

Eindhoven, April 2011

**How can a team leader influence
performance in a cross-functional
team? The effects of diversity belief
and conflict management**

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in partial fulfilment of the requirements for the degree of

**Master of Science
in Innovation Management**

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TUE. School of Industrial Engineering.

Series Master Theses Innovation Management

Subject headings: conflict, diversity, team, human performance, work performance, creativity, labour satisfaction.

Abstract

Cross-functional new product development (NPD) teams encounter positive (diverse knowledge and experimental bases, wide information networks, etc.) as well as negative (disagreement, conflict, stress, etc.) effects from their functional diversity. The team leader plays an important role to reduce the negative effects and harvest the positive effects. This study examined how the leader of a cross functional new product development team can improve team performance by managing conflict and diversity beliefs. Based on a study involving 30 cross-functional NPD teams, results suggest that the management of diversity beliefs – the believe in the value of functional diversity – reduces task, relationship and process conflicts while at the same time improving perceived team performance, team level satisfaction, and self rated creativity. When conflicts emerge a collaborative conflict management strategy, in which the leader acts as a third party, seems most effective for high level conflicts because this approach might decrease the negative relationship between conflict and performance. Additionally, results show that process conflict had a curvilinear relationship with perceived team performance, team level information elaboration, team level satisfaction, and self rated creativity. This suggests that, besides task conflict, process conflict has a potentially beneficial effect on team performance.

Preface

The report you are about to read presents the results of my graduation project of the master Innovation Management at the Eindhoven University of Technology (TU/e). The road that led me to writing this report has been joyful, nerve-racking, exciting, and educative. Therefore I will briefly discuss how this road looked like and who have helped me along the way.

During my bachelor study commercial engineering at the Hogeschool Zuyd Heerlen and the Fachhochschule Aachen, I noticed I was much more interested in the combination of engineering and marketing/sales than in pure engineering (*read: making drawings and calculations*). In a follow-up course I wanted to get more in touch with product development, since that is, to my opinion, the area where the combination between engineering and marketing is most exciting. The master Innovation Management at the Eindhoven University of Technology proved to be a good match.

During this master course I learned more about the social and psychological aspects of product development and innovation. Indeed, all inventions and products are developed by people. This makes them an enormous powerful asset. Managing these people correctly is therefore important for every organization. This is one of the reasons I wanted to look at the area of human performance during my thesis project.

First, I would like to thank friends and family for their support and understanding. They formed a firm base and helped me make important choices during my life, and were a valuable recourse during my study career. Of course I can't forget my girlfriend Marcella. Her love and support very much helped me during my study and this final project.

Second, I would like to thank Sonja Rispen, my university supervisor, for her extensive support and effort during the whole project. She was a great help for big and small issues. Thank you for the trust, cooperation and support in my work. Besides, I would like to thank my second supervisor, Ad de Jong, for his valuable comments concerning the content of the project.

Third, I would like to thank all organizations that participated in my research by providing one or more cross-functional teams. It took me 4 months to gather all data from these teams, but to everyone who eventually completed my survey: thanks for your effort! Without you I wouldn't have any data.

Fourth, I want to thank my fellow students Chase, Martijn and Tim. They were a valuable source for good discussions and debates during the many projects we jointly did. With them, I developed new ways of reasoning that proved to be useful during my graduation project.

Last but not least I want to thank my Dell laptop. Although most of us take it for granted, my laptop never let me down. A hard-drive crash could erase a lot of valuable data and would be a reminder that regular back-ups are a necessity. But luckily it never did. 4 years it provided constant service, even without a proper carrying case, and my whole master thesis has been written on it. Without it, I would have to do it with a lesser alternative.

Rests me nothing else than to wish the reader a pleasant time reading my thesis.

Jeroen Schilderman

Maastricht, April 2011

Management summary

New product development (NPD) processes are often performed by a cross-functional team (Griffin, 1997, McDonough, 2000) in which the team members have wide information networks and diverse functional and experimental backgrounds that can help the team to develop new and innovative products and come up with creative solutions.(Ancona & Caldwell, 1992; Keller, 2001; Reagans & Zuckerman, 2001). Besides the benefits of cross-functionality these teams also encounter disagreement, conflict and stress because they have conflicting schedules and priorities (Gebert et al., 2006; Keller, 2001; McDonough, 2000). A team leader forms an important factor in managing these cross-functional teams to harvest the benefits and reduce the negative effects (Cooper & Kleinschmidt, 2007; Barczak et al., 2009). This study set out to investigate *how the leader of a cross functional new product development team can improve team performance by managing diversity beliefs and conflict*. The research model is shown in Figure 1. To test this model, data from 30 cross-functional NPD teams was collected and analyzed using hierarchical regression. All relationships will briefly be explained in common English and complemented by the findings from this research and the managerial implications it has. I will start by explaining the relationship between conflict and performance, followed by how a team leader can manage diversity beliefs and conflict and the potential effects these actions have on team performance.

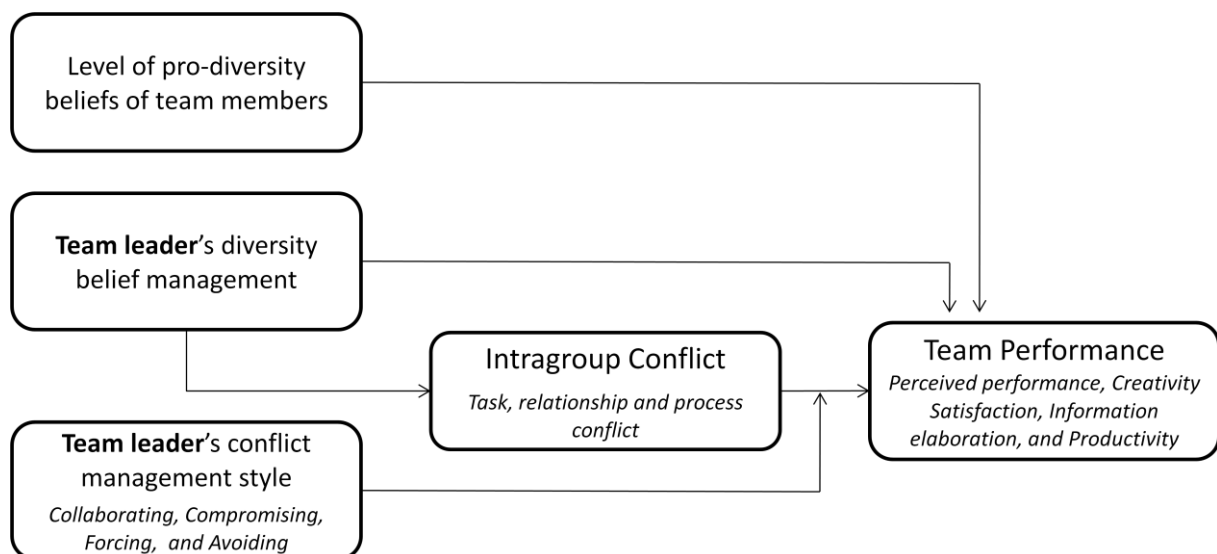


Figure 1. Overview of research model.

Intragroup conflict

When members of a cross-functional team are unable to understand each other's challenges, to recognize and settle their different perspectives, and/or to achieve agreement conflict will be present and the team has less chance to be successful (Ancona & Caldwell, 1992; Jenkins & Meer, 2005; Lovelace et al., 2001). The conflict literature differentiates between three types of conflict: task conflict, relationship conflict and process conflict (Jehn, 1997). *Task conflict* is conflict based on the substance of the task that the group is performing or decisions at hand, including, ideas, and opinions (Jehn, 1995, 1997; Peterson & Harvey, 2009). Based on preliminary work from De Dreu (2006) and Xie et al. (1998), I adopted the concept that task conflict has a curvilinear (inverted U-shaped) relationship with performance. Task conflict may increase constructive criticism, careful evaluation of alternatives, realistic questioning of members' ideas, and creative problem solving (Jehn, 1997; Sethi et al., 2001). As the conflict becomes more intense information processing impedes and team performance suffers (De Dreu & Weingart, 2003). The results of this study revealed a curvilinear relationship between task conflict and team level satisfaction and team leader's creativity rating. Other team performance measures, for example perceived team performance and information elaboration, decreased as the level of task conflict increased. *Relationship conflict* is conflict based on interpersonal disagreements not directly related to the task and is likely to result in tension and negative emotions such as anger and annoyance among members (Jehn, 1995). Previous research already found that relationship conflict impedes team performance (Jackson & Joshi, 2010; Jehn, 1995; De Dreu & Weingart, 2003; Peterson & Harvey, 2009). This study found, in line with previous research, that relationship conflict had a negative relationship with perceived performance, information elaboration, satisfaction, self rated creativity and productivity. *Process conflict* is disagreement about logistical issues, like who should do what and when (Greer et al., 2008, Jehn, 1997) and is believed to misdirect the focus to irrelevant discussions of member ability and interferes with task content (Jehn, 1997). Although a negative relationship was predicted, results showed a curvilinear relationship

between process conflict and perceived team performance, team level information elaboration, team level satisfaction, and self rated team creativity, indicating that a medium level of process conflict is related to highest performance compared to low and high levels of process conflict. These results made clear that creating the right mix and balance between the levels of conflict to get the highest team performance will be a challenging job. Previous research already mentioned that conflict can work as a double-edged sword, improving some performance criteria while reducing others (De Dreu, 2006).

Diversity belief management

Diversity beliefs in this study reflect the extent to which individuals believe there is value in functional diversity. Homan et al. (2007) found that diversity beliefs influence the degree to which one's own team is perceived as a good team. When group members believe in the value of diversity (a pro-diversity belief) performance can increase due to increased group identification, trust, commitment, and group cohesion (Homan et al., 2007; van Knippenberg et al., 2004). Besides, diversity beliefs may help to separate the desired functional conflicts from the undesired dysfunctional conflicts (Gebert et al., 2006).

Because of their position in the team, team leaders have a key role in promoting diversity belief among team members (Im & Nakata, 2008; Sarin & McDermott, 2003; Valle & Avella, 2003; Webber, 2002). Team leaders may encourage pro-diversity beliefs by explaining how task performance can benefit from diversity in perspectives and information, by communicating his/her belief in the value of diversity, or by acting as example (Homan et al., 2007). A positive relationship between diversity belief management (the promotion of diversity beliefs by team leaders) and perceived team performance, team level satisfaction and self rated creativity was found, suggesting that diversity belief management might help to increase team performance. This study also found that intragroup conflict (task, relationship and process conflict) was lower in teams where the team leader managed diversity beliefs. This suggests that diversity belief management helped to create an environment that is open and tolerant for diverse perspectives, helped the functionally diverse team members to work towards a common team

goal, and helped team members to interpret task conflicts in the sense that they are less likely to misqualify task conflicts as a personal attack.

Team leader's conflict management style

Team leaders have a powerful position in managing the diverse team members and in handling conflict between those members (Gebert et al., 2006). Besides diversity belief management, this study also examined the effect of conflict management, in which the team leader acts as a third party to handle conflict between team members. Four strategies were identified: *Collaborating* (supporting information exchange to find an optimal solution and reach a win-win situation), *Compromising* (settling the conflict by bringing the conflicting parties to agreement), *Avoiding* (ignoring the disagreement), and *Forcing* (using his/her position to force the team to resolve the conflict or make certain decisions). From these four strategies, results showed a stable pattern for collaborating conflict management, suggesting that collaborating decreased the negative relationships between conflict and team performance. Compared to the other strategies, collaborating requires more effort because optimal solutions are often harder to find than compromised solutions. Because it might be very labor intensive for a team leader to collaborate in every conflict situation and given the fact that high levels of conflict are almost always associated with decreased performance, I suggest that intervention by the team leader is particularly useful when conflicts tend to escalate and intervene with team processes and performance. Besides, one should not forget that team members are capable in solving conflicts themselves.

To conclude, this research has pointed out the potential importance of diversity belief management and that people, especially team leaders, should take this in mind when dealing with cross-functional NPD teams. It might not be the actual functional diversity that influences conflict and performance, but more how the team leader influences the mind-set of the team members and how these members feel and think about their functional diversity (*read: diversity beliefs*). This leaves great possibilities to improve team performance, especially because diversity belief management is, to my opinion, easy to implement.

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1. Introduction

Due to increasing levels of competition, continuously changing technologies and market conditions, being innovative and able to adequately react to these changes is a real challenge for organizations (Cooper, 2008; Frishammer & Hörte, 2007). The new product development (NPD) process is essential because it contributes to company renewal, growth and competitiveness (Brown & Eisenhardt, 1995; Cooper, 2008; Cooper & Edgett, 2005; Langerak, 2009; Schoonhoven et al., 1990). The importance of NPD is highlighted by the studies of Tzokas (2000) and Langerak (2009) who found that approximately above one third of a company's profit is generated by products launched in the past three to five years. To keep a company in a competitive position a firm has to develop new products that customers are anxious to buy. To do so, companies have to diversify and are becoming increasingly reliant on cross-functional teams.

A cross-functional team is a team composed of individuals with different and diverse functional backgrounds, and thus different functions like engineering, marketing, R&D, sales etc. (Gebert et al., 2006; Jackson & Joshi., 2010). As a consequence team members of cross-functional teams have different experimental backgrounds and knowledge bases (Harrison & Klein, 2007). A majority of companies involved with NPD use some sort of cross-functional team (Griffin, 1997, McDonough, 2000) but there are mixed results about their effectiveness (Ancora & Caldwell, 1992; Gebert et al., 2006; Horwitz & Horwitz, 2007; Troy et al., 2008).

From a positive point of view, cross-functionality helps to develop solutions to technical problems in a new and useful way, increasing team performance. Team members with different functional backgrounds increase the range of potentially useful ideas by using their own knowledge bases and external information networks (Ancona & Caldwell, 1992; Keller, 2001; Reagans & Zuckerman, 2001). And the fact that multiple departments are represented in the team increases the ability to develop products that adhere to all constraints and requirements of those departments (Gebert et al., 2006; Thamhain, 2003). Having people

from all these departments in a dedicated project team should result in improved decision making and project performance (Cooper & Kleinschmidt, 1995; Jehn & Chatman, 2000; Jehn & Mannix, 2001).

Conversely, the diverse points of view can lead to disagreement, conflict and stress, reducing the input from the individual members to the team and as a result decrease team performance (Gebert et al., 2006; Keller, 2001; McDonough, 2000). The larger the functional diversity and functional differences, the harder it is to efficiently communicate and coordinate within the team because team members have interpretive differences or use their own terminology (Ancona & Caldwell, 1992; Gebert et al., 2006; Horwitz & Horwitz, 2007).

While these teams have the advantage of collective resources and perspectives their interdependent nature will also lead to intragroup conflict, distracting their attention from the work at hand and reducing performance of the team. But, conflict is not negative per se. Without conflict, team members will just go along with decisions and not truly ventilate the ideas they have about improving the product from the perspective of their functional department. In this study, I examine 3 types of conflict – task, relationship and process conflict – since past research already indicated that some types and levels of conflict are potentially beneficial for team performance (De Dreu, 2006; Jehn, 1995; Jehn, 1997; Sethi et al., 2001; Xie et al., 1998).

