken for educational effectiveness and there is no accounting for the effect of the richness and dynamism of the faculty–student interaction during research projects. In other words, they argue that the quality of a thesis does not only represent educational quality, but also students' pre-existing attributes and the quality of the faculty–student interaction. Therefore, such quasi objective measures might be invalid in measuring the outcomes of students' research projects.

In line with that, Kam (1997) argued that the effectiveness of research supervision could be best judged by those involved, namely the students, as they are in the best position to judge the supervision project. Also, Price et al. (2010), in discussing the effectiveness of feedback, argued that students are most capable of determining the effectiveness of feedback. Still, they do acknowledge that students might not always recognise the benefits of feedback. Based on these considerations, in the present study we decided to include two outcome measures from a student perspective that describe the

quality of the supervision process: students' general satisfaction with the supervision and student perceptions of the extent to which the supervision has contributed to their learning to approximate the actual contribution of a supervisor in spite of the pre-existing attributes of students.

### ***Cognitive perspective: feedback perceptions***

According to students, one of the most important tasks of a research supervisor is to provide constructive feedback (Todd, Bannister, and Clegg 2004). Also, Pyhältö, Stubb, and Lonka (2009) found that students, who reported less stress, exhaustion and anxiety as a result of their thesis projects, were more satisfied with the supervisor feedback.

The concept of feedback can be viewed from the viewpoint of the sender, the receiver (or seeker) and/or an observer. We took the seeker/receiver's viewpoint, leading to the following conceptualisation of feedback: information from a supervisor to a student that the student perceives to be about his/her performance and/or understanding. This study thus concerns student perceptions of feedback.

Building on the review findings of Hattie and Timperley (2007) and Shute (2008), a previous study showed that student perceptions of feedback in terms of feedback focus, elaboration and goal-relatedness can be described in terms of six aspects. First, feedback focus could be described as perceived *focus on the task*, i.e. the writing of a thesis, and perceived *focus on the student's self-regulation*, i.e. the motivation, planning and attitude of a student. Second, feedback elaboration could be described in terms of perceived *positive elaboration*, indicating the extent to which the feedback addresses and explains those aspects in which a student has already done well and perceived *negative elaboration*, indicating the extent to which the feedback addresses and specifies elements of the student's performance that are not yet good enough. Third, feedback goal-relatedness could be described as *feed up*, i.e. for instance, the extent to which the feedback provides information about what a good thesis looks like, and *feedback-forward* which provides information about where the student stands and which next steps a student should or can take (de Kleijn et al. 2013). In the present study, these six aspects are used to describe student perceptions of feedback.

### ***Social-emotional perspective: supervisor-student relationship***

Given the highly personalised nature of the one-on-one interaction and long duration of a master's thesis project, the supervisor-student relationship is an inevitable part of research supervision. Nelson and Friedlander (2001) investigated student problems in conflictual supervisory relationships. These students reported, among other things, being overworked, experiencing extreme stress and self-doubt as well as developing health problems. Also, Halse and Malfroy (2010) found that supervisors consider a personable relationship with their students important, indicating that supervisors themselves highly value the supervisor-student relationship.

Often, interpersonal relationships are investigated, employing perceptions of those being part of the relationship (e.g. Wubbels and Brekelmans 2005). In the present study, based on the model for interpersonal teacher behaviour (Wubbels, Créton, and Hooyman 1985), interpersonal perceptions are conceptualised in terms of two dimensions that describe the amount of *control* and *affiliation* a supervisor conveys, according to the student (e.g. Kiesler and Auerbach 2003; Tiedens and Fragale 2003).

Interpersonal theory claims that these two dimensions underlie all social behaviour (e.g. Fiske, Cuddy, and Glick 2007; Judd et al. 2005). The control dimension describes the extent to which a particular supervisor influences student activities; the affiliation dimension describes the emotional distance or interpersonal proximity between a supervisor and a student. Interpersonal circumplex models combine these two dimensions in one framework (e.g. Kiesler and Auerbach 2003; Leary 1957), indicating that all possible behaviours are a combination of both dimensions. For example, uncertain behaviour can be characterised as moderately low on affiliation and low on control. In the present study, student perceptions of interpersonal control and affiliation are used to describe the supervisor–student relationship.

