

**DEVELOPMENT AND EMPIRICAL EXPLORATION OF AN EXTENDED MODEL OF  
INTRAGROUP CONFLICT**

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### **Abstract**

**Purpose** - The purpose of this study was to develop and empirically explore a model of four intragroup conflict types (the 4IC model), consisting of an emotional person, a cognitive task, an emotional task, and a cognitive person conflict. The two first conflict types are similar to existing conceptualizations, whereas the two latter represent new dimensions of group conflict.

**Design/methodology/approach** - Based upon a heuristic distinction between cognition and emotion, the four conflict types are defined, and scales for measuring them are developed. The psychometric and statistical properties of the scales were analyzed by data collected from four company samples and two student samples ( $N = 208$ ). The validity of the constructs was evaluated by comparing them with similar constructs, in particular, the Intragroup Conflict Scale (ICS), developed by Jehn (1995).

**Findings** - A theory driven exploratory factor analysis elicited a 19-item structure of four reliable factors, representing the four conflict types. A confirmatory factor analysis demonstrated satisfactory properties of the data matrix compared with the proposed model. Furthermore, a refined 12-item scale was developed to consider the validity of the 4IC, with reasonably satisfactory findings.

**Research limitations/implications** - Limitations concerning sample size, wording of items, the demarcation between conflict types and conflict approaches, and the robustness of the constructs are discussed. We suggest that researchers may find the model useful for future studies of conflict in groups.

**Practical implications** - Our model may be of assistance in handling conflicts in organizations. In particular, managers and employees may become aware that emotional conflicts are not always associated with relational or person oriented issues; they may as well concern task oriented issues. Furthermore, cognitive conflicts do not always have to be task oriented; they may also concern relational or person oriented issues. The introduction of the emotional task oriented and the cognitive person oriented conflict types may thus extend the conflict management tool box for managers and employees.

**Originality/value** - The results of this study challenge common use of emotional and relationship/person conflicts as interchangeable conflict types, and cognitive and task conflict as interchangeable conflict types. Accordingly, the study suggests new ways to understand conflicts in groups.

**Keywords** - Intragroup conflict, emotion, cognition

**Paper type** - Conceptual

Work groups are pervasive in organizations (Goodman et al., 1987), and are perceived to be the most important building block between the individual and the organization (Hackman, 1987). Intragroup conflicts, however, may hurt the coordination and the motivation of the group, cause “process loss” (Steiner, 1972), and in the end, can be harmful to the group’s outcome (e.g. Baron, 1997). On the other hand, conflicts may also cause needed change in the organization, foster creativity and diverse thinking, and thereby be beneficial to the group’s outcome (e.g. Pondy, 1992; Tjosvold, 1986).

Intragroup conflict has commonly been labeled as emotional or relationship oriented, used interchangeably, and task or cognitive oriented, also used interchangeably (Brehmer, 1976; Deutsch, 1969; Jehn, 1992, 1997a; Pinkley, 1990; Rahim, 1983). The most dominant scale used to measure intragroup conflicts has been the Intragroup Conflict Scale (ICS), developed by Jehn (1992, 1994, 1995). Findings from this line of research have generally concluded that the cognitive/task conflict is beneficial, while emotional/relationship conflict is detrimental to group outcome (Amason, 1996; Amason and Sapienza, 1997; Jehn, 1994; Jehn *et al.*, 1999; Pelled *et al.*, 1999; Simons and Peterson, 2000). However, these conclusions have not been unchallenged. On the emotional side, qualitative studies have described highly emotionally loaded conflicts in work groups with a positive relationship to group performance (Eisenhardt *et al.*, 1997; Leavitt and Lipman-Blumen, 1995). Moreover, different group development approaches have detected several phases in the group’s life cycle where emotional conflicts might be beneficial (Chang et al., 2003; Gersick, 1988; Jehn and Mannix, 2001; Tuckman and Jensen, 1977; Wheelan, 1994). Finally, research on several beneficially *aspects* of emotional conflict has also been found to be beneficially related to group performance, even commonly assumed detrimental processes such as for example voice (Peterson, 1997) and anger (Geddes and Callister, 2007; Callister, *et al.*, 2003). On the cognitive side, a recent meta-analysis reported that cognitive/task conflict actually was negatively related to group performance (De Dreu and Weingart, 2003). In this meta-study, studies with objective performance measures were preferred; then studies where performance had been rated by supervisors,

and, if none of these measures were available, studies where performance had been obtained by team members themselves were added.

For a complete general overview over all possible relationships between emotion, cognition and performance, alternative models, such as moderator, mediator and contextual models, respectively, as well as studies of the internal relationship between emotional/relationship conflict and cognitive/task conflicts, should also have been considered. In particular, a curvilinear relationship between emotional and cognitive predictors and group performance have been suggested (e.g. De Dreu, 2006), and studies of the impact of past performance on intragroup conflict, e.g. Peterson and Behfar (2003) elicit the reciprocal nature of the relationship between intragroup conflict and performance.

In this paper, we suggest that the inconclusive empirical findings about the relationship between intragroup conflict and group outcome may in part be explained by the way different conflicts have been conceptualized and measured in prior research. In particular, we argue that a dichotomy of intragroup conflict consisting of a cognitive/task versus an emotional/relationship conflict, covers only a part of the broad conceptual domain of intragroup conflict. Consequently, the purpose of this study is to develop and empirically explore an extended model of intragroup conflict, in order to cover a broader content of the intragroup conflict concept. This conceptualization may later be used to increase our understanding of the effects of intragroup conflict on group outcome. More specifically, we develop and empirically explore a four-dimensional model of intragroup conflict (the 4IC), where emotional conflict may be relationship oriented, as well as task oriented, and where cognitive conflict may be task oriented, as well as relationship oriented.

*The intragroup conflict concept*

The two conflict types that have been studied most extensively in intragroup research are several versions of cognitive/task conflicts and emotional/relationship conflicts, even when using the same scale (the ICS, Jehn, 1995). For example, cognitive/task conflicts have been labeled cognitive conflict (Amason, 1996; Jehn, 1997b), but also task conflict (Amason, 1996; De Dreu and Weingart, 2003; Jehn, 1994; Simons and Peterson, 2000). Emotional/relationship conflicts have been labeled emotional conflict (Jehn, 1994; Pelled *et al.*, 1999), relationship conflict (Jehn *et al.*, 1999; Polzer *et al.*, 2002), affective conflict (Amason, 1996; Hambrick and Li, 2003), and person conflict (Janssen *et al.*, 1999). Cognitive/task conflicts have traditionally been explained in terms like “rooted in the substance of the task”, whereas emotional/relationship conflicts have been described to be “deriving from emotional, affective aspects of the group’s interpersonal relations” (Guetzkow and Gyr, 1954, p. 369). It should also be noted that there is evidence for a third conflict type, labeled process conflict, focusing on conflicts about how tasks will be accomplished (Jehn, 1997a). Even though the explanation of process conflict rely on the same logic used to explicate cognitive/task conflict, process conflicts are also assumed to be connotated with person related conflicts, such as conflicts concerning the alignment of roles and responsibilities in groups (Jehn and Bendersky, 2003). The research on process conflict is growing rapidly, and recent reports about negative affectivity in process conflicts contribute to our understanding of task related, albeit emotional conflicts (Greer and Jehn, in press).