Although there are contradictory findings in the literature, cross-functional teams are very well implemented in business practice. Even so, it is still not totally clear under what circumstances the use of cross-functional teams is most effective (Gebert et al., 2006). Jassawalla and Sashittal (1999) say that although cross-functional teams are formed with great optimism, few are managed for success, and most with the sole believe that people will collaborate when thrown into such a team. But only a few teams get the proper training and support that is needed. This collaboration is needed to reach win-win outcomes from competing interests.

To improve the effect of cross-functional teams, these teams should be managed in the appropriate way (Cooper & Kleinschmidt, 2007). Improvements are only possible when a team leader or manager is able to intensify the positive effects and/or reduce the negative effects of using a functional diverse team (Barczak & Wilemon, 1989; Barczak et al., 2009; Cooper & Kleinschmidt, 2007; Jassawalla & Sashittal, 1999). In this respect it is important to find out to what extent the undesired negative effects can be separated from the desired positive effects in a cross-functional team (Gebert et al., 2006).

This thesis report will provide suggestions about *how the leader of a cross functional new product development team can improve team performance by managing conflict and diversity beliefs*. To do so, I first investigated the relationships between conflict and performance. Second, I will look at how a team leader can create a climate/environment in which conflicts might reduce and performance increase by the management of diversity beliefs. This new research area investigates the belief in the value of functional diversity. The last part of this research explored the moderating effects of conflict management – where the team leader acts as a third party between conflicting team members – on the relationships between conflict and performance. An overview of the research model is shown in Figure 1. By providing specific actions for leaders to influence the levels of diversity beliefs and conflict in a team, it should be possible to improve team performance.

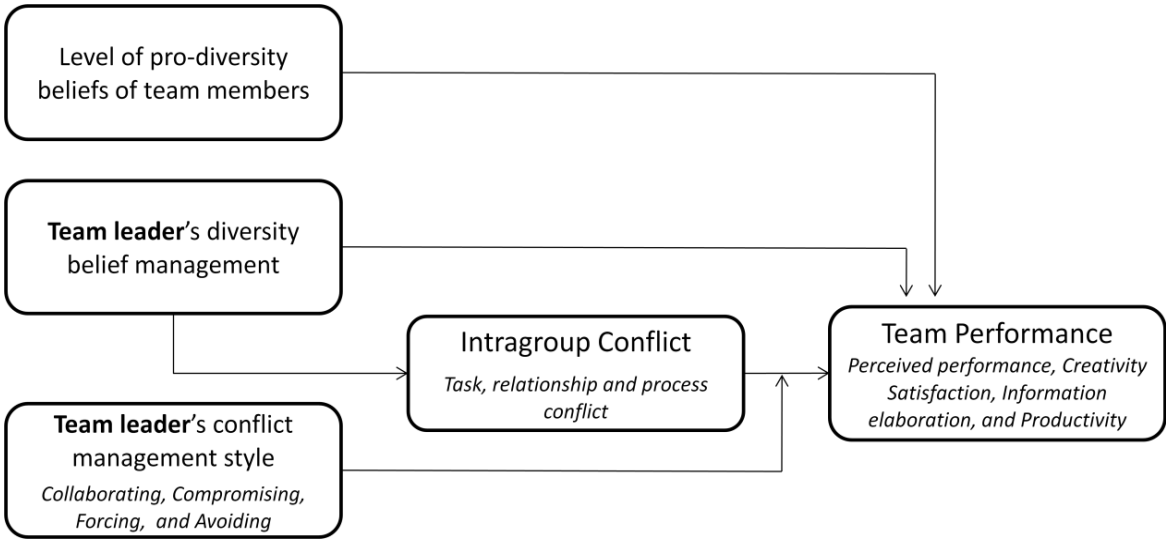


Figure 1. Overview of research model

2. Theory and hypotheses

2.1 Three types of conflict and their effect on performance

When members of a cross-functional team are unable to understand each other's challenges, to recognize and settle their different perspectives, and/or to achieve agreement conflict will be present and the team has less chance to be successful (Ancona & Caldwell, 1992; Jenkins & Meer, 2005; Lovelace et al., 2001). Conflict is a situation in which two or more parties from the same social system clash because of incompatible goals or values (Prein, 2001). Conflict can arise between individuals, groups, departments, organizations, and even nations (DeChurch & Marks, 2001). In this study the focus will be on intragroup conflict: conflict between members of the same group or team. The conflict literature differentiates between three types of conflict: task conflict, relationship conflict and process conflict (Jehn, 1997).

Task conflict is conflict based on the substance of the task that the group is performing or decisions at hand, including, ideas, and opinions (Jehn, 1995, 1997; Peterson & Harvey, 2009). Examples of task conflict include conflict about work related judgments, interpretation of facts, and procedures and policies (De Dreu & Weingart, 2003; Jehn & Chatman, 2000). De Dreu and Weingart (2003) found in a meta-analysis of 30 studies, that task conflict generally has a detrimental effect on performance for teams performing (highly) non-routine tasks –like cross-functional NPD teams. As the conflict becomes more intense information processing impedes and team performance suffers. Yet they also state that task conflict is potentially beneficial if it is managed correctly. Task conflict may increase constructive criticism, careful evaluation of alternatives, realistic questioning of members' ideas, and creative problem solving (Jehn, 1997; Sethi et al., 2001). In a later study, De Dreu (2006) investigates the relationship between task conflict and team innovation and found a curvilinear relationship, in which a moderate level of task conflict resulted in higher team innovation compared to low and high levels of task conflict. Xie et al. (1998) found a similar curvilinear effect between task conflict and new product success in Japanese and Hong-Kong

samples. Both studies support the initial findings of Jehn (1995), who found the curvilinear relationship between task conflict and group performance for groups performing non-routine tasks. Too much task conflict can be detrimental for team performance because it distracts the team attention from reaching consensus or task completion (De Dreu & Weingart, 2003; Jehn, 1997; Peterson & Behfar, 2003). And too little task conflict can make a team unaware of inefficiencies or lead to frustration due to a perceived lack of mutual commitment (Peterson & Behfar, 2003, Xie et al., 1998). Task conflict may improve decision quality because the result from the conflict is generally superior to the individual perspectives (Jehn & Chatman, 2000; Jehn & Mannix, 2001). As a result, Xie et al. (1998) state that “it may not be necessary, or desirable, to attempt to eliminate all interfunctional conflict” (p. S204).

Hypothesis 1a: A moderate level of task conflict in cross-functional NPD teams is related to higher performance, compared to low and high levels of task conflict

Relationship conflict is conflict based on interpersonal disagreements not directly related to the task (Jehn, 1995). This type of conflict mostly results in tension and negative emotions like anger and annoyance among members within a group. Examples of relationship conflict include conflicts about values, political preferences, personal taste and style.

Relationship conflict decreases team member satisfaction and impedes task performance (Jackson & Joshi, 2010; Jehn, 1995; De Dreu & Weingart, 2003; Peterson & Harvey, 2009).

When individuals are involved in a relationship conflict they focus their time, energy and efforts at the person(s) involved in the conflict, rather than at the task at hand or the task related problems. Besides, relationship conflict may hinder goodwill and understanding between members (Greer, Jehn, & Mannix, 2008). This limits the information processing ability of the group (de Dreu & Weingart, 2003; Jehn 1995; Simons & Peterson, 2000).

Groups low in relationship conflict are able to get familiar with each other, especially in the first stages of a project, enabling them to have positive interactions in the future (Jehn & Mannix, 2001). The meta-analysis by de Dreu and Weingart (2003) supports the negative

relationship between relationship conflict and team performance. In contrast to task conflict, relationship conflict should be kept to the minimum to optimize performance.

Hypothesis 1b: Relationship conflict in cross-functional NPD teams is negatively related to performance

Process conflict is disagreement about logistical issues (Greer et al., 2008, Jehn, 1997). People from engineering will, for example, have different procedures to identify the course of action compared to sales or marketing people (Jehn et al., 1999). Process conflict is likely to occur when members have different interests during the planning stage, in which division of labor, responsibility and schedules are composed (Jehn & Rispens, 2008; Peterson & Harvey, 2009). Task and process conflict are both related to the execution of a task, however Jehn (1997) found that team members make a clear distinction between the causes and consequences of task conflicts and process conflicts. Although process conflict is the least examined type of conflict (Jehn & Mannix, 2001), high levels of process conflict are associated with decreased task performance (Jehn et al., 1999; Jehn & Chatman, 2000). Some researchers argue that group members are distracted from working at the task at hand when involved in process conflict (Hobman et al., 2002; Greer et al., 2008), while others note that process conflict misdirects the focus to irrelevant discussions of member ability and interferes with task content (Jehn, 1997). Based on this reasoning the following hypothesis is formulated.

Hypothesis 1c: Process conflict in cross-functional NPD teams is negatively related to performance

2.3 Leadership and conflict in cross-functional teams

Past research has shown that team leaders in cross-functional NPD teams have a significant moderating effect on team outcomes (Im & Nakata, 2008; Sarin & McDermott, 2003; Valle & Avelle, 2003; Webber, 2002). Skilled team leaders are needed for the effective

development of innovative products (Barczak & Wilemon, 1989; McDonough, 2000). Because members from different functional backgrounds are working together, a team leader should facilitate the coordination processes that are required to generate the desired outcome. Ample research investigated, for example, how team leaders can optimize performance; by bringing the goals of the members closer to each other (Im & Nakata, 2008), by creating a climate of trust (Webber, 2002; Peterson & Behfar, 2003), by enhancing team learning (Sarin & McDermott, 2003), and by motivating team members (Zaccaro et al., 2001). All these interventions lead to more effective cross-functional NPD teams and improved performance. A study by Cooper and Kleinschmidt (2007) pointed out the conditions under which cross-functional teams can achieve higher performance. Besides the need for dedicated team members from diverse departments, every team also needs a dedicated team leader, who is accountable for the project from beginning to end. In the long run, firms operating with project teams obeying these rules had an overall better performance. This long term perspective is needed because the success of cross-functional teams cannot be determined by one single project. Their innovative output is not a guarantee for success, but the projects that do make it to the market compensate the failures along the way, generating positive performance. And even failures can provide new insights, making them not negative per se.

In the same line of research, some researchers looked at the team leaders' conflict management style and found that the conflict management style by a team leader moderates the effect of cross-functionality on performance (Lovelace et al., 2001; Peterson & Harvey, 2009; Thamhain, 2003). Team leaders communicate the collective and individual responsibilities to the team and the individual members (Sarin & McDermott, 2003). In the execution of the tasks, intragroup conflict may arise, especially when there is large diversity between the members (van Knippenberg & Schippers, 2007). Team leaders have a powerful position in managing the diverse team members and in handling conflict between those members (Gebert et al., 2006). This thesis discusses two ways a team leader can manage conflict in cross-functional teams: (1) by creating a work environment and atmosphere in

which conflict is managed (Jehn & Mannix, 2001), or (2) by taking specific actions to manage the conflict as a third party (Appelbaum et al., 1999; Nugent, 2002).

2.4 Diversity beliefs in a cross-functional team

The first management option is to create an environment in which a certain level of conflict is allowed to optimize performance but in which boundaries are set to prevent escalation. This can, for example, be related to the extent a team leader can create an environment in which team members feel free to express doubts (Lovelace et al., 2001) or the leader's action to develop a climate for trust (Webber, 2002). This thesis will look at a new research area, namely how a team leader can manage the diversity beliefs of team members. By managing diversity beliefs, team leaders may influence the level and perception of task, relationship and process conflict among team members and in doing so influence team performance.

Based on the definition of Van Dick et al. (2008) diversity beliefs in this study reflect the extent to which individuals believe there is value in functional diversity. Although there is no research on the topic of diversity belief management some recent studies showed the impact of diversity beliefs on team performance (Van Dick et al., 2008; Homan et al., 2007; Knippenberg & Schippers, 2007). These studies are all based on the categorization-elaboration model (CEM), developed by Van Knippenberg et al. (2004). CEM is an integrative model about work group diversity and team performance, linking information/decision making perspectives to social identity/social categorization perspectives. The information/decision making perspective is based on the idea that a diverse group is likely to have a broad range of task-relevant knowledge and information, skills, perspectives, and opinions, enabling a team to have a larger pool of resources resulting in beneficial effects on performance. The identity/social categorization perspective proposes negative effects of diversity by categorization on mostly detectable attributes like age, gender and ethnicity. These attributes disrupt team processes and outcomes (van Dick et al., 2008; Homan et al.,

2007). With these perspectives, the CEM can easily be linked to the positive and negative effects of cross-functional teams and intragroup conflict, as discussed earlier in this report.

Diversity beliefs are found to influence the extent to which one's own team is perceived as a good team (Homan et al., 2007). This lets diversity beliefs interact with the level of how team members favor the team they are working with. When group members believe in the value of diversity (a pro-diversity belief) performance can increase due to increased group identification (van Knippenberg et al., 2004). With a pro-diversity perspective, diversity is more likely to be viewed in terms of individual differences and less in terms of subgroups (Homan et al., 2010). When members are more perceived as in-group trust, commitment, and group cohesion will increase (van Knippenberg et al., 2004), and it may help to separate the desired functional task conflicts from the undesired dysfunctional relationship and process conflicts (Gebert et al., 2006).

So far, research on the effects of pro-diversity beliefs, compared to pro-similarity beliefs, supports the positive effects on team outcomes when demographic diversity was promoted. In a laboratory experiment Homan et al. (2007) found that groups with heterogeneous information and pro-diversity beliefs performed significantly better than groups with homogeneous information and/or pro-similarity beliefs. The increase cannot be assigned to the fact that these groups received heterogeneous information because the groups with heterogeneous information and a pro-similarity belief had the lowest performance. This supports the reasoning that groups perform better when they hold pro-diversity beliefs compared to pro-similarity beliefs. Further, since information elaboration also increased in the groups with a pro-diversity belief it shows that pro-diversity beliefs better allow a team to use the diverse information sources that are present in that team.

Cross-functional NPD teams typically have a large pool of information and perspectives (in line with the CEM information/decision making perspective) that is necessary to develop innovative and marketable products (Appelbaum et al., 1999; Keller, 2001; Troy et al., 2008). Diversity is found to be more valuable for more complex, knowledge intensive

tasks than for simple and routine tasks (van Knippenberg & Schippers, 2007; Troy et al., 2008). When team members elaborate task relevant information, functional diverse teams should be able to outperform homogeneous teams (Jehn et al. 1999). Therefore it should be possible for cross-functional teams to outperform functional homogeneous teams when the team holds pro-diversity beliefs (Homan et al., 2007). Cross-functional teams typically have to deal with complex and intellectual tasks, where diversity matters (van Knippenberg & Schippers, 2007), making it more likely that pro-diversity beliefs affect team outcomes (Homan et al., 2010).

Hypothesis 2: A cross-functional team with team members who have pro-diversity beliefs achieve higher performance compared to a team with members who add low value to their functional diversity.