### ***Feedback perceptions and the supervisor–student relationship***

Even though studies concerning both feedback and the provider–receiver relationship are scarce, we did find studies providing some suggestions for the relation between both. Back in 1979, the review findings of Ilgen, Fisher and Taylor suggested that feedback perceptions are influenced by three characteristics of the feedback provider as perceived by the receiver: psychological closeness, credibility and possibly power. Ilgen, Fisher and Taylor suggested that the accuracy with which a receiver interprets feedback would be higher when the receiver perceives the feedback provider as psychologically close, credible and standing higher in hierarchy. In this regard, Lee and Schallert (2008), based on two case studies concerning written feedback in learning English as a foreign language, found that establishing a trusting relationship between teacher and student may be fundamental to the effective use of feedback in revision. They favour a reform of the cognitive process models of revision by including the role of the relationship between teacher and student.

### ***Research question***

Based on the presented problem definition and theoretical framework, this study addresses the following research question: how are student perceptions of feedback and of the supervisor–student relationship related to SS and PSCL, in the context of master’s thesis supervision?

Based on the findings of Ilgen, Fisher, and Taylor (1979) and Lee and Schallert (2008), this study explores whether perceptions of the supervisor–student relationship might affect the relationship between feedback perceptions and SS and PSCL.

### **Research method and design**

#### ***Participants***

Between November 2009 and June 2011 all master’s students from three departments of a large Dutch university were invited to complete our online questionnaires. In total, 1016 students completed the questionnaires, an estimated response rate of 30%. Students were between 20 and 65 years old ( $M = 24.89$ ,  $SD = 5.03$ ). At the time of completing the questionnaire, 158 students had recently finished their theses and 857 students were still working on them. On average, they had been working on their theses for 29 and 21 weeks, respectively, and had had, on average, eight and five supervision meetings.

### **Instrumentation**

#### *Feedback perceptions*

In order to measure students' feedback perceptions, the questionnaire on student feedback perceptions (QSFP; de Kleijn et al. 2013) was used and comprised items that were based on the theoretical framework concerning feedback focus, elaboration and goal-relatedness. Items of the QSFP are formulated as statements that have to be rated on a 5-point Likert-type scale ranging from 1 = '(almost) never' to 5 = '(almost) always'. Example items are: 'the feedback of my supervisor concerns what next steps to take' and 'the feedback of my supervisor concerns why something was good'. Based on earlier findings of exploratory factor analysis of this sample, six factors were defined (de Kleijn et al. 2013). Scores for these six factors were computed by using all items and their concurrent factor loadings on a specific factor using the Bartlett method (de Kleijn et al. 2013; DiStefano, Zhu, and Mindrilă 2009). The scales were labelled feed up, positive elaboration, negative elaboration, feedback on self-regulation, feedback-forward and feedback on task. Correlations between the six factors ranged from 0.19 to 0.62.

#### *Perceptions of the supervisor–student relationship*

Student perceptions of the supervisor–student relationship, in terms of interpersonal control and affiliation, were tapped using the shortened Dutch version ( $N = 32$ ) of the Questionnaire on Supervisor Interaction (QSI), based on the Questionnaire on Supervisor Doctoral Student Interaction (Mainhard et al. 2009; de Kleijn et al. 2012). Items of the QSI are formulated as statements that have to be rated on a 5-point Likert-type scale ranging from 1 = '(almost) never' to 5 = '(almost) always'. Example items are: 'my supervisor trusts me' and 'my supervisor wants me to do things his/her way'. Because the QSI is based on a circumplex structure, each of the two example items refers to both interpersonal dimensions (the former is more strongly weighted for the affiliation, the latter for the control dimension).

