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Task conflict in management teams in the 2020s:

the effect on decision quality

Master's thesis

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Abstract
In this study, the (curvilinear) relationship between task conflict and decision quality, moderated by informality of decision-making, was examined. It can offer new insights to literature since a curvilinear relationship between task conflict and decision quality was not found yet. Furthermore, no research related to both task conflict and informality of decision-making was conducted. A quantitative study using a survey was conducted at a big Dutch supermarket chain. Against expectations, task conflict does show a non-significant or negative influence on decision quality, depending on the sample. No statistical evidence of a curvilinear effect was found, even not when considering informality of decision-making as a moderator. The study offers five contributions to literature. First, age is proven to influence decision quality and might influence the way people handle conflict too. Second, although most studies argue that task conflict is beneficial for organizational outcomes such as decision quality, it is time consuming and might therefore not be beneficial in industries where there is limited time to make decisions. Third, a scale for informality of decision-making was developed. Fourth, trust in team members' capabilities (cognition-based trust) improves decision quality. Fifth, the study offers a first indication of how task conflict behaves in the (Dutch) supermarket industry.

Keywords: conflict, task conflict, decision-making, informality of decision-making, decision quality, management teams.

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Introduction

In current literature on (management) teams, a lot is written about conflicts. Conflicts can take many different forms, but in teams, interpersonal conflict is the most present type of conflict. Interpersonal conflict is a process between individuals when they feel negative emotions due to experienced disagreement with other individuals (Barki & Hartwick, 2004). Before about 1995, all conflict within teams was viewed to be negatively related to organizational outcomes, such as organizational performance, decision quality, and organizational growth (Jehn, 1995; Amason, 1996). On the other hand, no conflict was seen as exclusively positive for organizational outcomes. Later, researchers found that interpersonal conflict can take different forms, with each form that has its own implications with respect to teams. Nowadays, interpersonal conflict within teams mostly is distinguished between task-related conflicts and relationship-related conflicts.

The majority of current literature argues that task conflicts mostly influence organizational outcomes positively, whereas relationship conflicts have negative consequences on organizational outcomes. Most research observes a linear relationship between task conflict and dependent variables. One of those variables is decision quality (Amason, 1996), that on its turn is argued to relate positively to team and subsequently organizational performance. However, a linear relationship indicates that increasing levels of task conflict lead to increasing levels of variables such as decision quality. In other words, enormous levels of task conflict will lead to better organizational outcomes than high or moderate task conflict levels. In contrast, Jehn (1995), found that the relationship between task conflict and individual/group performance was reversed U-shaped, when moderated for routine and non-routine tasks. Thus, low levels of task conflict are related to lower performance, and increasingly high task conflict would be increasingly less beneficial for performance. When too little task conflict is present, team members will more limitedly discuss the viewpoints they have. New insights these different viewpoints can provide will then not be expressed. On the other hand, team members excessively sharing their viewpoints, as is characteristic for high task conflicts, can hamper team processes, leading to decreased group performance.

As discussed earlier, decision quality is identified as a motivator for organizational performance (Amason, 1996). However, current literature on the relationship between task conflict and decision quality falls short, indicating a linear relationship. To the best knowledge, no research has been conducted yet to a possible inverted U-shaped relationship between task conflict and decision quality. As discussed, some researchers found a so-called curvilinear relationship

between task conflict and other dependent variables, such as individual and team performance (Jehn, 1995), team innovation (De Dreu, 2006), team efficiency and a team's ability to learn (De Dreu & Weingart, 2003). Therefore, the first aim of this paper is to test whether there is a reversed U-shaped relationship between task conflict and decision quality.

Another gap in research arises with respect to the context in which decisions are made today. Most pioneering research on conflicts is approximately older than 20 years. The question arises if the context in which decisions were taken 20 or more years ago, is the same as today's. Probably the most far-reaching difference between these two settings is the emergence of new technology. Internet is playing a more prominent role, leading for example to the emergence of hybrid working. In addition, the introduction of smartphones facilitated that communication was easier and therefore more accessible than ever. Therefore, connecting to other organizational members without being physically present at the facilities or while not working is more accessible. The increase of potential communication outside a company's facilities and working hours also puts task conflict and decision-making within teams in a different light. Said differently, due to the increase of technological solutions such as hybrid working and smartphones, team members are able to communicate in a more informal way with each other than 20 years ago. The informality of communication within teams regarding decision-making (informality of decision-making) might therefore moderate the relationship between task conflict and decision quality.

The level of informality of decision-making as a moderator can (indirectly) provide insights on the influence of today's context on the relationship between task conflict and decision quality. In research, most moderators influenced a linear, not curvilinear relationship. For example, cognition-based trust moderates the linear relationship between task conflict and the commitment to, understanding of and quality of decisions (Parayitam & Dooley, 2007) and psychological safety moderated the relationship between task conflict and team performance in a linear manner (Bradley et al., 2012). To summarize, the second aim of this study is to examine whether informality of decision-making moderates the curvilinear relationship between task conflict and decision quality.

The goal of this research paper is to test whether there is a significant (reversed U-shaped) relationship between task conflict and decision quality and if it gets moderated by informality of decision-making. Furthermore, this research aims to reveal differences, if they are, in this (moderated) relationship, in comparison with older scientific papers discussed. The purpose of this study is to examine how task-related conflicts affect decision quality, moderated by

informality of decision-making, which may in turn affect organizational performance. This will contribute to current literature on task-related conflicts by extending it with 2020s' perspectives. For practical considerations it is relevant to investigate the effect of task conflict on decision quality since it is likely that decision quality leads to higher organizational performance. Furthermore, management can use the potential insights of this research paper in order to finetune the cohesion within their own (management) teams. Task conflict can have negative outcomes, such as increased relation conflict (Parayitam et al., 2010), but when managed properly, the best out of a task conflict with respect to organizational performance can be distilled.

First, the current academic perspectives on task conflicts, decision quality and informality of decision-making will be discussed. Based on these perspectives, two hypotheses will be formulated. The methods section will elaborate on how the research was conducted and how concepts were measured, followed by the survey's results. This paper will end with a discussion section and conclusion.

Theory development

In prior research, the concept 'conflict' was used in different contextual forms, such as political or religious conflicts, and was researched at various levels of analysis, including groups or individuals (Barki & Hartwick, 2004). The situational context can also vary, ranging from domestic to organizational settings. In organizational settings, conflict can be classified as 'interpersonal conflict', that can be defined as 'a dynamic process that occurs between interdependent parties as they experience negative emotional reactions to perceived disagreements and interference with the attainment of their goals' (Barki & Hartwick, 2004, p. 234). Until 1995, the scientific view on organizational conflicts was ambiguous. Conflict was assumed to fuel a reduction in effectiveness and satisfaction within groups (Gladstein, 1984), whereas no conflict would indicate an increase in group performance (Schwenk & Cosier, 1993). Later, the effects of conflict were revealed to be also beneficial for organizational functioning, by improving decision quality, strategic planning (Schweiger et al., 1989), economic performance (Bourgeois, 1985) and organizational growth (Eisenhardt & Schoonhoven, 1990).

In (top management) teams, group processes are of central importance in order to agree to strategic decisions. Mental models, also known as 'knowledge structures' or 'schemas', will influence decisions of managers and groups (Knight et al., 1999; Day & Lord, 1992). However, this does not mean that the existence of a group's mental models implicitly means that teams are continuously seeking for consensus: 'This term mainly refers to agreement or overlap among individual team members' mental models of strategy but does not necessarily imply a deliberative consensus-seeking process' (Knight et al., 1999, p. 447). Group processes may encourage but can also frustrate strategic consensus within (top management) teams as a result of individuals' diverging mental models.

High-quality decisions can occur with the help of teams' cognitive diversity, by 'critical and investigative interaction processes in which team members identify, extract, and synthesize their perspectives to produce a decision' (Amason, 1996, p. 124). Together with consensus (active cooperation by demonstrating understanding and commitment to the decision) and affective acceptance (the maintenance of affective relationships, which is a condition of effective collaboration), high-quality decision-making is assumed to improve organizational performance. However, reaching those three goals simultaneously is adversative. Teams making decisions on what they can easily agree on, thus with high consensus and affective acceptance, lowers the quality of the decision. This also works the other way around: When the

quality of decisions is high, consensus and affective acceptance will decrease since high-quality decisions are a result of critical evaluation of a certain issue. Critical evaluation may also come along with members contradicting each other, consequently lowering affective acceptance and consensus (Schweiger et al., 1986). This phenomenon is also known as the 'paradox of conflict'. In order to assemble high-quality decision-making and consensus and affective acceptance among team members, leading to greater organizational performance, conflict seems important and unavoidable.

Building on prior research of for example Wall and Nolan (1986), Jehn (1995) examined not just conflict but divided it into two distinct types: task conflict and relationship conflict. Amason (1996) followed this distinction, referring to them as 'cognitive conflict' and 'affective conflict'. He argued that decision quality, consensus and affective acceptance can be improved by distinct types of conflict. Not distinguishing different types of conflict would lead to inconsistent effects on organizational performance.

Jehn's task conflict refers to 'disagreements among group members about the content of the tasks being performed, including differences in viewpoints, ideas, and opinions' (Jehn, 1995, p. 258). Amason's cognitive conflict 'is generally task oriented and focused on judgmental differences about how best to achieve common objectives' (Amason, 1996, p. 127). Because of the extensive evaluation process, other team members' underlying assumptions are more visible, leading to higher understanding of the ideas and affective acceptance of those team members. Since decisions are examined from a great variety of viewpoints, their quality will be higher. However, increased decision quality can simultaneously lower consensus and affective acceptance (Brehmer, 1976), which can trigger relationship conflicts. For example, consider two members of a supermarket chain's buying team that have different viewpoints on a deal with a supplier of a broad range of products that is sold in their stores, who increased the average buying price by 50%. One team member argues that they should not buy their products before the supplier drops the price of the products, while the other argues that the supermarket chain preaches 'we're there for all your groceries', so also when prices are higher. This scenario illustrates the way to reach organizational goals and is not related to personal issues between team members. Therefore, this conflict can be classified as a task conflict.

A relationship conflict in Jehn's words refers to 'interpersonal incompatibilities among group members, which typically includes tension, animosity, and annoyance among members within a group' (Jehn, 1995, p. 258). It lowers group member satisfaction within groups but does not have a negative impact on individual and group performance, since members avoid working

with whom they are in conflict. Amason's affective conflict 'is dysfunctional, it tends to be emotional and focused on personal incompatibilities or disputes … Affective conflict seems to emerge in top management teams when cognitive disagreement is perceived as personal criticism' (Amason, 1996, p. 129). On itself, affective conflicts negatively influence the quality of decisions and the affective acceptance but does not have an effect on the team's understanding of and commitment to decisions. Returning to the example of the supermarket's buying team, a task conflict can arise when one of the two members personally attacks the other (or vice versa). This can happen when the member who does not want to buy the products at the increased price, accuses the other of being too attached to the 'ever made up' values of the supermarket, which are not relevant in a rapidly changing (supermarket) world.

Task conflict on its turn can also trigger relationship conflict, since 'members may perceive task-related arguments as personal attacks' (Parayitam et al., 2010, p. 97). The way in which group members attempt to persuade others of their viewpoints is one factor contributing to this relationship (Jehn, 1997). The other reason is based on 'self-categorization theory' (Turner, 1982), which argues that team members who disagree on task-related issues, categorize themselves and other team members in categories based on external characteristics, such as race. This categorization of team members, caused by the non-relational task conflict, will potentially encourage relationship conflict. Thus, task conflicts may trigger relationship conflicts, which can possibly mute the benefits of task conflicts (Parayitam et al., 2010).

The focus of this study is on task conflicts within teams. They can have serious consequences and to properly deal with them, it is important to examine what factors can trigger this type of conflict. First, larger team size is found to be resulting in higher levels of task conflict (Amason & Sapienza, 1997). As more individuals come together, their collective cognitive resources increase. Furthermore, greater numbers of people naturally lead to more diversity, which in turn can encourage conflict. Second, the higher the mutuality between team members is, the lower the task conflict they will experience. On the other hand, greater team size was found to trigger relationship conflict, which can be reduced if there is stronger mutuality among team members, as was also the case for task conflicts. In contrast, team openness can trigger relationship conflict, but does not have an effect on task conflict.