It is important that a functional diverse team is effectively managed (Cooper & Kleinschmidt, 2007; Sarin & McDermott, 2003). Because of the influencing power of team leaders (Im & Nakata, 2008; Sarin & McDermott, 2003; Valle & Avella, 2003; Webber, 2002), they play a key role in promoting diversity belief among team members. Team leaders may encourage pro-diversity beliefs by explaining how task performance can benefit from diversity in perspectives and information, by communicating his/her belief in the value of diversity (Homan et al., 2007), or by acting as example. In his/her position, a team leader is likely to have higher control over the diversity beliefs of team members compared to, for example, individual team members. In the remainder of this thesis the promotion of diversity beliefs by the team leader is termed as ‘diversity belief management’.

Hypothesis 3: The level of diversity belief management is positively related to team performance.

One reason underlying the possible positive results of diversity belief management on the performance of cross-functional teams may be the effect of diversity belief management

on intragroup conflict. In the information/decision making perspective diversity is proposed to stimulate task conflict (van Knippenberg & Schippers, 2007; Lovelace et al., 2001). The diverse functional backgrounds ensure a certain level of variety and allow the team to tap information from a larger range of resources compared to teams with similar members (Ancona & Caldwell, 1992; Gebert et al., 2006; Horwitz & Horwitz, 2007; van Knippenberg & Schippers, 2007). When team members bring different points of view, knowledge, experience and expertise to a project task conflict is likely to arise (Jackson & Joshi, 2010). In this line of reasoning task conflict is more likely to take place in cross-functional teams (Jehn et al., 1999; Lovelace et al., 2001; Troy et al., 2008). When the team leader is able to manage the diversity beliefs, team members may be more willing to listen and adopt the information and perspectives of other parties in the team. Some team members may be more likely to hear each other's opinion while other team members may be promoted to share their knowledge and perspectives with the team. When team members collaboratively express their task-related doubts, team performance will be higher (Lovelace et al., 2001). Because team members understand each other's challenges and work towards a common goal and agreement the level of task conflict will be lower. When a team leader helps the team members to understand the value of their functional diversity, task conflict is less likely to escalate and team members will search for optimized solutions. Team members can weigh the importance of their own standpoints compared to those of others and the team by itself, allowing them to relax their points of view when that is beneficial for the team outcome. Because team members understand the value of each other's inputs, the level of task conflict will be lower and decisions easier to implement. When the team leader manages diversity beliefs team members understand that the team goal is superior to their functional department goals and reduce the amount of task conflict. Besides, management of diversity beliefs may also help to create a cooperative conflict frame (i.e. cognitive interpretations of conflict). Previous research found that the conflict frame influences the perception of conflict (Pinkley, 1990). A cooperative frame, as opposed to a competitive frame, might decrease the subjective

experience of task conflict. Accordingly, task conflicts can exist from an objective point of view, but that does not imply that team members perceive it as a task conflict.

Hypothesis 4a: In a cross-functional team, diversity belief management is related to low levels of task conflict.

Members of a cross-functional team will, besides functional diversity, be diverse on a whole set of dimensions like age, gender, religion (Jackson & Joshi, 2010), and differ with respect to values, beliefs, and attitudes (Jackson et al., 1995). This diversity between team members can trigger relationship conflicts in a cross-functional team (De Dreu & Weingart, 2003; Knippenberg & Schippers, 2007). Relationship conflicts are unrelated to the task but high levels of task conflict are often connected to high levels of relationship conflict (Gebert et al., 2006; Peterson & Harvey, 2009). This is because some members misqualify the fierce discussions and debates about a task as a personal attack (Simons & Peterson, 2000). In that line of reasoning the relationship between functional diversity and relationship conflicts will be mediated by task conflict. Diversity belief management might help team members to interpret task conflicts. In that sense team members will view task conflicts as a conflict over the task and not as a personal attack, even when the debate is severe. This might reduce the amount of perceived relationship conflict.

Hypothesis 4b: In a cross-functional team, diversity belief management is related to low levels of relationship conflict.

Team members tend to rely on working methods particular to their functional background (Jehn et al., 2007). In a cross-functional team, this may result in different views about how to perform a task. The diverse range of skills, knowledge, and information is likely to affect the logistical processes that are needed for effective task performance (Jehn et al., 2007). Members of different departments are more likely to have different ways of working, different interests in the division of labor and different mental models to solve process issues

(Atuahene-Gima & Evangelista, 2000; Jehn & Mannix, 2001; Jehn & Rispens, 2008).

Research has shown that homogeneous teams can more easily define how to perform a task compared to heterogeneous teams (Jehn, 1997). Process conflicts emerge because team members are unable to settle a disagreement about logistical issues like, for example, the division of labor (Greer et al., 2008, Jehn, 1997). Because process conflicts are unrelated to the task, they cannot directly be related to the CEM. Even so, team leader's diversity belief management can influence the level of process conflict. Diversity belief management can help team members to centralize their ideas, goals, and decisions towards a common goal, instead of sticking to old routines of the functional department. When diversity belief management stimulates team members to work for a common goal, in which they sometimes need to accept each other's viewpoints, process conflict may decrease. Also, diversity belief management might make team members more aware of the different functions they perform. Although they may have different beliefs about how work should be done, they understand which team member should do what. This makes the team more likely to be effective in dealing with logistical problems (Jehn et al., 2007).

Hypothesis 4c: In a cross-functional team, diversity belief management is related to low levels of process conflict

2.5 Leader's conflict management styles in cross-functional teams

Beside the team leader's management of diversity beliefs to influence the level of intragroup conflict, he/she also has a powerful role to manage conflicts when needed. When conflict arises within a team, a team leader may need to intervene as a third party to ensure that the conflict is managed effectively (Nugent, 2002). The way a team leader handles the conflict can have an important impact on team performance (Peterson & Harvey, 2009). Conflict management should not be confused with conflict resolution (Rahim, 2002). Conflict resolution is often associated with reduction or termination of conflict, but research has shown that conflict can be both functional and dysfunctional (Jehn, 1995). Minimizing conflicts, in

the realm of conflict resolution, might reduce the potential benefits. Conflict management does not necessarily involve reduction or termination of conflict, but opens a wider range of possible actions (Behfar et al., 2008; Rahim, 2002). For conflict management I will adhere to the five strategies as developed in the seminal work of Blake & Mouton (1964), which were further explored by Thomas (1976) and Rahim (1983). These are: collaborating, accommodating, compromising, forcing and avoiding. They are originally developed to classify interpersonal conflict resolution styles, in which two interdependent parties perceive and handle conflict (Volkema et al., 1996). Collaborating involves a work situation where both parties try to find an optimal solution that fully satisfies both needs; accommodating occurs when an individual disregards his/her own concerns to satisfy the other party; compromising involves both parties giving up something to reach a mutually acceptable solution; forcing involves a person pursuing his/her own concerns at the expense of the other party; while avoiding involves a person that does not address the conflict and does not pursue his own concerns or those of the other party (Thomas & Kilmann, 2009; Rahim, 1983, 2002). The first three conflict resolution strategies are cooperative in nature, while the latter two are uncooperative resolution styles (Van de Vliert & Euwema, 1994). A person involved in a conflict uses, for example, a collaborating style when he/she and the conflicting party jointly try to find an optimal solution to reach a win-win situation (Antonioni, 1998; Rahim, 1983). Although this paper does not address interpersonal conflict, I reason that four of these conflict handling modes can be linked to the conflict management styles of a third party; the team leader. Because team leaders are normally not intrinsically involved with team discussions he or she is likely to use a collaborating, compromising, avoiding, or forcing strategy when conflicts arise. Related to team leader's conflict management style and based on the work of Rahim (1983, 2002) *Collaborating* is defined as the extent to which a team leader exchanges information to find an optimal solution and reach a win-win situation; *compromising* is defined as the extent to which a team leader settles the conflict by bringing the conflicting parties to agreement; *avoiding* is defined as the extent to which a team leader avoids the

conflict or ignores disagreement among different functions (Song et al., 2000); *forcing* is defined as the extent to which a team leader uses his/her position to force the team to resolve the conflict or make certain decisions. The interpersonal conflict handling styles accommodating and compromising are combined in the compromising conflict management style since both strategies require that one or both conflicting parties give up some or all of their concerns (Rahim, 2002). For both collaborating and compromising conflict management, reaching some level of agreement between the conflicting parties is the goal. Since these four conflict management styles cover all options, a team leader is likely to adopt one of these four styles to manage conflicts in his/her team. While collaborating might seem the most appropriate conflict management style for cross-functional NPD teams, Nugent (2002) suggests that a team leader can avoid the conflict when the conflict is unimportant. Even so, he advises team leaders to keep an eye on the situation, given the tendency of conflicts to escalate, and intervene when necessary. Another reason for a team leader to use an avoiding conflict management style is to make team members aware of their individual responsibilities to resolve conflicts (Rahim, 2002). Based on these thoughts the following text will be based on the assumption that the conflict situations are important for the team. Because task conflict may have positive effects on team performance and relationship or process conflict are in general detrimental for team performance, the most appropriate conflict management style is likely to depend on the type of conflict (De Dreu, 2006; Jehn, 1997; Jehn & Mannix, 2001; Peterson & Behfar, 2003; Peterson & Harvey, 2009). Therefore, each type of conflict is discussed separately.

When team members disagree about the content of a task, including opinions, ideas and viewpoints, task conflict is present (Jehn, 1995, 1997; Peterson & Harvey, 2009). In cross-functional teams task conflict is more likely to occur compared to teams with similar members because every member brings different knowledge and experience (Jackson & Joshi, 2010). These diverse information and knowledge bases are needed to come up with solutions for complex problems (De Dreu & Weingart, 2003; Lovelace et al., 2001). Although the

meta-analysis by De Dreu and Weingart (2003) showed that previous research mostly found negative correlations between task conflict and performance and satisfaction, other research has indicated that a moderate level of task conflict can be beneficial for team performance and innovation (De Dreu, 2006; Jehn, 1995; Xie et al., 1998) because it improves decision making as team members are forced to debate issues, and need to be creative to find satisfying solutions (De Dreu & Weingart, 2003). Thus, to develop creative solutions for complex problems a certain level of task conflict might be needed to come up with a collaborative and superior solution (Jehn & Mannix, 2001). Quick decision making in these situations will lead to win-lose situations. Especially when the issue is complex and important it can have detrimental effects on team performance when the wrong decision is made (Rahim, 2002). This makes the forcing management style inappropriate.

In the opposite situation, when a team leader avoids a task conflict, the task conflicts might spin out of control (Nugent, 2002). As the conflict becomes more intense, team members get distracted from reaching consensus, information processing impedes and team performance suffers (De Dreu & Weingart, 2003; Jehn, 1997; Peterson & Behfar, 2003). Because the team leader plays a key role in separating the negative effects from the positive effects of task conflict (Gebert et al., 2006; Peterson & Harvey, 2009), an avoiding conflict management style might become detrimental for team performance.

When time is not available and quick decisions need to be made compromising conflict management might be needed (Rahim, 2002). Because the team leader is better able to look at the bigger picture he/she is able to accommodate the conflict situation and dependent on team and project situation can guide the team to come up with a compromised solution. This can be achieved by simply alerting and stimulating team members to resolve the conflict or more elaborate discussions and clarification within the team (Nugent, 2002). When the team leader does intervene, he or she might be able to control the level of task conflict and control the effects of task conflict. Although agreement is achieved between the

conflicting parties, they might not be equally satisfied with the solution since it is likely that one or both parties had to give up some of their standpoints (Rahim, 2002).

When complex tasks need to be performed, which is most likely in cross-functional NPD teams, discussing and debating about competing approaches and perspectives might be essential to identify suitable task strategies (Jehn et al., 1999) and come up with creative solutions (Sethi et al., 2001). By captivating a collaborative role, the team leader can lead the conflicting parties and the team to develop a solution that is beneficial for the whole team. Additionally, a team leader will be more aware of the project's tradeoffs compared to individual members. If time is available, it is worthwhile to search for creative and innovative solutions. Although the conflict might only be present between two team members, other team member can help to find suitable solutions by using their own knowledge and knowledge networks (Ancona & Caldwell, 1992; Cooper & Kleinschmidt, 2007; Thamhain, 2003). Although task conflict might be best off with a team leader that uses a collaborative conflict management style Nugent (2002) indicated that team leaders prefer this method but make relatively little use of this approach.

Hypothesis 5a: Task conflict will be less negatively related to performance when the team leader uses a collaborating conflict management strategy.

Interpersonal differences or incompatibilities are a sign of relationship conflict (Peterson & Harvey, 2009). Relationship conflict produces frustration and tension between team members, interferes intragroup relationships, and diverts attention away from the task (De Dreu & Weingart, 2003; Jehn, 1995; Simons & Peterson, 2000). Since relationship conflicts involve deeply held and personal values they form a serious challenge for team members' relationships within the team and it makes the management of these conflicts a delicate operation. When team leaders use a direct form of power to manage relationship conflicts it can actually create more conflict (Desivilya & Yagil, 2005; Peterson & Harvey, 2009). By forcing the team members to stop the conflict or by adopting the values of one team

member (or a group of team members) the team leader might be viewed to choose sides. A team leader is more likely to be efficient when he/she stands independently, as a third party, toward the team members who are involved in a relationship conflict (Nugent, 2002). If the team leader cannot take an independent position it is advisable to use an independent resource person to intervene as a third party. Avoiding a relationship conflict (when it forms a threat to team functioning) might result in conflict escalation and have a negative effect on team performance (forcing and avoiding relationship conflicts have both been found to be negatively related to team outcomes (Van de Vliert et al., 1995). Therefore it might be best for a team leader to use a collaborative conflict management style to handle intragroup relationship conflicts. One way to collaborate relationship conflict is to direct the team process rather than team outcome, because this indirect use of power is associated with positive team performance (Peterson, 1997; Peterson & Harvey, 2009). The use of indirect power may reduce the possible creation of sub-groups in the team which, as a result, is likely to increase trust, commitment, synergetic communication, and group cohesion (Gebert et al., 2006; Knippenberg et al., 2004). By using a collaborative conflict management style it is likely that the relationship conflicts are resolved. As result, it is likely that there will be a higher level of satisfaction and team performance (Jackson & Joshi, 2010; Jehn, 1995; De Dreu & Weingart, 2003; Peterson & Harvey, 2009)

Hypothesis 5b: Relationship conflict will be less negatively related to performance when the team leader uses a collaborative conflict management strategy.

When there is disagreement about logistical issues, process conflict is present (Greer et al., 2008; Jehn, 1997). Process conflict has a negative effect on team performance and should be minimized (Greer et al., 2008; Jehn & Mannix, 2001). Just like task and relationship conflict an avoiding conflict management style may lead to escalation. Although the conflict management styles to resolve process conflict have not been thoroughly investigated (DeChurch & Marks, 2001), Jehn (1997) identified process conflict to have a

high resolution potential. When the process conflict involves easy and routine procedures, a procedure manual or group supervisor forms an easy ways to resolve the conflict. The detrimental effect of process conflict on performance shows that quick resolutions might be beneficial. Quick conflict resolution is only possible when the team leader uses a forcing conflict management style. Although the activities might be complex, the team leader's knowledge about the capabilities of the team members allows him to divide the work to the most appropriate resource (Rahim, 2002). When tasks are assigned to the most appropriate person, development speed and quality may increase, resulting in higher performance of those tasks and in the end improve team performance (Behfar et al., 2008; Cooper & Kleinschmidt, 2007). The power difference between team leader and team members accommodates the use of a forcing conflict management style and to make the necessary decisions (Rahim, 1983). A compromising conflict management style could also be a good option, but because research has indicated that the a task can best be performed by a team member with the most relevant knowledge it will be more valuable to discuss how the task should be completed instead of wasting a lot of time on logistical issues like who should perform a task (Jehn et al., 2007).