**Current measurements of intragroup conflict**

In order to increase our understanding of the inconclusive findings of the relationship between intragroup conflicts and several outcome variables, we need to question how intragroup conflict has been conceptualized and measured in prior quantitative research. Among several measures, the Intragroup Conflict Scale (ICS) by Jehn (1992, 1994, 1995; Pearson *et al.*, 2002) has been the most influential and is

by far the most commonly employed measure of intragroup conflict (however, see also Barsade and Gibson, 1998, and Cox, 1998 for relationship conflicts). In constructing the ICS, Jehn (1992, 1994; Rahim, 1983) revealed two factors, “emotional conflict” and “task conflict”. The ICS builds on the traditional approach from Guetzkow and Gyr (1954), where “task conflict” and “emotional conflict”, theoretically, are seen as complementary. Jehn (1992, pp. 10-11) defined relationship conflicts as “an awareness by the parties involved that there are interpersonal incompatibles”, and task conflict as “awareness by the parties involved that there are disagreements about the actual task being performed”. The emotional/relationship conflict items in the ICS have mainly negative connotations, whereas the cognitive/task conflict items are neutral or have positive connotations. Jehn (1992, p. 10) explained, “People tend to dislike others who do not agree with them and who do not share similar beliefs and values”. This view is congruent with laypersons’ attitudes toward conflict in general: emotional/person conflicts are always bad, whereas cognitive/task conflicts may sometimes be less bad and frequently perceived as not being a conflict at all. Accordingly, when using survey instruments, researchers risk assessing what people think conflict is, rather than the level of conflict as theoretically defined. If so, we are in danger of including stereotypes and prejudice into the scientific concept and thus harm a model’s external validity through within built covariance between the concepts (e.g. self-fulfilling prophesy). On the other hand, a group member’s appraisal of an emotional conflict may be important in itself, but it may also be relevant to what a conflict actually ends up being, regardless of the theoretical models. Thus, if “everybody” thinks that all emotional conflicts are bad, should we define them as such? After all, the difference between what is stereotyped and what is true or false may sometimes be lesser than commonly assumed (Lee *et al.*, 1995).

Critical issues concerning the exploratory approach in traditional cognitive/task and emotional/relationship research have been addressed by elsewhere. Jehn (1997b), for instance, pointed out that task conflicts can be laden with negative emotionality. We may thus expect that the distinction

between the concepts is also unclear. In fact, Jehn and Chatman (2000) concluded that the most commonly used conceptualization of intragroup conflict may be incomplete and actually hinder the usefulness of intragroup research. Indeed, we may ask whether measures of cognitive/task and emotional/relationship conflicts really cover the core conceptual domain of intragroup conflict.

#### *Developing an extended model of intragroup conflict*

In order to capture both theoretically anchored constructs and statistically valid and reliable measures, we used a combination of a heuristic and a quasi-experimental social development approach (Sternberg, 1985; see also Aronson *et al.*, 1998; Kihlstrom and Cantor, 2000) in developing our extended model of intragroup conflict.

In an interesting and frequently cited study, Pinkley (1990) adopted an approach to the intragroup conflict conceptualization we endorse. Pinkley studied how people perceived interpersonal conflicts, and found three specific orthogonal and bipolar dimensions of conflict framing. The first dimension was one ranging from entirely relationship conflicts to entirely task conflicts. The second dimension had emotional conflicts on one pole, and intellectual conflicts on the other (for details, see Pinkley and Northcraft, 1994). In this study, empirical support was provided for a distinction between emotional and relationship conflict, and also between intellectual/cognitive and task conflict. Consequently, emotional conflict may be relationship oriented, or task oriented, and cognitive/intellectual conflict may be task oriented, or relationship oriented. Based on these findings, we suggest a distinction between what we may call the “mental processing” of the conflict, which is the degree of cognition and emotion in the conflict, and the “content” of the conflict, which is the degree of task and person oriented conflict. We assume that all conflicts can be analyzed along these two elements, since a conflict will

always be about something (content), and, mentally, either dominantly emotional or dominantly cognitive.

*The relationship between emotion and cognition.* There is still no general agreement about the exact distinction and independency between emotion and cognition, a discussion that was actualized in a sparkling debate between Lazarus and Zajonc (Lazarus, 1982, 1984; Zajonc, 1980, 1984). A generally accepted heuristic to the definitions, however, is to consider emotion by its distinction from cognition (Zajonc, 1998). From an emotional point of view, an evolutionary perspective will perceive emotion as an adaptive reaction to stimuli (Darwin, 1872/1965), basically meaning that individuals and species have evolved by facilitating survival through the fundamental reflexive behaviors approach and withdrawal (Bradley and Lang, 2000). However, a systemic approach to emotion has been to suggest several multilevel distinctions of the concept. For example, level 1 includes the underlying physiological changes that accompany emotions; at level 2, we *perceive* expression of emotions and, at level 3, we may add subjective feelings or affect (Scott, 1980, see also Buck, 1985, for a similar approach). From this view it follows that “emotional” at higher levels will include “explicit processes that are influenced by higher cognitive processes, including prior explicit knowledge” (Lane, 2000, p. 362). Thus, even if the independency of emotion and cognition may be correct at the lowest level; higher levels of emotion, albeit mediated by the first level, will be “confounded” by cognitive appraisals of emotional behavior.

From a cognitive point of view, we may emphasize a decision making context, where probably the most important part of human cognition, namely reasoning, is selected and stripped down to the simplest but yet basic task of making the choice between “similarity” or not (Rumelhart and Abrahamson, 1974), or “truth” or not (Zajonc, 1998). To avoid the philosophical complexities of the meaning of "truth" (Fernandez-Armesto, 1997), we use the term “correct” and “incorrect”. Even if the empirical evidence of the independency between emotion and cognition is still debated, there is growing support for viewing

cognition and emotion as two at least partly independent processors of stimulus to the brain (Forgas, 1991; Frijda, 1993; de Gelder, 2005; Isen, 1997; LeDoux, 2000; Phelps, 2005; Zajonc, 1998).

Finally, we need to clarify our position to the question of whether emotion should be described as discrete or categorical (Ekman and Friesen, 1971; Etcoff and Magee, 1992), or if they are values of a continuous variable (Russell, 1980). In the continuous-variable tradition, which we endorse, it seems to be agreement about two independent orthogonal dimensions; the pleasant/unpleasant (pleased/displeased) dimension and the activation (arousal, activity/passivity) dimension (Bush, 1973; Russell and Carroll, 1999). Bradley and Lang (2000) found these two dimensions to be uncorrelated.