Both task and relationship conflict influence group performance. In contrast to relationship conflicts, the relationship between task conflict and group performance is found to be not linear but curvilinear ('inverted U-shaped') when moderating by level of routineness of tasks (Jehn, 1995). Where routine tasks are characterised by low variability and lead to predictable results

(Hall, 1973), nonroutine tasks are known for being uncertain. Therefore, problem-solving plays a big role in fulfilling nonroutine tasks (Van de Ven et al., 1976). For this study, it is supposed that that management teams would not discuss routine-based tasks in an extensive manner at all. Why would they discuss problems if similar problems have been discussed before? This would unnecessarily frustrate the process, which implies that there is a relationship conflict rather than a task conflict. In addition, it is argued that 'strategic decisions are vague, complex and non-routine and require teams to interact on a decision platform.' (Parayitam & Dooley, 2007, p. 43). Therefore, 'tasks' in this study will refer to nonroutine tasks.

Task conflicts can have inconsistent outcomes on overall team performance, by positively influencing certain subcomponents of overall team performance, but also by negatively influencing other certain subcomponents: 'at least in the short run, task conflict hinders efficiency of work processes and goal attainment. At the same time, task conflict may be beneficial for those subcomponents of overall team performance that are most directly affected by team member ability to learn, to develop and implement new insights, and to solve complex problems' (De Dreu, 2006, p. 85). To illustrate, the effect of task conflict on innovation as a subcomponent of team performance behaved in a curvilinear manner: in teams where moderate levels of task conflict appeared, innovation was measured to be higher than in teams where low or high levels of task conflict were present.

In curvilinear relationships, the 'turning point' illustrates the point where the direction of the curve changes. In inverted U-shaped relationships, the turning point equals the highest level of the dependent variable. For the relationship between task conflict and group performance, this point appears when task conflict is high (Jehn, 1995). High levels of task conflict lead to beneficial effects, as it encourages openly discussing and critically evaluating task issues, information and decision options, which are essential for achieving greater group performance. Low or no task conflict within groups is seen as members' indulgence and lenience towards each other, resulting in lower performance. On the other hand, increasingly higher task conflict will not lead to higher conflict. Therefore, the curve steepens to moderate levels of performance when high task conflict levels increase, caused by team members becoming overwhelmed by the abundance of conflicting information and therefore losing the focus of the discussion.

Amason (1996) and later Parayitam and Dooley (2007) found that task conflict positively and relationship conflict negatively relates to decision quality. In contrast to the linear relationship found by these scholars, Jehn (1995) identified a curvilinear relationship between task conflict and group performance. Since decision quality is argued to have impact on team performance

(Amason, 1996), Jehn's findings (1995) are likely to affect decision quality in a similar vein. It seems logical that a lot of (task) conflict frustrates routine-based decisions.

Based on the aforementioned, it is expected that there exists a curvilinear relationship between task conflict and decision quality. Task conflicts are assumed to be non-routine, since a conflict based on routine tasks implies a relationship conflict rather than a task conflict. Following Jehn (1995), teams with low task conflict are expected to produce low-quality decisions, whereas high levels lead to high-quality decisions. The curve will drop to moderate levels of decision quality when high task conflict levels are gradually increasing.

Hypothesis 1: *There is an inverted U-shaped relationship between task conflict and decision quality. Low levels of task conflict relate to low quality of decisions. High levels of task conflict relate to high quality of decisions. Very high levels of task conflict relate to moderate quality of decisions.*

It is expected that informality of decision-making can play a role in how task conflict relates to the quality of decisions. In today's fast changing world, decisions can be made quicker than ever as a result of new technological introductions such as the internet and its subsequent advancements. Consequently, it can be supposed that the process of decision-making changed, such as the search for data in order to take decisions (Darioshi & Lahav, 2021). Furthermore, the introduction of online chat devices such as WhatsApp and Microsoft Teams and its predecessors makes discussing about decisions more accessible without formally taking place in a meeting. Today's process of decision-making is therefore supposed to be different than in the period when Jehn (1995) and Amason (1996) conducted research on how task conflict influences team performance and the quality of decisions.

There are some, not many scientific articles that provide insight in how formal or informal decisions come into existence. A distinction can be made between formal and informal communication channels within teams (Johnson et al., 1994). Formal communication structures are characterized by staticness, rationality and place official information based on someone's role in high regard. For example, in organizations possessing a high degree of formal communication, the information of a manager is seen as the official source of information. On the other hand, informal communication structures are less rational and allow members to communicate and discuss information in an informal manner. Overall, employees perceive informal information channels as more useful than formal ones.

Most theories on strategic decision-making are characterized by roughly similar steps in this process (Farris, 1979). First, an analysis such as a SWOT takes place, whereafter goals are set. Second, the strategic alternatives will be evaluated. Third, a strategy will be selected as well as a plan how to implement this strategy. These theories do not consider informal influences on the strategic decision-making process. Furthermore, Farris argues that in theories on formal strategic decision-making 'A fact often overlooked is that strategic decisions are made by networks of individuals who have goals of their own' (Farris, 1979, p. 38). Based on this, he conceptualized 'informal organization', as a decision-making process deviating from formal procedures, in which personal relationships between team members are not based on the organization's formal hierarchy but arise in an unconscious manner. The expectation is that the introduction of new technologies accelerates the emergence of informal organizations since it provides team members a lower threshold to communicate to each other (privately) and it makes them able to also communicate to each other outside office hours.

A phenomenon that is in line with informal organizations and informal communication and therefore (strategic) decision-making, is the 'meeting after the meeting' (MATM), recently conceptualized by Meinecke and Handke (2022). It is referred to as 'an unscheduled, informal, and confidential communication event that arises as a consequence of a previous formal meeting and is initiated by a subset of the participants who attended the original meeting' (Meinecke & Handke, 2022, p. 4). Since the MATM takes place after a formal meeting, the topics of the meeting are work-related. If this was not the case, it would probably be labelled as 'small talk'. The MATM's communication is more spontaneous and interactive than in the formal meeting. Explained by organizational psychology theories, the most important reason for engaging in a MATM is one's sensemaking of the previous formal meeting, 'a dynamic process, triggered by unexpected or novel events that require some form of explanation' (Meinecke & Handke, 2022, p. 5). Based on developments such as the emergence of open office spaces that invite employees to get in touch with each other, an increase of informal meetings such as the MATM are expected. Technological innovations are expected to accelerate the emergence of meetings after meetings too. For example, online chatting tools make it easier to discretely communicate with colleagues about the formal meeting and mobile phones can also facilitate this process during and after office hours.

The phenomenon described above is thus referred to as ‘meeting after the meeting’. However, Meinecke and Handke (2022) state that meetings are sequential and interconnected to each other. In other words, a meeting after a meeting can also be viewed as a ‘meeting before the meeting’. This heavily links to informal communication (channels) as discussed by Farris (1979) and Johnson et al. (1994) and can provide insights on informality of decision-making.

Formality or informality in decision-making can also refer to a slightly divergent meaning, in which formal decision-making heavily relies on formal procedures to come to a decision, whereas informal decision-making is emergent and relies more on intuition (Fischhoff & Goitein, 1984). However, based on this paper’s theorisation so far, a decision-making process that heavily relies on formal procedures can also arise in an informal manner, outside the boarding roam for example. The other way around, an intuitive decision-making procedure theoretically can come into existence in a formal manner, limited to only scheduled moments to take decisions. Therefore, in this paper, decision-making in a formal or informal sense is based on a communication perspective. To summarize, formal decision-making is referred to as decision-making on scheduled, ‘official’ meetings, whereas informal decision-making refers to decision-making not on unscheduled ‘unofficial’ meetings. The concept ‘meeting’ in this sense means a form of communication between people regarding strategic decision-making. Per meeting it can thus be examined whether it is formal or not. However, an organization’s decisions and the communication process that preceded does not have to be fully informal or formal. Both informal and formal meetings can be ground to a made decision. Therefore, the degree of informal decision-making refers to the way how decisions generally are made within the organization.

Informal meetings can occur at unexpected moments and are not bounded by formal procedures, making the decision-making process more continuous. As discussed earlier, it is supposed that technology is likely to strengthen the degree of informal decision-making. Consequently, the rise of informal decision-making within teams can shed additional light on conflict within teams since it can alter the turning point in the relationship between task conflict and decision quality. Where the turning point used to be at high levels of task conflict (Jehn, 1995), with the advent of informality of decision-making, the turning point is expected to be between moderate and high levels of task conflict. This is because a task conflict becomes earlier overwhelming in teams where decisions are made in an informal way. Further, in teams characterized by informal decision-making, high and moderate levels of task conflict in teams are expected to lead to better decision quality than low or very high levels of task conflict in teams. Without the

inclusion of the moderator, very high levels of task conflict lead to moderate quality of decisions. However, the inclusion of the moderator will lead to lower levels of decision quality when there is very high task conflict present since the abundance of conflicting information will be perceived even more overwhelming when brought in an informal manner.

Hypothesis 2: *The inverted U-shaped relationship between task conflict and decision quality will behave differently when decision-making in general is more informal. As a result, the relationship's turning point will be between moderate and high levels of task conflict. Moderate and high levels of task conflict lead to high decision quality. Decision quality is lowest at low and very high levels of task conflict.*

The two hypotheses are visualized in figure 1.

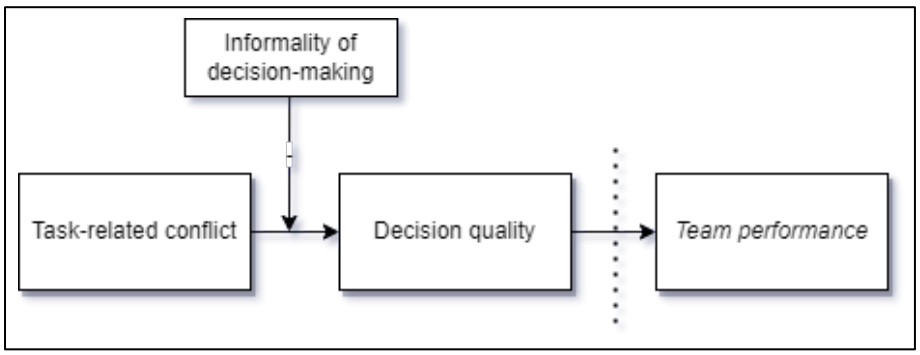


Figure 1 - Hypotheses

Methodology

Research type and data analysis techniques

The most obvious way to test for a linear or curvilinear relationship, is by using quantitative data of a sample of the population of all managers. The proposed moderator is not tested yet with respect to task conflict and decision quality. This research's aim is confirmatory and deductive, testing whether the theory of task conflict relates to theory of decision-making informality. Therefore, quantitative, positivistic data analysis is the most appropriate research method. Surveys will be used to measure this study's concepts.

A curvilinear, or U-shaped relationship between task conflict and decision quality is expected. U-shaped relationships are characterized by a to a minimum decreasing line, which after its lowest point starts to increase (Haans et al., 2016). The lowest point is called the 'turning point'. In simpler terms, the dependent variable is high when the independent variable is either low or high. When the independent variable is at a medium level, the dependent variable is at its lowest point. On the other hand, when the dependent variable is highest at a medium level of the independent variable, this is called an 'inverted U-shaped relationship'. The (inverted) U-shaped relationship between two variables can also be moderated by a third variable. When this moderator variable changes, values of the dependent and independent change too. With respect to the turning point in the (inverted) U-shaped relation, a moderator has the ability to reshape the curve more to the right or to the left. Moreover, it can also make the curve steeper or flatter.

Measurement of main variables

The three main variables in this research are task conflict (independent variable), informality of decision-making (moderator) and decision quality (dependent variable). Moreover, control variables are included. All questions except those for informality of decision-making were based on other study's questionnaires and are in most, but not all instances measured by 5-point Likert scale questions. To make the questionnaire in this research as simple as possible, a 5-point Likert scale will be used for all items with answer 1 as lowest and 5 as highest answer. Items based on other scale types will thus be converted to 5-point Likert scales. All scales are ordinal but will be treated as interval. It will thus be supposed that the difference between option 1 and 2 is as big as the difference between option 3 and 4. All questions with respect to the variables are included in appendix 1.

Task conflict (independent variable)

The related items are based on Jehn's (1995) and Amason's (1996) surveys. These scales were later used in other research projects (Parayitam & Dooley, 2007). The items are mixed up in

the survey and the scale differs for each item's translation, with 1 always as lowest and 5 as highest value.