Hypothesis 5c: Process conflict will be less negatively related to performance when the team leader uses a forcing conflict management strategy.

3. Method

3.1 Sample and procedure

The sample consisted of 30 cross-functional new product development (NPD) teams, who were guided by a team leader. Most firms involved in NPD use cross-functional teams (Griffin, 1997; McDonough, 2000). The team leader should be appointed to a hierarchical position to have a certain amount of authority (Pearce & Conger, 2003). This might be a team leader outside the team who is accountable for team functioning and outcomes, or an incumbent who is primarily responsible for defining team goals and outcomes (Zaccaro et al., 2001). This as opposed to, for example, shared leadership in which leadership is demonstrated by all team members (Pearce & Conger, 2003). Because this thesis investigated the effects of team leader actions on team functioning and performance, the task of team leader should be performed by an individual.

Based on my own social network and web searches, contact details of companies with potential NPD teams were gathered. Based on a preliminary phone call I checked whether their NPD processes were performed by some sort of cross-functional team and whether they had an assigned team leader or team head who was actively involved with the team. When they had such teams, I explained my research area and how the general results could help their company/HR department in the future. All participating organizations were promised to receive a copy of the final report. Additionally, I promised companies a separate analysis when they could provide data from ten or more teams. Over eighty organizations with in-house product development were contacted, ranging from producers of tiles to producers of medical instruments. Only eight (=10%) of those organizations were eventually able and willing to participate with one or more teams. One of these organizations was triggered by the ability to receive a separate analysis and provided seventeen teams. The remaining seven organizations provided sixteen teams, making a total of 33 teams. Three of them provided incomplete data and were eventually deleted from the analysis; one because they lacked the response of the team leader, two others because only one team member responded besides the

team leader. All teams were involved in a wide range of research and product development activities (radical and incremental innovation) in various stages of the technological innovation process. Two teams, for example, were involved with the development of energy efficient light bulbs, while another team from an airline company was involved with the development of a service improvement for business class passengers. This wide variety was needed to facilitate the acquisition of the required sample size and allow for generalization of the research findings.

Once the contact details of a NPD team were acquired a questionnaire was sent to the team leader and the team members. Although hard-copy surveys were available, all organizations and teams preferred an online survey. The web-form was designed at www.surveymoz.com, a website who offers a free student survey account with enterprise level functionality. To prevent language barriers the questionnaire was made available in English (a common language across organizations) and Dutch (since it is likely to be the mother tongue of most participants). Respondents could select whether they wanted to fill out the questionnaire in English or Dutch and a checkmark allowed respondents to indicate whether they were team member or team leader. Team leaders were provided with a different set of questions. Because it was important to track which respondent belonged to which team, all teams received a unique link to the questionnaire. After one or two week, the teams and/or team members who did not yet respond were contacted by phone or email to remind them to fill in the questionnaire. This ‘reminding’ procedure has proven to increase the response rate (Kaplowitz et al., 2004).

Respondents were an average age of 42; the youngest being 26, the oldest 60; 80% of the respondents were men, 20% woman. Participating teams had an average size of 9 members and were represented by approximately 5 different functional areas. In total 179 respondents started the online questionnaire, 17 of them did only partially complete it (10%); at least two of those 17 did not complete it due to an error from the survey provider. 48 respondents indicated to be a team leader.

For the preliminary data analysis, especially for testing reliability and discriminant validity, all responds was used. This included data from the three teams that were eventually deleted and all 48 team leaders.

3.3 Measures

Based on the research model, several measures were needed for this cross-sectional research. These included: levels of intragroup task, relationship and process conflict, team performance, level of diversity belief by the team members, level of diversity belief management by the team leader, and the conflict management style by the team leader. Whenever possible, existing measures of the constructs were used. Each set of items concerning a specific topic was introduced with some additional information to help the respondent to interpret the questions. While some questions required hard data, most items in the survey involved perceptual measures. These perceptual items, like those to measure performance, were used to standardize outcomes across widely different industry setting, and because some firms might be reluctant to provide the necessary data.

To measure *intragroup conflict* I adopted the scale of Pearson et al. (2002) for task and relationship conflict, which provided a refinement of Jehn's (1995) conflict scales. For process conflict I used the scale of Jehn & Mannix (2001). I adapted items to reference to the appropriate focal unit, the team. All factors were measured by three items. Adopted from Jehn (1995) these items were measured by five-point Likert scales from '(almost) never' to 'often'. For task and relationship conflict sample items include "How often are there differences of opinion within the team?" and "How often is there anger among the members of the team?" respectively. Items to measure process conflict include, for example, "How often are there disagreements about who should do what in your team?". For the conflict constructs an exploratory factor analysis with oblique rotation was performed (based on Jehn et al., 1999). All items loaded high ($>|.70|$) on a factor. This confirmed that task, relationship, and process conflict items are distinguishable constructs (see Appendix 1). The Cronbach's α for task conflict, relationship conflict and process conflict were .79, .82, and .78 respectively.

To measure *team leader's conflict management style*, the construct was divided in the four styles that would be investigated during this study: compromising, collaborating, avoiding, and forcing. Based on Song et al. (2000) I adopted the measures from Rahim's (1983) Organizational Conflict Inventory (ROCI-2) and adapted them to measure the conflict handling style of a team leader for intragroup conflict, in which the team leader acts as a third party (the team leader is not a conflicting party). The three-item compromising scale assessed the team leaders' effort to let both conflicting parties 'give-and-take' to come to a mutually acceptable solution. The three-item collaborating scale assessed the completeness of information exchange and the emphasis on common interests by the team leader to find an optimal solution. The three-item avoiding scale assessed avoidance of confrontation and disagreement between team members. Lastly, the three-item forcing scale assessed forcing one's view and standpoint over the dispute between the conflicting parties. The team leader had to indicate the degree to which he/she acts in accordance with the statements on a five-point Likert-scale, ranging from '(almost) never' to 'often'. Sample items for compromising, collaborating, avoiding, and forcing included respectively: "I usually propose a middle ground for breaking dead-locks", "I try to exchange complete and accurate information to resolve the conflicts", "I bypass the clash as much as possible", and "I use my expertise to push through my standpoint". Items of conflict management were put in random order. Factor analysis, with an oblique rotation to allow for some association between factors, was used to assess the discriminant validity of the four conflict management styles. With four factors, one collaborating item loaded negatively on the third factor (containing high loadings by two avoiding items) and an avoiding item loaded negatively on the fourth factor (containing high loadings by two collaborating items). A possible explanation could be the low sample size (N=48). The other items loaded high (>|.70|) on separate factors (see Appendix 2). Based on further investigation of the items and a reliability analysis the two items that loaded negatively on the wrong factor were removed. The resulting Cronbach's α for compromising, collaborating, avoiding, and forcing were .80, .58, .56, and .66 respectively. A team leader

may not be involved in all conflicts between team members. To check how often a team leader gets involved in a conflict the team leader was asked how often the team calls on him/her when conflicts arise (Giebels & Janssen, 2005).

As mentioned by Horwitz and Horwitz (2007) *performance* is a multidimensional construct that encompasses several measures such as quantitative production, qualitative team outcomes, and team cohesion. Because team performance is measured during the development stage, actual outcome performance cannot be measured. Therefore I measured performance on five separate team constructs that can be measured during the product development phase. The constructs on team performance include perceived team performance, team member satisfaction, team level information elaboration, team leader's productivity rating of the team, and creativity. All five dimensions have proven to be interesting with respect to conflict situations and new product development (Lovelace et al., 2001; De Dreu and Weingart, 2003; Homan et al., 2007; Sethi et al., 2001).

Perceived team performance was measured with the scale used by Rispens et al., (2007). Their scale involves three questions including, for example, "I believe my group performs well at work". Team leaders received the same three items as the team members, but factor analysis to assess discriminant validity of this performance rating revealed that one item cross-loaded on a different factor. The two remaining items involve: "My team is efficient in getting things done in time." And "I think in general my group is effective with respect to work.". Both items were combined to measure the *productivity rating by team leaders*. Based on the research by DeChurch & Marks (2001) *team member satisfaction* was measured by a two item scale introduced by Priem et al. (1995) (eg. Working with this team has been an enjoyable experience). The six items to measure *Information elaboration* were adopted from Homan et al. (2006) and Kearney et al. (2009). Sample items include, for example, "During our cooperation other team members exchange a lot of information about the task." and "The members of this team carefully consider all perspectives in an effort to generate optimal solutions.".

Responses for the previous four performance measures could be given on a five-point Likert scale ranging from “Strongly disagree” to “Strongly agree”. Cronbach’s α for team members’ perceived performance, team leaders’ productivity rating, team member satisfaction, and information elaboration were .85, .79, .86, and .72 respectively.

Creativity is a difficult dimension to measure because no generally accepted measure exists (Kratzer et al., 2008). Previous research used outside experts to rate the creative processes while others measure performance of individuals or groups on standardized creativity tests, like an intelligence test. Kratzer et al., (2004) developed a self-report measure for team creative performance. Based on the study by Kratzer et al. (2008) creativity was measured among team members and the team leader using three items. Items could be rated on a seven-point Likert-scale ranging from “not high” to “very high” and include, for example, “How would you estimate the novelty and originality of the solutions your team finds to problems?”. Cronbach’s α for self reported creativity by team members and creativity rating by team leaders were .75, and .88 respectively.

The four item *diversity beliefs* measure was adopted from Homan et al. (2007) and adapted to focus on the belief in functional diversity. Sample items include “I believe that functional diversity is good” and “I enjoy working in a functional diverse team”. Besides the diversity beliefs of team members the management of those diversity beliefs plays an important role. For my research I was interested in the management of beliefs in functional diversity by the team leader. Because no existing scale existed a new scale was designed for this study, involving six items. Inspiration for these items was gathered from the papers of Agócs and Burr (1996) and Yukl (2008). All items had to be answered by team members and included, for example, “Our team leader explains the value of different functional areas in a NPD team”. The response scales for diversity beliefs and diversity belief management ranged from 1 ‘completely disagree’ to 7 ‘completely agree’. To assess discriminant validity a factor analysis with oblimin rotation was performed (see Appendix 1a and 1b). All construct items

load on a separate factor. Cronbach's α for diversity beliefs and diversity belief management were .91 and .91 respectively.

Although team size, project duration and task interdependence were not of theoretical interest for this study, they are included as *control variables* since they are known to affect other variables in the model. For example, more disagreement is likely in larger groups (Ancona & Caldwell, 1992) and this in turn can make larger teams less likely to perform successfully (Lovelace et al., 2001). Team size was measured by asking each team member to give the number of members who form the core/primary part of their NPD team. Project duration might influence the intragroup relations. A team that is only working on a project for 3 months might be less coherent than a team in which members are working together for over a year. As the project progresses the team establishes working routines and social ties (Hoegl & Proserpio, 2004). This might influence the individual response to and amount of conflicts in the team. Project duration was measured as the average amount of months a member was part of the team. As mentioned by Hobman et al. (2002) intragroup conflicts arise from the interaction between interdependent people. Jehn (1995) found that the negative effects of relationship conflict on performance are higher in teams with high task interdependence and that the effects of task conflict on performance are higher for teams with low task interdependence. Because of the influential role of task interdependence the level of task interdependence is incorporated as a control variable. This variable was measured among team members by five items from Sharma and Yetton (2007) and included, for example, "The task I perform in this NPD team requires frequent coordination with the efforts of others team members". Answers could be given on a five-point Likert scale ranging from 'completely disagree' to 'completely agree'. Cronbach's α for task interdependence is .66.

Additionally to these three control measures, all respondents were asked to provide some demographic data to control for demographic diversity. For each variable, the standard deviation of the response by one team was used to indicate this diversity. All control variables are standardized to be used in the regression analysis.

3.4 Aggregation

All team member data on conflict and performance represent team characteristics. For aggregation of these variables on the team level it is important to statistically test the level of within-team agreement and between-team disagreement (Klein & Kozlowski, 2000). Several analyses were conducted to ensure this was the case. First I tested the level of agreement between team members using the interrater agreement statistic $R_{wg(j)}$. When there is perfect agreement between team members $R_{wg(j)} = 1$, when there is lack of agreement $R_{wg(j)}$ will approach 0,0. The cutoff point for strong agreement between raters is 0.70, leaving 30% error variance per variable (LeBreton & Senter, 2008). As seen in table 1, all variables scored above the cut-off point.

Table 1: measures of aggregation

	$R_{wg(j)}$	ICC (1)	ICC (2)	Sig.
Task conflict	0,76	0,22	0,58	.00
Relationship conflict	0,86	0,13	0,43	.02
Process conflict	0,79	0,11	0,37	.05
Perceived team performance	0,86	0,28	0,65	.00
Self reported team creativity	0,77	0,38	0,74	.00
Satisfaction	0,79	0,08	0,29	.10
Information elaboration	0,91	0,11	0,37	.05
Diversity belief	0,92	0,20	0,54	.00
Diversity belief management	0,72	0,13	0,41	.04
Task interdependence	0,82	0,17	0,50	.01

Second, two interclass correlation coefficients (ICC) were generated; ICC(1) and ICC(2). These measures describe how strongly members in the same team resemble each other. The reliability of individual ratings is

represented by ICC(1), while ICC(2) indicates the reliability of mean ratings (Klein & Kozlowski, 2000; LeBreton & Senter, 2008). ICC(1) should be positive and have a significant F-value, ICC(2) values between .70 and .85 are assumed to justify aggregation but lower values may be acceptable with a small number of respondents per team (LeBreton & Senter, 2008). Given that some teams had a limited response the ICC(2) value was ignored as a criteria because no accurate cutoff value could be determined. For the ICC(1) value, only satisfaction had a marginal significant F-value. A possible reason for this result could be that the items to measure satisfaction were focused at the individual level. Because the average level of team member satisfaction is of theoretical interest in this study, and the $R_{wg(j)} = .79$, I find it justified to aggregate this variable to the group level. All variables were aggregated on the team level by taking the team's mean score.

4. Analyses and Results

The hypotheses were tested by using regression analyses in SPSS. Hierarchical linear regression is chosen over Structural Equation Modeling (SEM) because of the large sample sizes needed to perform an analysis with SEM (Gefen et al., 2000; Hair et al., 2006). The total of 30 teams is insufficient for the large amount of constructs and paths in the structural model. And although SEM is able to model causal relations, the cross-sectional data from this research do not match the conditions needed for modeling causality (Hair et al., 2006). The means, standard deviations, and correlations among variables are shown in Table 2. This correlation matrix shows that task, relationship, and process conflict were intercorrelated, just like some of the performance variables. The factor analyses that are shown in appendixes 1 and 2 and were discussed in the previous sections made clear that the conflict and performance measures are distinct.

