Assessing together : Peer assessment from an interpersonal perspective

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CHAPTER 5

Reactions to 360 Degree Feedback: The Role of Trust and Trust-related Variables[9]

One of the most significant changes within the workplace over the past decades has been the growing emphasis on the development of competencies rather than specific job skills. This change has resulted in an increased use of multiple-rater feedback systems such as 360 degree feedback, which is the focus of this article.
The aim of this study is to provide insight into the factors that contribute to employees' perceived reactions to 360 degree feedback. In this study we focus specifically on a developmental use of the assessment instrument, arguing that trust mediates interpersonal beliefs, such as psychological safety, value congruency, and interdependence when we consider the outcome of a developmental assessment. Furthermore, conceptions of assessment and the transparency of the process of 360 degree feedback are expected to affect employees' reactions to assessment.
Results reveal that trust in the other as assessor partly mediates the relation between value congruency and reactions to 360 degree feedback, and as such is a significant predictor of reactions to 360 degree feedback. Conceptions and transparency are predictors of trust in the self, which does not predict reactions to 360 degree feedback. Finally, the interpersonal beliefs of psychological safety and interdependence have an indirect effect on reactions to 360 degree feedback: they are predictors of trust in the other, which in turn predicts reactions to 360 degree feedback ..

1 Introduction

The fast changes in occupational structures and in work content and organisation have challenged companies to develop new ways to ensure that the competence level of the workforce meets the demands of the changing workplace (Tynjälä, 2006). From a Human Resources perspective the development of individual employees has increased in importance, and is seen as indispensable in the learning organisation. New ways of assessment have therefore been developed which focus

[9] Based on Van Gennip, N., Gijbels, D., Segers, M., & Tillema, H. (2010). Reactions to 360° feedback: the role of trust and trust-related variables. *International Journal of Human Resources Development and Management, 10*, 362-379.

on employee development rather than employee selection (Lievens et al., 2003). The emphasis on the need for a flexible workforce and for competence development has increased the use of multiple-source multiple-rater (MSMR) feedback systems such as 360 degree feedback (Fletcher, 2001). This type of feedback can be described as involving multiple raters, often including the participants themselves, in the assessment of individuals. More specifically, 360 degree feedback includes feedback solicited from 'significant others', using a standardised assessment instrument (Thornow, 1993). These significant others typically include colleagues and peers as well as subordinate employees, managers and customers (Tillema, 2001). Therefore, as a multi-rater instrument 360 degree feedback provides informative assessments that involve reciprocal learning partnerships, introducing multiple perspectives from different sources. As an assessment tool multi-rater instruments can inform the learner about different performance aspects as well as progress in competence from multiple perspectives, and therefore is a powerful developmental tool for professionals' learning.

There are indications that in 360 degree feedback psychological safety, value congruency, and interdependence play a role. However, empirical evidence is to a large extent still lacking. Moreover, prior research on assessment involving multiple raters, mostly conducted in school settings (e,g., peer assessment research) indicate that transparency of the assessment process (Sluijsmans et al., 2002), as well as the way students perceive it (Hirschfield & Brown, 2009) affect reactions to the assessment. In short, we studied the influence of 1) trust; 2) the perceptions of interpersonal beliefs, including a) psychological safety, b) value congruency, c) interdependence); 3) transparency of the feedback system, and 4) the conceptions of 360 degree feedback. In section 3 we will discuss these variables in more detail.

2 Feedback from 360 degree instruments

In recent years, 360 degree feedback systems have received increased attention as developmental HR tool. The aim is "to provide constructive feedback in a climate in which one's growth is fostered and there is room for improving one's weaknesses without immediate negative consequences" (Van der Heijden & Nijhof, 2004, p. 494). 360 degree feedback is considered as a relevant instrument by which to improve employees' performance (Atwater & Brett, 2005). However, the results of the Smither, London and Reilly (2005) meta-analysis indicate that effect sizes of multi-rater feedback are rather small. This result is in line with the pivotal review study by Kluger and DeNisi (1996) on the effects of feedback on performance, showing that feedback does not always result in performance improvement (e.g., Thornow, 1992). In their study over one third of cases even showed a decrease in performance after the feedback intervention. As Smither et al. (2005) conclude,

these results indicate the need for research that focuses on the conditions under which multi-source feedback is beneficial, instead of investigating whether it works at all. Studies in the area of 360 degree feedback (e.g., Atwater & Brett, 2005; London & Smither, 1995) point to the importance of people's reactions to feedback in terms of cognitive and emotional evaluations, because these have great influence on how managers will ultimately respond. As Atwater and Brett (2005) argue: "The immediate reactions managers have to 360 degree feedback are important because the ways an individual 'feels' about and reacts to the feedback may influence how or whether the individual changes his or her behavior in response to the feedback" (p. 533). Therefore, in our study the reactions to 360 degree feedback were conceptualised (following Atwater & Brett, 2005) as a perceived improvement in functioning as a result of the feedback, i.e., the perceptions of the relevance of feedback received to workplace learning. Hence, the aim of the present study is to provide insight into the factors that contribute to employees' perceived reactions to 360 degree feedback.