*Intragroup conflict.* We define intragroup conflict to be reactions to incompatible wishes or impulses in line with the traditional definitions of conflict (e.g. Collins English Dictionary, Collins: London). From the classical definition of Boulding (1963), we view these stimuli to be examples of incompatible stimuli from the environment, as perceived by the observer. Thus, emotional conflict will be referred to as an incompatible approval/avoidance reaction to a stimulus, whereas cognitive conflict will be referred to as an incompatible correct/incorrect reaction to a stimulus. Furthermore, we follow Pinkley's approach in perceiving task or relationship conflict to be independent of cognitive or emotional conflicts (Pinkley, 1990; Pinkley and Northcraft, 1994). Consequently, we cut the traditional link between cognition and task conflicts, and between emotion and relationship/person conflicts. However, and contrary to Pinkley's approach of perceiving task and relationship conflict as two opposite values on a bipolar scale, we follow the traditional approach (e.g. Jehn, 1994; Amason, 1996) of perceiving task conflict and relationship conflict as two different and independent parts of the content of the conflict. In the following, we use the label "person" rather than "relationship", since we emphasize conflicts about group member's enduring behavioral pattern more than conflicting relationships as such (Janssen *et al.*, 1999).

*Defining the four intragroup conflict types.* Based on the above arguments, we propose a model where we define intragroup conflict as awareness or perceptions of the existence of simultaneous, incompatible, correct/incorrect or approval/avoidance mental processes among group members, with relation to task issues or person issues in the group. All conflicts in our model are assumed to contain both mental processing (emotional/cognitive) and content (task/person oriented). Thus, the two conflict types “cognitive emotion conflict” and “person task conflict” will be incomplete, and the six possible combinations of the four conflict elements are reduced to four conflict types; emotional person, emotional task, cognitive person, and cognitive task conflict, respectively. We further follow the traditional approach in this line of research by assuming that the mental processing of the conflict will be dominantly cognitive or emotional, whereas the conflict content will be dominantly task oriented or person oriented; two assumptions that have to be supported empirically. Finally, it should be emphasized that the conflict type is constituted by group members’ awareness or perception of the conflicting issue, which not necessarily implies that this particular awareness or perception is correct, objectively speaking.

To sum up and conclude, we define intragroup conflict as awareness or perception of the existence of simultaneous, incompatible correct/incorrect, or approval/avoidance issues among group members, concerning task or person related issues. Consequently, this definition may be broken down into four intragroup conflict types; cognitive task, cognitive person, emotional task, and emotional person conflict, respectively (see Table I).

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Take in Table I  
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*Emotional task conflict and cognitive person conflict*

Whereas the definition of emotional person conflict is close to current emotional/relationship conflict definitions, and cognitive task conflict to some extent may be associated with current cognitive/task conflict definitions, the model introduces two, to our knowledge, new intragroup conflict constructs in quantitative research, emotional task conflict and cognitive person conflict. Emotional task conflict is described as emotional, while still task oriented. Emotional task outbursts are never personal in the sense that the other person is the target, even if the emotional disputes are centered on two combatants in the group. Instead, conflicting emotional task episodes are focused on the task. This kind of conflict is well known in practice, and convincingly illuminated in a qualitative study by Eisenhardt *et al.* (1997). They interviewed senior executives in 12 top management teams, and found that the top management teams with the highest conflict level also led the highest performing firms, and, at the same time, the conflicts in these groups were highly emotional. A few citations from the interviews illustrate their findings: "The group is very vocal, they all bring their own ideas" (p. 45); "we scream a lot, then laugh, and then resolve the issues" (p. 47); "we yell a lot...we get it out on the table and argue about it" (p. 47). Similar characteristics are described in assumingly extremely successful "hot groups", which is characterized by total preoccupation with the task, at the same time as they are internally confrontational, challenging, and critical, all with the aim of improving their work (Lipman-Blumen and Leavitt, 1999). The emotional task conflict type is also observed by Jehn (1997b, p. 544): "Interestingly, during task and process conflicts, this level of negative affect is often present without interpersonal animosity. 'I'm not mad at you; I'm angry with the project,' and 'It's not you. I'm just frustrated that I can't explain myself clearly'."

Elements of the emotional task conflict type are also, perhaps somewhat paradoxically, indicated in several cognitive types of conflict. The basic presumption in these cognitive conflict types has been a confidence in the rational thoughts' ability to find a constructive path in the group process, primarily through cooperation and critical thinking (Johnson and Johnson, 1989; Tjosvold and Deemer, 1980). In

constructive conflicts, the whole group may contribute to effective joint work (Tjosvold, 1985), and there is a desire to work with other people (Tjosvold and Yu, 2002). However, at the same time, the group may display key communicative strategies for productive conflict by talking about differences and *empathizing* with group members (Ayoko *et al.*, 2002). For this reason in particular, a high level of *respect* among members is absolutely crucial (Earley and Mosakowski 2000; Tjosvold and Yu, 2002). Moreover, Mitroff (1982, p. 222, italics added) argue that the conflict induced by a structured and imposed dialectical interaction produces a "learning process, whereby through active, *heated*, and *intense* debate . . . the parties come to discover and to invent entirely new alternatives". As these quotations illustrate, the emotional part of several assumed cognitive constructive conflicts seems to be significant.

Cognitive person conflict can be portrayed as conflicts between group members concerning one (or several) group members enduring and group relevant behavior patterns. We should note the difference between correcting current behavior on the one side, which typically will be perceived as a task conflict ("no, you got it wrong!"), and correcting patterns of behavior, which more likely will be perceived as personal ("no, you always get this wrong!"). While this distinction is easily understood from a theoretical point of view, it is not always easy to distinguish between "criticizing you" (person-oriented criticism) and "criticizing what you do" (task-oriented criticism) in real life settings. Thus, we may fear some degree of empirical overlap between cognitive task and cognitive person conflict. Moreover, the distinction between cognitive person and emotional person conflicts may be even more challenging to sort out. Correcting or criticizing other person's behavior patterns and attitudes on a strictly cognitive basis may often be perceived as disliking by the target person. The peaceful coexistence inherent in "this particular behavior of yours is not productive and I recognize your competence" is not always easy to comprehend. However, difficulties in perceiving the right type of conflict in a practical situation may not be a decisive argument against the existence of this conflict type.

## Method

### *Sample and procedure*

Data from four field samples and two laboratory samples was collected to examine the four intragroup conflict types. Of the four field samples, three samples (1, 2, and 3) consisted of 28 ordinary work groups, whereas one (4) consisted of 28 individuals reporting from their own work groups individually. The two laboratory samples (5 and 6) consisted of 12 designed 3-member negotiation-groups (Beersma and De Dreu, 2002). Thus, in total we investigated 40 complete groups (28 work groups and 12 negotiation groups) with 180 group members, in addition to 28 single respondents from 28 different groups. The average age of the respondent was 41, while 47% were men and 53% were women. Table II provides further information about the subsamples.