To test the curvilinear relationship between task conflict and team performance (H1a) and the negative relationship between relationship and process conflict and team performance (H1b and H1c respectively), several hierarchical linear regressions were performed. Based on the correlation matrix (Table 2) and the hierarchical regression of task conflict on team performance (Table 3) it is clear that task conflict had a significant direct negative effect on perceived team performance (beta = $-.72$; $p < .01$), team level information elaboration (beta = $-.61$; $p < .01$), team level satisfaction (beta = $-.65$; $p < .01$), self rated team creativity (beta = $-.54$; $p < .05$), and a marginal significant effect on team productivity (beta = $-.29$; $p < .10$). Following the procedure used by Jehn (1995) and De Dreu (2006) the squared term of task conflict was added to check whether a moderate level task conflict is related to higher performance. The results are displayed in Table 3. The change in R^2 from step 2 (linear model) to step 3 (curvilinear model) was significant for team member satisfaction and team leader's creativity rating, indicating that a moderate level of task conflict is related to higher team satisfaction and more creativity compared to low and high levels of task conflict, partially supporting hypotheses 1a.

Table 2: Means, Standard deviations and correlations for all study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Task Conflict	2,49	0,62	-																		
2. Relationship conflict	1,47	0,36	,578**	-																	
3. Process conflict	1,85	0,48	,663**	,569**	-																
4. Perceived performance	3,71	0,46	-,635**	-,582**	-,604**	-															
5. Productivity rating team leader	3,94	0,52	-,313	-,282	-,133	,261	-														
6. Satisfaction	3,84	0,41	-,575**	-,501**	-,549**	,638**	,190	-													
7. Information elaboration	3,70	0,29	-,427*	-,258	-,248	,613**	,098	,655**	-												
8. Self-rated creativity	4,64	0,92	-,389*	-,480**	-,248	,618**	,004	,579**	,640**	-											
9. Creativity rating team leader	4,91	0,92	,030	,020	,055	-,146	,262	,244	,137	,080	-										
10. Diversity beliefs	6,09	0,51	-,100	-,120	-,233	,285	,014	,041	,151	,179	-,311	-									
11. Diversity belief management	4,41	0,77	-,502**	-,373*	-,405*	,538**	,173	,547**	,295	,384*	-,160	,373*	-								
12. Compromising	3,37	0,87	,204	-,155	,019	-,052	-,085	-,263	-,041	-,043	-,197	-,155	-,433*	-							
13. Collaborating	4,23	0,73	-,095	-,044	-,020	,183	,247	,236	,368*	,123	,226	-,030	,159	,205	-						
14. Avoiding	1,53	0,69	-,068	-,107	-,277	,035	-,320	,025	-,110	-,163	-,170	,008	,065	-,155	-,075	-					
15. Forcing	3,04	0,72	-,089	,071	-,179	-,014	,015	-,093	-,157	-,065	-,130	-,162	-,197	,238	-,168	-,119	-				
16. Amount of conflict management	3,65	0,98	-,025	-,264	-,156	,170	,121	-,036	-,137	,128	-,162	-,077	-,017	,612**	,036	-,199	,509**	-			
17. Team size	9,39	4,01	,140	-,281	,017	-,143	-,237	-,149	-,037	-,043	-,214	-,003	-,158	,279	,037	,117	-,299	-,198	-		
18. Project duration (months)	22,96	16,84	,199	,173	,207	-,398*	,032	-,220	-,235	-,128	,319	-,044	-,148	-,299	-,130	-,058	-,264	-,411*	,301	-	
19. Task interdependence	3,58	0,43	,254	,182	,172	,289	-,197	,168	,559**	,383*	-,058	,180	,028	,132	,331	-,007	-,051	-,049	,119	-,189	-

Note. N=30; Pearson Correlation (2-tailed); **p<.01; *p<.05

Table 3: Hierarchical regression of task conflict on team performance

		Perceived performance	Information elaboration	Satisfaction	Self rated creativity	Productivity	Team leaders' creativity rating
<i>Step 1</i> <i>Control variables</i>	Task interdependence	0,24	0,55**	0,15	0,39*	-0,15	0,02
	Project duration	-0,33 [†]	-0,11	-0,15	-0,03	0,08	0,44*
	Team size	-0,07	-0,07	-0,12	-0,08	-0,24	-0,25
	R ²	,210	,334	,078	,156	,090	,152
<i>Step 2</i> <i>Linear effect</i>	Task interdependence	0,45**	0,73**	0,35*	0,55**	-0,07	0,03
	Project duration	-0,16	0,04	0,00	0,10	0,15	0,46*
	Team size	-0,05 [†]	-0,05	-0,10	-0,06	-0,23	-0,26
	Task conflict	-0,71**	-0,61**	-0,65**	-0,54**	-0,29 [†]	-0,06
	ΔR ²	,439**	,328**	,368**	,254**	,075 [†]	,003
	R ²	,649	,662	,446	,410	,165	,155
<i>Step 3</i> <i>Curvilinear effect</i>	Task interdependence			0,41**			0,13
	Project duration			-0,12			0,34
	Team size			-0,09			-0,35 [†]
	Task conflict			1,19			2,31*
	(Task conflict) ²			-1,86*			-2,40*
	ΔR ²			,093*			,149*
	R ²			,539			,303

Note. N=30; standardized coefficients are reported; **p<.01; *p<.05; [†]p<.10

Table 4: Hierarchical regression of process conflict on team performance

		Perceived performance	Information elaboration	Satisfaction	Self rated creativity
<i>Step 1</i> <i>Control variables</i>	Task interdependence	0,24	0,55**	0,15	0,39*
	Project duration	-0,33 [†]	-0,11	-0,15	-0,03
	Team size	-0,07	-0,07	-0,12	-0,08
	R ²	,210	,334	,078	,156
<i>Step 2</i> <i>Linear effect</i>	Task interdependence	0,39*	0,63**	0,29 [†]	0,47*
	Project duration	-0,15	-0,01	0,01	0,06
	Team size	-0,13	-0,10	-0,18	-0,11
	Process conflict	-0,64**	-0,35*	-0,60**	-0,34 [†]
	ΔR ²	,365**	,112*	,324**	,105 [†]
	R ²	,576	,446	,402	,260
<i>Step 3</i> <i>Curvilinear effect</i>	Task interdependence	0,52*	0,77**	0,42*	0,62**
	Project duration	-0,28 [†]	-0,14	-0,11	-0,09
	Team size	-0,08	-0,05	-0,13	-0,05
	Process conflict	1,61 [†]	1,99 [†]	1,53	2,31 [†]
	(Process conflict) ²	-2,27*	-2,37*	-2,15 [†]	-2,68*
	ΔR ²	,084*	,092*	,076 [†]	,118*
	R ²	,660	,538	,478	,379

Note. N=30; standardized coefficients are reported; **p<.01; *p<.05; [†]p<.10

For relationship and process conflict the same procedure was followed. Results from the hierarchical regression of process conflict on team performance are shown in Table 4. The analysis showed a significant negative relationship between process conflict and perceived team performance (beta = -.64; $p < .01$), team level information elaboration (beta = -.35; $p < .05$), team level satisfaction (beta = -.60; $p < .01$), and a marginal negative relationship on self rated team creativity (beta = -.34; $p < .10$). For consistency reasons a squared term of process conflict was produced and entered in the hierarchical model. On all four performance variables, for which there was a significant negative linear relationship on process conflict, the squared term explained more variance compared to the linear model. This effect, change in R^2 , was significant for perceived team performance, team's information elaboration, self rated team creativity, and marginal significant for team satisfaction. This indicates that moderate levels of process conflict are related to higher team performance compared to high and low levels of process conflict. Although hypothesis 1c is confirmed by step 2 (linear effect), step 3 (curvilinear effect) in the hierarchical regression provides new perspectives.

From the results, as shown in Table 5, it can be seen that relationship conflict had a direct negative effect on perceived team performance (beta = -.77; $p < .01$), team's information elaboration (beta = -.47; $p < .05$), team level satisfaction (beta = -.70; $p < .01$), self rated team creativity (beta = -.74; $p < .01$), and team productivity (beta = -.44; $p < .05$).

Table 5: Hierarchical regression of relationship conflict on team performance

		Perceived performance	Information elaboration	Satisfaction	Self rated creativity	Productivity
<i>Step 1 Control variables</i>	Task interdependence	0,24	0,55**	0,15	0,39*	-0,15
	Project duration	-0,33 [†]	-0,11	-0,15	-0,03	0,08
	Team size	-0,07	-0,07	-0,12	-0,08	-0,24
	R^2	,210	,334	,078	,156	,090
<i>Step 2 Linear effect</i>	Task interdependence	0,46**	0,69**	0,36*	0,61**	-0,02
	Project duration	-0,06	0,06	0,09	0,23	0,23
	Team size	-0,40*	-0,27	-0,42*	-0,39*	-0,43*
	Relationship conflict	-0,77**	-0,47*	-0,70**	-0,74**	-0,44*
	ΔR^2	,451**	,167**	,376**	,421**	,146*
	R^2	,661	,501	,454	,577	,236

Note. N=30; standardized coefficients are reported; ** $p < .01$; * $p < .05$; [†] $p < .10$

The curvilinear effect of relationship conflict on performance did not result in significant improvements of the model. High levels of relationship conflict were thus related to low team performance, supporting hypothesis 1b.

Hypothesis 3 stated a positive relationship between diversity beliefs and performance. The results from regression analyses (results not shown here) showed no significant relationships, thus hypothesis 3 was not confirmed.

There was a significant positive relationship between diversity belief management and perceived team performance ($\beta = .49$; $p < .01$), team level satisfaction ($\beta = .52$; $p < .01$), and team creativity ($\beta = .37$; $p < .05$), supporting hypothesis 4 which stated that diversity belief management is positively related to team performance. Additionally, diversity belief management showed a significant positive relationship with the diversity beliefs of the team members ($\beta = .38$; $p < .05$). For results from the hierarchical regression see Appendix 3.

As hypothesized in hypotheses 5a, 5b and 5c, diversity belief management had a significant negative relationship with task conflict ($\beta = -.49$; $p < .01$), relationship conflict ($\beta = -.41$; $p < .05$) and process conflict ($\beta = -.40$; $p < .05$) respectively. The results from the regression analyses to test hypothesis 5 are shown in appendix 4.

To test the moderator effects as predicted in hypothesis 6 I used the procedures by Aiken and West (1991) and Dawson and Richter (2006) to examine the interaction effects between conflict (task, relationship and process conflict) and the four conflict management strategies (collaborating, compromising, forcing and avoiding) on team performance. For completeness, all interactions were tested by hierarchical regression. All moderators that had a significant effect on the relationship between conflict and performance are described in the remainder of the results section. Results from the hierarchical regression analyses are shown in appendix 4. The amount of conflict management by the team leader was added as an extra control variable. The correlation matrix (see Table 1) indicated that the amount of conflict management by the team leader significantly correlated with the compromising and forcing conflict management styles.

The interaction between **task conflict and collaborating** had a marginal significant effect on teams' information elaboration ($\beta = .26$; $p < .10$) and had a significant effect on team level satisfaction ($\beta = .42$; $p < .05$). The interaction graphs of information elaboration and satisfaction are shown in Figures 2 and 3 respectively. As shown in these graphs, the collaborative conflict management style by the team leader reduced the negative relationship between task conflict and team's information elaboration and between task conflict and team level satisfaction. The interaction also showed a marginal significant effect on team leaders' creativity rating ($\beta = .36$; $p < .10$). The interaction graph is shown in Figure 4. The results show an uncommon relationship, because there is no significant direct relationship between task conflict and team leaders' creativity rating. A possible explanation is the curvilinear relationship between task conflict and team leader's creativity rating that was found in table 3. Results from the hierarchical regression analysis to test the interaction effect showed a significant direct positive relationship between collaborative conflict management and team leader's creativity rating ($\beta = .52$; $p < .05$; see appendix 5 - table 13). It is clear that the collaborative strategy has a positive influence on the relationship between task conflict and team leaders' creativity rating. Hypothesis 5a stated that task conflict will be less negatively related to performance when the team leader uses a collaborating conflict management strategy. Although I could not find a significant interaction effect on all team performance measures, the trend shown in the interaction graphs provide support for hypothesis 5a.

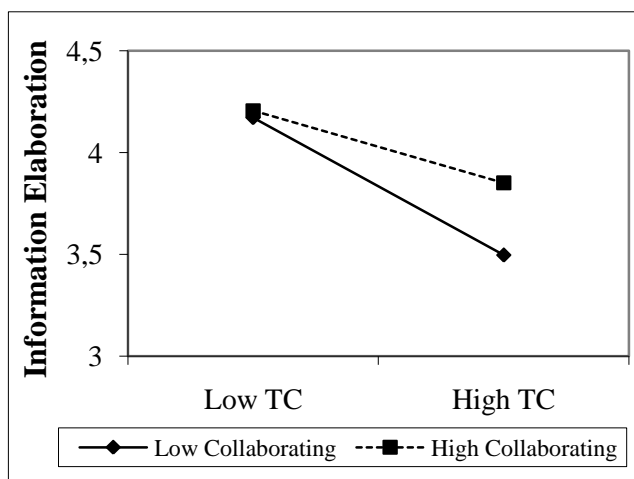


Figure 2. Team level information elaboration as a function of task conflict and a collaborative conflict management.

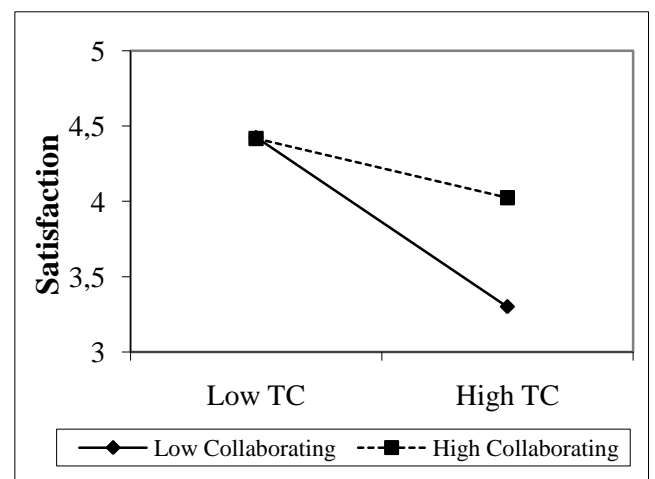


Figure 3. Team level satisfaction as a function of task conflict and collaborative conflict management.