Informality of decision-making (moderator)

To the best knowledge, no questionnaires for this paper's typology of informality of decision-making exist. Informal communication with respect to decision-making can be seen as a 'meeting after the meeting' conceptualized by Meinecke and Handke (2022). This conceptualization forms the basis for the questions. To prevent double negatives in the questions, answer 5 indicates formality, whereas answer 1 indicates informality. For this reason, the scales will be transformed when analysing the results. As a result, answer 1 indicates formality and answer indicates informality, which is in line with this variable's name.

Decision quality (dependent variable)

Will be measured based on perceptual scales by Amason (1996) and Parayitam and Dooley (2007). A perceptual scale will be used since it is challenging to objectively measure the quality of a certain decision. The participants of the survey must think of a recently made decision, which was important and asked for the involvement of the whole management team.

Measurement of control variables

Relationship conflict

Questions about relationship conflict (control variable) will be included to make a distinction with task conflict. As was the case for task conflict, these questions are based on the questions used in research by Jehn (1995) and Amason (1996).

Psychological safety

The questions are based on questionnaires used by Bradley et al. (2012) and Edmondson (1999), but the number of questions is shortened from 7 to 3. Based on the factor analysis and frequencies of question 3 of psychological safety (item 24, 'No one on this team would deliberately act in a way that undermines my efforts.'), it turned out that the third item is formulated in a confusing manner, despite being grammatically correct. Since this item will lead to inconsistent results, it will not be included in further analyses.

Cognition-based trust

The questions are based on questionnaires used by Parayitam and Dooley (2007) and McAllister (1995). The number of questions got shortened from 6 to 3.

Factor analysis

In order to analyse the interrelationships between these (control) variables, factor analysis (principal axis factoring) was conducted with a direct oblimin rotation, since factors were expected to correlate. After three iterations, the final factors came into existence. See appendix 4 for the full results of the factor analysis. Due to theoretical considerations, six and not five factors are extracted, the sixth with an eigenvalue below 1 (0.813). Furthermore, item 11 (work-related conflicts) is deleted since in previous iterations it loaded on both task and relationship conflict. KMO is 0.875 > 0.60, and Bartlett's Test of Sphericity is significant, indicating that the data is suitable for factor analysis. The lowest communality is 0.424 (item 17, expectation decision). There are no differences bigger than 0.200 between the highest and second-highest factor loading. The scales are internally consistent, since all items' Cronbach's Alpha > 0.600, with 0.688 as the lowest value. Due to theoretical considerations, item 11 will be included in further analysis. As a robustness check, an analysis without item 11 will be conducted too.

General questions

- Age
- Gender
- Years of industry experience
- Years of employment in current store
- Store number

Based on the store number, information about the store can be requested via the store manager. For most stores, the turnover category and WAP can be found in Jumbo's own database.

- Turnover category
- Number of employees
- Occupation management positions
- Occupation store manager, assistant store manager and team manager
- Store assortment profile (WAP). Will be converted into two new variables:
    - Grade of urbanization (rural, urban, very urban)
    - Budget/premium

Unit of analysis and representativity

Jumbo supermarket stores' management team members are subject to participate in this research. Every store has its own management team, represented by every department's leading person, who is also fully responsible for and operationally active on his or her own department. Together with the store manager, they are responsible for the vision, mission and daily business of the store. Therefore, this team can be considered as a management team. Since the unit of analysis is management teams, participants are supposed to answer questions based on decision-making within the management team, not the department team they represent. The survey has been translated into Dutch and is included in appendix 2.

There are some limitations with respect to the representativity. First, the notion should be made that comparing this sample with the full population of all managers is challenging, since there is no reliable data about the population's attributes such as age or gender. However, there is information available about some attributes of all Jumbo stores, see table 1.

Table 1 – Frequencies total population Jumbo stores

Frequencies total population Jumbo stores			%
Urbanization	Rural	298	44.7%
	Urban	198	29.7%
	Highly urban	170	25.5%
Budget/premium	Budget	252	37.8%
	Premium	414	62.2%
Franchise/HQ	Franchise-agreement	303	45.5%
	Under control HQ	363	54.5%

In the sample, 110 respondents, mostly working in the regions of Utrecht and Eindhoven, completed the survey. Although these two regions are predominantly urbanized, there are also stores vested in less urbanized areas, such as Houten or Veldhoven. The results confirm this, since 19 respondents worked in a rural area, 27 in an urbanized area and 59 in a very urbanized region. Although all grades of urbanization are represented, its distribution is not representative for Jumbo (see table 1). However, it can be representative for the whole population of managers. The grade of urbanization will not form a problem regarding representativity, since it does not have a significant effect on the dependent variable (see table 5). With 47 women and 63 men, the distribution of gender does not seem divergent from the average distribution of managers.

The target group (budget or premium) that is not representative, significantly influence the dependent variable (see table 5). Another non-representative variable that does have significant influence on the dependent variable, although little, is age. The average age of the respondents is low (32.67) and the distribution reveals that a lot of young management team members are working for Jumbo, with 30 respondents being younger than 26. The reason for this can be that Jumbo offers (young) employees programmes to study and work at the same time. The required educational level of most management team positions starts at 'MBO-3' or 'havo', possibly

causing the young average age. Although the average age seems representative for the supermarket industry, it is less representative for the average management team member, since in most other industries, more working experience and a higher level of education are required to obtain a managerial position. Therefore, the average age of all managers is supposed to be higher than in this study.

Research ethics

Research ethics will be respected. The privacy of the participants will be guaranteed, and the surveys will be held anonymously. In the survey, it is emphasized that the goal of the research is to contribute to scientific literature, not to provide Jumbo recommendations. The participants in this study all work for Jumbo.

Process and time horizon data collection

The survey was conducted from 19 April to 16 May. 110 respondents participated once in this cross-sectional research. Since the research is about decision quality, task conflict and informality of decision-making, which are not heavily dependent on short-time changes, it is not expected that participants would provide different answers on 16 May in comparison to 19 April. The process of data collection can be divided into four separate steps:

1. Contacting the researcher's closest connections (that were part of a management team) to help distributing the survey (in person, in a meeting, via WhatsApp etc.). The researcher shared the survey link to all members of his own store's management team members. Unfortunately, this led to less than 15 people completing the survey.
2. As a reaction to the disappointing number of participants, the store manager of the researcher's own store sent an e-mail to all other store managers (approximately 30) in region Eindhoven and Utrecht. This led to a small increase of participants, but not more than 25 people completed the survey.
3. The researcher visited almost all Jumbo stores in the Eindhoven and Utrecht region. He asked for the (assistant) store manager or if not available another management team member and explained the design and purpose of the study. This led to mixed results. In some stores, the store manager gathered all present management team members to complete the survey. In other stores, the manager distributed the survey via WhatsApp. In some stores where employees did not have a lot of time, only some paper versions of the survey were distributed (including a QR code redirecting to the online version of the survey). Although this was very time-consuming and intensive, the respondents increased to approximately 80.

4. The survey was shared in an official Facebook-group for Jumbo employees (which included more than six thousand members), asking management team members to complete the survey. Furthermore, it was also shared in the Eindhoven/Utrecht newsletter. This led to approximately 20 new participants.
5. The researcher sent e-mails to all management team members of stores with a low response rate. Also, management team members of stores outside the region's clusters were e-mailed, as well as stores in the region of Nijmegen. This led to approximately 10 new respondents.

Non-response bias
Appendix 3 shows for all stores if they:

- Have an employee that is a close connection of the researcher
- Are part of the Eindhoven/Utrecht cluster
- Were visited by the researcher
- Probably got access to the survey via the Facebook group
- Were contacted via e-mail

Stores that employ a close connection of the researcher, are part of the Eindhoven/Utrecht cluster or were visited by the researcher are classified as an approached, group 1 store. The other stores that found the survey mostly via the Facebook group or were only approached by e-mail are classified as a non-approached, group 2 store. See appendix 3 for this classification. 81 respondents worked in a store approached by the researcher (27 different stores), the other 29 did not work for an approached store (26 different stores). Every store has an average of 8 management team members, indicating that the survey could have reached 216 people working in approached stores. From the approached stores, 37.5% (81/216) of approached people completed the survey. Assuming that 1,000/6,000 people in the Facebook-group viewed the post, 2% (20/1,000) of them completed the survey. So, non-response bias could be present.

An independent samples test (see appendix 3) shows that only the means for psychological safety are different for the approached and non-approached group (0.348 lower for the non-approached stores). For the other variables, no differences were found. Therefore, it can be concluded that people experiencing less psychological safety are more tended toward filling in the survey than those who experience more psychological safety, possibly indicating non-response bias. For the other variables it seems not evident that response-bias is present. To prevent for non-response bias, regression analysis will be conducted for all stores (N = 105) and as a control also for only approached stores (N = 80).

Results

General control variables

110 respondents working in managerial positions completed the survey, with 47 of them being women and 63 of them being men. The age range of the respondents was between 18 and 63. All ages up to and including 44 were present, between 45 and 63, six ages were missing. Although figure 2 does not indicate big outliers, it stands out that the presence of ages above 40 is not that high as for ages below 40. The mean age of the participants is 32.670 years (std. deviation 9.870), their average working experience in the supermarket industry was 14.310 years (std. deviation 8.757). Most respondents worked over six months in their current store (90), only 20 of them were employed at their store for less than six months.

This study includes participants employed in 52 different Jumbo stores (47 owned by Jumbo, 5 franchised), offering a great variety of people. Most employees worked in a store representing turnover class 2 (45 out of 78). All 'WAP's' (an internal measure used by Jumbo to adjust a store's product range to its customers' demographic characteristics) are present. 19 respondents worked in a rural area, 27 in an urban area and 59 in a very urban area. 54 of them worked in budget-stores, 51 worked in premium-stores. 5 respondents entered a non-corresponding store number. See table 2 for the full overview of descriptives and frequencies. To include the outcomes of the WAP (grade of urbanizations and budget/premium), these 5 respondents will be excluded from the regression analysis. Turnover class (32), number of employees (54), management positions occupied (60) and (assistant) store manager/team leader occupied (60) show a lot of missing values and are therefore not representative to include in the analysis too.

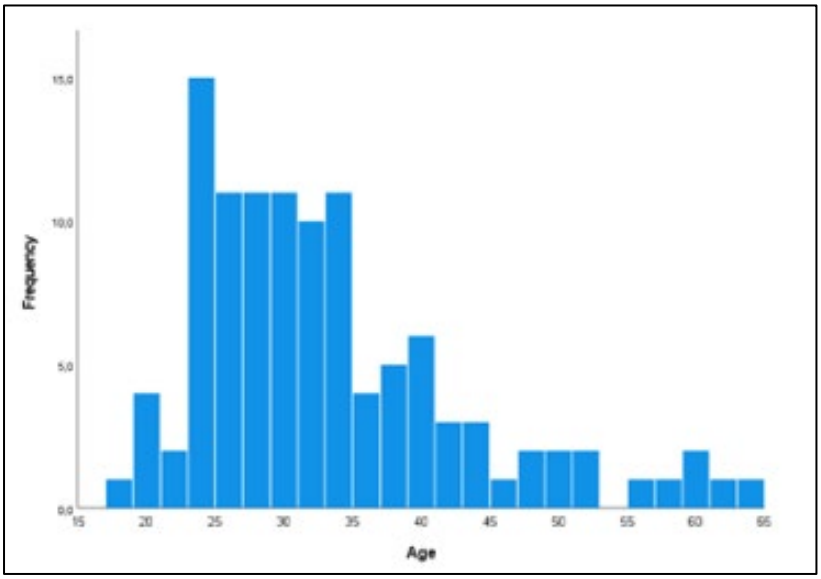


Figure 2 – Distribution of age

Frequencies and descriptives general questions					
		No.	%	Mean	Std. Dev
Age	Valid	110	100%	32.670	9.870
	Missing	0	0		
	Minimum	18			
	Maximum	63			
Working experience	Valid	110	100%	14.310	8.757
	Missing	0	0		
	Minimum	1			
	Maximum	46			
Gender	Women (1)	47	42.7%	1.570	0.497
	Men (2)	63	57.3%		
	Missing	0	0		
Employment at store	Less than half a year (1)	20	18.2%	2.240	0.741
	Half a year until two years (2)	44	40.0%		
	Longer than two years (3)	46	41.8%		
	Missing	0	0		
Grade of urbanization (based on WAP)	Rural (1)	19	17.3%	2.381	0.777
	Urban (2)	27	24.5%		
	Highly urban (3)	59	53/6%		
	Missing	5	4.5%		
Budget/premium (based on WAP)	Budget (1)	54	49.1%	1.486	0.502
	Premium (2)	51	46.4%		
	Missing	5	4.5%		

Table 2 – Frequencies and descriptives general questions

Main (control) variables

For the main (control) variables, it stands out that only 5 respondents reacted with answer 5 (always) for all conflict-related questions, see appendix 5. This was for items 8 and 9 about friction and tension (both relationship conflict). So, no level-5 task-related conflict was found within this dataset. The mean of task conflict including all items is lower (2.497) than the mean when item 11 is deleted (2.750). This data shows that people experience more task than relationship conflict (mean: 1.886). However, it was also found that there is a significant correlation between TC and RC (0.707, sig < 0.001), so there is cohesion between these two concepts. After transformation, the average value of items related to informality of decision-making is 2.664, indicating that in the average respondent's management team decision-making takes place in a more formal than informal manner. 52.3% of the questions related to decision quality were answered with the third answer category ('average'). Only 10.3% reacted with answer categories one or two ('bad' and 'under average'), 31.4% reacted four ('above average') and 6.1% reacted 5 ('excellent'). The mean score is 3.320.