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Take in Table II  
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The data was collected by questionnaires, completed partly in a laboratory setting (sample 2-6) and partly as a net-based survey (sample 1). The field group members in sample 1-3 had worked together in groups from 3 months to 30 years. These participants were asked to evaluate the conflict structure over the last 6 months of group membership. The participants in the post-school training groups (sample 4) were asked to complete a questionnaire about the conflict structure of the task group they most frequently participated in at their workplace. The members of the laboratory negotiation groups (sample 5-6) were first asked to run a negotiation game, developed by Beersma and De Dreu (2002). After the game, the participants were asked to complete a questionnaire about the conflict types in the 3-persons groups. All 208 participants completed the same 27 items questionnaire on a 5-point scale ranging from 1 (to a very little extent) to 5 (to a very great extent). The response rate for sample 2-6 was 100%, and the response

rate for the net-based survey (sample 1) was 81%, which is high, partly because the management had asked the employees to complete the questionnaire as a part of a research program.

### *Measuring the intragroup conflict types*

We developed a total of 27 items to measure the four conflict types (see Hjertø and Kuvaas, 2005). The items constructed to measure emotional person and cognitive task conflicts were based on their definitions, and on items used in prior research of the emotional/relationship and cognitive/task conflict types (e.g. Deutsch, 1949; Friedman *et al.*, 2000; Jehn, 1994; Rahim, 1983). Emotional task and cognitive person conflicts are new constructs in quantitative research and the item development was therefore based on descriptions of similar conflict types in qualitative research (e.g. Eisenhardt *et al.* 1997), and on theoretical reasoning.

All items in the sub-scales were developed on the basis of our definition of intragroup conflict in general, and the particular conflict type definition in particular. Partly in accordance with the definitions, and partly to make each conflict type more explicit to the respondents, we formulated a set of 10 criteria that should preferably be included in each conflict type sub-scale, however, not necessarily in each item (see Hjertø, 2006 and Hjertø and Kuvaas, 2005, for a more detailed discussion). The criteria were:

1. Emotional person and cognitive task conflicts should include terms and formulations currently in use by other scholars to measure emotional/relationship and cognitive/task conflicts.
2. All types of conflict should include items where the term “conflict” is used.
3. All types of conflict should include items in which the terms “disagreement”, “discussion”, or “different opinion” are used.

4. Both task types of conflict should have items in which the term “task” is used, and denial of “task” in the person types of conflict.
5. Both person types of conflict should have items where the term “person” is used, and denial of “person” in the task types of conflict.
6. Both emotional types of conflict should have items where the term “emotion” or “feeling” are used, and denial of “emotion” or “feeling” in the cognitive types of conflict.
7. Both cognitive types of conflict should have the items in which the term “cognitive”, “reason” and “rational” are used, and denial of “cognitive” or “reason” or “rational” in the emotional types of conflict.
8. Positive and negative mood valence and high intensity items should be represented in the emotional task type. Negative mood valence and high intensity items should be represented in the emotional person type of conflict.
9. Mood valence and intensity of the conflict should be formulated in neutral terms in the two cognitive types of conflict.
10. All items should be interpretable as process conflicts.

The list of items used after an explorative factor analysis is presented in Table III. Particularly, three concerns were challenging to meet; the question of measuring both mental processing and content, the question of mood valence and conflict, the question of long sentences, and the question of long duration of the conflicts..

*Measuring mental processing and content.* The items used to measure each construct should have the following structure: “How much emotional conflict is present in your work group that is personal?” (Emotional person conflict); “How much emotional conflict is present in your work group

about the task?” (Emotional task conflict); “How much cognitive conflict is present in your work group that is task oriented?” (Cognitive task conflict), and finally; “How much cognitive conflict is present in your work group that is personal?” (Cognitive person conflict.). The need to describe two elements of the conflict in every item, the mental processing (cognitive/emotional) as well as the content of the conflict (task/person) imposed a strong restriction on the item construction.

*Mood valence and conflict.* Another challenge was to validly reflect the affective valence of the two emotional conflict types (emotional task and emotional person). As listed in criterion 8, we realized that we would not be able to operationalize these types of conflict equally in terms of affective valence. This would have been preferable, particularly since affective valence is not mentioned in the definitions of the two emotional conflict constructs. Even so, we managed to create some overlap of affective valence between the items in the two constructs. For instance, among the emotional person conflict items: “It was an emotional conflict which the group experienced as not essential to the task” and among the emotional task items; “We expressed different opinions that were quite heated, however, it brought everything on the table”. Indeed, we may experience a heated “showdown” described in the last emotional task item as more negative valenced than the first emotional person item, which in some cases may have been experienced as “just boring”. Still, the main impression reflected in the items is that emotional person conflicts mostly, but not entirely, are negative and affectively valenced, whereas emotional task conflicts are mostly, but not entirely, positively affectively valenced. However, we may indeed question whether measures of emotional person conflicts ever will be balanced in terms of the valence of affect. Due to the “fundamental attribution error” (Kelley, 1973), person conflicts may always be a potential threat to the self esteem maintenance of the persons involved (Tesser, 2000),

*Long sentences.* To describe some of the conflict processes, especially within the cognitive person conflict domain, we had to formulate relatively long sentences in order to emphasize that this particular person conflict episode was *not* emotional. However, long sentences may obscure the content

of the item and may cause response bias (Hinkin, 1995). When piloting the questionnaire, respondents were sensitive to conflicts that had a personal component, and often grouped these types of conflict as emotional person conflicts, even if we explicitly characterized these conflicts with items like “not emotional” or as “reason conflicts” etc. Thus, in order to depict the actual content of the construct, we had to delineate the conflict episode in some length in some of the items. Still, of the 19 items, only three items had more than 20 words, which have been recommended as an advisable “rule-of-thumb” for maximum amount of words (Payne, 1951, p. 136, cited in Converse and Presser, 1986).

*Long duration of the conflict.* Due to similar reasons, some items describe conflict episodes which likely might have taken place over a period of time. This may blur the conflict assessment for the respondent and make it difficult to discriminate the conflict episode from conflict management. Besides, the same event may cause different types of conflict over a time span, and the respondent may have difficulty in selecting one conflict type as more representative than the other. However, since a recommended maximum of six months has been suggested (see the discussion in Converse and Presser, 1986, p. 20-23), we asked the respondents to describe the events of interest over the last six months, and all questions are about the *frequency* of various conflict incidents described by the items.