In this respect, recent studies on 360 degree feedback have focused on the role of the characteristics of the feedback (such as sign and source) and individual dispositions (such as self-efficacy, trust, emotional stability, openness to experiences, and conceptions of feedback) (Atwater & Brett, 2005; Baily & Austin, 2006; Becton & Schraeder, 2004). A relevant case is discussed by Atwater and Brett (2005), who address feedback characteristics (positive or negative; self-other discrepancies) in relation to reactions to feedback, and managers' engagement in follow-up activities. Additionally, they investigated the role of individual dispositions: trust, self-efficacy, emotional stability, openness to experiences, and conceptions of feedback, as well as the influence of the source of the feedback (direct reports, peers, or managers). The results indicate the relevance of the sign (positive or negative) as well as the participants' conceptions of 360 degree feedback: there were more positive reactions after positive than after negative feedback, and a more positive attitude towards using feedback resulted in more motivated employees afterwards.

In the Atwater and Brett (2005) study there are no indications for the influence of the individual dispositions of trust, emotional stability, and openness. The study by Baily and Austin (2006) confirms the Atwater and Brett (2005) results with respect to the influence of a favourable feedback on subsequent performance. Moreover, their study indicates the role of two individual dispositions in the relation between feedback and performance: initial self-assessment (before feedback was given), and self-efficacy before participation in the feedback process. Finally, in both the Atwater and Brett (2005) and the Baily and Austin (2006) studies the source of the feedback seems to influence participants' reactions to the feedback received. Baily and Austin (2006) conclude: "Further research is needed that examines the credibility of different rater sources and factors influencing focal individuals' attentiveness to particular sources" (p. 63). This conclusion is supported by

Becton and Schraeder in their descriptive article (2004, p. 26): "The importance of the credibility of the feedback source cannot be underemphasised." Becton and Schraeder (2004) point to the lack of research on trust in the assessor as a predictor of reactions to multi-rater feedback.

Therefore, in this study we investigated the role of trust on the reactions of 360 degree feedback, which in our idea is not only trust in the other, but also trust in the self as an assessor. Additionally, we wanted to understand which factors influence these two types of trust thus indirectly affect reactions to 360 degree feedback. We believe that acceptance of feedback, especially in the case of a multi-rater, i.e., interpersonal assessment tool to a large extent depends on factors relating to interpersonal dispositions. Or, as Van der Heijden and Nijhof (2004, p. 494) describe: "A fruitful application of 360 degree appraisal depends upon a climate in which people can inform one another of strengths and weaknesses in performance at a particular career stage." It is clear that multi-rater assessments make interpersonal contact necessary, and therefore is inevitable to acknowledge the influence of interpersonal beliefs and trust in 360 degree feedback settings. Considering the lack of research on this aspect so far, it would be of interest to determine how interpersonal beliefs come into play in a multi-rater environment. Further, earlier research indicates that employees' conceptions of 360 degree feedback play a role as well (Atwater & Brett, 2005): the more favorable these are, the higher the degree of trust in the self as an assessor. Additionally, based on the results of empirical research in the field of classroom assessment and inspired by the arguments presented in studies on 360 degree feedback, we pose that conceptions affect the acceptance of and reactions to feedback from 360 degree instruments. Finally, there are clear indications in classroom assessment studies that the transparency of the assessment process influences student reactions to assessment. Therefore, it can be expected that the trust employees have in themselves and in others as assessors is influenced by how transparent they perceive the assessment practice. We assumed that perceived transparency of the assessment process could correlate with trust since it might build confidence in the outcome of the assessment.

3 The present study

The aim of our investigation was to take a closer look at the influence of interpersonal beliefs on the reactions to 360 degree feedback. We have conceptualised these reactions as perceived improvement in functioning as a result of 360 degree feedback. In order for 360 degree feedback to be accepted, trust (as 'having confidence in the appraisal given') is a crucial factor (Arnold, 2004). However, assuming an influence of trust on reactions to 360 degree feedback raises the question how exactly a high level of trust is achieved. In this research, we analyzed and tested the

assumption that *interpersonal beliefs* to a large extent determine the degree of trust in the assessor. Conceptions and transparency are also expected to predict trust in a 360 degree feedback setting. We studied these factors as influencing trust in a performance-oriented environment. This assumption acknowledges the personal relations between raters, which may impinge on the confidence with which their ratings are accepted by assessees. More specifically, the interpersonal beliefs, conceptions, and transparency have a possible effect on trust, which in turn will affect the outcome measure of perceived learning. Therefore, we regard trust as a mediator in the relationship between interpersonal beliefs, conceptions, and transparency on the one hand, and employees' reactions to the 360 degree feedback they receive.

In short, all independent variables, as well as trust in the self and trust in the others, are expected to influence reactions to 360 degree feedback. Additionally, trust in the self and trust in the other are expected to mediate between the independent beliefs and reactions to 360 degree feedback. Our model of variables influencing the acceptance of information from 360 degree feedback is displayed in Figure 2; we will discuss each variable in more detail.