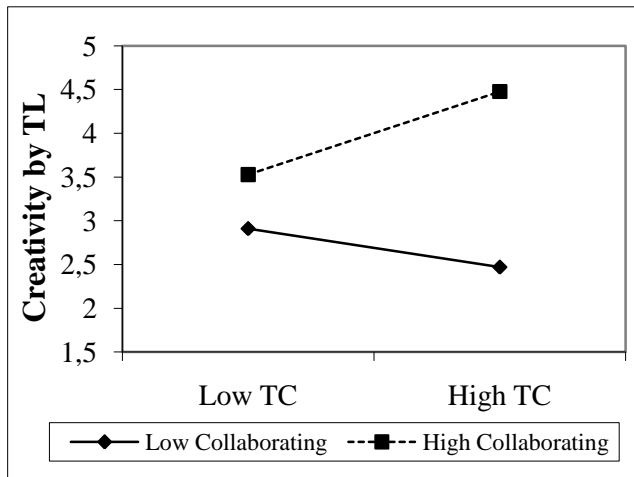


Figure 4. Team leaders' creativity rating as a function of task conflict and collaborative conflict management.

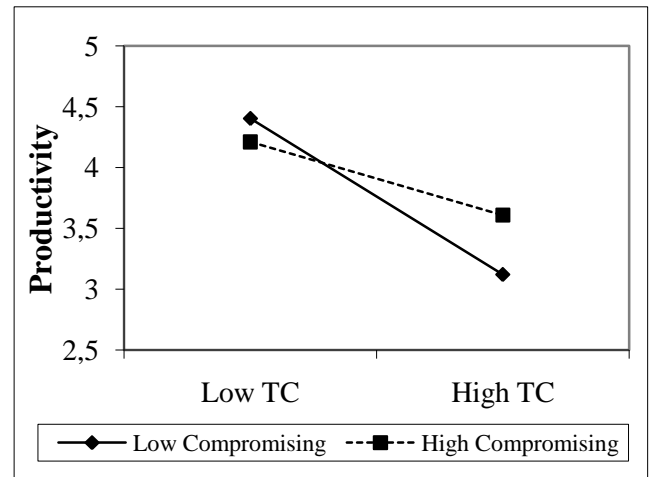


Figure 5. Team productivity as a function of task conflict and compromising conflict management.

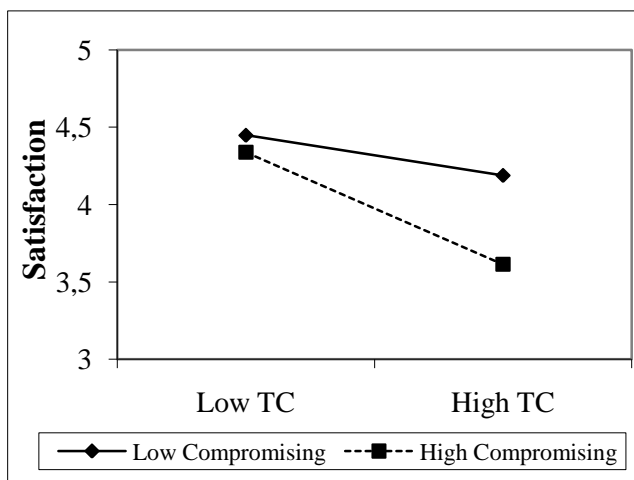


Figure 6. Team level satisfaction as a function of task conflict and compromising conflict management.

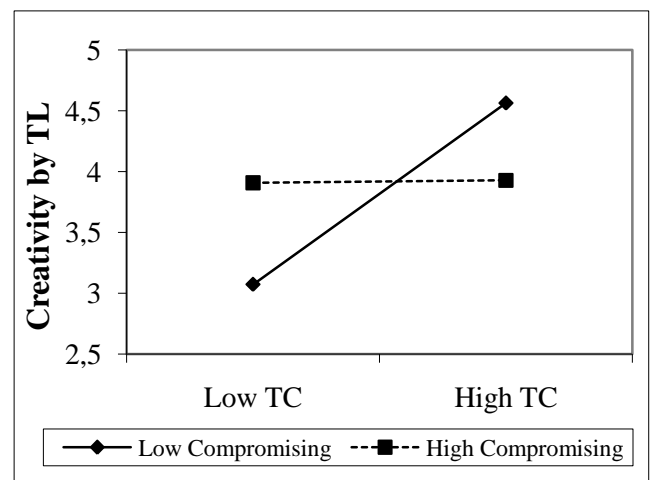


Figure 7. Team leader's creativity rating as a function of task conflict and compromising conflict management.

The interaction between **task conflict and compromising** had a marginal significant effect on team productivity ($\beta = .41$; $p < .10$) and team level satisfaction ($\beta = -.35$; $p < .10$). As shown in Figure 5, using a compromising conflict management style reduced the negative effect of task conflict on productivity. At the same time, compromising increased the negative relationship between team level satisfaction and task conflict (see Figure 6). The interaction between task conflict and compromising also had a significant effect on the supervisory creativity rating ($\beta = -.50$; $p < .05$). Based on Figure 7, in which the interaction is visualized, it is clear that when high levels of task conflict were present, a low compromising conflict management style was related to higher supervisory creativity ratings. When low levels of task conflict are present, a low compromising style is related to a lower creativity rating by the team leader. Summarized, when a team leader used a compromising

conflict management style, the negative relationship between task conflicts and productivity decreased, while the negative relationship between task conflict and satisfaction increased. Besides, compromising had no effect on the relationship between task conflict and team leaders' creativity rating but a low compromising style did; not compromising low levels of task conflict decreased the creativity rating, not compromising high levels of task conflict increased the creativity rating.

The interactions between **task conflict and forcing**, and **task conflict and avoiding**, had no significant relationship on any of the team performance measures.

The interactions between **relationship conflict and collaborating** and between **relationship conflict and compromising** had a significant effect on perceived performance (beta = .25; $p < .10$ and beta = -.25; $p < .05$ respectively). Collaborating decreased the negative relationship between relationship conflict and perceived team performance (see Figure 8), while compromising increased the negative relationship between relationship conflict and perceived performance (see Figure 9). These findings provide support for hypothesis 5b, which stated that relationship conflict will be less negatively related to performance when the team leader uses a collaborative conflict management strategy.

The interactions between **relationship conflict and forcing** and **relationship conflict and avoiding**, had no significant relationship on any of the performance measures.

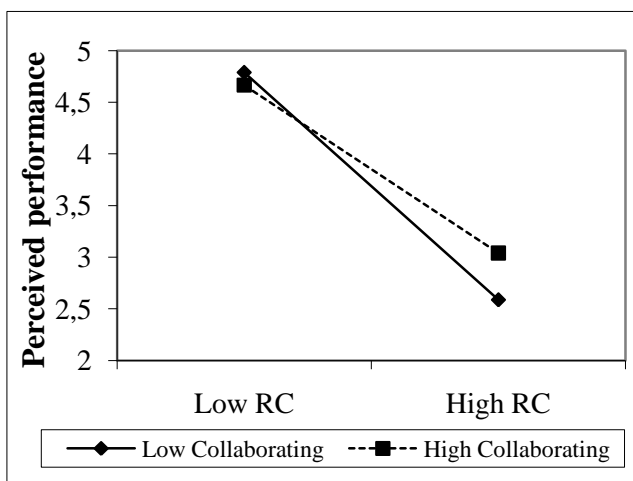


Figure 8. Perceived team performance as a function of relationship conflict and collaborating conflict management.

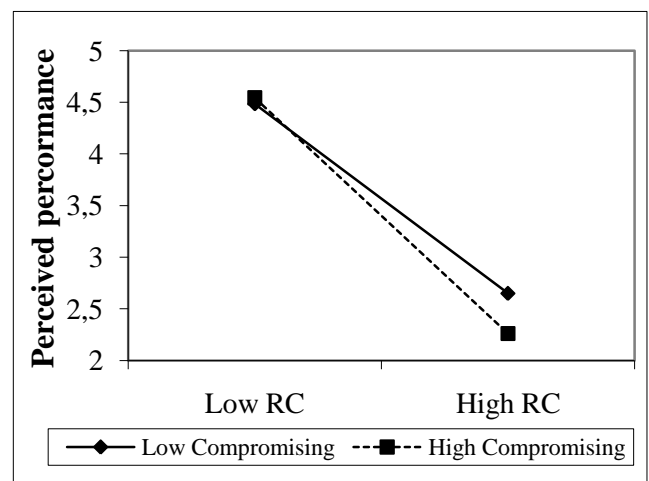


Figure 9. Perceived team performance as a function of relationship conflict and compromising conflict management.

The interaction between **process conflict and collaborating** had a significant effect on the level of perceived performance (beta = .29; $p < .05$) and a marginal significant effect on the creativity rating by the team leader (beta = .30; $p < .10$). A collaborating conflict management style decreased the negative effect of process conflict on performance, while a low collaborating style appears to increase that relationship (see figure 10). Based on the results from the regression analysis (see appendix 5) there is no relationship between process conflict and team leaders' creativity rating, but there was a marginal significant positive direct effect of collaborating on team leaders' creativity rating (beta =.33; $p < .10$). Teams in which the team leader used a collaborating strategy for process conflicts achieved higher performance (see Figure 11).

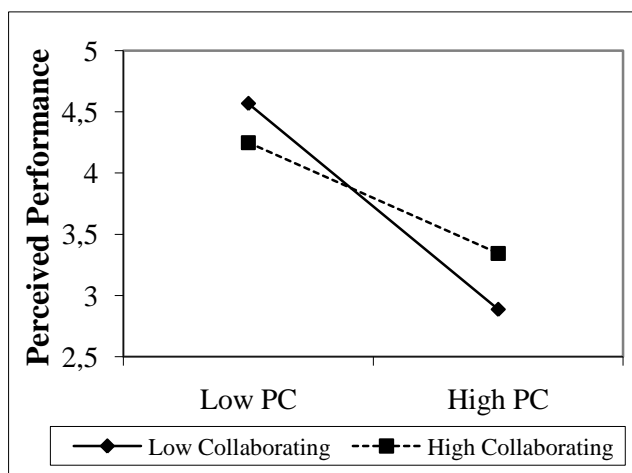


Figure 10. Perceived team performance as a function of process conflict and collaborating conflict management.

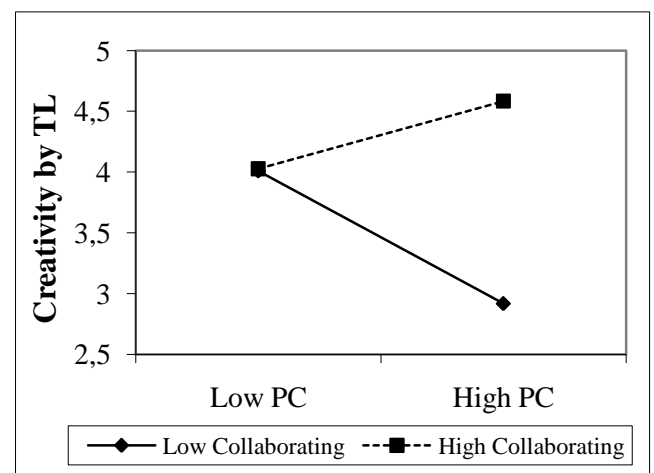


Figure 11. Team leader's creativity rating as a function of process conflict and collaborating conflict management.

For the interaction between **process conflict and compromising** and **process conflict and forcing** had no significant relationships were found on any of the performance measures.

The interaction between **process conflict and avoiding** had a significant effect on the level of information elaboration (beta = .38; $p < .05$) and a marginal significant effect on self rated team creativity (beta =.35; $p < .10$). When the team leader used an avoiding conflict management style the negative relationship between process conflict and team level information elaboration (Figure 12), and between process conflict and self rated creativity (Figure 13) decreased. A low avoiding style (getting involved) by the team leader increased

the negative relationship between process conflict and information elaboration, and between process conflict and self rated creativity. This indicates that avoiding a conflict is potentially beneficial.

Because there was no significant interaction effect between process conflict and forcing on team performance I had to reject hypothesis 5c.

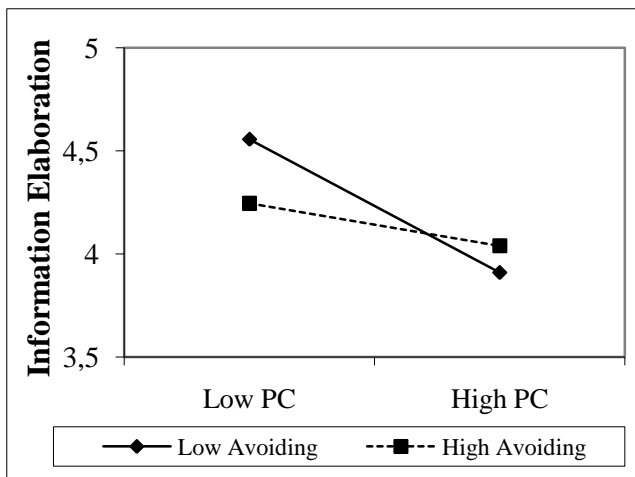


Figure 12. Team level information elaboration as a function of process conflict and avoiding conflict management.

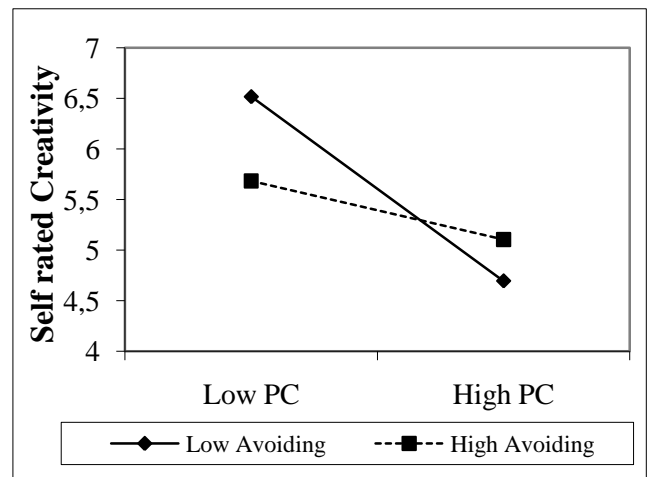


Figure 13. Self rated team creativity as a function of process conflict and avoiding conflict management.

5. Conclusions and General Discussion

The main goal of this study was to identify actions a team leader can take to reduce the negative effects of conflict and improve team performance in cross-functional NPD teams. Results suggest that the management of diversity beliefs, a new research topic, is related to lower conflict and improved performance (perceived team performance, team level satisfaction, and self rated creativity). Supported by other research findings on diversity beliefs (Homan et al., 2007), diversity belief management could have an important influence on team processes and effect the way team member cooperate. Results also support the moderating effect of collaborating conflict management on the relationship between conflict and performance, where a collaborating strategy by the team leader is likely to reduce the negative effects of conflict. The general belief is that conflict has an undesired effect on performance, but previous research already found that task conflict can be beneficial for team performance (Jehn, 1995; De Dreu, 2006; Xie et al., 1998). Results from this study add process conflict to that list, because the relationship between process conflict and performance (perceived performance, information elaboration, satisfaction and self rated creativity) could best be explained by a curvilinear model in which moderate levels of process conflict are associated with higher performance compared to low and high levels of process conflict.