## **Results**

### *Development of the 4IC scale*

Item analyses were based on exploratory and confirmatory factor analyses, and reliability concerns. In addition we investigated intercorrelations of the final subscales. The exploratory factor analysis (principal component with varimax rotation) of the 27 items (see Hjertø and Kuvaas, 2005), revealed that some items loaded on another factor than originally expected, had unacceptable crossover loadings, or loaded on a fifth, not defined and not significant factor. The remaining 19-items are presented in Table III. The

Kaiser–Meyer–Olkin measure of sampling adequacy was .83 while Chi-Square was 1231 ( $df = 190, p < .001$ ), which in a Bartells' test of specificity confirms the appropriateness of the data for factor analysis. All items except one had acceptable factor loadings ranging between .64 and .82. One item approached this level (.45), and the difference between the target factor loading and the cross loading was  $(.452 - .290 = .162)$ , which is close to the recommended minimum difference of .20 (Dyne *et al.*, 1994).

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Take in Table III  
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#### *Confirmative analysis*

Next, a LISREL 8 confirmatory factor analysis (CFA) with maximum likelihood estimates was performed on the data matrix (Jöreskog and Sörbom, 1993). This method indicates whether the items created to tap the constructs of the intragroup conflict model produce a good fit. The only strictly statistical measure available in CFA is found by calculating whether the difference between estimated and observed matrix is non-significant, which may indicate the appropriateness of the fit of the data matrix. In this analysis, the difference was non-significant at the level of  $p < .001$ , but significant at the level of  $p < .01$ . This is a situation many exploratory developed models may face, theory driven or not, particularly when the data set is large, since CFA adds substantial restrictions on the EFA factor structure before testing (Van Prooijen and Van der Kloot, 2001).

Several measures to indicate fit between the data and the proposed model are available in CFA. The overall absolute goodness of fit indicator (GFI) gives the relative amount of variance and co-variance explained by the model, and measures how much better the model fits, compared to no model at all. The GFI was .89. The RMSEA index (root mean square error of approximation) is an absolute fit measure

and free of sampling bias, and is recommended and frequently used (e.g. Jöreskog, 1993; McDonald and Ho, 2002). This measure may be especially informative when studying the narrowness of its confidence interval (Kelley and Rauch, 2006). The RMSEA should be below .080 to be perceived as good fit, and below .050 to be perceived as a close fit (Jöreskog and Sörbom, 1993), or a “reasonable” error of approximation (see Davey, Savla, and Luo, 2005). RMSEA was 0.045, with an upper 90% confidence interval of .061. Of incremental fit measures, the normed fit index, NFI, suggest how closely the proposed model is to a fully saturated null model. The null model is normally a baseline single-factor model, where all indicators are related to one single construct, and with no measurement error. The NFI was .91. Finally, several parsimonious fit measures are available. Parsimonious measures include the number of coefficients that have been used to achieve good fit, to prevent “over fitting” with the data. The adjusted goodness-of-fit index, AGFI, is the GFI index adjusted by the ratio of degrees of freedom for the proposed model to the degrees of freedom of a null model, and AGFI was .86. To sum up, the absolute goodness of fit measures, especial the RMSEA, indicated close fit; and the incremental and parsimonious fit measures indicate from marginally to acceptable fit. Based on a general assessment of these fit measures, we deem the data matrix to be acceptable fitted to the 4IC model (for an overview of all CFA analyses, see Table IX).

The reliability (Cronbach’s alpha) for the four intragroup conflict subscales was .87 for emotional task conflict (5 items), .80 for cognitive task conflict (5 items), .77 for emotional task conflict (5 items), and .69 for cognitive person conflict (4 items).

#### *Refined model and split sample analysis*

To further check the scale reliability of the 4IC, we ran CFA analyses for two split-samples. Of validity reasons, sub-samples 1, 2, and 3 were grouped in the first split-sample ( $N = 108$ ), consisting of adult

people working in ongoing teams in three companies (“Company”). The second split-sample was grouped by sub-samples 4, 5, and 6, consisting of adult students taking different courses (“Student”). Due to the small sample size relative to the number of items in the student sample ( $N = 58$ ), we refined the 19-item composition as a tentative initial model (Jöreskog and Sörbom, 1993) by step by step removing items that reduced the chi-square value (following the modification measures suggested in the LISREL 8 software). This approach was followed until we reached the advisable minimum amount of 3 items for each construct. The approach was also made of validation reasons, since we got a  $3 + 3 + 3 + 3 = 12$ - item scale with the same amount of items measuring each construct as the most refined  $3 + 3$  items solution of several ICS versions analyzed by Pearson *et al.* (2002). We return to the comparison between the 4IC(12) scale and the ICS(6) later.

The refined 4IC(12) model was non-significant at the level of  $p > .10$ , the overall absolute goodness of fit indicator GFI was .94, and the RMSEA was .039, with an upper 90% confidence interval of .068. The incremental fit measure NFI was .93, and the parsimonious fit measure AGFI was .91. All measures indicating from acceptable to close fit (see Table IX). The reliability (Cronbach’s alpha) for each subscale was .81 for emotional person conflict, .77 for cognitive task conflict, .69 for emotional task conflict, and .61 for cognitive person conflict.

Both split-samples showed non-significance ( $p > .10$ ) of the two matrices tested against the 4IC model, as preferred. For the Company sample the GFI was .92, RMSEA was .042, with .079 within 90% of confidence, NFI was .92, and AGFI was .87, all measures indicating from approachable to close fit. For the Student sample GFI was .90, RMSEA was .000, with .058 within 90% of confidence, NFI was .88, and AGFI was .83. Due to the small sample size, the Student analysis shows some signs of “over fitting” of the model, thereby capitalizing on chance (Hair, *et al.*, 1998), as indicated by a normed chi-square rate below 1.00 (.83). The overall impression, however, is that both the Company and the Student

samples elicited appropriate statistical properties and fit measures. The split sample measures are summed up in Table IX.

### *Correlations between the conflict types*

We constructed the 4IC variables by averaging the items in each factor. From Table IV we note that cognitive task conflict is the most frequent conflict type, while the two person conflict types ranks lowest, but both at an average above “to some extent” (2 points) in frequency. Concerning content relevance of the constructs, it is interesting that cognitive person conflicts are not less frequent than emotional person conflicts.

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 Take in Table IV  
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Table IV further reveals that the four intragroup conflict variables had intercorrelations between  $r = -.47$  and  $r = .56$ . The correlation between cognitive task and emotional person conflicts was  $r = -.47$  ( $p < .01$ ). This is substantially different from findings of the correlation between cognitive/task and emotional/relationship conflicts, which normally is positive and around .55 (De Dreu and Weingart, 2003). The correlation between the two emotional conflict types, emotional task and emotional person, was  $r = .31$  ( $p < .01$ ), while the correlation between the two cognitive oriented conflict types, cognitive task and cognitive person, was not significant. Finally, the correlation between the two task oriented conflicts was not significant, whereas the two person oriented conflicts correlated significantly ( $r = .56$ ,  $p < .01$ ). The pattern of correlations between the four intragroup conflict variables indicates that none of the variables are redundant.