3.1 Trust

Taking control of their learning process motivates people, and 360 degree feedback offers an opportunity to be more involved in their own learning and development. However, because of the unconventional combination of (mostly inexperienced) assessors, new challenges appear regarding the trust people have in themselves and others as assessors. For example, in her studies on peer assessment McDowell (1995) has indicated that participants expressed concerns about their ability to provide constructive feedback and assess fairly. In addition, the general objectivity or fairness of assessments in which peers are assessors is sometimes doubted by participants (Sluijsmans et al., 2002). Ballantyne, Hughes and Mylonas (2002) even conclude that students lack confidence in both their own and peers' abilities as assessors. Because of the interpersonal component in assessment settings such as 360 degree feedback and peer assessment it is all the more striking that the role of trust has hardly been examined so far. Taking into account the lack of research on trust as a predictor of reactions to feedback, which is indicated by Becton and Schraeder (2004), we decided to include trust as a variable in this study. Two types of trust are included: trust in the other and trust in the self. Trust in the other as assessor was included in the context of multi-rater i.e, multiple-perspective assessments, in which different others appraise an individual's performance. Trust in the self was examined and conceptualised as the trust people have in their own competence to assess a colleague.

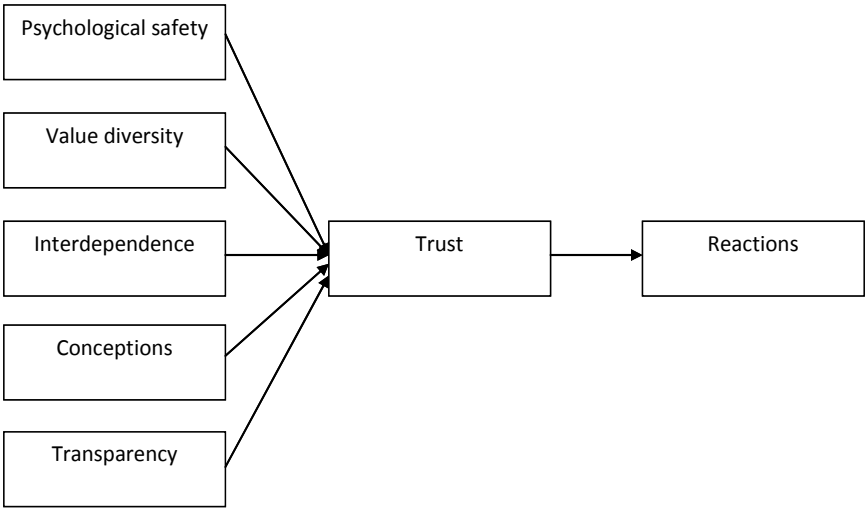

Figure 2
Explanatory model of this study

3.2 Interpersonal beliefs

The main purpose of implementing 360 degree feedback as a developmental tool is for co-workers to learn with and from each other. In short, 360 degree feedback is an instrument used mainly in collaborative and social settings within organisations. From the results of research on team learning in organisations we recognise three interpersonal beliefs that may be of importance for gauging the process of 360 degree feedback: perception of the psychological safety in the team, perceived value congruency within a team, and perceived interdependence between team members (Van den Bossche et al., 2006). Although we acknowledge that team learning settings differ from 360 degree feedback settings as they are used in organisations, the same conceptual underpinnings, i.e., regarding the social nature of learning, may be applied. Team learning is as a process of reflection and interaction in which team members actively acquire, process, and share knowledge and information in order to improve team performance (Rupert & Jehn, 2006). In a 360 degree feedback setting, information is shared using the processes of reflection and interaction among people who are related to each other in the work setting as well. Given these common feature of team learning and 360 degree feedback, and because of the evaluative character of the information, we can expect that interpersonal beliefs play a role in 360 degree feedback settings.

3.2.1 Psychological safety

Psychological safety can be described as the shared belief that a team or group of people is a safe environment for interpersonal risk-taking (Edmondson, 1999). The idea that psychological safety could influence the learning effects of 360 degree

feedback has been the result of the positive effect of psychological safety on learning and group effectiveness found in earlier studies (e.g., Edmondson, 1999; Van den Bossche et al., 2006). Psychological safety, for example, prevents teams from perceiving differences in viewpoints as disagreements; instead, psychological safety creates room for coming to grips with a problem and hence for collaborative learning. Team members' feelings of psychological safety affect their investment in learning from and with other team members. When 360 degree feedback is implemented as a developmental tool, psychological safety is a necessary condition for assessees if they are to invest in learning and professional development on the basis of the feedback results.