Descriptive Statistics							
	All stores					Approached stores	
	N	Min	Max	Mean	Std.Dev.	Mean	Std.Dev.
Task conflict	110	1.000	4.000	2.497	0.660	2.461	0.649
Relationship conflict	110	1.000	4.500	1.886	0.797	1.827	0.745
Informality of decision-making	110	1.000	4.333	2.664	0.654	2.658	0.592
Decision quality	110	1.000	5.000	3.320	0.563	3.348	0.543
Psychological safety	110	1.500	5.000	4.205	0.791	4.296	0.728
Cognition-based trust	110	2.000	5.000	3.997	0.700	4.033	0.682

Table 3 – Descriptive statistics variables

For cognition-based trust, no respondent reacted with answer option 1 ('never'), only twelve reacted with option two ('rarely'). 77.3% of respondents reacted with answers four ('often') or five ('always'), resulting in an average score of 3.997. As is the case for psychological safety, the respondents feel high cognition-based trust in their work. In table 3, the descriptive statistics of all main (control) variables are displayed. Table 4 shows the correlations between the general control variables and all other variables.

Pearson's correlation coefficients (bold = significant)											
	1	2	3	4	5	6	7	8	9	10	11
1. Decision quality											
2. Task conflict	**-0.480**										
3. Informality of decision-making	**-0.474**	**0.289**									
4. Relationship conflict	**-0.501**	**0.707**	**0.230**								
5. Psychological safety	**0.549**	**-0.422**	**-0.407**	**-0.538**							
6. Cognition-based trust	**0.596**	**-0.541**	**-0.356**	**-0.582**	**0.623**						
7. Age	0.108	-0.073	-0.084	-0.091	0.045	0.020					
8. Gender	0.110	0.094	-0.070	0.062	0.178	-0.048	0.143				
9. Working experience	-0.063	-0.007	-0.067	0.002	0.020	-0.053	**0.838**	0.134			
10. Employment at store	-0.088	-0.092	-0.043	-0.043	-0.013	0.054	**0.189**	-0.172	**0.280**		
11. Grade of urbanization	0.021	-0.037	**0.230**	0.010	0.075	0.125	-0.038	0.028	-0.012	0.045	
12. Budget/premium	-0.107	-0.047	-0.062	-0.071	-0.047	-0.078	**0.270**	0.072	0.144	0.023	**-0.577**

Table 4 – Pearson correlations variables and general questions

Regression analysis

Assumptions

The sample size of 105 (5 respondents excluded due to a non-corresponding store number) is higher than 100 and is also higher than the criterium of 15 respondents per variable. All variables turned out to be linear. Regarding multicollinearity, the highest VIF value, 3.741 < 10 and the tolerance levels are above 0.200, with 0.261 as lowest. See appendix 6 for all assumptions of regression analysis.

Non-moderated regression

First, linear regression without a moderator was conducted. All items can be considered as scale (although theoretically ordinal), except gender. This variable is included as dummy with men as reference category (see appendix 7). In the first model, task conflict is not present, where it is in the second model. In the third model, the quadratic term of task conflict is included, see

table 5. All models will roughly lead to the same R and r-squared value (0.761, 0.768, 0.768), indicating that there is no curvilinear effect of task conflict on decision quality.

When no form of task conflict is included (model 1), age, working experience, informality of decision-making and cognition-based trust show significant influence on the dependent variable. With b-values of 0.226 and – 0.269, cognition-based trust and informality of decision-making have the biggest positive and negative influence on the quality of decisions. Task conflict does not show influence decision quality when included in the analysis, neither when a squared from of task conflict enters the analysis (model 2 and 3). However, entering (squared) task conflict into analysis will lead to budget/premium having a significance on decision quality with a b-value of -0.199, indicating that premium stores realize (or perceive) lower decision quality than budget stores. Since task conflict does not significantly influence the dependent variable, hypothesis 1 cannot be supported. As a robustness check, removing item 11 from the task conflict-concept will not lead to different results. Interesting to see is that psychological safety does not significantly influences decision quality. Task conflict without item 11 still has a non-significant effect on decision quality, as is the case for task conflict when item 11 is included.

Linear regression all stores (N=105)									
Dependent variable: DQ	Model 1 (no TC)			Model 2 (TC)			Model 3 (SQ_TC)		
	B	Std.er.	Sig.	B	Std.er.	Sig.	B	Std.er.	Sig.
Task conflict				*-0.128*	*0.084*	*0.130*	*-0.117*	*0.373*	*0.756*
Squared task conflict							*-0.002*	*0.075*	*0.975*
Age	**0.025**	**0.007**	**0.001**	**0.025**	**0.007**	**0.001**	**0.025**	**0.007**	**0.001**
Gender (women)	*-0.116*	*0.082*	*0.164*	*-0.123*	*0.082*	*0.137*	*-0.123*	*0.082*	*0.140*
Working experience	**-0.027**	**0.008**	**0.002**	**-0.027**	**0.008**	**0.002**	**-0.027**	**0.008**	**0.002**
Employment store	*-0.044*	*0.055*	*0.418*	*-0.048*	*0.054*	*0.376*	*-0.048*	*0.055*	*0.380*
Grade of urbanization	*-0.030*	*0.064*	*0.644*	*-0.039*	*0.063*	*0.542*	*-0.039*	*0.064*	*0.544*
Budget/Premium	*-0.189*	*0.096*	*0.052*	**-0.199**	**0.096**	**0.041**	**-0.199**	**0.098**	**0.045**
Informality of decision-making	**-0.269**	**0.069**	**0.000**	**-0.255**	**0.069**	**0.000**	**-0.254**	**0.071**	**0.001**
Relationship conflict	*-0.106*	*0.063*	*0.095*	*-0.039*	*0.076*	*0.608*	*-0.038*	*0.083*	*0.648*
Psychological safety	*0.116*	*0.070*	*0.098*	*0.126*	*0.069*	*0.072*	*0.126*	*0.070*	*0.074*
Cognition-based trust	**0.226**	**0.077**	**0.004**	**0.206**	**0.078**	**0.009**	**0.206**	**0.080**	**0.012**
(Constant)	**2.910**	**0.571**	**0.004**	**3.154**	**0.589**	**0.000**	**3.136**	**0.827**	**0.000**
R	0.761			0.768			0.768		
R square	0.579			0.589			0.589		
Adjusted R square	0.534			0.541			0.536		
Std. Error estimate	0.387			0.383			0.385		
F-value	12.925			12.130			11.000		
Significance	0.001			0.001			0.001		

Table 5 – Linear regression all stores (N = 105)

When comparing the outcomes of all stores with approached stores, the latter shows significant negative influence of task conflict on decision quality, which is against expectations (see table 6), thus hypothesis 1 cannot be supported when only considering approached stores. Another difference is that informality of decision making becomes non-significant when task conflict is added to the analysis. Budget/premium is not supposed to influence decision quality.

Linear regression approached stores (N=80)									
Dependent variable: DQ	Model 1 (no TC)			Model 2 (TC)			Model 3 (SQ_TC)		
	B	Std.er.	Sig.	B	Std.er.	Sig.	B	Std.er.	Sig.
Task conflict				**-0.228**	**0.099**	**0.025**	*0.086*	*0.430*	*0.842*
Squared task conflict							*-0.066*	*0.088*	*0.456*
Age	**0.023**	**0.008**	**0.009**	**0.022**	**0.008**	**0.009**	**0.024**	**0.008**	**0.007**
Gender (women)	*-0.094*	*0.096*	*0.329*	*-0.112*	*0.093*	*0.235*	*-0.109*	*0.094*	*0.247*
Working experience	**-0.029**	**0.010**	**0.004**	**-0.028**	**0.009**	**0.004**	**-0.029**	**0.010**	**0.003**
Employment store	*-0.050*	*0.062*	*0.426*	*-0.054*	*0.060*	*0.373*	*-0.047*	*0.061*	*0.452*
Grade of urbanization	*-0.045*	*0.095*	*0.637*	*-0.071*	*0.093*	*0.444*	*-0.087*	*0.096*	*0.363*
Budget/Premium	*-0.162*	*0.133*	*0.228*	*-0.184*	*0.129*	*0.159*	*-0.219*	*0.138*	*0.117*
Informality of decision-making	**-0.175**	**0.086**	**0.046**	*-0.152*	*0.084*	*0.075*	*-0.130*	*0.090*	*0.153*
Relationship conflict	*-0.127*	*0.083*	*0.127*	*0.007*	*0.099*	*0.945*	*0.034*	*0.106*	*0.751*
Psychological safety	*0.135*	*0.082*	*0.103*	*0.154*	*0.080*	*0.057*	*0.154*	*0.080*	*0.058*
Cognition-based trust	**0.232**	**0.090**	**0.012**	**0.202**	**0.089**	**0.026**	**0.217**	**0.091**	**0.020**
(Constant)	**2.696**	**0.686**	**0.000**	**3.114**	**0.690**	**0.000**	**2.650**	**0.928**	**0.006**
R	0.756			0.777			0.779		
R square	0.572			0.603			0.606		
Adjusted R square	0.51			0.539			0.536		
Std. Error estimate	0.381			0.37			0.371		
F-value	9.228			9.391			8.6		
Significance	< 0.001			< 0.001			< 0.001		

Table 6 – Linear regression approached stores (N = 80)

Moderated regression

To test for hypothesis 2, regression analysis with informality of decision-making as a moderator will be conducted, see table 7. In the first model, only task conflict is included. In the second model, the moderator, informality of decision-making is centered. In models 3 and 4, the squared form of task conflict is included. In model 4, informality of decision-making is centered. Table 7 shows that, as was the case for hypothesis 1, squaring task conflict will not lead to a significant improvement of r-square (0.610 versus 0.611). Thus, hypothesis two cannot be supported. However, there is a significant interaction-effect of informality of decision-making and task conflict. This indicates that the significance of the relationship between task conflict and decision quality differs based on the level of informality of decision-making. See figure 3 for the visualization for this relationship. Age, working experience, budget/premium

and cognition-based trust do have a significant influence on decision quality. As was the case for the non-moderated regression, task conflict without item 11 will not lead to different results.