5.1 Implications for research and for practice

The relationship between diversity belief management and performance

Previous research suggested relationships between diversity and conflict (e.g. Jehn, 1997) and between diversity and performance (e.g. Lovelace et al., 2001). This study did not set out to investigate diversity and looked more into the mental state and attitude people have towards diversity. Diversity beliefs in this study represented the extent to which team members of a cross-functional team believe there is value in functional diversity. The management of those beliefs by the team leader was an important aspect of this research and results indicated a positive relationship with perceived team performance, team level

satisfaction and self rated creativity. This finding is in line with findings from previous research by, for example, Homan et al. (2007) who found that team members with pro-diversity beliefs perceive their team as a good team which, leading to more in-group trust, commitment and cohesion (van Knippenberg et al., 2004). The positive relationship between diversity belief management and self rated team creativity might also have to do with increased interaction between functions. Homan et al. (2007) suggested that diversity beliefs may encourage team members to exchange information and to find creative solutions during the information exchange process. The results imply that self rated team creativity increased, while information elaboration had no significant positive relationship. This indicates that diversity belief management might stimulate team members to find creative solutions based on the information that is already present and not stimulate team members to elaborate more information. Besides, diversity belief management had a positive relationship with team member's diversity beliefs. The positive relationship between diversity belief management by the team leader and the diversity beliefs of the team members could be explained by the influencing power of team leaders (Im & Nakata, 2008; Valle & Avella, 2003). By explaining how the team can benefit from functional diversity and by communicating his belief in the value of functional diversity, a team leader may encourage diversity beliefs among team members (Homan et al., 2007).

The fact that there was a significant positive relationship between diversity belief management and performance but not between diversity belief and performance might have to do with the phrasing of the diversity belief items. The diversity belief items measured general diversity belief; whether team members think functional diversity is beneficial for the functioning of a NPD team. In general, all respondents had a positive attitude towards some level of functional diversity in NPD teams but apparently the items did not measure the value they see in functional diversity for their team. Items that measured the diversity belief management by the team leader did; they were related to their own team. The positive relationship between diversity belief management and diversity belief points out the possible

influential role of the team leader. This information combined, suggest that diversity beliefs and diversity belief management might have a direct positive effect on team performance.

The relationship between diversity belief management and conflict

Although diversity belief management had a positive relationship with some performance measures, it had a negative relationship with intragroup conflict; as diversity belief management increased task, relationship and process conflict decreased. By managing the diversity beliefs, a team leader may encourage team members to see the value of their functional diversity. This might encourage the team to listen to each other and to search for solutions that benefit the team instead of just one functional department. The result show consistent findings to this reasoning, indicating that diversity belief management might be able to reduce the amount of task conflict. Besides, diversity belief management might help to create a cooperative conflict frame (Pinkley, 1990), in which disagreements over the task are less perceived as a conflict. In a similar way as task conflict, the amount of relationship conflicts might be reduced by the level of diversity belief management. Relationship conflicts arise when members of a team misinterpret task conflict and qualify it as a personal attack (Simons & Peterson, 2000). Diversity belief management can help team members to interpret task conflicts as a beneficial aspect of the team process, reducing the potential to misinterpret the conflict. Process conflict was also lower in teams with high diversity belief management. When the team leader manages diversity beliefs it stimulates the team to work towards a common goal and attend team members to the different functions they perform. Jehn et al. (2007) already found that when the team understands who should do what, process conflicts might be reduced. Results indicate that diversity belief management might help to accomplish that, and in doing so reduce the level of process conflict. Although previous research found that cross-functionality may lead to severe conflicts (Jackson & Joshi, 2010), these findings suggest that diversity belief management might help to reduce intragroup conflicts in cross-functional NPD teams to acceptable levels.

The relationship between conflict and performance

The results from this study also make a contribution to existing research on intragroup conflict. As Jehn (1995) points out, task conflicts may overwhelm individuals and lets them lose sight of the original team goal. Data revealed that task conflict had a negative relationship with perceived team performance, team level information elaboration, team level satisfaction, self rated team creativity, and productivity. This is in line with the study by De Dreu and Weingart (2003), who found that task conflict generally had a detrimental effect on team performance for teams performing non-routine tasks. But, Jehn (1995), De Dreu (2006) and Xie et al. (1998) found that the effects of task conflict are not strictly linear. The curvilinear relationships between task conflict and team level satisfaction and between task conflict and team leader's creativity rating, point out the potential beneficial effect of task conflict. Apparently, team members of a cross-functional team were more satisfied and achieved a higher creativity rating when there was a moderate level of task conflict. As Sethi, Smtih, and Park (2001) point out, creativity might be promoted by moderate levels of task conflict, since task conflicts are likely to increase constructive criticism, realistic questioning of member's ideas, and creative problem solving. De Dreu (2006) reasoned that creativity will increase when task conflict leads to more information exchange. This reasoning could not be supported by the data because only a negative relationship was found between task conflict and team level information exchange. A possible explanation for the curvilinear relationship between task conflict and satisfaction is that too little task conflict may lead to frustration due to a lack of perceived mutual commitment (Xie et al., 1998) while too much task conflict may irritate and dissatisfy team members because they can't reach consensus (Jehn, 1997; Peterson & Behfar, 2003). Both situations may lead to dissatisfaction, leaving an optimum in the middle. As De Dreu (2006) already pointed out conflict can work as a double edged sword: negatively influencing some performance criteria while positively affecting other performance criteria.

The negative relationship between relationship conflict and performance was as expected, underlining the detrimental effect of relationship conflict on perceiver team performance, team level satisfaction, team's information elaboration, self rated team creativity and productivity. The results support previous findings by Jehn (1995), De Dreu and Weingart (2003), Peterson & Harvey (2009), and Simons & Peterson (2000). These researchers found that relationship conflicts decrease team member satisfaction and impedes task performance. High performance is reached when relationship conflicts are kept to a minimum.

The relationship between process conflict and performance has only recently received more attention. Although I predicted that process conflict had a negative relationship with team performance, results show that this relationship can best be described by an inverted U-shape, where moderate levels of process conflict are related to higher perceived team performance, higher team level information elaboration, higher team level satisfaction and higher self rated team creativity. The curvilinear relationship between process conflict and perceived team performance, team level information elaboration, team level satisfaction, and self rated team creativity extends current findings by providing empirical data that some level of process conflicts could have a positive influence on performance. This is contradictory to the general findings by Jehn et al. (1999) and Jehn and Chatman (2000), who found that process conflict is associated with lower performance. The findings from this research suggest that a moderate level of process conflict is potentially beneficial for team performance. Although Jehn (1997) found that high process conflict has detrimental effects on performance, she also mentions that process conflict can improve performance. The discussion about task allocation increases the likelihood the most competent person is assigned to a task and appropriate task strategies can be identified. Especially for simple tasks, process conflict interferes with team performance. For more complex tasks, like those performed by cross-functional NPD teams, process conflicts are potentially beneficial (Jehn, 1997). Besides, Jehn and Mannix (2001) found higher levels of process conflict in high

performing groups compared to low performing groups in the middle stage of the project. Most cross-functional teams that participated in this research were at the middle stage of their project. These results suggest that a moderate level of process conflict is beneficial for team performance.

Interaction effects of conflict management

The moderating effect of conflict management, on the relationship between intragroup conflict and performance, is somewhat more complex because multiple interactions were examined. Collaborating was found to reduce the negative relationship between task conflict and team level information elaboration, between task conflict and team level satisfaction, between relationship conflict and perceived team performance, and between process conflict and perceived team performance. Although the amount of significant interaction effect between conflict and collaborating are limited, the fact that collaborating did not increase the negative relationship between conflict and performance indicate that collaborating might be a good solution to manage all types of intragroup conflict. Besides, collaborating conflict management had a marginal significant direct effect on team leader's creativity rating and a marginal significant interaction effect when it involved task and process conflicts. In general, when cross-functional teams experience high levels of task and process conflicts, the team leader gave a higher creativity rating when he used a collaborative conflict management style. These result are potentially biased because they have a common source; the team leader.

Although compromising was thought to be the second best alternative, results indicated that compromising conflict management increased the negative relationship between task conflict and team level satisfaction, and between relationship conflict and perceived team performance. Apparently, when a team leader proposes compromised solutions, satisfaction and perceived performance decrease. A similar result was found by Rahim (1983). He found that team a compromising conflict handling style for intragroup conflict can lead to dissatisfaction because one or both parties had to give up some of their standpoints. Even so, positive effects of compromising were also found. The negative

relationship between task conflict and productivity and between task conflict and team leader's creativity rating decreased when a compromising strategy was used. Compromising provides a relative quick solution compared to collaborating. When conflicts are handled quickly team members can focus on their task, improving productivity. Compromising might lead to win-lose situations; productivity increases while team level satisfaction and perceived performance decrease.

The moderating effect of avoiding was only significant for the interaction with process conflict on team level information elaboration and self rated creativity. An avoiding style decreased the negative relationship between process conflict and information elaboration and between process conflict and self rated creativity.

Additionally, the hypothesis that a forcing conflict management style would moderate process conflicts had to be rejected since no significant interactions were found. A possible explanation might come from the curvilinear relationship between process conflict and performance. The hypothesis assumed a negative relationship between process conflict and performance. Using a forcing conflict management style by the team leader could be a good alternative to quickly reduce this conflict and so increase performance. As a team leader, he has to knowledge en power to direct tasks to the most appropriate persons. By forcing process conflicts a team leader might reduce the positive effect between process conflict and performance, neutralizing the effect. Like task and relationship conflict, process conflict was related to higher performance using a collaborative conflict management style. Contrary to my expectations avoiding process conflicts was not related to decreased performance.

The moderate amount of significant interaction effects might have two logical explanations. First, results showed that 6 relationships between intragroup conflict and team performance could best be explained by a curvilinear relationship while the interactions assume a linear relationship. Second, this research assumed that conflict situations are important for the team and that the team leader plays an important role to handle these conflicts. This might not always be the case, because some team leaders might avoid conflicts

because they seem unimportant or because they want to make team members aware of their own responsibilities to resolve conflicts (Nugent, 2002; Rahim, 2002).

5.2 Limitations and future research directions

As is usually the case, some potential limitations of this study should be recognized and taken into account when interpreting the findings. First, the relative small sample size of 30 teams may raise concerns about power and generalizability. Second, the problem of causality points to a limitation of this cross-sectional research. To be able to tell whether, for example, functional diversity belief and the management of those beliefs have a direct effect on team performance and/or conflict, longitudinal or experimental studies are needed. The use of perceptual data forms a third limitation. It was known in advance that perceptual data could limit the findings, but perceptual data was needed to standardize outcomes across the diverse organizations that participated and to prevent missing data when organizations would be unwilling to provide the necessary data. This can be linked to the limitation of common source bias. Data was provided by two sources, the team members and their team leader, but for the testing of some relationships, data was reliant on a single source. As Dione et al. (2002) pointed out common source bias may influence the statistical results.

Ideally, future research will measure constructs from multiple data sources and focus on the diversity beliefs team members have about their own team. By measuring longitudinal data or by doing experiments, the causal relationships between diversity belief (management) and conflict and performance should be tested. Only then can be said with confidence that diversity belief management improves performance and reduces conflict. Future research on the moderating effects of conflict management should also look at the conflict handling styles of the team members. Although a team leader has a powerful role he only acts as a third party in the current research, while the conflicts are present at the team member level and not all conflicts will be managed by the team leader.

5.3 Managerial implication

In addition to theoretical contributions, this study has provided new insights for practical business management, team leaders in particular. As this study looked at intragroup conflict and how team leaders might be able to influence this conflict to improve team performance, the main area of contribution is conflict management.

The negative linear relationship between relationship conflict and performance, the curvilinear relationship between process conflict and performance, and a combination of those two relationships for the relationship between task conflict and performance point out the difficulty of managing conflict in teams. Teams in which a moderate level of process conflict was present achieved higher performance, while relationship conflicts were related to lower team performance. A moderate level of task conflict was related to higher satisfaction and higher creativity ratings by the team leader, while other performance measures showed a negative linear relationship. Creating the right mix and balance between the levels of conflict will be a challenging job.

Diversity belief management

Results from this study suggest that team leaders play an important role in managing conflicts between NPD team members. First, the team leader plays an important role in setting the team climate. Previous research already identified several ways to create more effective teams by, for example, bringing the goals of the members closer to each other (Im & Nakata, 2008), by creating a climate of trust (Webber, 2002; Peterson & Behfar, 2003), or by enhancing team learning (Sarin & McDermott, 2003). Other studies suggested that teams can benefit from conflict when they develop an environment that is open and tolerant for diverse viewpoints and work with cooperative norms preventing those disagreements from being misinterpreted as personal attacks (De Dreu & West, 2001; Jehn, 1995; Lovelace et al., 2001; Simons & Peterson, 2000). Based on these suggestions a relative new research area has received more attention from this study; the management of diversity beliefs. From a practical perspective diversity belief management means that a team leader of a cross-

functional NPD team stimulates team members to see the value other team members (from other functional areas) bring to the team. Research on functional diversity is inconclusive whether it is an advantage or disadvantage to have a functional diverse team (Ancora & Caldwell, 1992; Gebert et al., 2006; Horwitz & Horwitz, 2007; Troy, Hirunyawipada, & Paswan, 2008).

Intragroup conflict (task, relationship and process conflict) decreased in teams where the team leader managed the diversity beliefs. This suggests that diversity belief management helped to create an environment that is open and tolerant for diverse perspectives and helped to prevent disagreements about the task from being misinterpreted as a personal attack. In such a situation, the functionally diverse team members can work towards a common team goal and understand that some level of task related disagreement (task and process conflicts) is okay. At the same time, results suggest that diversity belief management can have a direct effect on team performance, because a positive relationship between diversity belief management and perceived team performance, team level satisfaction and self rated creativity was found. Previous research already found that diversity beliefs lead to more in-group trust, commitment and group cohesion (Homan et al., 2007; van Knippenberg et al., 2004). Therefore it is likely that diversity belief management will affect performance through several social systems. Not unimportant is the fact that diversity belief management is, to my opinion, relatively easy to implement. Other researchers suggested that a team leader should create a climate of trust (Webber, 2002; Peterson & Behfar, 2003) or motivate team members (Zaccaro et al., 2001) to increase performance. But how do you create a climate of trust, or motivate team member? For diversity belief management, it is first important that team leaders themselves understand the value of functional diversity and they have to believe in the positive power of cross-functional teams. Inspired by the research of Homan et al. (2007) reading a paper on the positive effects of functional diversity might already help to shape the mental model of team leaders. Otherwise, a coach may come in handy. Once the team leader believes in the value of functional diversity, he or she can carry out that belief to the team members and promote collaboration between the different parties.

Conflict management

Besides diversity belief management, this study examined four conflict handling styles a team leader can adopt. A team leader has roughly four methods to handle conflict. Collaborating should be chosen over a compromising, forcing or avoiding strategy, since collaborating had the most positive relationship with team performance when high levels of conflict were present. Collaborating conflict management involves that the team leader assists the information exchanges between the conflicting parties to reach an optimal solution in which all parties benefit. When task conflicts are present, results suggest compromising is potentially beneficial for productivity because it provides a quick and relatively easy solution. As the name suggests, compromising implies that the team leader uses his position to settle the disagreement and let one or both parties give up some of their stand points to reach agreement. But the results also show an increased negative relationship between task conflict and satisfaction and creativity when a compromising strategy was used. The same holds for relationship conflicts. With a collaborating strategy the negative relationship between conflict and perceived performance was weakened, while compromising strengthened the negative relationship between relationship conflict and perceived performance. Collaborating conflict management is relatively labor intensive compared to other strategies, because involves information exchange and requires time to find optimal solutions. Since high levels of conflict are generally associated with decreased performance, I suggest that intervention by the team leader is particularly useful when conflicts tend to escalate and intervene with team processes and performance. When low or medium levels of conflict are present one should not forget that team members are capable in solving conflicts themselves.