3.2.2 Value congruency

Value congruency is defined as a similarity in opinion of what a team's task, goal, or mission should be (Jehn et al., 1999). In their study, Jehn et al. (1999) have shown that value congruency in teams should be high in order for teams to be effective. Integrating different perspectives and developing a shared understanding is crucial if teams are to perform well (Van den Bossche et al., 2006). Additionally, from feedback research we learn that goal setting is important for achieving positive reactions to feedback (e.g., Kluger & DeNisi, 1996). Moreover, educational research on the learning effects of peer assessment in higher education has shown that a shared understanding of learning goals within the peer group is necessary for learning effects to occur (e.g., Sivan, 2000). A shared understanding implies high value congruency, i.e., a large number of shared goals. In short, prior research indicates a potential relation between value congruency and reactions to 360 degree feedback, although evidence is scarce.

3.2.3 Interdependence

Interdependence between members of a group may also affect responses and attitudes towards the group (e.g., Duimering & Robinson, 2009). Interdependence can be seen as "the division of labor within groups of departments" (Van der Vegt et al., 1998). Earlier research results have not been entirely clear about the relation between interdependence, performance, and feelings of responsibility in work group settings (Van der Vegt et al., 1998), but there is a consensus that it is of significant influence in work teams. Prior research on 360 degree feedback indicates that the source of the feedback affects assessees' reactions. These sources are peers and supervisors as well as clients. The more closely assessor and assessee have been working together, dependent on each other in the performance of tasks, the more the feedback source can be trusted or seen as valid.

3.3 Conceptions of assessment

During the past decade a number of studies have been conducted on conceptions of assessment, indicating the importance of these conceptions for the acceptance and validity of assessments. Thompson (1992, p. 130) considered conceptions "a more general mental structure, encompassing beliefs, meanings, concepts, propositions, rules, mental images, preferences, and the like." Furthermore, conceptions can be described as a framework through which one views, interprets, and interacts with the learning environment (Marton, 1981). There is a growing body of research indicating that conceptions of assessment are of significant importance for learning (Hirschfeld & Brown, 2009); analyses of the influence of interpersonal beliefs on perceived learning from 360 degree assessments have shown that conceptions on assessment may filter the outcomes. It has been found that people generally perform better when their conceptions regarding a task are more positive (Brown et al., 2009), partly because they feel more competent at the task when they are more optimistic about it.

In the context of 360 degree feedback, a few studies refer to conceptions. A study by Atwater and Brett (2005), for example, has shown that individuals using feedback and viewing it in a more positive light showed more positive emotions afterwards than people who were less positive. We included employees' conceptions of 360 degree feedback in order to understand the role of these predictors on employees' reactions more fully.

3.4 Transparency

People can have trouble using assessments or feedback comments effectively because they find it difficult to interpret them correctly. Therefore, transparency of assessment procedures and criteria is important in order to improve people's awareness of the quality of their own performance (Sluijsmans et al., 2002), and might therefore influence the trust they have in their competence to assess someone else. Research has shown that in a peer-assessment setting good training in and explanation of this type of assessment does provide more transparency (Sluijsmans et al., 2004), but the relations between transparency and trust or transparency and reactions to feedback have not yet been investigated.

In the context of 360 degree feedback in the workplace, Van der Heijden and Nijhof (2004) refer to the relevance of transparency by arguing that an effective application of 360 degree feedback depends upon a careful formulation of criteria, and a thorough operationalisation of the concept to be measured. The importance of transparency is confirmed by McDowall and Fletcher (2004). They relate transparency to perceived fairness, which in turn is associated with trust and interpersonal beliefs. However, they argue that more research on the topic of fairness and

its interrelations with interpersonal beliefs is necessary (McDowall & Fletcher, 2004).

4 Method

4.1 Participants

Our sample consisted of 118 employees from four different organisations in The Netherlands. Three organisations were institutions from the non-profit sector: one psychiatric hospital (N = 20), one general hospital (N = 19) and one general health care institute (N = 48)). The fourth was a software engineering multinational (N = 31).

Following Bartram's (2004) suggestion, in order to cover a broad range of work organisations our study included employees from both profit and non-profit companies as well as companies that differ in size (from relatively small to multinational). In health organisations it is typically team or joint assessments that are used for improvement of performance, which therefore makes these a relevant setting for our study. In line with Atwater and Brett (2005) we believe that including participants from different organisations, thereby creating variety in task demands, will enhance the generalisability of our findings.

4.2 Procedure

All participants took part in 360 degree feedback procedures during the past year. More specifically, they were assessed by at least three out of four assessors in 360 degree feedback procedures (see Figure 1). All participants were acquainted with the process and had themselves also been assessors at least once in the past year. The questionnaire sets were distributed to the participants of this study by the researchers in order to prevent any confounding effects from supervisors or managers; the questionnaires had to be returned within one week. It consisted of eight scales, measuring: the *dependent variable* ´reactions to 360 degree feedback´; the *mediators* ´trust in the self´ and ´trust in the other´; and the *independent variables* ´psychological safety´, ´value congruency´, ´interdependence´, ´transparency´, and ´conceptions of 360 degree feedback´.