Linear moderation regression all stores (N=105, bold = significant)								
Dependent variable: DQ	Model 1 (TC)		Model 2 (TC, centered IDM)		Model 3 (TC + SQ_TC)		Model 4 (TC + SQ_TC, centered IDM)	
	B	Std.er.	B	Std.er.	B	Std.er.	B	Std.er.
Task conflict	*0.367*	*0.238*	*-0.116*	*0.082*	*0.608*	*1.306*	*-0.172*	*0.385*
Squared task conflict					*-0.048*	*0.265*	*0.012*	*0.078*
Informality of decision-making	*0.180*	*0.207*	*0.180*	*0.207*	*0.303*	*0.515*	*0.303*	*0.515*
Interaction effect task conflict + informality of decision-making	**-0.181**	**0.082**	**-0.181**	**0.082**	*-0.293*	*0.434*	*-0.293*	*0.434*
Interaction effect squared task conflict + informality of decision-making					*0.022*	*0.087*	*0.022*	*0.087*
Age	**0.025**	**0.007**	**0.025**	**0.007**	**0.026**	**0.007**	**0.026**	**0.007**
Gender (women)	*-0.127*	*0.080*	*-0.127*	*0.080*	*-0.129*	*0.081*	*-0.129*	*0.081*
Working experience	**-0.028**	**0.008**	**-0.028**	**0.008**	**-0.028**	**0.008**	**0.028**	**0.008**
Employment store	*-0.047*	*0.053*	*-0.047*	*0.053*	*-0.049*	*0.054*	*-0.049*	*0.054*
Grade of urbanization	*-0.032*	*0.062*	*-0.032*	*0.062*	*-0.030*	*0.063*	*-0.030*	*0.063*
Budget/Premium	**-0.195**	**0.094**	**-0.195**	**0.094**	*-0.189*	*0.097*	*-0.189*	*0.097*
Relationship conflict	*-0.028*	*0.075*	*-0.028*	*0.075*	*-0.036*	*0.082*	*-0.036*	*0.082*
Psychological safety	*0.122*	*0.068*	*0.122*	*0.068*	*0.119*	*0.069*	*0.119*	*0.069*
Cognition-based trust	**0.191**	**0.076**	**0.191**	**0.076**	**0.187**	**0.079**	**0.187**	**0.079**
(Constant)	*2.018*	*0.772*	**2.498**	**0.537**	*1.787*	*1.649*	**2.594**	**0.766**
R	0.781		0.781		0.782		0.782	
R square	0.610		0.610		0.611		0.611	
MSE	0.376		0.376		0.379		0.379	
F-value	12.00		12.00		10.08		10.08	
Significance	0.000		0.000		0.000		0.000	

Table 7 – Linear moderation regression all stores (N = 105)

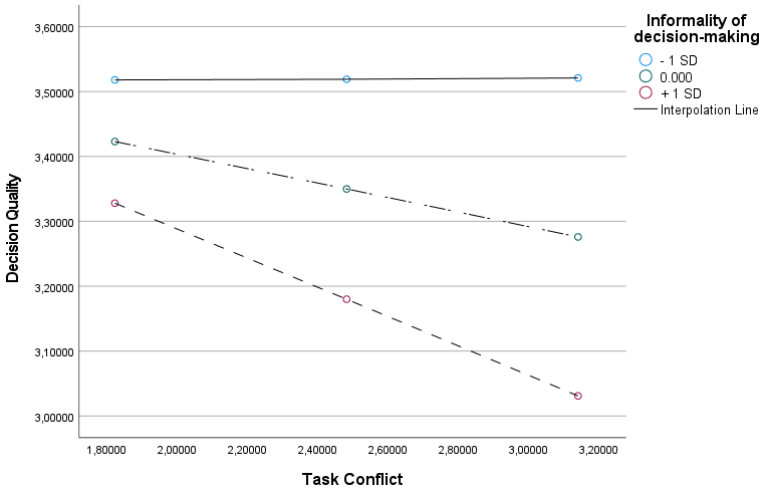


Figure 3 – Relationship between task conflict and decision quality, moderated by informality of decision-making

When comparing all stores with approached stores (see table 8), budget/premium will not show significant influence on the dependent variable anymore. However, mean-centering informality

of decision-making will lead to significant influence of task conflict, informality of decision-making and its interaction effect on the dependent variable (among age, working experience and cognition-based trust). See figure 4 for the visualization for this relationship.

Linear moderation regression approached stores (N=80, bold = significant)								
Dependent variable: DQ	Model 1 (TC)		Model 2 (TC, centered IDM)		Model 3 (TC + SQ_TC)		Model 4 (TC + SQ_TC, centered IDM)	
	B	Std.er.	B	Std.er.	B	Std.er.	B	Std.er.
Task conflict	*0.320*	*0.273*	***-0.213***	***0.097***	*-0.100*	*1.732*	*-0.197*	*0.501*
Squared task conflict					*0.087*	*0.368*	*-0.004*	*0.103*
Informality of decision-making	*0.309*	*0.230*	***-0.186***	***0.083***	*0.138*	*0.605*	*0.138*	*0.605*
Interaction effect task conflict + informality of decision-making	**-0.201**	**0.094**	**-0.201**	**0.094**	*-0.037*	*0.546*	*-0.037*	*0.546*
Interaction effect squared task conflict + informality of decision-making					*-0.034*	*0.116*	*-0.034*	*0.116*
Age	**0.024**	**0.008**	**0.024**	**0.008**	**0.024**	**0.008**	**0.024**	**0.008**
Gender (women)	*-0.105*	*0.091*	*-0.105*	*0.091*	*-0.101*	*0.093*	*-0.101*	*0.093*
Working experience	**-0.031**	**0.009**	**-0.031**	**0.009**	**-0.031**	**0.010**	**-0.031**	**0.010**
Employment store	*-0.067*	*0.059*	*-0.067*	*0.059*	*-0.062*	*0.061*	*-0.062*	*0.061*
Grade of urbanization	*-0.051*	*0.091*	*-0.051*	*0.091*	*-0.060*	*0.096*	*-0.060*	*0.096*
Budget/Premium	*-0.173*	*0.126*	*-0.173*	*0.126*	*-0.188*	*0.138*	*-0.188*	*0.138*
Relationship conflict	*0.026*	*0.097*	*0.026*	*0.097*	*0.038*	*0.106*	*0.038*	*0.106*
Psychological safety	*0.132*	*0.078*	*0.132*	*0.078*	*0.131*	*0.079*	*0.131*	*0.079*
Cognition-based trust	**0.182**	**0.087**	**0.182**	**0.087**	**0.187**	**0.091**	**0.187**	**0.091**
(Constant)	**1.948**	**0.865**	**2.242**	**0.645**	*2.387*	*2.083*	**2.754**	**0.949**
R	0.793		0.793		0.793		0.793	
R square	0.628		0.628		0.629		0.629	
MSE	0.130		0.130		0.366		0.366	
F-value	9.445		9.445		7.880		7.880	
Significance	0.000		0.000		0.000		0.000	

Table 8 – Linear moderation regression approached stores (N = 80, bold = significant)

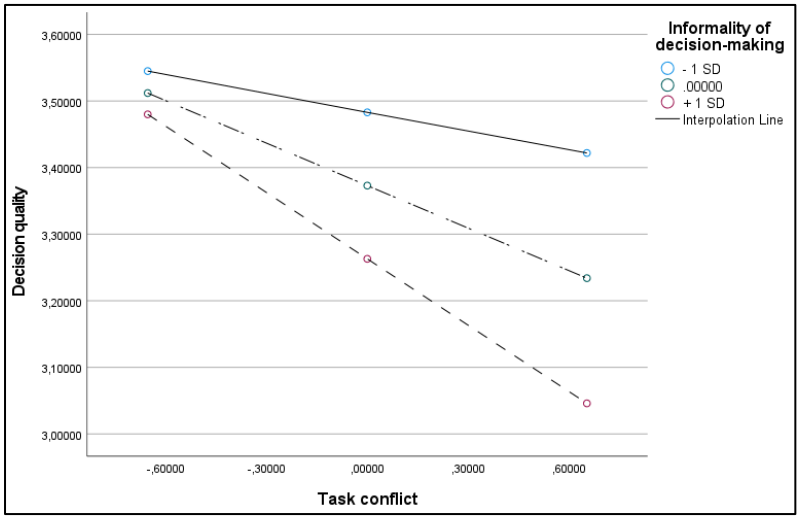


Figure 4 – Relationship between task conflict and decision quality, moderated by informality of decision-making

Discussion

The purpose of this study is to investigate whether there is a (curvilinear) relationship between task conflict and decision quality and if this relationship gets moderated by informality of decision-making. Based on literature, task conflict would lead to better decision quality (Amason, 1996), since the examination of viewpoints is more varied and extensive. However, too much task conflict is decreasingly beneficial with respect to team performance, thus a 'curvilinear' relationship between the two variables is present (Jehn, 1995). It was the expectation that a curvilinear relationship is also present between task conflict and decision quality, with the turning point between high and very high levels of task conflict. In addition, high informality of decision-making, based on the concept 'meeting after the meeting' (Meinecke & Handke, 2022), is expected to influence this relationship in such a way that its turning point is between moderate and high levels of task conflict, since task conflicts are then expected to be more overwhelming when high informality of decision-making is present.

Theoretical implications and contributions

Against expectations, this study shows that there is no curvilinear relationship between task conflict and decision quality, neither when the relationship gets moderated by informality of decision-making. A possible reason for this could be that the respondents in this study indicated higher average decision quality compared to previous studies using the same measurement of decision quality (Amason, 1996; Parayitam & Dooley, 2007). When few respondents perceive low decision quality, less data about the relationship between low levels of decision quality and other variables is available. This can lead to results that are not in line with theory where decision quality was perceived to be lower.

This study reveals that task conflict has no or a negative influence on decision quality, which is contradictory to previous literature indicating that task conflict leads to increased decision quality (Amason, 1996) and group performance (Jehn, 1995). This can be caused by three factors. First, the young average age of the management team members of Jumbo and their educational level, which is supposed to be lower than the educational level of the average manager. Second, the impact of task conflict on decision quality might vary based on specific characteristics and cultural context of a company or industry. Third, task conflicts can result in the team deciding to compromise for the best average option for the team. This option is not always the optimal one, but rather a choice that is perceived as least unfavourable for all managers involved. This can negatively affect the quality of decisions.

Although not being in line with pioneering research related to these concepts, this study's implications may offer five (previously unseen) insights. First, age positively influences decision quality. Thus, younger people deliver lower quality decisions than older people. As discussed, the average age of Jumbo's management members is lower than the average age of all management team members. This sample's young population of management team members can therefore offer additional insights to the current literature with respect to task conflict. With 40 percent of respondents being 28 or younger, generation Z (people born between 1995 and 2010; Bencsik et al., 2016) is strongly represented in this sample. People of this generation have different norms, a bigger online presence, are more capable of reacting to changes and possess more virtual and superficial relationships than people of older generations. With respect to conflicts, generation Z 'Provokes conflicts, but either does not follow through or reacts aggressively' (Bencsik et al., 2016, p. 97). Translating this theory to task conflicts, younger people are more tended to provoke them, but are not willing to find solutions or will react aggressively, thus evolving in a relationship conflict, resulting in lower decision quality (Amason, 1996). This can offer a reason for task conflict being detrimental for decision quality in this study.

Second, task conflict may hamper the quality of decisions in industries where high decision speed is desired, such as the supermarket industry. Jumbo operates in a dynamic environment with different challenges every day. For this reason, it is important that decisions are made in the shortest possible time, in order to not waste time and lag behind. This can be a reason for the non-significant or negative influence task conflict has on decision quality, since (task) conflict is proven to slow the decision-making process, leading to lower decision-making speed (Eisenhardt, 1989).

Third, in this study, more informal decision-making directly and indirectly lowers the quality of decisions. This is in line with expectations, since more informality of decision-making can lead to a more overwhelming decision-making process, hampering the quality of decisions. Another reason can be that more formal taken decisions are perceived as more important by team members and thus earn more attention, leading to better decisions. To the best knowledge, informality of decision-making was not measured before. However, the relevance of including informality of decision-making in analyses related to (management) teams is increasing, since nowadays there are more possibilities to make decisions in an informal manner in comparison to 20 years ago. This can be caused by the emergence of, for example, internet, smartphones and working remotely. This study contributes to literature by offering a scale to measure

informality of decision-making, in which items related to this concept correlate with each other and can be distinguished from other concept's items. Therefore, this scale can be used in future research.

Fourth, the control variable cognition-based trust positively influences the quality of decisions, which is in line with previous research (Parayitam & Dooley, 2007), indicating that trust in team member's capabilities will lead to higher decision quality. Fifth, this study was conducted at Jumbo, a supermarket chain in The Netherlands. As discussed above, Jumbo and the industry it operates in, possess other characteristics than the companies or industries that were subject of analysis in previous research. Considering the limitations of this study, it can offer a first indication of how task conflict behaves in the (Dutch) supermarket industry. Based on this, there can be concluded that scientific research with respect to task conflict, conducted in one industry or at one company cannot be generalized to all other industries or companies.

Practical/societal contributions

This study offers practical and societal contributions for management team members. First, in comparison to informal decision-making, decision-making in a formal manner is more beneficial for the quality of decisions and thus for team performance (Amason, 1996). This finding is extra relevant in a time where smartphones and the internet widely used, making it easier to make decision in an informal way. Furthermore, the young average age of respondents and results differing from previous task conflict literature, indicates that younger generations (perceive and) handle task conflict in another way than older generations. For Jumbo, this means that for example that the purchase of a new bottle and can collection machine should be discussed within the meeting room, on a scheduled point in time, in order to make the best decision. Although it is questionable if this study's results are representative for all managers (within Jumbo), the sample is representative for Jumbo's management teams of stores in the Eindhoven/Utrecht region.