To investigate the validity of the QSI, a confirmatory factor analysis was conducted. The results of this analysis confirmed that a model, with two independent dimensions (i.e. control and affiliation) and circular ordering of the items within eight subscales, fitted the data reasonably well ( $\chi^2(28, N = 1016) = 4003.214, p < 001$ ; Tucker-Lewis index (TLI) = 0.95; comparative fit index (CFI) = 0.98; root square error of approximation (RMSEA) = 0.08). The Cronbach's alpha for control was 0.80 and for affiliation 0.90, and dimension scores could range from  $-2.60$  to  $2.60$ .

#### *Quality of the supervision process*

To measure SS, the students were asked to indicate their level of satisfaction on two items on a 7-point scale; satisfaction with their supervisor and satisfaction with the supervisor's feedback ( $r = 0.81$ ). With respect to PSCL five items were used; students indicated on a 5-point scale how much they had learned from the supervisor's feedback, and, using four items, indicated the extent to which the supervision meetings had contributed to their understanding of the task ( $\alpha = 0.89$ ).

### **Procedure**

With the permission of the Deans of the Social and Behavioural Sciences, Geosciences and Humanities departments, all of the students enrolled in a one-year master's

programme in one of these departments received an email in November 2008, June 2009, June 2010 or June 2011 with a link to the online questionnaires. The students who had started or recently finished their master's thesis projects were invited to participate in this study on a voluntary and anonymous basis.

### *Analysis*

In order to answer the research question, several types of analyses were conducted. In order to explore the relation between feedback and interpersonal perceptions on the one hand and SS and PSCL on the other, both direct and interaction effects were tested for significance in several regression models. First, using centred variables we computed all possible interaction terms between the feedback and interpersonal perceptions ( $N = 12$ ). Second, all direct effects were regressed on SS and PSCL. Third, in separate models, the interaction effects with Control and Affiliation were added to the significant direct effects. Fourth, in a final model all significant direct and interaction effects were included. Fifth, as interaction effects generally are not significant for the total range of the moderator, using the Johnson-Neyman technique, as described by Hayes and Matthes (2009), the regions of significance of the interaction effects were established. Last, in order to interpret significant interaction effects, these were graphically interpreted with interpersonal Affiliation and Control being the moderators for the relation between feedback perceptions and SS and PSCL: the scores on Affiliation and Control were divided in two or three groups representing the regions of significance and non-significance. For each of these groups, the regression line for the relation between the feedback perception scale and SS or PSCL was plotted and interpreted.

### **Results**

The final models of the regression analyses are presented in [Table 1](#). For both SS and PSCL, the direct effects of Negative elaboration and Focus on self-regulation were not significant, whereas all other direct effects were. Also, in both models, the strongest predictor by far was Affiliation, with Control being the second best predictor for SS and feedback-forward being the second best predictor for PSCL.

In addition, for SS four significant interaction terms were found. For the interaction effect between Feed up and Affiliation the Johnson-Neyman significance region was  $-0.15$  and below. It was thus found that, in combination with Affiliation scores smaller than  $-0.15$ , the effect of Feed up on SS was stronger than the main effect of Feed up. In other words, for students who perceive low supervisor Affiliation, Feed up leads to a higher increase in SS than for students who perceive high supervisor Affiliation (see [Figure 1d](#)). For the interaction between Affiliation and Feedback-forward it was found that the positive relation between Feedback-forward and SS was stronger for students who perceive low supervisor Affiliation ( $<0.48$ ) than the main effect of Feedback-forward (see [Figure 1c](#)). For the interaction between Control and Feed up it was found that the relation between Feed up and SS was stronger when students perceived low levels of Control ( $<0.12$ ; see [Figure 1b](#)). And lastly, for the interaction between Control and Negative elaboration, it was found that the relation between Negative elaboration and SS was significant for students who perceived low interpersonal Control ( $<-0.05$ ) and also significant but less strong for students who perceived high interpersonal Control ( $>0.40$ ; see [Figure 1a](#)). For PSCL only the interaction between Affiliation and Negative

Table 1. Standardised regression coefficient for direct and interaction effects of feedback and interpersonal perceptions on student satisfaction.