4.3 Instrumentation

The constructs identified in the conceptual framework of this study were measured by questionnaire scales taken from validated instruments. These scales have been developed and tested in several studies on peer assessment in higher education and team learning (see below). Measurements were done by 5-point Likert scales,

running from “1 = Totally Untrue” to “5 = Totally True”. A reliability analysis of instruments revealed coefficient alphas of more than .60 (see Table 2).

4.4 Trust

The questionnaire measuring the construct of trust was an adapted version of the ’assessment skill‘ scale by Sluijsmans et al. (2002); it measured trust in the self and in the other as an assessor. In the Sluijsmans et al. (2002) study the scale was used to measure trust in self-perceived assessment skills within a peer assessment setting. We adapted the scale for use in an in-company 360 degree feedback setting, and expanded it to measure perceived trust in the other as an assessor. Items included: ”I can judge whether my colleagues are doing their work well” (trust in the self as assessor) and ”My colleagues can judge whether others are doing their work well” (trust in the other as assessor). Both four-item scales proved to be reliable (Cronbach’s α = .70 (trust in the self); α = .83 (trust in the other)).

4.5 Interpersonal beliefs

The interpersonal beliefs involved were: psychological safety, value congruency, and interdependence.

4.5.1 Psychological safety

The scale measuring psychological safety was taken from Edmondson (1999) and consisted of seven items, for instance: ”People can raise difficult topics in this department.” Internal consistency is acceptable (Cronbach’s α = .68.).

4.5.2 Value congruency

The scale measuring value congruency was measured using six items (for example: ”All individual colleagues aim at shared goals”), with Cronbach’s α .66 for the scale. The items were adopted from a study by Jehn et al. (1999) which addressed the perceived similarities between team members on the team’s tasks, goals, and mission.

4.5.3 Interdependence

Items measuring interdependence were based on the scales developed by van der Vegt et al. (1998). The scale measuring task interdependence was adapted (e.g., ”I depend on my colleagues for information and advice”). Both scales, i.e., dependence of the self (with α = .80) and dependence of the other (with α = .78) consist of four items.

4.6 Conceptions of assessment

The scale measuring conceptions of 360 degree feedback, a shortened version of a questionnaire developed by Sluijsmans et al. (2002), consisted of ten items (e.g., ”360 degree feedback is informative”) and proved to be internally consistent (with $\alpha = .78$).

4.7 Transparency

The scale measuring transparency included five items and was developed by Van Gennip, Segers and Tillema (2006). Examples are: ”The goal of 360 degree feedback is clear to me” and ”The way in which we apply 360 degree feedback is clear to me.” Internal consistency was found to be acceptable (with $\alpha = .76$).

4.8 Dependent variable: Reactions to 360 degree feedback

The ‘reactions to 360 degree feedback’ scale was developed by Van Gennip et al. (2006), and conceptualised as ‘perceived improvement in performance’. This scale ($\alpha = .60$) contained three items, namely: ”It is easier to do my job because I assessed my colleagues”, “I am better at my job because we assessed each other”, and ”I learnt to be more critical of my own functioning through assessing the others.”

4.9 Data analysis

As a first step in the analysis of the data we conducted a descriptive and correlational analysis. Second, in order to test for direct effects on reactions to 360 degree feedback of interpersonal beliefs, conceptions, and transparency, stepwise regression analyses were used. In a first analysis, the impact of interpersonal beliefs on reactions to feedback was examined. A second analysis gauged the influence of interpersonal beliefs, together with conceptions and transparency, on reactions to 360 degree feedback. Third, we analysed the role of trust. In order to test for the mediating role of trust on reactions to 360 degree feedback a hierarchical regression analysis was used. This regression model consisted of three steps. In a first step we tested the effect of all independent variables on trust in the self and the other; the second and third steps contained all independent variables as predictors of reactions to 360 degree feedback, alternatingly excluding and including trust as a predictor variable.

5 Results

Means, standard deviations, and Pearson correlations of measured variables are presented in Table 1, together with scale reliabilities.

Table 1
Means, standard deviations, alphas, and intercorrelation coefficients of variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Reactions	3.6	.69	(.60)								
2. Conceptions	3.9	.48	.35**	(.78)							
3. Transparency	4.1	.56	.27**	.49**	(.76)						
4. Trust in self	3.8	.50	.30**	.48**	.57**	(.70)					
5. Trust in other	3.4	.72	.36**	.27**	.19*	.31**	(.83)				
6. Psychological safety	3.8	.58	.20*	.18	.15	.15	.37**	(.68)			
7. Value congruency	3.5	.59	.35**	.19*	.23*	.22*	.39**	.41**	(.66)		
8. Dependence self	3.8	.47	.02	.16	.27**	.21*	-.08	-.02	.10	(.80)	
9. Dependence other	3.6	.67	-.00	.00	-.00	-.10	.15	-.02	.00	.30**	(.78)