Limitations and directions for future research

The survey central in this study was conducted at just one company, with 110 respondents completing the survey, being not representative for all managers (within Jumbo). To compare, Amason (1996) based his findings on surveys in variety of companies (53 top management teams) in the food processing and furniture manufacturing industry, offering a greater variety of companies and thus outcomes more representative to the population of all managers. In Jehn's study (1995), 589 out of 633 employees working at the headquarters of a large freight transportation company, completed the survey. Although Jehn (1995) also conducted research

in only one company, the results seem representative for the company. This study's dataset does not seem representative for Jumbo as a whole, since mostly stores in the quite urbanized regions of Eindhoven and Utrecht were subject to participate. Furthermore, for the approached stores, approximately 37,5% of employees working in a managerial position completed the survey. Although it does not seem evident based on this study's results, non-response bias can play a role. For future research (with preferably a longer time horizon), it would be recommended to carefully select stores all over the country, and, in addition, representing every WAP. Moreover, to represent the whole population of managers, more companies and industries should be included in future studies. To prevent non-response bias in future research, every member (or most possible) of a store's management team should complete the survey. In order to improve the number of respondents per store in this study, it could have helped to send all management team members of approached stores an e-mail before visiting the store, so that they are already informed about the survey and had a first chance to complete the survey.

Another limitation regarding representativeness is the job position of employees. As discussed, approximately eight people are part of a store's management team, depending on the size of the store. The question is whether these management team members are really involved in the overarching management of the store and are thus representative to the definition of managers in this study. For future research, including a question about one's job position (if answered in all honesty) could provide insights whether there were different results for lower management and for upper management.

The questionnaire also comes with limitations. First, it was translated from English to Dutch. Although every sentence is translated as careful as possible, it can happen than English terms have a certain other meaning than its Dutch translation and are thus not the same as the questions in the studies ground to this survey's questions. Second, the questions about conflict of Jehn's survey (1995) and the amount and subject of questions of Amason's survey (1996), were used in this study's survey, leading to one less question. The questions with respect to decision quality were based on a perceptual scale. Respondents had to think about the most recent, drastic decision that was made with involvement of the whole management team. In Amason's questions regarding conflict, these questions were linked to the decision. In this study, first there were questions about conflict and thereafter participants had to think about a recent decision. Since the questions about conflict were obviously related to the current management team and since it was emphasized that the decision should be made with the involvement of the whole management team, explicitly linking these questions is not expected to lead to different results.

However, in future research explicitly linking the questions with respect to conflict and decision quality can take away these concerns.

A possible limitation regarding the perceptual scale of decision quality is the educational level and the possible rapidity when carrying out the survey of respondents. To illustrate, more than half of the respondents reacted with answer category 3 (‘average’) for decision quality. 90% of all respondents indicated that the decision turned out average or better (‘over average’ or ‘excellent’). This means that only 10% of respondents were involved by a ‘under average’ or ‘poor’ decision. It seems surreal that approximately 10% of 110 respondents working in a variety of stores perceive lower than average decision quality. The reason for this can be that respondents participated too hasty, not taking time to think of an impactful decision that needed the involvement of the whole management team. As discussed, respondents indicating lower than average decision quality can offer different insights with respect to conflict and are thus underrepresented in this study.

Although the survey’s questions were suitable for Amason’s (1996) research, they might be unsuitable for Jumbo managers, who are on average younger and are supposed to have a lower educational level than the average manager. Furthermore, since there was no ‘I do not know’ answer option included, respondents not understanding or not wanting to answer a question were forced to answer the question. They may have answered the question random, or they have given an answer that is most consistent with earlier answers, which lacks the validity of the results. In addition, there was no test for response set conducted, such as reversed questioning or control questions. This can lead to respondents reacting in a consistent, predictable manner instead of carefully answering the questions.

Conclusion

Task conflicts are expected to positively contribute to decision quality, and thus to organizational performance. Therefore, it is important to empirically test whether such a relationship is present. In addition, informality of decision-making, a concept based on recent literature, has not been empirically tested yet, and is expected to alter the relationship between task conflict and decision quality. This study shows that, dependent on the sample, task conflict has either no effect or a negative linear effect on decision quality, so a linear, not a curvilinear relationship was found. Thus, the higher the level of task conflict is, the lower the quality of decisions will be. Informality of decision-making was found to moderate this linear relationship, suggesting that influence of task conflicts on the quality of decision is dependent on the level of informality of decision-making. Moreover, informality of decision-making also had a direct negative effect on decision quality. More informal decision-making within management teams will thus result in lower decision quality. Although being included as control variables, the study revealed that higher age and cognition-based trust improve the quality of decisions. Older individuals will thus make better decisions compared to younger individuals. When there is trust in management team members' competences, the quality of the team's decisions will also be higher.

References

Amason, A. C. (1996). Distinguishing the Effects of Functional and Dysfunctional Conflict on Strategic Decision Making: Resolving a Paradox for Top Management Teams. *Academy of Management Journal*, *39*(1), 123–148. https://doi.org/10.5465/256633

Amason, A. C., & Sapienza, H. J. (1997). The Effects of Top Management Team Size and interaction Norms on Cognitive and Affective Conflict. *Journal of Management*, *23*(4), 495–516. https://doi.org/10.1177/014920639702300401

Barki, H., & Hartwick, J. (2004). Conceptualizing the construct of interpersonal conflict. *International Journal of Conflict Management*, *15*(3), 216–244. https://doi.org/10.1108/eb022913

Bencsik, A., Juhász, T., & Horváth-Csikós, G. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness, 6*(3), 90–106. https://doi.org/10.7441/joc.2016.03.06

Bourgeois, L. J. (1985). Strategic Goals, Perceived Uncertainty, and Economic Performance in Volatile Environments. *Academy of Management Journal*, *28*(3), 548–573. https://doi.org/10.5465/256113

Bradley, B. H., Postlethwaite, B. E., Klotz, A. C., Hamdani, M. R., & Brown, K. H. (2012). Reaping the benefits of task conflict in teams: The critical role of team psychological safety climate. *Journal of Applied Psychology*, *97*(1), 151–158. https://doi.org/10.1037/a0024200

Brehmer, B. (1976). Social judgment theory and the analysis of interpersonal conflict. *Psychological Bulletin*, *83*(6), 985–1003. https://doi.org/10.1037/0033-2909.83.6.985

Darioshi, R., & Lahav, E. (2021). The impact of technology on the human decision-making process. *Human Behavior and Emerging Technologies*, *3*(3), 391–400. https://doi.org/10.1002/hbe2.257

Day, D. A., & Lord, R. G. (1992). Expertise and problem categorization: The role of expert processing in organizational sense-making. *Journal of Management Studies*, *29*(1), 35–47. https://doi.org/10.1111/j.1467-6486.1992.tb00651.x

De Dreu, C. K. W. (2006). When Too Little or Too Much Hurts: Evidence for a Curvilinear Relationship Between Task Conflict and Innovation in Teams. *Journal of Management*, *32*(1), 83–107. https://doi.org/10.1177/0149206305277795

De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology*, *88*(4), 741–749. https://doi.org/10.1037/0021-9010.88.4.741

Edmondson, A. C. (1999). Psychological Safety and Learning Behavior in Work Teams. *Administrative Science Quarterly*, *44*(2), 350–383. https://doi.org/10.2307/2666999

Eisenhardt, K. M. (1989). Making Fast Strategic Decisions In High-Velocity Environments. *Academy of Management Journal, 32*(3), 543–576. https://doi.org/10.5465/256434

Eisenhardt, K. M., & Schoonhoven, C. B. (1990). Organizational Growth: Linking Founding Team, Strategy, Environment, and Growth Among U.S. Semiconductor Ventures, 1978-1988. *Administrative Science Quarterly*, *35*(3), 504-529. https://doi.org/10.2307/2393315

Farris, G. F. (1979). The Informal Organization in Strategic Decision-Making. *International Studies of Management and Organization*, *9*(4), 37–62. https://doi.org/10.1080/00208825.1979.11656277

Fischhoff, B., & Goitein, B. (1984). The Informal Use of Formal Models. *Academy of Management Review*, *9*(3), 505–512. https://doi.org/10.5465/amr.1984.4279691

Gladstein, D. L. (1984). Groups in Context: A Model of Task Group Effectiveness. *Administrative Science Quarterly*, *29*(4), 499-517. https://doi.org/10.2307/2392936

Haans, R. F. J., Pieters, C., & He, Z. (2016). Thinking about U: Theorizing and testing U- and inverted U-shaped relationships in strategy research. *Strategic Management Journal*, *37*(7), 1177–1195. https://doi.org/10.1002/smj.2399

Hall, R. L. (1973). Organizations: Structure and Process. *Social Forces*, *52*(2), 287. https://doi.org/10.2307/2576389

Jehn, K. A. (1995). A Multimethod Examination of the Benefits and Detriments of Intragroup Conflict. *Administrative Science Quarterly*, *40*(2), 256-282. https://doi.org/10.2307/2393638

Jehn, K.A. (1997), "Affective and cognitive conflicts in work groups: increasing performance through value-based intragroup conflict", in de Dreu, C.K.W. and Van de Vliert, E. (1997), *Using Conflict in Organizations*, Sage.

Johnson, J. R., Donohue, W. A., Atkin, C. K., & Johnson, S. E. (1994). Differences Between Formal and Informal Communication Channels. *Journal of Business Communication*, *31*(2), 111–122. https://doi.org/10.1177/002194369403100202

Knight, D., Pearce, C. L., Smith, K. R., Olian, J. D., Sims, H. P., Smith, K. R., & Flood, P. C. (1999). Top management team diversity, group process, and strategic consensus. *Strategic Management Journal*, *20*(5), 445–465. https://doi.org/10.1002/(SICI)1097-0266(199905)20:5<445::AID-SMJ27>3.0.CO;2-V

McAllister, D. J. (1995). Affect- and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations. *Academy of Management Journal*, *38*(1), 24–59. https://doi.org/10.5465/256727

Meinecke, A. L., & Handke, L. (2022). The meeting after the meeting: A conceptualization and process model [Unpublished manuscript]. *Organizational Psychology Review*. https://doi.org/10.1177/20413866221097409

Parayitam, S., & Dooley, R. S. (2007). The relationship between conflict and decision outcomes. *International Journal of Conflict Management*, *18*(1), 42–73. https://doi.org/10.1108/10444060710759318

Parayitam, S., Olson, B. D., & Bao, Y. (2010). Task conflict, relationship conflict and agreement-seeking behavior in Chinese top management teams. *International Journal of Conflict Management*, *21*(1), 94–116. https://doi.org/10.1108/10444061011016641

Schweiger, D. M., Sandberg, W. C., & Ragan, J. F. (1986). Group Approaches for Improving Strategic Decision Making: A Comparative Analysis of Dialectical Inquiry, Devil's Advocacy, and Consensus. *Academy of Management Journal*, *29*(1), 51–71. https://doi.org/10.5465/255859

Schweiger, D. M., Sandberg, W. C., & Rechner, P. L. (1989). Experiential Effects of Dialectical Inquiry, Devil's Advocacy and Consensus Approaches to Strategic Decision Making. *Academy of Management Journal*, *32*(4), 745–772. https://doi.org/10.5465/256567

Schwenk, C. R., & Cosier, R. A. (1993). Effects of Consensus and Devil's Advocacy On Strategic Decision-Making. *Journal of Applied Social Psychology*, *23*(2), 126–139. https://doi.org/10.1111/j.1559-1816.1993.tb01056.x

Turner, J.C. (1982), "Toward a cognitive definition of the group", in Tajfel, H. (2010), *Social Identity and Intergroup Relations*, Cambridge University Press.

Van De Ven, A. H., Delbecq, A. L., & Koenig, R. T. (1976). Determinants of Coordination Modes within Organizations. *American Sociological Review*, *41*(2), 322-338. https://doi.org/10.2307/2094477

Wall, V. J., & Nolan, L. L. (1986). Perceptions of Inequity, Satisfaction, and Conflict in Task-Oriented Groups. *Human Relations*, *39*(11), 1033–1051. https://doi.org/10.1177/001872678603901106

Appendix 1 – Questions related to variables

Task conflict (independent variable) – Different scales with 1 as lowest and 5 as highest

- How often do people in your work unit disagree about opinions regarding the work being done?
- How frequently are there conflicts about ideas in your work unit?
- How much conflict about the work you do is there in your work unit?

Informality of decision-making (moderator) - Scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always.