Variable	M1: Final model for SS	M2: Final model for PSCL
Supervisor–student relationship		
Affiliation	.604**	.489**
Control	.206**	.154**
Feedback		
Feed up	.065**	.132**
Feedback–forward	.127**	.173**
Positive elaboration	.065**	.118**
Negative elaboration	–	–
Focus on task	.070**	.091**
Focus on self-regulation	–	–
Interaction effects		
Affiliation * Feed up	–.052*	–
Affiliation * Feedback–forward	–.047*	–
Affiliation * Negative elaboration	–	–.037*
Control * Feed up	.038*	–
Control * Negative elaboration	–.044*	–
$R^2$	.778	.690
$F$	336.755	305.362

Note.  $N = 1016$ .

\* $p < .05$ . \*\* $p < .01$ .

elaboration was found to be significant. It was found that for students with low perceived Affiliation ( $< -0.21$ ) the relation between Negative elaboration and PSCL was significantly positive (see Figure 1e).

### Conclusion and discussion

Previous research mainly investigated research supervision from either a social–emotional or a cognitive perspective. In the specific context of master’s thesis supervision, the present study aimed to combine both by including a feedback and a supervisor–student relationship perspective in order to understand the two process quality measures SS and PSCL. Our research question therefore was: *how are student perceptions of feedback and of the supervisor–student relationship related to student satisfaction and perceived supervisor contribution to learning, in the context of master’s thesis supervision?* Based on the findings of Ilgen et al. (1979) and Lee and Schallert (2008) it was expected that perceptions of the supervisor–student relationship might affect the relationship between feedback perceptions and SS and PSCL.

First, concerning the relative importance of feedback and interpersonal perceptions with respect to SS and PSCL, we found that affiliation by far is the most important aspect for students. We interpreted this as students attaching great value to feeling supported by their supervisors. In the context of doctoral education, Martinsuo and Turkulainen (2011) found that, with respect to progress in research (measured by the number of publications), supervisor support interacted with personal time commitment; indicating that a student would need personal time commitment *and* supervisor support to advance in research, confirming the importance of supervisor support. We thus see that supervisor support or