*Controlling for mood valence.* Emotion and mood is often used interchangeably, however, mood may be perceived as a configuration of activities, including emotional activities like positive or negative general appraisals that are not centered around an (e.g. conflicting) object or event (Frijda, 1986). We may thus expect that a general, group related (Bartel and Saavedra, 2000) mood valence might be related to the conflict types. We controlled the correlation matrix of the conflict types with a single-item measurement of mood valence by the question: “How would you consider the general mood of the team during the period?” with responses on a 5 point scale, ranging from “very negative” to “very positive”, and then reran the correlation analysis (See Table V). Based on a comparison of the figures in Table IV and Table V, we conclude that the general mood valence in the groups did not seem to substantially affect the relationships between the four conflict types.

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 Take in Table V  
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#### *Validity concerns*

*Intensity, viewpoint certainty, and intragroup conflict.* Intensity, or grade of activation, is considered as a major dimension in the description of emotional behavior and in judgment of expression (Bradley and Lang, 2000; Bush, 1973; Frijda, 1986; Russell, 1980). We should therefore expect a high positive correlation between intensity and the two emotional conflict types, emotional person and emotional task conflicts. Conversely, we expect low or negative correlations between intensity and task and cognitive person conflict. We also investigated viewpoint certainty (“certainty”), as an underlying element of cognition (Hunt, 2003) and a possible indicator of validity. More specifically, we asked about the certainty of the respondents’ viewpoints in disagreements/conflicts. However, considering an expected

relatively high deliberate, conscious, and cognitive processing of emotional and non-emotional signals, as discussed earlier, we may also find substantial elements of certainty in the two emotional conflict constructs. We used a sub-sample consisting of 180 group members to investigate the relationships between the conflict types and intensity and certainty. Intensity was measured by the question: “How would you consider, in general, the intensity of the disagreements/conflicts the group experienced?” on a 5 point scale ranging from “very low intensity” to “very high intensity”. Certainty was measured by the question: “How would you consider the degree of certainty of the participants differencing viewpoints in disagreements/conflicts?” on a 5 point scale ranging from “great uncertainty” to “great certainty”.

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 Take in Table VI  
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Table VI shows that the two emotional conflict types correlated positively with intensity and that cognitive task conflict correlated negatively with intensity, providing some support for the validity of these measures. Cognitive person conflict, however, correlated positively with intensity. A possible interpretation of this finding is that both person conflicts types are related with the emotional dimension of intensity, independently of whether they are emotional or cognitive. Certainty did not correlate with either of the conflict measures.

*Comparing the 4IC scale with the ICS.* To further explore the validity of the 4IC scale, we compared the scales of cognitive task and emotional person conflict with emotional/relationship conflict (termed “emotional conflict”) and the cognitive /task conflict (termed “task conflict”) in the ICS (Jehn, 1994). Several of the original 4IC items in the principal component analysis (Table III) and the confirmatory factor analysis (Table V) are based on the Jehn Intragroup Conflict Scale (1994).

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 Take in Table VII

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In Table VII, an item to item content comparison between emotional person conflict and “emotional conflict” (in the following referred to as emotional/relationship conflict) indicates relatively strong overlap. Indeed, some of the items are practically identical. Furthermore, the items measuring cognitive task conflict and “task conflict” (in the following referred to as cognitive/task conflict) are also similar, but to a lesser extent.

There is, however, one significant and intended difference between the cognitive task and the cognitive/task conflict constructs. When looking at the cognitive/task items, we observe that none of the items are explicitly addressing the cognitive processing of the conflict. Even if “discussions”, “disagreements”, or “differences of opinion” most often may describe cognitive conflicts, they may also in some cases be descriptions of emotional conflicts. It is quite common to experience emotional discussions, disagreements, and differences of opinions. As long as the cognitive/task scale is measuring “task conflicts” in general, the items in the ICS would be appropriate. However, if the task conflict construct in the ICS also aim to identify a cognitive processing of the task conflict, the indicators of the construct listed in Table VII would be incomplete.

*Correlations between the 4IC and the ICS variables.* The 4IC scales were also empirically compared to the ICS using a small subsample ( $N = 61$ ). As can be seen from Table VIII, both the emotional/relationship and cognitive/task scales had appropriate internal consistency (Cronbach’s alpha in brackets). The average mean across samples of emotional/relationship conflict ( $m = 2.18$ ,  $sd = .86$ ,  $N = 61$ ), and emotional person conflict ( $m = 2.11$ ,  $sd = .96$ ,  $N = 196$ , see Table I), was expected, and may indicate some convergent properties within these constructs. Somewhat unexpectedly, however, emotional person conflict and emotional/relationship conflict did not correlate significantly ( $r = .13$ , n.s.). Still, both scales correlated positively with cognitive/task conflict ( $r = .30$ ,  $p < .01$ , and  $r = .40$ ,  $p < .01$ ,

respectively), which may indicate that the cognitive/task conflict construct may contain some emotionality.

As discussed above, the cognitive task and the cognitive/task constructs in the 4IC model and ICS, respectively, are defined and measured differently with regard to the cognitive content of the two constructs. While the cognitive/task construct is termed “task conflict”, although still interpreted also as a cognitive conflict (Amason, 1996; Jehn, 1994), the cognitive task construct is explicitly defined and measured as a cognitive *and* as a task oriented conflict. Thus, the lack of correlation between cognitive task and cognitive/task ( $r = -.18$ , n.s.) was expected.

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 Take in Table VIII  
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*CFA analyses of all intragroup conflict scales.* For further validation of the 4IC, we used a subsample ( $N = 65$ ) with data using the refined 6 items ICS model (Pearson *et al.*, 2002). The items used are marked by note 2 in Table VII (above). We found a comparison of the refined 4IC(12) and ICS(6) to be appropriate, since they had the same amount of items measuring the emotional task and the emotional/relationship constructs, and the cognitive task and cognitive/task constructs, respectively. The results of the analysis are presented in Table IX, together with all previous CFA analyses.

To supplement the analysis from our own ICS(6) sample, which was too small, we added the results from a selection of several other ICS samples, analyzed by Pearson *et al.* (2002).

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 Take in Table IX  
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Due to relatively small sample sizes (especially the spitted Student sample and the ICS sample), different sample sizes, and different degrees of freedom, some of the figures in Table IX should be

assessed with caution. The internal sample data collected to assess the ICS (row 6) was close to non-significance ( $p = .05$ ), and GFI and NFI were approaching acceptable fit (.87 and .85, respectively). Even if RMSEA was .00, the sample size is too small to give stable predictors, indicated by an upper 90% confidence value for RMSEA at .29. Neither the AGFI value (.66) did approach recommended levels of indicated fit. Thus, the internal assessed ICS data had some indications of approaching appropriate fit, but the data are unstable. The supplementary data from the study of the ICS scales by Pearson *et al.* (2002), offers a more representative picture of the appropriateness of the ICS. A comparison of the 4IC scales and the ICS' seems to indicate that these two intragroup conflict scales are reasonably comparable in terms of statistical appropriateness and fit.