- Decisions are made within scheduled meetings rather than outside these meetings.
- Discussion about decisions takes place within scheduled meetings rather than outside these meetings.
- Discussion about decisions takes place inside the boarding room.

Decision quality (dependent variable) - Scale (was 4-point): 1 = poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent.

- The effect that that decision has had on company is…
- Relative to what we expected, the results of the decision have been…
- Overall, the group members feel that the decision was…
- The degree to which team's decision rationale was covered the maximum range of relevant issues was…
- The degree to which the team's decision rationale was well structured and reflective of interrelationships and intra-relationships among the relevant issues was…
- The degree to which the team's decision rationale was expressed in depth was…

Relationship conflict - Different scales with 1 as lowest and 5 as highest

- How much friction is there among members in your work unit?
- How much are personality conflicts evident in your work unit?
- How much tension is there among members in your work unit?
- How much emotional conflict is there among members in your work unit?

Psychological safety - Scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always.

- Members of this team are able to bring up problems and tough issues.
- It is safe to take a risk on this team.

- No one on this team would deliberately act in a way that undermines my efforts.

Cognition-based trust - Scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always.

- The members in the group approach their job with professionalism and dedication
- Team members, even those who are not close friends, have trust and respect for each other
- Team members can be counted on to fulfill their responsibilities in a reliable manner

Appendix 2 – Survey

Enquête

Bedankt dat je wil deelnemen aan dit onderzoek over conflicten in managementteams. Het onderzoek telt 27 vragen en duurt ongeveer een kwartier. Je kan ook online aan dit onderzoek deelnemen (zie QR-code), maar dit hoeft niet. Het doel van dit onderzoek is om een bijdrage te leveren aan de wetenschappelijke literatuur en zodoende onze kennis te vergroten over conflicten in managementteams, dus niet om advies te geven aan Jumbo zelf. Dit onderzoek is bedoeld voor mijn masterscriptie aan de Radboud Universiteit in Nijmegen en staat los van Jumbo zelf.

In het onderzoek wordt een 'managementteam' grofweg gedefinieerd als een kaderteam van een filiaal van Jumbo. Het is belangrijk dat kaderleden in de praktijk daadwerkelijk onderdeel zijn van dit team. Vulploegleiders en specialisten in opleiding kunnen (op papier) behoren tot het kaderteam, maar als zij niet betrokken worden bij beslissingen van het kaderteam, dan zijn zij in de praktijk geen onderdeel van een managementteam en dus geen geschikte participant voor dit onderzoek. Aan de andere kant kunnen personen die (op papier) geen deel uitmaken van het kaderteam in de praktijk wel deel uitmaken van het managementteam als zij bij beslissingen betrokken zijn. Zij zouden dus wel geschikte participant zijn voor dit onderzoek.

Bij het beantwoorden van de vragen is het belangrijk dat je denkt vanuit het kaderteam en niet vanuit je (mogelijke) eigen afdeling. Het onderzoek start met algemene vragen, zoals leeftijd of het aantal jaren dat je werkzaam bent in je winkel. Daarna wordt gevraagd naar je winkelnummer. Op basis hiervan kan er onderzocht worden of de eigenschappen van de winkel, zoals bijvoorbeeld de omzetklasse of het aantal medewerkers, het onderzoek beïnvloedt. Hierna volgen de inhoudelijke vragen. Eerst zijn er vragen over conflicten (meningsverschillen) en de manier waarop beslissingen in het algemeen worden genomen. Daarna is er een vraag waarbij je aan één specifieke beslissing moet denken. Tot slot zijn er vragen over psychologische veiligheid en cognitief vertrouwen binnen managementteams.

De privacy van de respondenten wordt gewaarborgd in dit onderzoek. De resultaten van dit onderzoek zullen dus geen betrekking hebben op personen, winkels of Jumbo zelf, maar op de gevolgen van conflicten in managementteams in het algemeen. Bijvoorbeeld:

- NIET → Bij winkel 3172 is er veel spanning binnen het kaderteam.
- NIET → Medewerkers van kaderteams van Jumbo voelen zich niet vrij om fouten te maken.
- WEL → Bij weinig werkgerelateerde discussie binnen managementteams daalt de kwaliteit van beslissingen.

Algemene vragen				
1. Wat is je leeftijd?				
2. Ik identificeer mijzelf als…	Vrouw	Man	Anders	Zeg ik liever niet
3. Hoeveel jaar werkervaring heb je in de supermarkt?				
4. Mijn dienstverband binnen deze winkel is…	Korter dan een half jaar	Langer dan een half jaar, maar korter dan twee jaar		Langer dan twee jaar
5. Mijn winkelnummer is…				

	Nooit	Zelden	Soms	Vaak	Altijd
6. Hoe frequent zijn er werkgerelateerde meningsverschillen onder de leden van je kaderteam?					
7. Hoe frequent zijn er conflicten over ideeën onder de leden van je kaderteam?					

	Geen	Een beetje	Enigszins	Redelijk veel	Veel
8. Hoeveel frictie is er onder leden van je kaderteam? *Frictie kan ontstaan wanneer belangen, voorkeuren en meningen van personen verschillen.*					
9. Hoeveel spanning is er onder leden van je kaderteam? *Spanning kan ontstaan als er ongemakkelijkheid of stress tussen personen bestaat.*					

	Geen	Enkele	Gemiddeld	Veel	Heel erg veel
10. Hoeveel emotionele conflicten zijn er aanwezig onder de leden van je kaderteam? *Conflicten (onenigheden) waarbij emoties hoog oplopen, ongeacht de achtergrond van het conflict.*					
11. Hoeveel werkgerelateerde conflicten vinden er plaats onder de leden van je kaderteam? *Conflicten (onenigheden) op basis van het werk, niet op basis van de persoonlijke omstandigheden tussen personen.*					

	Niet	Een beetje	Enigszins	Erg	Heel erg
12. Hoe duidelijk zijn persoonlijke conflicten aanwezig onder de leden van je kaderteam? *Persoonlijke conflicten (onenigheden) zijn conflicten die gerelateerd zijn aan de persoonlijke verstandhouding tussen personen. Ze zijn dus niet gerelateerd aan het werk.*					

	Nooit	Zelden	Soms	Vaak	Altijd
13. Over het algemeen worden beslissingen genomen in ingeplande vergaderingen in plaats van buiten ingeplande vergaderingen om.					
14. Discussie over beslissingen vindt in het algemeen plaats binnen ingeplande vergaderingen in plaats van buiten ingeplande vergaderingen					
15. Discussie over beslissingen vindt plaats binnen de vergaderkamer					

Bij de volgende vragen moet je denken aan de meest recente, ingrijpende, beslissing die binnen het kaderteam is genomen. Bij het nemen van de beslissing moet/moest heel het kaderteam betrokken zijn.

	Slecht	Ondergemiddeld	Gemiddeld	Bovengemiddeld	Uitstekend
16. Het effect van de beslissing op de winkel was…					
17. In verhouding tot wat er verwacht werd, was het resultaat van de beslissing…					
18. Over het algemeen vonden de leden van het kaderteam de beslissing…					
19. De mate waarin de beslissing paste binnen het maximale bereik van relevante kwesties waarover het kaderteam kon oordelen was…					
20. De manier waarop de beslissing tot stand kwam was … gestructureerd en was een …(e) reflectie van inter- en intra-relaties tussen kwesties.					
21. De diepgang van het proces waarin de beslissing tot stand kwam was…					

De volgende vragen gaan over 'psychological safety' en 'cognition-based trust'. Bij het beantwoorden van de vragen moet je aan de algemene gang van zaken denken.

	Nooit	Zelden	Soms	Vaak	Altijd
22. Leden van je kaderteam kunnen problemen en vraagstukken delen binnen je kaderteam					
23. Het is veilig om een risico te nemen binnen je kaderteam					
24. Niemand in mijn kaderteam zou opzettelijk handelen op een manier die mijn inspanningen ondermijnt					
25. Leden van je kaderteam benaderen hun baan met professionalisme en toewijding					
26. Leden binnen je kaderteam hebben vertrouwen en respect voor elkaar, ook al zijn ze mogelijk geen goede vrienden					
27. Leden binnen je kaderteam kunnen worden beschouwd als mensen die hun verantwoordelijkheden op een betrouwbare manier nakomen					

Dit was het! Heel erg bedankt voor het meedoen aan dit onderzoek!

Groetjes,

Andor (*andorcelik@live.nl; andor.celik@jumbo.com)*

Onderstaande vragen worden opgevraagd bij de (assistent-)filiaalmanager				
28. Omzetklasse winkel?	*1*	*2*	*3*	
29. Aantal medewerkers winkel	*75 of minder*	*76 tot en met 100*	*101 tot en met 125*	*126 of meer*
30. Zijn alle kaderposities bezet?	*Ja*	*1 positie mist*	*2 posities missen*	*Meer dan 2 posities missen*
31. De functies van filiaalmanager, assistent-filiaalmanager en teamleider zijn ingevuld	*Ja*	*FM mist*	*AFM mist*	*TL mist*
32. Winkelassortimentsprofiel	*Landelijk-budget*			
	Landelijk-premium			
	Stedelijk-budget			
	Stedelijk-premium			
	Zeer stedelijk-budget			
	Zeer stedelijk-premium			

Appendix 3 – Different groups and independent samples test

	Group 1 (approached)	**Group 2 (not approached)**	Close connection?	Part of cluster Eindhoven/Utrecht?	Visited store?	Facebook group?	Contacted via e-mail?
0 (unknown)	0	2				x	
1025 (unknown)	0	1				x	
1624 (unknown)	0	1				x	
3071 Leeuwarden Lieuwenburg	0	1				x	
3081 Barneveld Nieuwe Markt	0	1				x	
3126 Eindhoven Nederlandplein	3	0	x	x			
3127 Eindhoven Winkelcentrum Woensel	2	0	x	x	x		x
3133 Nijmegen Sint Jacobslaan	0	1					x
3144 Nieuwegein Walnootgaarde	3	0		x	x		
3148 Zeist Johan v Oldenbarneveltlaan	0	1				x	
3159 Houten Spoorhaag	1	0		x	x		x
3172 Eindhoven Kastelenplein	8	0	x				
3184 IJsselstein Clinckhoef	1	0		x	x		x
3435 Beuningen Thorbeckeplein	0	1				x	
3705 Hedel Kasteellaan	0	1				x	
4611 Eindhoven Biarritzplein	8	0		x	x		
4614 Eindhoven Geldropseweg	3	0		x	x		
4624 Utrecht Ina Boudier Bakkerhof	6	0		x	x		
4661 Helmond Azalealaan	0	1					x
4664 Nieuwegein Laag Raadstede	3	0		x	x		
4671 IJsselstein Televisiebaan	1	0		x	x		
4679 Utrecht Verlengde Houtrakgracht	1	0		x			x
4699 Eindhoven Pagelaan	5	0	x	x	x		
4702 Eindhoven Geretsonplein	4	0	x	x	x		x
4713 Berkel en Rodenrijs West	0	1				x	
4724 Valkenswaard Willibrorduslaan	0	1					x
4735 Utrecht Rijnkade	1	0		x	x		x
4826 Son en Breugel Nieuwstraat	2	0			x		x
4836 Berghem Burg. van Erpstraat	0	1				x	
4859 Eindhoven Belgieplein	2	0		x	x		x
4866 Helmond Hoofdstraat	0	2					x
4881 Nuenen Hoge Braake	1	0		x	x		x
4913 Utrecht Euterpedreef	1	0		x	x		x
4914 Veldhoven City Centrum	4	0	x	x	x		
4927 Eindhoven Meerwater	3	0		x	x		x
4942 (unknown)	0	1				x	
4943 Eindhoven Boutenslaan	4	0	x	x	x		
4957 Utrecht Biltstraat	3	0		x	x		
5034 Ede Hoog Maanen	0	1				x	

5086 Helmond Wederhof	0	1					x
5087 Helmond 2e Haagstraat	0	2					x
5107 Leerdam Westwal	0	1				x	
5111 Nieuwegein Galecop	1	0		x	x		x
5112 Nijmegen Hatertseweg	0	1					x
5117 Reusel Schoolstraat	0	1				x	
5138 Veldhoven Burgemeester van Hoofflaan	6	0	x	x	x		
5139 Venray de Bleek	0	1				x	
5141 Vught	1	0	x				x
5146 Eindhoven Victoriapark	3	0	x	x	x		
5148 Tiel Westledeplein	0	1				x	
6437 Gorssel Nijverheidsstraat	0	1				x	
6594 Groningen Reitdiephaven	0	1				x	
7113 Meijel Kerkstraat	0	1				x	
Total	81	29					