*p < .05; **p < .01; alphas are in parentheses

Some interesting findings can be noted here. First, the results from correlation analysis show that the participants' *reactions to feedback* are related to many of the independent variables included in this study: transparency of the assessment, conceptions of 360 degree feedback, trust, psychological safety, and value congruency. Only the participants' perceptions of dependence of the self and dependence of the other showed no correlations with reaction to 360 degree feedback. Second, *trust* in the self and the other as assessors is higher when the assessment process is perceived as more transparent. Moreover, trust in the self as assessor is significantly related to trust in the other as assessor. Third, the correlation analyses offer further insights into the *conceptions* participants have of 360 degree feedback. The conceptions of 360 degree feedback were positively related to perceptions of value congruency and transparency of the 360 degree feedback, and to the extent to which people trust themselves and the other as assessors. Fourth, of the *interpersonal beliefs* shared goals (i.e., high value congruency) and trust in the other as assessor were related to perceptions of psychological safety. In addition, high value congruency was significantly associated with trust in the other and the self, as well as with transparency. Finally, participants perceive the assessment as *transparent* when they trust themselves and the other as assessors (see Table 1).

5.1 The influence of interpersonal beliefs on employees' reactions to 360 degree feedback

We expected an influence of all interpersonal beliefs on reactions to 360 degree feedback. However, the two beliefs 'dependence on the self' and 'dependence on the other' do not show significant correlations. Results of stepwise regression analysis show that only value congruency is a significant predictor of reactions to 360 degree feedback ($\beta = .351$, $p < .001$). Employees with a high perceived value congruency (implying high agreement on shared goals) respond more positively towards 360 degree feedback.

5.2 The influence of conceptions and transparency on employees' reactions to 360 degree feedback

We expected some influence of conceptions and transparency on reactions to 360 degree feedback on the basis of previous research (e.g., McDowall & Fletcher, 2004; Atwater et al., 2000). Stepwise regression analysis revealed a significant portion of the variance of reactions to 360 degree feedback ($R^2 = .132$, $p < .001$) as explained by these variables. However, only 'conceptions of 360° feedback' was a significant predictor of reactions to 360 degree feedback ($\beta = .284$, $p < .05$).

5.3 Trust as a mediator variable

Considering the low to moderate correlations between transparency, conceptions, and interpersonal beliefs with regard to reactions to 360 degree feedback, we analysed the possible mediating effect of trust. A full model was tested with trust as a mediator, using regression analysis. First, all independent beliefs were entered in order to predict trust in the self and the other. Results indicate that transparency and conceptions predict degree of trust in the self as an assessor ($R^2 = .396$; $p < .01$). In contrast, trust in the other is predicted by the interpersonal beliefs ($R^2 = .287$; $p < .01$). Second, the independent variables were entered in order to predict reactions to 360 degree feedback excluding trust, and later including trust. Results show a partial mediation: the beta of value congruency decreases (but stays significant) when trust in the peer as assessor is included in the model. This implies the relation between value congruency and reactions to feedback is partially mediated by trust in the other as assessor.(see Table 2).

Table 2
Regression analysis predicting trust

	Trust in self	Trust in other	Reaction to feedback (without trust)	Reaction to feedback (trust included)
Conceptions	.26***	.18	.25**	.20**
Transparency	.39***	.07	.10	.05
Psychological safety	.01	.20**	.03	-.01
Value congruency	.07	.28***	.28***	.22**
Dependence self	.10	-.21**	-.09	-.05
Dependence other	-.12	.21**	.03	-.01
Trust in self				.08
Trust in other				.19*
Adjusted R^2	.40	.29	.17	.19
F	12.14***	7.43***	5.07***	4.52***

*$p < .05$; **$p < .01$.

The results of our analyses revealed that more positive conceptions of 360 degree feedback implicate more positive reactions to 360 degree feedback. Further, trust in the other was found to affect reactions to 360 degree feedback. Moreover, an indirect effect of psychological safety, dependence of the self and dependence of the other is found, that is: the more employees perceive the interpersonal environment as safe and the more they feel able to depend on each other, the higher the degree of trust in the other as an assessor, and in turn, the more positive their reactions to 360 degree feedback.

6. Conclusion and discussion

Our study aimed at broadening our understanding of the interpersonal context in which peer assessment takes place within organisations where peer assessment is the heart of the 360 degree feedback system. More specifically, we analysed the separate and joint effects of trust and trust-related variables (interpersonal, transparency, and conceptions) on employees' reactions to 360 degree feedback on the basis of how they perceived improvement in functioning. More specifically, we studied the influence of trust, perceptions of interpersonal beliefs (psychological safety, value congruency, and interdependence), transparency of the feedback system, and conceptions of 360 degree feedback.