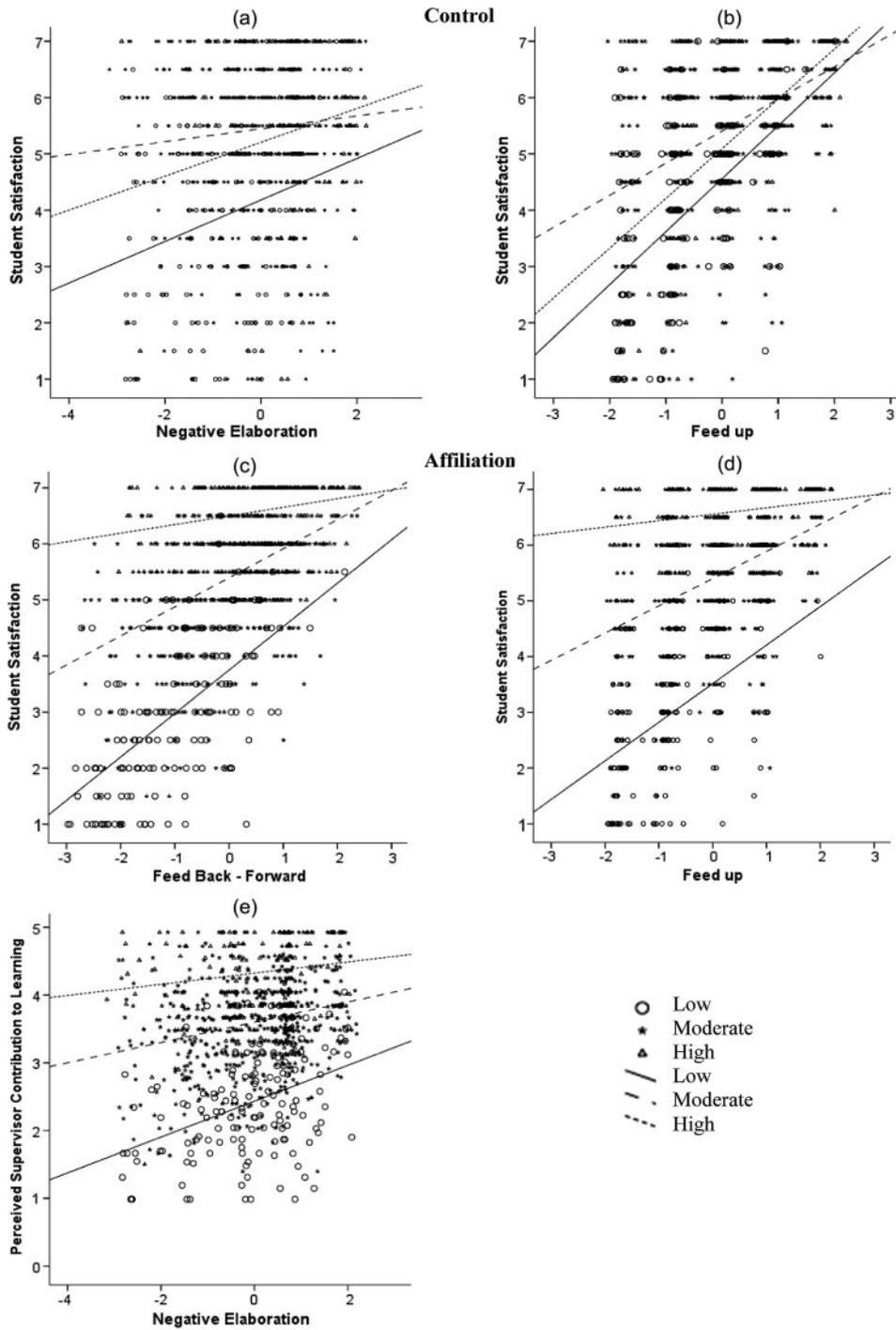


Figure 1. Graphical representation of interaction effects between feedback perception and perceptions of the supervisor–student relationship in relation to Student Satisfaction (a–d) and Perceived Supervisor Contribution to Learning (e).

affiliation is important for both the objective and subjective outcome measures of research projects. Relating our findings to results in secondary education, it is interesting that in secondary education it was found that interpersonal control was more important for cognitive outcomes (e.g. achievement), and affiliation was more important for affective outcomes (e.g. subject-specific motivation; Wubbels and Brekelmans 2005). SS might be considered an affective outcome, but supervisor contribution to learning might be considered as a self-reported cognitive outcome. Therefore, it might appear to be surprising that, in this study, affiliation is so much more important than control. A possible explanation would be that a classroom situation would ask for more interpersonal control than a dyadic situation, as, in a classroom situation, possibly more than 20 learning processes need to be fostered compared to only one learning process in a dyadic situation. Another explanation could be that students in secondary education need more interpersonal control from their teachers than do higher education students, as the latter have developed into more self-regulated learners. However, this hypothesis should be tested in future research by, for instance, asking students about their ideal relationship with a teacher/supervisor.