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
						Significance			
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference
TC	Equal variances assumed	0.011	0.917	-1.289	108	0.100	0.200	-0.184	0.142
	Equal variances not assumed			-1.255	47.049	0.108	0.216f	-0.184	0.146
F_TC	Equal variances assumed	0.069	0.794	-1.432	108	0.077	0.155	-0.199	0.139
	Equal variances not assumed			-1.371	45.737	0.089	0.177	-0.199	0.145
RC	Equal variances assumed	6.506	0.012	-1.585	108	0.058	0.116	-0.271	0.171
	Equal variances not assumed			-1.435	41.884	0.079	0.159	-0.271	0.189
IDM	Equal variances assumed	6.239	0.014	-0.359	108	0.360	0.720	-0.051	0.142
	Equal variances not assumed			-0.312	39.583	0.378	0.757	-0.051	0.163
DQ	Equal variances assumed	0.166	0.684	1.131	108	0.130	0.260	0.138	0.122
	Equal variances not assumed			1.074	45.141	0.144	0.288	0.138	0.128
F_PS	Equal variances assumed	1.447	0.232	2.064	108	**0.021**	**0.041**	0.348	0.169
	Equal variances not assumed			1.858	41.544	0.035	0.070	0.348	0.187
CBT	Equal variances assumed	0.345	0.558	1.212	108	0.114	0.228	0.183	0.151
	Equal variances not assumed			1.187	47.619	0.121	0.241	0.183	0.154

Appendix 4 – Final outcomes factor analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.875
Bartlett's Test of Sphericity	Approx. Chi-Square	1186.92
	df	190
	Sig.	< .000

Communalities		
	Initial	Extraction
6. Difference opinion	0.529	0.596
7. Conflicts ideas	0.475	0.619
8. Friction	0.738	0.811
9. Tension	0.738	0.778
10. Emotional conflicts	0.719	0.750
12. Personal conflicts	0.595	0.574
13. Decisions scheduled meetings	0.402	0.439
14. Discussion scheduled meetings	0.460	0.492
15. Discussion board room	0.440	0.464
16. Effect decision	0.519	0.556
17. Expectation decision	0.493	0.424
18. Perception decision	0.492	0.517
19. Maximum issues decision	0.445	0.443
20. Structure decision	0.525	0.525
21. Depth process decision	0.541	0.483
22. Sharing issues	0.643	0.673
23. Taking risks	0.622	0.826
25. Professionality dedication	0.649	0.713
26. Trust respect	0.668	0.681
27. Responsibilities reliable	0.743	0.857

Total Variance Explained							
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.108	40.542	40.542	7.756	38.779	38.779	5.762
2	2.059	10.295	50.837	1.635	8.173	46.952	2.219
3	1.295	6.477	57.313	0.849	4.245	51.197	3.465
4	1.133	5.664	62.977	0.792	3.960	55.157	4.469
5	1.026	5.132	68.109	0.722	3.610	58.768	4.870
6	0.813	4.064	72.173	0.468	2.339	61.107	3.940
7	0.796	3.980	76.154				

Factor Correlation Matrix						
Factor	1	2	3	4	5	6
1	1.000	0.252	0.469	-0.486	0.524	0.520
2	0.252	1.000	0.236	-0.023	0.332	0.166
3	0.469	0.236	1.000	-0.330	0.362	0.269
4	-0.486	-0.023	-0.330	1.000	-0.348	-0.467
5	0.524	0.332	0.362	-0.348	1.000	0.356
6	0.520	0.166	0.269	-0.467	0.356	1.000

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Eigenvalue	*8.108*	*2.059*	*1.295*	*1.133*	*1.026*	*0.813*
Cronbach's Alpha	*0.889*	*0.688*	*0.842*	*0.876*	*0.830*	*0.740*
6. Difference opinion						**0.643**
7. Conflicts ideas						**0.756**
8. Friction				**0.686**		
9. Tension				**0.818**		
10. Emotional conflicts				**0.656**		
12. Personal conflicts				**0.521**		
13. Decisions scheduled meetings		**- 0.620**				
14. Discussion scheduled meetings		**- 0.612**				
15. Discussion board room		**- 0.447**				
16. Effect decision					**0.565**	
17. Expectation decision					**0.411**	
18. Perception decision					**0.607**	
19. Maximum issues decision					**0.618**	
20. Structure decision					**0.719**	
21. Depth process decision					**0.455**	
22. Sharing issues			**0.559**			
23. Taking risks			**0.793**			
25. Professionality dedication	**0.803**					
26. Trust respect	**0.653**					
27. Responsibilities reliable	**0.862**					

Appendix 5 – Descriptives and frequencies variables

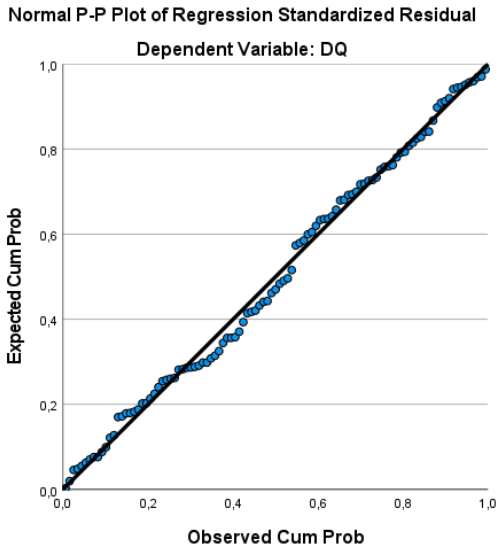
Frequencies and descriptives variables								
		1	2	3	4	5	*Mean*	*Std.Dev.*
Task conflict (TC, F_TC)	6. Difference of opinion	2	24	67	17	0	*2.900*	*0.663*
	7. Conflict of ideas	10	34	56	10	0	*2.600*	*0.780*
	11. Work-related conflicts	35	51	14	10	0	*1.990*	*0.904*
	Total TC	47	109	137	37	0	***2.497***	***0.660***
	% TC	14.2%	33.0%	41.5%	11.2%	0.0%		
	Total F_TC	12	58	123	27	0	***2.750***	***0.645***
	% F_TC	5.5%	26.4%	55.9%	12.3%	0.0%		
Relationship conflict (RC)	8. Friction	24	51	23	10	2	*2.230*	*0.955*
	9. Tension	44	43	12	8	3	*1.940*	*1.025*
	10. Emotional conflicts	52	39	11	8	0	*1.770*	*0.905*
	12. Personal conflicts	62	35	7	6	0	*1.610*	*0.836*
	Total	182	168	53	32	5	***1.886***	***0.797***
	%	41.4%	38.2%	12.0%	7.3%	1.1%		
Informality of decision making (T_IDM)	13. Decision scheduled meetings	2	44	40	22	2	*2.800*	*0.844*
	14. Discussion scheduled meetings	3	45	45	13	4	*2.727*	*0.845*
	15. Discussion board room	11	48	40	11	0	*2.464*	*0.809*
	Total	16	137	125	46	6	***2.664***	***0.654***
	%	4.8%	41.5%	37.9%	13.9%	1.8%		
Decision quality (DQ)	16. Effect decision	1	7	53	43	6	*3.420*	*0.734*
	17. Expectation decision	2	16	52	36	4	*3.220*	*0.806*
	18. Perception decision	1	6	48	46	9	*3.510*	*0.763*
	19. Maximum issues decision	1	6	65	34	4	*3.310*	*0.674*
	20. Structure decision	1	9	67	24	9	*3.280*	*0.768*
	21. Depth process decision	2	16	60	24	8	*3.180*	*0.837*
	Total	8	60	345	207	40	***3.320***	***0.563***
	%	1.2%	9.1%	52.3%	31.4%	6.1%		
Psychological safety (F_PS)	22. Sharing issues	0	6	10	39	55	*4.300*	*0.852*
	23. Taking risks	1	6	10	56	37	*4.110*	*0.850*
	Total	1	12	20	95	92	***4.205***	***0.791***
	%	0.5%	5.5%	9.1%	43.2%	41.8%		
Cognition-based trust (CBT)	25. Professionality and dedication	0	5	19	62	24	*3.950*	*0.759*
	26. Trust and respect	0	4	18	53	35	*4.080*	*0.791*
	27. Reliability responsibilities	0	3	26	54	27	*3.950*	*0.771*
	Total	0	12	63	169	86	***3.997***	***0.700***
	%	0.0%	3.6%	19.1%	51.2%	26.1%		

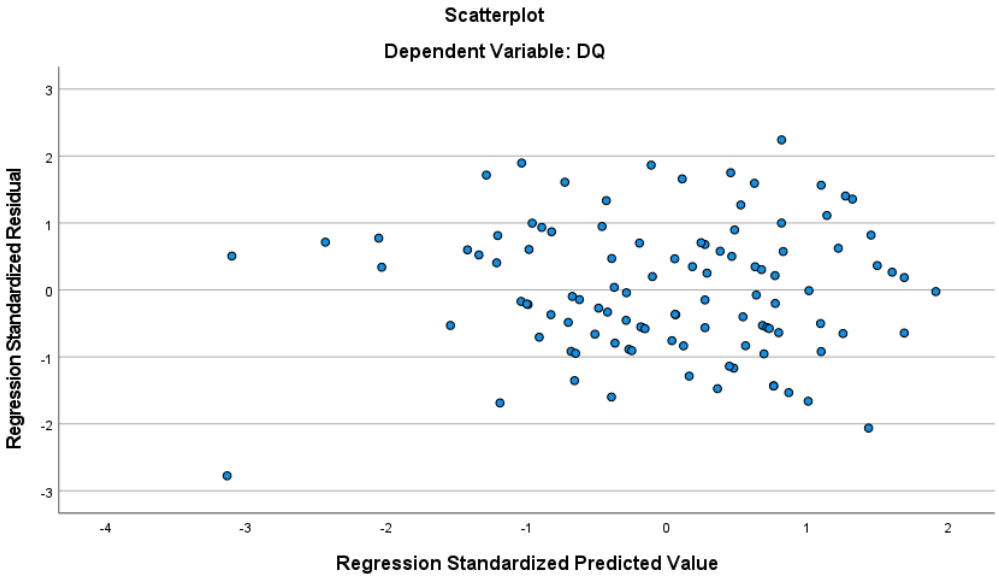
Appendix 6 – Assumptions regression analysis

Test for linearity (significance levels)		
Variables	Linearity	Deviation from linearity
DQ*TC	< 0.001	0.880
DQ*SQ_TC	< 0.001	0.863
DQ*RC	< 0.001	0.960
DQ*T_IDM	< 0.001	< 0.001
DQ*F_PS	< 0.001	0.380
DQ*CBT	< 0.001	0.452

Collinearity statistics		
	Tolerance	VIF
Task conflict	0.465	2.150
Age	0.269	3.714
Gender (women)	0.850	1.176
Working experience	0.261	3.825
Employment store	0.861	1.161
Grade of urbanization	0.581	1.721
Budget/Premium	0.609	1.641
Informality of decision-making	0.755	1.325
Relationship conflict	0.386	2.590
Psychological safety	0.499	2.004
Cognition-based trust	0.496	2.017

	Skewness			Kurtosis		
	Statistic	Std. Error	SK/SE	Statistic	Std. Error	KU/SE
TC	0.197	0.236	0.837	-0.075	0.467	-0.1598
RC	1.014	0.236	**4.303**	0.580	0.467	1.2413
T_IDM	-0.528	0.236	**-2.238**	0.264	0.467	0.5643
DQ	-0.409	0.236	-1.735	1.995	0.467	4.269
CBT	-0.465	0.236	-1.975	0.192	0.467	0.4101
F_PS	-1.294	0.236	**-5.489**	1.646	0.467	**3.5217**
F_TC	-0.269	0.236	-1.143	0.089	0.467	0.1909




Scatterplot
Dependent Variable: DQ
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-3
-2
-1
0
1
2

Appendix 7 – Control variables linear regression

Variable	Measurement level
Age	Scale
Gender	Nominal. Will be dummyfied with men as reference category
Working experience	Scale
Employment store	Ordinal, will be treated as scale
Grade of urbanization	Ordinal, will be treated as scale
Budget/premium	Ordinal, will be treated as scale
Relationship conflict	Ordinal, will be treated as scale
Psychological safety	Ordinal, will be treated as scale
Cognition-based trust	Ordinal, will be treated as scale