Our results seem partly to confirm previous research. First, although the role of interpersonal beliefs has been mainly examined in research on team learning, our study confirms that they are of significant importance in an assessment setting, which is inherently a social activity. Our study seems to indicate that value congruency predicts employees' reactions to feedback, and the perception of psychologi-

cal safety predicts the perception of trust. Second, our study may confirm the results of a study by Atwater and Brett (2005) showing that individuals with more positive conceptions of feedback showed more positive emotions following feedback than people with less positive conceptions. Third, the importance of assessment transparency, widely advocated in educational assessment research, was partly confirmed. Although the perception of transparency does not directly influence employees' reactions to feedback, it does seem to predict the trust they have in themselves as assessors. However, trust in the self as an assessor did not predict reactions to 360 degree feedback. Finally, we paid special attention to the role of trust in employees' reactions to 360 degree feedback. Although this variable is recognised as important, it has hardly been studied to this date. Our results indicate that trust in the other as assessor partially mediates the relation between value congruency and employees' reactions to feedback. The effects of trust in the other on reactions to 360 degree feedback seem to contradict the findings by Atwater and Brett (2005). However, their lack of results may be explained by not considering the role of interpersonal beliefs.

The study presented here should be informative for practitioners in the field of HRM and HRD who use 360 degree feedback as a tool to stimulate employees to invest in professional development. Given that positive reactions to such feedback are a necessary condition for success, organisations should encourage employees to develop trust in the other as assessor. This means that attention should be paid to establishing shared goals and creating a positive social climate where team members feel connected and safely dependent on each other. Moreover, making the 360 degree process as transparent as possible is a fruitful approach. Paying attention to sharing goals seems to be a strong tool, as it influences employees' reactions to feedback both directly and indirectly (i.e., by trust in the other as assessor).

Several implications for future research can be formulated. First, most of the participants in this study were employees in non-profit organisations. It would be interesting to measure whether factors behave differently in profit or non-profit organisations, using large samples in both settings. For example, a more competitive atmosphere in non-profit organisations may be expected to lead to different relations between people working together. This need not result in different predictive models. Differences between companies regarding the independent variables do not change the patterns of interaction between variables. Nevertheless, it would be interesting to repeat our study with large samples of employees in organisations that differ from each other on various parameters that might affect the variables distinguished. Large samples will make it possible to perform multi-level analyses in order to find clear evidence for the organisation effect.

Second, employees' reactions to feedback may influence how or whether they change their behavior in response to the feedback. It is a challenge for future re-

search to include performance measures operationalising employees' behavioral changes. To this date, research on the effects of interventions intended to support professional development is still struggling with the operationalisation and measurement of these effects. Some authors prefer a qualitative approach, using interviews to elicit whether and how employees change their professional behavior as a result of formal or informal learning opportunities in the workplace (e.g., Doornbos & Krak, 2001). Others use proxy measures such as employability to indicate effects of professional development interventions (e.g., Sanders & de Grip, 2004).

Third, the reliability of the three-item 'reactions to feedback' scale is moderate, so that the results of this study should be interpreted with caution. The development of a more extended scale may enhance its reliability. The benefit of using surveys as a research method is the possibility to question larger samples than in qualitative approaches, so that patterns in relations between variables can be explored. However, in a qualitative approach it is possible to acquire more in-depth information on the participants' feelings and reactions to interventional situations, and clarify unclear points by asking additional questions. The advantages of both methodologies may be brought together by combining both quantitative and qualitative approaches in future research.

This study aims to contribute to the discussion about interpersonal beliefs in the field of 360 degree feedback. We would like to point out that there may be differences between companies as to how employees perceive the independent variables. This need not result in different predictive models. However, regression analyses do indicate that interpersonal beliefs, transparency, conceptions and trust, directly or indirectly affect reactions of employees. This study indicates that interpersonal beliefs are of importance in a 360 degree feedback setting. We believe that such a multi-source feedback instrument will function best when the social environment is taken into account.

References

Atwater, L. E., Waldman, D. A., Atwater, D., & Cartier, P. (2000). An upward feedback field experiment: Supervisors' cynicism, reactions, and commitment to subordinates. *Personnel Psychology*, *53*, 275-297.

Bailey, C., & Austin, M. (2006). 360 degree feedback and developmental outcomes: The role of feedback characteristics, self-efficacy and importance of feedback dimensions to focal managers' current role. *International Journal of Selection and Assessment*,14, 51-66.

Ballantyne, R., Hughes, K., & Mylonas, A. (2002). Developing procedures for implementing peer assessment in large classes using an action research project. *Assessment & Evaluation in Higher Education*, *27*, 427-441.

Becton, J. B., & Schraeder, M. (2004). Participant input into rater selection: Potential effects on the quality and acceptance of ratings in the context of 360-degree feedback. *Public Personnel Management, 33*, 23-32.

Brown, G. T. L., Irving, S. E., Peterson, E. R., & Hirschfeld, G. H. F. (2009). Use of interactive-informal assessment practices: New Zealand secondary students' conceptions of assessment. *Learning and Instruction, 19*, 97-111.

Doornbos, A., & Krak, A. J. (2001). Learning processes and outcomes at the workplace; a qualitative research study. In: J. N. Streumer (Ed.), *Perspectives on learning at the workplace: Theoretical positions, organizational factors, learning processes and effects, Proceedings Second Conference HRD research and practice across Europe* (pp. 53-64).