Second, we found several interaction effects between feedback and interpersonal perceptions for SS and one for PSCL. Interestingly, all of them indicated that, for students who perceive a less optimal supervisor–student relationship (i.e. low affiliation and/or low control), the effect of feed up, back and forward and negatively elaborated feedback is stronger than for students who perceive a more optimal supervisor–student relationship. In other words, in less optimal supervisor–student relationships it matters even more how students perceive the feedback in order to establish SS and students feeling that their supervisor contributes to their learning process. Ilgen et al. (1979) argued that feedback from a source that feels more psychologically close, is credible and has more power, is perceived more accurately. And even though our findings cannot be related to the credibility and power of the feedback provider, assuming that feedback that is perceived as intended leads to more satisfaction and learning, our findings do not confirm their hypothesis for closeness. After all, we found that students with low affiliated supervisors (i.e. emotionally distant) benefit even more from feed up, back, forward and negative elaboration than students with supervisors that are emotionally more close. However, we did not take into account the extent to which students perceive the feedback as was intended, so future research is needed to understand the interplay between accuracy of feedback perceptions, the student–teacher relationship and the effect of feedback. Lee and Schallert (2008) found in the context of an English as a foreign language (EFL) course, that written feedback was more effective in a more trusting student–teacher relationship. Taking perceived supervisor contribution as a measure of the effectiveness of feedback, again our findings could not confirm that feedback perceptions in a more affiliated or friendly and helping relationship are more powerful. So, contrary to expectations, we found that in less optimal supervisor–student relationships the effect of feedback perception is stronger rather than weaker. A possible explanation for this could be that the expected role of the supervisor–student relationship takes place in the process of students perceiving the actual feedback message rather than in the process of feedback perceptions leading to satisfaction and/or perceived learning. This might be studied in a quasi-experimental design, by investigating whether students that perceive different levels of control and affiliation would perceive exactly the same feedback message differently in terms of feed up, back, forward and negative elaboration. Still, in the studies of Ilgen et al. (1979) and Lee and Schallert (2008) the emphasis is on the emotional or affiliation

dimension, but our results suggested that also interpersonal control interacts with feedback perceptions. This indicates that the effect of feedback perceptions does not only depend on the closeness of a supervisor but also on the supervisor's steering.

### ***Limitations, future research and implications***

A first limitation is that we measured student perceptions at only one time point during their master's thesis projects, implicitly assuming that these are stable. However, it is unlikely that these perceptions are indeed stable taking into account the fact that, for instance, Anderson, Day and McLaughlin (2006) found that supervisors indicate constantly balancing their supporting and shaping commitments and actions. And even though our sample included students in different phases of their master's thesis projects, future research might address perceptions of supporting and shaping using a longitudinal design in which how student perceptions change during the course of a master's thesis project can be investigated. Also, in this study, we approached the supervisor–student relationship as possibly being conditional for the effectiveness of feedback perceptions. However, this might be a too simplistic way to conceptualise this relation as it is reasonable to think that also the feedback process might affect the supervisor–student relationship in the long run. Therefore, future research with a longitudinal design could address both these issues, for instance, using cross-lagged panel regression models (e.g. Woldman et al. [submitted](#)). In addition, next to cognitive and social–emotional perspectives, also metacognitive might be taken into account in future studies. In line with this, as peer feedback practices seem to gain more and more popularity in the context of conducting research theses (e.g. Dysthe et al. (2006), future studies could also address peer relations and interactions.

Second, we used the outcome measures SS and PSCL. Price et al. (2010) argued that students are well able to recognise the role of feedback in improving performance but might not be equipped with some understanding of pedagogic concepts and processes in order to appreciate its contribution to the long-term development of learning and understanding, confirming the importance of distinguishing SS from PSCL. But, even though self-reported outcome measures can provide interesting and important information, this does not automatically mean that students have actually learned from their thesis projects and the feedback. Therefore, only using self-reported outcome measures is not optimal in that it does not paint a complete picture. Therefore, we would suggest that future research also uses measures to map learning outcomes. However, this is not as easy as it seems, students (can) learn a wide variety of skills in general related to research but also related to their specific topic of study, which makes it difficult to measure learning outcomes in master's thesis projects. Furthermore, it immediately raises the issue of who will determine the learning outcomes: the student, the supervisor, an external observer (Price et al. 2010)? Still, we think this field of study is in need of more learning focused measures for measuring the effects of research projects. A first start for such an exploration could be interviewing graduate students about what they have learned from their theses in hindsight and interviewing experienced supervisors about what they think students in general learn from master's thesis projects, in order to develop instruments to measure such learning outcomes.