### **Discussion**

In this study we have developed a model of four intragroup conflict types, cognitive task, cognitive person, emotional task, and emotional person conflict. Our study builds heavily on the thinking and development of the model underlying the Intragroup Conflict Scale (ICS, Jehn, 1992), but extends this model by including an emotional task and a cognitive person conflict. We have also developed and initially tested a scale that can be used to empirically assess the four types of intragroup conflict.

#### *Theoretical and managerial implications*

We believe that particularly the emotional task oriented conflict type may have important implications for theory and practice. Qualitative research, including Jehn (1997b), has suggested that cognitive/task conflicts may be loaded with some emotionality, and other studies have elicited the potentially beneficial property of emotion, even in conflict (Eisenhart *et al.*, 1997; Lipman-Blumen and Leavitt, 1999). By developing and empirically exploring a model of four types of intragroup conflict, this study proposes

new ways to understand intragroup conflicts, as well as a measurement instrument that can be used in future quantitative intragroup conflict research.

From a managerial point of view, the good news may be that conflicts should not be viewed as “rational cognitive/task oriented” or “irrational emotion/person oriented”. Accordingly, managers should be aware of the possibility of keeping the emotional and intense pressure in order to foster necessary change, but at the same time try keeping the conflict on the track of the task without allowing the conflict to escalate into personal bickering. Nevertheless, facing conflicts with employees on a strictly cognitive basis is probably one of the most challenging tasks for a manager to fulfill (Fisher, 1979; Yariv, 2006). It is tempting to avoid unpleasant confrontations even when it is necessary, and the result may be conflict avoidance and upholding of unacceptable situations until one gets irritated and even furious, with a long and costly emotional person conflict period as a potential result.

#### *Limitations and further research*

It is our hope that the development of our model and the measurement instrument will stimulate further research that follows or challenges our suggestions. First, and in accordance with our motivation to develop the model, studies should investigate relationships between the four types of intragroup conflict and different measures of group outcome, such as delivery, job satisfaction, and learning (Hackman, 1987). Preliminary empirical investigations (by the first author) indicate that the relationship between emotional task conflict and group outcomes may be positive. Even though we need to await published research, such initial evidence is interesting when considering the rather pessimistic findings of De Dreu and Weingart’s (2003) meta-analysis.

Second, there is a need to further scrutinize the emotional task and cognitive person conflict constructs. Even if the statistical and psychometric properties of the scales were satisfactory, further

development of the constructs is needed. Accordingly, replications with other and preferably larger samples are needed. A substantial amount of theoretical issues also need to be resolved. In particular, there is a need to clarify and improve our understanding of the difference between “positive emotional conflicts” and “cognitive task conflicts in a positive emotional context” (Ancona and Chong, 1999; Hackman, 1999).

Another important avenue for future research is to further develop the congruence between our theoretical definition of what intragroup conflict “is”, and what laymen actually think it is. However, in constructing the items, the overriding factor is not whether the words or phrases have been defined “perfectly clear” to the authors, but the meaning these words and phrases have for the respondents (Pedhazur and Schmelkin, 1991, p. 136). Item construction is also challenged by the need for a clear demarcation between conflict types and conflict approaches, or even conflict management. Taken together, developing items that are consistent with theoretical definition of each type of conflict, that at the same time describe conflict episodes that are not confounded with conflict management and conflict solution strategies raises a significant empirical challenge within this field.

Considering the four intragroup conflict types, we may expect to find most improvements in further development of cognitive person conflict. From a theoretical point of view, this type of conflict should not be more difficult to comprehend than the other three. Nevertheless, cognitive person conflict turned out to be the weakest construct from a psychometric and statistical point of view. The relative strong correlation between this subscale and the subscale used to measure emotional person conflict and the 1-item intensity measure, indicate that we have not succeeded completely in developing a measure of person conflict free of emotional loading. Still, this conflict type may be particularly interesting from a more practical point of view. Even if negative feedback based on cognitive reasoning sometimes is necessary in a group with the ambition of reaching peak performance, the difficulty arises when it comes

to the question of *how* cognitive negative feedback should be conveyed without eliciting negative emotional reactions from the receiver.

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**Table I.**

A four conflict type model of intragroup conflict

	<b>Task</b>	<b>Person</b>
<b>Emotional</b>	Emotional task conflict An intragroup emotional task conflict is the awareness or perception of the existence of simultaneous and incompatible approval/avoidance issues among group members, concerning task related issues.	Emotional person conflict An intragroup emotional person conflict is the awareness or perception of the existence of simultaneous and incompatible approval/avoidance issues among group members, concerning person related issues
	Cognitive task conflict An intragroup cognitive task conflict is awareness or perception of the existence of simultaneous and incompatible correct/incorrect issues among group members, concerning task related issues.	Cognitive person conflict An intragroup cognitive person conflict in a group is awareness or perception of the existence of simultaneous and incompatible correct/incorrect issues among group members, concerning person related issues.

**Table II.**

Basic sample data

	Sample	Field task groups			Designed 3-member negotiation groups			Age of respond.		Sex
		Groups	Members	Group size	Groups	Members	Group size	Avrg.	St.d v.	% men
1	Factory (dep. of advisers)	17	95	5,6				40,3	7,7	43 %
2	Small factory (all employees)	6	26	4,3				37,2	12,8	21 %
3	Employees in voluntary org.	5	25	5,0				40,3	7,7	43 %
4	Post-school training	28	28	(-)				43,0	9,8	80 %
5	MM post grad. students I				6	18	3,0	41,7	6,9	22 %
6	MM post grad. students II				6	18	3,0	42,3	6,9	57 %
	Total	56	172	5.1 <sup>1</sup>	12	36	3,0	41,0	9,3	47 %

Note 1: Not including sample 4.

**Table III.**

## Explorative factor analysis of the scale

	Component			
	1	2	3	4
When differences occurred, some tried to put themselves forward at the expense of others	,80			
The conflict was marked by personal clashes in the group	,79			
It was an emotional conflict which the group experienced as not essential in relation to the task	,77			
It seemed like narrow-mindedness or envy was driving the conflict	,71			
There was tendencies of anger and aggression between some persons in the group	,67	-,34		
Our disagreement was task oriented and we had long discussions, however we always put reason before emotions		,76		
While disagreeing on the subject matter, feelings were kept under control and one made an effort to argue in a logical and analytical manner		,74		
The conflict which the group experienced was task relevant and justified in a way that made sense		,69		
During the conflict the group was concerned about solving problems by using a sensible and rational procedure		,69		
The task disagreement that occurred took place within a calm and solution oriented atmosphere	-,36	,67		
Even if we were "quarrelling hammer and tongs", many amusing comments also occurred			,75	
We expressed different opinions that were quite heated, however it brought everything on the table			,69	
The discussions were lively and energized, however we had a shared need of finding the best alternative		,30	,68	
The conflict was characterized by strong feelings and a motivation to find the best solution			,66	
The conflict was engaged and emotional, but led to new ways of viewing the case			,65	,30
The group pointed out some bad habits of some of the group members, however the conflict did not become emotional because we clearly explained why.				,81
Some members of the group had to be reminded of which rules and norms we had in the group, and after a while they understood why they had been corrected				,77
Criticism of some members of the group occurred, but in such a way that nobody became defensive				,63
Personal critique was openly and with relevant arguments put forward during the discussion				,45