Overall, the results suggest that the leader of a cross-functional NPD team is in a powerful position to manage team performance and to handle conflicts. I hope this research provided some direction how team leaders can improve performance and reduce the negative effects of conflict by managing the diversity beliefs of the team members, and how a team leader can manage conflict in his team to reduce the negative effects of conflict.

5.4 Conclusion

The current results showed a clear negative relationship between relationship conflict and team performance. For task and process conflict, it showed that both types of conflict can have a positive effect on performance. The inverted U-shaped relationship of process and task conflict with performance suggests that some level of conflict might be beneficial for team outcomes. The influencing power of the team leader plays an important role in the management of these conflicts. Teams with a team leader who actively managed the diversity beliefs in the team had less task, relationship and process conflicts. Besides, these teams had higher diversity beliefs and achieved higher performance. And when conflicts were present, a collaborative conflict management style by the team leader conflicts was less negatively related to team performance compared to the other conflict management styles. The active involvement of the team leader in team conflicts might be very important and future research should not only look at intragroup conflict management as an indicator for performance but involve the conflict management by the team leader. Besides, I hope this research has pointed out the potential importance of diversity belief management and that people, especially team leaders, take this in mind when dealing with cross-functional teams. It might not be the actual functional diversity that influences conflict and performance, but more the mind-set of the team members and how they feel and think about their functional diversity.

6. References

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Appendix 1: Main team member items

Table 6. Results from exploratory factor analysis of intragroup conflict

Items	Task conflict ^a	Relationship conflict ^b	Process conflict ^c
How many are there disagreements between team members?	-,811	,426	,260
How often is there inconsistency about ideas in this team?	-,823	,387	,342
How often must this team overcome differences regarding the content of decisions?	-,877	,300	,423
How much friction is there in your team on the personal level?	-,346	,915	,237
How often are there tensions between team members of this team?	-,408	,922	,336
How often are members of your team angry at each other?	-,472	,720	,442
How often are there disagreements about the delegation of work in your team?	-,290	,283	,855
How often are conflicts within your team about job responsibilities?	-,343	,256	,859
How often is disagreement on how things should be done within your team?	-,418	,366	,784

^a Introduced by: *The following questions relate to **task conflicts**. Namely, team members who disagree with each other about the task that the team should perform. These do not involve personal conflicts (such as differences of opinion on political issues or music preferences).*

^b Introduced by: *The following questions are about **relationship conflicts**. That is, differences over personal matters that have nothing to do with the task that the team to performs. Examples are differences over issues such as political affiliations, or a conflict between the characters of team members. Relationship conflicts are not about work.*

^c Introduced by: *The following questions relate to **conflicts about the work process**. That is, disagreements over who should do what, who is responsible for what, how to plan work as efficiently as possible, etc.*

Table 7. Results from exploratory factor analysis of diversity belief and diversity belief management

Items	Diversity belief management	Diversity belief
Our team leader gives the team members tools to handle functional diversity in this team	,879	-,150
Our team leader tries to convince the team members of this new product development team that various functional areas are useful for the project	,849	,021
Our team leader explains clearly why various functional areas are needed for new product development	,846	,136
Our team leader tries to make the members of this new product development team eager to use the different views	,829	-,029
Our team leader clarifies the value of the various functional areas that are present in this team to the team members	,825	,119
Our team leader encourages collaboration among team members from all the functional areas that are present in this team	,730	-,021
I believe that functional diversity is good	-,038	,925
Functional diversity is an advantage for NPD teams	,017	,893
I feel enthusiastic about functional diversity	,066	,887
I enjoy working in functional diverse teams	-,020	,810

Table 8. Results from exploratory factor analysis of performance

Items	Creativity	Performance	Satisfaction
How would you estimate the novelty and originality of the solutions your team finds to problems?	,870	,054	,041
How would you estimate the number of possible solutions your team develops to solve problems?	,946	-,026	,036
How would you estimate the number of possible solutions your team takes into consideration in order to solve problems?	,890	-,033	-,072
I believe my group performs well at work	,204	,703	-,197
My group is effective in getting things done in time	-,012	,930	,006
I think in general my group is effective with respect to work	-,019	,956	,043
Working with this team is an enjoyable experience	-,028	,107	-,892
I would like to work with this team in the future	,022	-,083	-,964

Appendix 2: Main team leader items

Table 9. Results from exploratory factor analysis of conflict management^a

Items	Compromising	Forcing	Avoiding	Collaborating
I abstain from arguments and avoid the issues	,008	-,270	,777	,066
I try to exchange complete and accurate information to resolve the conflicts	,095	-,138	-,162	,809
I fight for a favorable outcome for myself?	,325	,701	,038	-,035
I try to find a middle course to resolve an impasse	,834	,056	-,062	,349
I try to stay away from the disagreement	-,109	,195	,757	-,020
I play down the differences and emphasize the common interests	,269	-,028	,096	,814
I use my expertise to push through my standpoint	,052	,798	-,036	-,173
I usually propose a middle ground for breaking dead-locks	,895	-,131	-,038	,228
I let the conflicting parties handle the conflict themselves and bypass the clash as much as possible ^b	-,394	,192	,189	-,442
I try to bring all concerns out in the open so that the issue can be resolved in the best possible way ^b	,158	,055	-,579	,382
I use my authority to make a decision in the conflict	-,122	,774	-,104	-,037
I use “give and take” so that a compromise can be made	,766	,314	-,152	-,002

^a Items in random order and introduced by: *The following questions relate to how you respond to conflicts between two or more team members. In this situation, you are not personally involved in the conflict. We want to know how you generally respond, please do not think of a specific situation.*

^b items are deleted because of negative loadings on the wrong factor

Table 10. Results from exploratory factor analysis of team performance by the team leader

Items	Creativity	Productivity
I believe my group performs well at work ^a	,355	,523
My group is efficient in getting things done in time	,270	,862
I think in general my group is effective with respect to work	,219	,870
How would you estimate the novelty and originality of the solutions your team finds to problems?	,749	,322
How would you estimate the number of possible solutions your team develops to solve problems?	,891	,118
How would you estimate the number of possible solutions your team takes into consideration in order to solve problems?	,807	,194

^aItem had no high loadings and is deleted.

Appendix 3: relationship of diversity belief management on team performance

Table 11. Hierarchical regression of diversity belief management on team performance and diversity belief

		Perceived performance	Satisfaction	Self rated creativity	Diversity belief
Step 1 Control variables	Task interdependence	0,24	0,15	0,39*	0,18
	Project duration	-0,33 [†]	-0,15	-0,03	0,00
	Team size	-0,07	-0,12	-0,08	-0,02
	R ²	,210	,078	,156	,033
Step 2 Linear effect	Task interdependence	0,22	0,14	0,38*	0,17
	Project duration	-0,28 [†]	-0,10	0,01	0,04
	Team size	-0,01	-0,05	-0,03	0,02
	Diversity belief management	0,49**	0,52**	0,37*	0,38*
	ΔR ²	,230**	,261**	,132*	,138*
	R ²	,440	,338	,287	,171

Note. N=30; standardized coefficients are reported; **p<.01; *p<.05; [†]p<.10

Appendix 4: relationship diversity belief management on conflict

Table 12. Hierarchical regression of diversity belief management on three types of conflict

		Relationship		
		Task conflict	conflict	Process conflict
Step 1 Control variables	Task interdependence	0,30	0,30 [†]	0,24
	Project duration	0,25	0,36 [†]	0,28
	Team size	0,03	-0,42*	-0,09
	R ²	,129	,235	,097
Step 2 Linear effect	Task interdependence	0,31 [†]	0,31 [†]	0,25
	Project duration	0,19	0,31 [†]	0,24
	Team size	-0,03	-0,48**	-0,15
	Diversity belief management	-0,49**	-0,41*	-0,40*
	ΔR ²	,228**	,162*	,154*
	R ²	,357	,397	,251

Note. N=30; standardized coefficients are reported; **p<.01; *p<.05;

[†]p<.10

Appendix 5: Results hierarchical regression interaction effects

Interactions task conflict

Table 13. Hierarchical regression interaction effect of task conflict and collaborating on performance

		Information Elaboration	Satisfaction	Team leader's creativity rating
Step 1 Control variables	Task interdependence	0,52**	0,14	0,06
	Project duration	-0,20	-0,21	0,41 [†]
	Team size	-0,08	-0,13	-0,36 [†]
	Conflict management	-0,21	-0,14	-0,06
	R ²	,369	,095	,214
Step 2 Linear effect	Task interdependence	0,67**	0,31 [†]	-0,05
	Project duration	-0,02	-0,02	0,42 [†]
	Team size	-0,06	-0,11	-0,37 [†]
	Conflict management	-0,14	-0,07	-0,07
	Task conflict	-0,58**	-0,63**	0,04
	Collaborating	0,10	0,08	0,32 [†]
	ΔR ²	,316**	,360**	,087
	R ²	,685	,455	,301
Step 3 Interaction effect	Task interdependence	0,69**	0,33*	-0,03
	Project duration	-0,02	-0,03	0,42*
	Team size	-0,02	-0,05	-0,31 [†]
	Conflict management	-0,13	-0,04	-0,05
	Task conflict	-0,55**	-0,57**	0,09
	Collaborating	0,24 [†]	0,32 [†]	0,52*
	Task conflict * collaborating	0,26 [†]	0,42*	0,36 [†]
	ΔR ²	,041 [†]	,107*	,077 [†]
R ²	,725	,562	,378	

Table 14. Hierarchical regression interaction effect of task conflict and compromising on performance

		Satisfaction	Productivity	Creativity rating by team leader
Step 1 Control variables	Task interdependence	0,14	-0,14	0,06
	Project duration	-0,21	0,12	0,41 [†]
	Team size	-0,13	-0,23	-0,36 [†]
	Conflict management	-0,14	0,12	-0,06
	R ²	,095	,101	,214
Step 2 Linear effect	Task interdependence	0,34*	-0,04	0,06
	Project duration	-0,09	0,22	0,45 [†]
	Team size	0,02	-0,24	-0,42 [†]
	Conflict management	0,11	0,13	-0,15
	Task conflict	-0,59**	-0,32	-0,05
	Compromising	-0,29	0,04	0,15
	ΔR ²	,387**	,083	,009
	R ²	,482	,185	,224
Step 3 Interaction effect	Task interdependence	0,37*	-0,08	0,11
	Project duration	-0,10	0,24	0,43 [†]
	Team size	-0,02	-0,20	-0,47*
	Conflict management	0,22	0,01	0,00
	Task conflict	-0,37 [†]	-0,57*	0,26
	Compromising	-0,36	0,12	0,05
	Task conflict * compromising	-0,35 [†]	0,41 [†]	-0,50*
	ΔR ²	,070 [†]	,097 [†]	,142*
R ²	,552	,281	,366	

Interactions relationship conflict

Table 15. Hierarchical regression interaction effect of relationship conflict and collaborating on performance

		Perceived performance
Step 1 Control variables	Task interdependence	0,24
	Project duration	-0,32
	Team size	-0,07
	Conflict management	0,04
	R ²	,211
Step 2 Linear effect	Task interdependence	0,46**
	Project duration	-0,11
	Team size	-0,42**
	Conflict management	-0,15
	Relationship conflict	-0,80**
	Collaborating	0,00
	ΔR ²	,467**
	R ²	,678
Step 3 Interaction effect	Task interdependence	0,45**
	Project duration	-0,15
	Team size	-0,33*
	Conflict management	-0,12
	Relationship conflict	-0,74**
	Collaborating	0,13
	Relationship conflict * collaborating	0,25 [†]
	ΔR ²	,038 [†]
R ²	,716	

Table 16. Hierarchical regression interaction effect of relationship conflict and compromising on performance

		Perceived performance
Step 1 Control variables	Task interdependence	0,24
	Project duration	-0,32
	Team size	-0,07
	Conflict management	0,04
	R ²	,211
Step 2 Linear effect	Task interdependence	0,46**
	Project duration	-0,14
	Team size	-0,34 [†]
	Conflict management	-0,04
	Relationship conflict	-0,77**
	Compromising	-0,15
	ΔR ²	,476**
	R ²	,687
Step 3 Interaction effect	Task interdependence	0,48**
	Project duration	-0,09
	Team size	-0,33*
	Conflict management	0,08
	Relationship conflict	-0,80**
	Compromising	-0,16
	Relationship conflict * compromising	-0,25*
	ΔR ²	,050*
R ²	,738	

Interactions process conflict

Table 17. Hierarchical regression interaction effect of process conflict and collaborating on performance

		Perceived performance	Team leaders' creativity rating
Step 1 Control variables	Task interdependence	0,24	0,06
	Project duration	-0,32	0,41 [†]
	Team size	-0,07	-0,36 [†]
	Conflict management	0,04	-0,06
	R ²	,211	,214
Step 2 Linear effect	Task interdependence	0,38*	-0,03
	Project duration	-0,15	0,44*
	Team size	-0,13	-0,37 [†]
	Conflict management	0,00	-0,07
	Process conflict	-0,63**	-0,03
	Collaborating	0,03	0,31 [†]
	ΔR ²	,365**	,086
	R ²	,576	,301
Step 3 Interaction effect	Task interdependence	0,45*	0,05
	Project duration	-0,15	0,44*
	Team size	-0,07	-0,30
	Conflict management	0,01	-0,06
	Process conflict	-0,67**	-0,07
	Collaborating	0,05	0,33 [†]
	Process conflict * collaborating	0,29*	0,30 [†]
	ΔR ²	,068*	,076 [†]
R ²	,645	,376	

Table 18. Hierarchical regression interaction effect of process conflict and avoiding on performance

		Information elaboration	Self rated creativity
Step 1 Control variables	Task interdependence	0,52**	0,40*
	Project duration	-0,20	0,03
	Team size	-0,08	-0,07
	Conflict management	-0,21	0,15
	R ²	,369	,173
Step 2 Linear effect	Task interdependence	0,60**	0,48*
	Project duration	-0,15	0,08
	Team size	-0,08	-0,08
	Conflict management	-0,31 [†]	0,06
	Process conflict	-0,45*	-0,41*
	Avoiding	-0,29 [†]	-0,25
	ΔR ²	,191	,152 [†]
R ²	,560	,325	
Step 3 Interaction effect	Task interdependence	0,59**	0,47*
	Project duration	-0,26	-0,02
	Team size	-0,03	-0,03
	Conflict management	-0,37*	0,01
	Process conflict	-0,35*	-0,31 [†]
	Avoiding	-0,11	-0,08
	Process conflict * avoiding	0,38*	0,35 [†]
ΔR ²	,097*	,080 [†]	
R ²	,657	,405	