With respect to the generalisability of the findings, this study investigated perceptions of students from three departments (Social and Behavioural Sciences, Geosciences and Humanities) of which a master's thesis project is rather comparable: working individually,

having a single supervisor, doing a literature review or field research and having formal meetings with the supervisor in general ranging from once every week to once every six weeks. As in the Sciences students do their research in laboratory, they often have more frequent and informal meetings with their supervisor, who often also works in the lab (Heath 2002). This might lead to other feedback processes and a different interpersonal relationship. Therefore, these findings should not be generalised to disciplines in which research projects have other characteristics. Additionally, with respect to generalising the findings to other contexts such as doctoral supervision, differences between these contexts should be kept in mind. These are the longer duration and thus involvement of a doctoral thesis, and the fact that master's thesis results are less likely to be published than doctoral theses, which might have consequences for the willingness to invest of supervisors.

Lastly, we draw two practical implications from these findings. First, it was clear that for students to be satisfied and to perceive learning from the supervision process, interpersonal affiliation is most important. For master's thesis supervisors this indicates the importance of creating friendly and helping relationships with students in which students feel seen, supported, and motivated by their supervisors. However, we do realise that this might be easier said than done. Second, the interaction effects between feedback perceptions and the supervisor–student relationship would suggest that, especially for supervisors that experience difficulty in creating relationships with students who can be characterised as steering and helpful (i.e. high control and affiliation), it is beneficial for their students to explain more explicitly their feed up, back, forward and negatively elaborated feedback. Related to this it is important to note that negative elaboration is not just indicating that which is not good enough in students' work but also explaining why it is not yet good enough.

In general, it is concluded that, from a student perspective, a friendly and helping supervisor–student relationship seems most important, and that the role of feedback perception is most important in situations in which such a relationship could not be established.

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#### **Appendix A: Questionnaire on student feedback perceptions (de Kleijn et al., 2013)\***

##### Focus

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*The feedback of my supervisor concerns ...*

1. the methods of my study
  2. the use of theory in my study
  3. the content of my written work
  4. the structure of my written work
  5. the style of my written work
  6. my motivation
  7. my planning
  8. my work ethos
- 

##### Elaboration

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*The feedback of my supervisor concerns ...*

9. what I do well
  10. what I do not do well yet
  11. why something is good enough
  12. why something is not yet good enough
  13. hints for how I could have done it better
  14. hints for how I could best handle something
- 

##### Goal-relatedness

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*The feedback of my supervisor indicates ...*

15. what a good thesis looks like
16. how a good study is executed
17. how a good researcher operates
18. to what extent my work meets the expectations
19. to what extent I am on the right track
20. to what extent I progressed in light of previous time
21. what I have to do to reach my goals
22. the next steps to take
23. on what aspects I need to improve my study

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Student Satisfaction with Supervisor

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I am satisfied with the feedback that I receive  
I am satisfied with my supervisor

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Perceived Supervisor Contribution to Learning

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*After a meeting with my supervisor ...*

I understand what is expected from me  
I understand what I have to do in order to progress  
I understand how I can best handle things best  
I understand how I can deal with difficult situations  
Because of the feedback of my supervisor, so far I have learned a lot

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\*This is a not validated translation of the validated Dutch version.

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**Appendix B: Questionnaire on Supervisor Interaction (Mainhard et al., 2009)\***

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My supervisor

1. helps me.
  2. gets angry easily.
  3. let's me do my thing.
  4. is clear.
  5. does not know what (s)he thinks.
  6. knows what (s)he is talking about.
  7. stays with his/her opinion.
  8. let's me decide on my direction.
  9. has good suggestions.
  10. takes little initiative.
  11. asks a lot from me.
  12. is indecisive.
  13. understands me.
  14. let's me work hard.
  15. wants me to do what (s)he says.
  16. is strict.
  17. has high standards for me.
  18. has critical comments easily.
  19. easily gives in.
  20. is insecure.
  21. is demanding.
  22. easily approves my ideas.
  23. is in charge.
  24. indicates that I can't do anything.
  25. has little input.
  26. is open for suggestions.
  27. trusts me.
  28. let's me make my own choices.
  29. is confident.
  30. is out of temper.
  31. is impatient.
  32. listens to me.
  33. creates a confusing atmosphere.
  34. is someone I can count on.
- 

\*This is a not validated translation of the validated Dutch version.