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

**Table IV.**Means, Standard Deviations, Intercorrelations, and Internal Consistency ( $\alpha$ )

	Mean	SD	1	2	3	4
Emotional person conflict	2,10	,96	(.87)			
Cognitive task conflict	3,31	,77	-.46**	(.80)		
Emotional task conflict	2,80	,82	.19**	.14	(.77)	
Cognitive person conflict	2,19	,79	.45**	-.10	.44**	(.69)

+  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . (Two tailed)  
 a Listwise N=197

**Table V.**

Intercorrelations controlled for mood valence

Control Var.		1	2	3	4	
Mood Valence	1	Emotional person conflict	1.00			
	2	Cognitive task conflict	-.37***	1.00		
	3	Emotional task conflict	.27***	.08	1.00	
	4	Cognitive person conflict	.43***	-.04	.48***	1.00

Df = 194. \*\*\*  $p < .001$ . (Two tailed)

**Table VI.**

Correlations between the 4IC conflict types, intensity, and certainty

	Mean	SD	1	2	EP <sup>1</sup>	CT <sup>1</sup>	ET <sup>1</sup>	CP <sup>1</sup>
1 Intensity	3.00	1.03	1.00		.36**	-.21**	.26**	.23**
2 Certainty	3.26	.88	.24**	1.00	.08	-.06	.06	-.09

a Listwise N=189. <sup>+</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

<sup>1</sup> Emotional person (EP), cognitive task (CT), emotional task (ET), and cognitive person (CP) conflict types, respectively.

**Table VII.**

Comparison of items in the 4IC scale with the ICS for two conflict types

From the 4IC scale (two of four conflict types)	The ICS <sup>1</sup>
Emotional person conflict	Emotional conflict (the emotional/relationship type)
There was tendencies of anger and aggression between some persons in the group	How much anger is present in your task group? <sup>2</sup>
When differences occurred, some tried to put themselves forward at the expense of others	How much friction is present in your task group? <sup>2</sup>
It seemed like narrow-mindedness or envy was driving the conflict.	How much tension was there in the group during decisions? <sup>2</sup>
It was an emotional conflict which the group experienced as not essential in relation to the task	How much emotional conflict is there in your task group?
The conflict was marked by personal clashes in the group	To what extent are personality clashes present in your task group?
Cognitive task conflict	Task conflict (the cognitive/task type)
The task disagreement that occurred, took place within a calm and solution oriented atmosphere	How much disagreement was there among the members of your group over their opinions? <sup>2</sup>
While disagreeing on the subject matter, feelings were kept under control and one made an effort to argue in a logical and analytical manner	How many differences about the content of decisions did the group have to work through? <sup>2</sup>
During the conflict the group was concerned about solving problems by using a sensible and rational procedure	How many differences of opinion were there within the group? <sup>2</sup>
Our disagreement was task oriented and we had long discussions, however we always put reason before emotions	How many disagreements over different ideas were there?
The conflict which the group experienced was task relevant and justified in a way that made sense	

<sup>1</sup> Jehn (1992, 1994, 1995), items from Pearson *et al.*, 2002.<sup>2</sup>: Refined 3 + 3 scale items from Pearson *et al.*, 2004.

**Table VIII.**

The 4IC scale and the ICS<sup>1</sup> - means, standard deviations, intercorrelations, and internal consistency ( $\alpha$ )

	Mean	SD	1	2	EP <sup>2</sup>	CT <sup>2</sup>	ET <sup>2</sup>	CP <sup>2</sup>
1 Emotional/relationship conflict <sup>3</sup>	2.18	.86	(.77)		.13	-.34**	-.17	-.19
2 Cognitive/task conflict <sup>4</sup>	2.85	.71	.40**	(.81)	.30*	-.18	-.12	-.09

Listwise N=60. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . (Two tailed)

<sup>1</sup>Jehn (1992, 1994, 1995), refined 3 + 3 items version developed by Pearson *et al*, 2002.

<sup>2</sup> Emotional person (EP), cognitive task (CT), emotional task (ET), and cognitive person (CP) conflict types, respectively.

<sup>3</sup> Labeled "relationship conflict" in Pearson, *et al*. (2002)

<sup>4</sup> Labeled "task conflict" in Pearson, *et al*. (2002)

**Table IX.**

CFA results of intragroup scales

	Scale & Sample no	Items <sup>2</sup>	N	Df	$\chi^2$	p	$X^2/df$	GFI	RMSEA <sup>3</sup>	RM SR	NFI	AGFI
1	4IC	19 (5;5;5;4)	164	146	193,4	$p = .005$	1.3	.89	.03-.06	.09	.91	.86
2	ICS-1 <sup>1</sup>	9 (5;4;-;-)	156	26	119.3	$p < .001$	4.6	.85		.08	.85	.75
3	4IC(12)	12 (3;3;3;3)	163	48	60.1	$P = .11$	1.3	.94	.00-.07	.07	.93	.91
4	4IC Com <sup>4</sup>	12 (3;3;3;3)	108	48	57,14	$p = .17$	1.2	.92	.00-.08	.07	.92	.87
5	4IC Stud <sup>4</sup>	12 (3;3;3;3)	59 <sup>5</sup>	48	39,67	$p = .80$	1,5	.90	.00-.06	.08	.88	.83
6	ICS	6 (3;3; -; -)	36 <sup>5</sup>	8	15.5	$p = .05$	1.9	.87	.00-.29	.08	.85	.66
7	ICS-5 <sup>1</sup>	6 (3;3; -; -)	156	8	19.5	$p < .02$	2.4	.96		.04	.95	.89
8	ICS-9 <sup>1</sup>	6 (3;3; -; -)	102	8	17.2	$p < .05$	2.2	.96		.02	.95	.91
9	ICS-10 <sup>1</sup>	6 (3;3; -; -)	148	8	7.7	$p = .45$	1.0	.98		.02	.98	.98

<sup>1</sup> Data in row 2 and 7-9 are obtained from Pearson, Ensley, and Amason (2002: 115, Table II). Of comparison reasons, all 9- and 6-item samples below  $N = 200$  are selected.

<sup>2</sup> Number of items in brackets for emotional task or emotional/relationship, cognitive task or cognitive/task, emotional task, and cognitive person, respectively.

<sup>3</sup> 90% confidence interval for RMSEA.

<sup>4</sup> Split of 12 items' 4ICscale, in a company and a student sample.

<sup>5</sup> Sample too small, data may be unstable and biased.

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