Duimering, P. R., & Robinson, R. B. (2009). Effects of context on team behaviour. *International Journal of Human Resources Development and Management, 1*, 19-35.

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*, 350-383.

Falchikov, N., & Goldfinch, J. (2000). Student peer assessment in higher education: A meta-analysis comparing peer and teacher marks. *Review of Educational Research*, *70*, 287-322.

Hazucha, J. F., Hezlett, S. A., & Schneider, R. J. (1993). The impact of 360-degree feedback on management skills development. *Human Resource Management, 32*, 325-351.

Hirschfeld, G. H. F., & Brown, G. T. L. (2009). Students' conceptions of assessment: Factorial and structural invariance of the SCoA across. *European Journal of Psychological Assessment, 25*,. 30-38.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly*, *44*, 741-763.

Jellema, F., Visscher, A., & Scheerens, J. (2006). Measuring change in work behavior by means of multisource feedback. *International Journal of Training and Development, 10*, 121-139.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: Historical review, a meta-analysis and a preliminary feedback intervention theory. *Psychological Bulletin, 119*, 254-284.

Lievens, F., Harris, M., & Van Keer E. (2003). Predicting cross-cultural training performance: The validity of personality, cognitive ability, and dimensions measured by an assessment center and a behavior description interview. *Journal of Applied Psychology, 88*, 476-492.

London, M., & Smither, J. W. (1995). Can multi-source feedback change perceptions of goal accomplishment, self-evaluations, and performance-related outcomes? Theory-based applications and directions for research. *Personnel Psychology, 48*, 803-839.

Marton, F. (1981). Phenomenography – describing conceptions of the world around us. *Instructional Science*, *10,* 177-200.

Maurer, T. J., Mitchell, D. R. D., & Barbeite, F. G. (2002). Predictors of attitudes toward a 360-degree feedback system and involvement in post-feedback management development activity. *Journal of Occupational and Organizational Psychology*, *75*, 87-107.

McDowall, A., & Fletcher, C. (2004). Employee development: An organizational justice perspective. *Personnel Review, 33*, 8-29.

McDowell, L. (1995). The impact of innovative assessment on student learning. *Innovation in Education and Training International*, *32*, 302-313.

Morgeson, F. P., Mumford, T. V., & Campion, M. A. (2005). Using research and practice to address 27 questions about 360-degree feedback programs. *Consulting Psychology Journal: Practice and Research, 57*, 196-209.

Rupert, J. and Jehn, K. A. (2006, September). *Team learning: The development and validation of a new typology.* Paper presented at the 10th International Workshop on Teamworking, Groningen, The Netherlands.

Sanders, J., & de Grip, A. (2004). Training, task flexibility and low-skilled workers' employability. *International Journal of Manpower, 25*, 73-89.

Sivan, A. (2000). The implementation of peer assessment: an action research approach. *Assessment in Evaluation, 2*, 193-213.

Sluijsmans, D. M. A., Brand-Gruwel, S., & Van Merrienboer, J. J. G. (2002). Peer assessment training in teacher education: Effects on performance and perceptions. *Assessment & Evaluation in Higher Education, 27*, 443-454.

Sluijsmans, D. M. A., Brand-Gruwel, S., Van Merriënboer, J. J. G., & Martens, R. (2004). Training teachers in peer-assessment skills: Effects on performance and perceptions. *Innovations in Education and Teaching International, 41*, 59-78.

Smither, J. W., London, M., & Reilly, R. R. (2005). Does performance improve following multisource feedback? A theoretical model, meta-analysis, and review of empirical findings. *Personnel Psychology, 58*, 33-66.

Thompson, A. G. (1992). Teachers' Beliefs and Conceptions: A Synthesis of the Research. In: D.A. Grouws (Ed.), *Handbook of Research on Mathematics Teaching and Learning* (pp. 127-146), New York: Macmillan Publishing Company.

Thornow, W. W. (1993). Perceptions or reality: Is multi-perspective measurement a means or an end? *Human Resource Management, 32*, 221-229.

Tillema, H. (2001). *Assessment van competenties: van beoordelen naar ontwikkelen*, Mechelen: Kluwer.

Tynjälä, P. (2006). *Perspectives into Learning at the Workspace.* Paper presented at the chair for educational innovation and cooperation, University of Antwerp, Belgium.

Topping, K. (1998). Peer assessment between students in colleges and universities. *Review of Educational Research, 66,* 249-276.

Van den Bossche, P., Gijselaers, W., Segers, M., & Kirschner, P. A. (2006). Social and cognitive factors driving teamwork in collaborative learning environments. Team learning beliefs & behaviors. *Small Group Research, 37*, 490-521.

Van der Heijden, B. I. J. M., & Nijhof, A. H. J. (2004). The value of subjectivity; problems and prospects for 360-degree appraisal systems. *International Journal of Human Resource Management*, *15*, 493-511.

Van der Vegt, G., Emans, B., & Van de Vliert, E. (1998). Motivating effects of task and outcome interdependence in work teams. *Group & Organization Management, 23*, 124-143.