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Satisfaction and Perception of Conflict in Teams: Understanding their Relationship and the Importance of Interaction Types

Amélie Théry and Michel Verstraeten

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Satisfaction and Perception of Conflict in Teams: Understanding their Relationship and the Importance of Interaction Types

Amélie Théry[a], Michel Verstraeten[b]

Abstract

This paper aims at understanding how interactions are connected with instrumental and social satisfaction, and perceived task and relationship conflict. Participants were 264 students divided into 41 teams and involved in a design and building group experiment which was videotaped and integrally coded with the IT[3D] coding system. We highlight the significant positive relationship between socialization interactions and satisfaction. We notice that when interactions carrying task conflict (content) are increasing, instrumental and social satisfactions are lower. In contrast, process conflict and relationship conflict show no relationship with team member satisfaction. We also investigate the relationship between observed conflictual interactions in groups and the perception of conflict by their members. Only the perception of task conflict is related to the proportion of observed interactions opposing ideas in the group, whereas interactions showing signs of weak relationship conflict are not globally perceived as such. Finally, the study of team member satisfaction and perception of conflict confirms that perceived task conflict is harmful to instrumental and social satisfaction, whereas perceived relationship conflict also impacts negatively social satisfaction.

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1 Introduction

INTRODUCTION

Team work has become common practice in most organizations: individuals are asked or intended to gather together in teams with the aim of sharing information, skills or knowledge on projects, achieving common goals, carrying out their tasks or making decisions. In many cases, these groups are imposed on their members, who can widely differ regarding their opinions, communication modes and personality traits. Working together then means 1) some adaptation to the group, 2) the need to share interactions, 3) the obligation sometimes to face disagreements among members, and 4) the need to reach agreements in the end (de la Torre-Ruiz, Ferron-Vilchez, & Ortiz-de-Mandojana, 2014; Pelled, Eisenhardt, & Xin, 1999). In such circumstances, it is worth wondering what makes

[a] Université libre de Bruxelles, Solvay Brussels School of Economics and Management, Centre Emile Bernheim – 50, av. F.D. Roosevelt CP 114/03 – 1050 Brussels – Belgium. Contact author: amelie.thery@ulb.ac.be
[b] Université libre de Bruxelles, Solvay Brussels School of Economics and Management, Centre Emile Bernheim – 50, av. F.D. Roosevelt CP 114/03 – 1050 Brussels – Belgium.

team members satisfied with the team or the way it performs, whether we want to improve their well-being, their commitment to the task or future involvement in the team (Furumo, de Pillis, & Green, 2009; Hackman, 1987; Peeters, Rutte, van Tuijl, & Reymen, 2006). Team member satisfaction can in particular be seen as the result of interactions occurring during team meetings, whether these interactions deal with the task or the relationships among members (Behfar, Peterson, Mannix, & Trochim, 2008; Kong, Konczak, & Bottom, 2015). Thus, the study will pay attention to the relationships between team member satisfaction and the types of interactions which are played in teams. More specifically, the question of conflictual interactions in teams, whether it is task- or relationship-oriented, will also be studied. Indeed, conflict is often an integral part of team lives and may have an impact on team satisfaction. The contribution of this study is also to understand the way conflict, as measured through interactions, is consistent with the perception of conflict by team members. Finally, the way disagreements among members, interpersonal tensions or incompatibilities are associated with team member satisfaction, is analysed.

Theoretical elements on interactions, team member satisfaction and conflict are provided to highlight the potential connections among these entities and help form relevant hypotheses and research questions.

2 Theoretical background

2.1 Member satisfaction

Team member satisfaction can be defined as "members' overall evaluations about working in their current team" (Shaw et al., 2011). Two separate dimensions of member satisfaction are considered. First, member satisfaction can take into account the pleasantness of the team experience based on the interactions shared with the other members, and the desire or willingness of a member to work within the same team in the future, if this member had a choice. This dimension of satisfaction is called *social satisfaction* (Nerkar, McGrath, & Macmillan, 1996). Then, satisfaction can relate to the meeting outcomes (accomplishments) and process used during the meeting (Reinig, 2003). This second dimension of member satisfaction is also known as *instrumental satisfaction* (Nerkar et al., 1996).

Whether social or instrumental, team member satisfaction is not that easy to measure and almost impossible to assess by an external observer. It then requires involving team members and share their perceptions on the team and meeting, and assess them with given measurement scales (Carey & Kacmar, 1997).

Many factors can impact member satisfaction (Downs & Pickett, 1977; Witteman, 1991). We chose to focus on the types of interactions shared within the team, including clear signs of inner conflict.

Association between social satisfaction and instrumental satisfaction

As satisfaction in the team and satisfaction with performance have not been clearly separated in most related studies or not both taken into account simultaneously, there is no

evidence of a correlation between those two facets of team satisfaction. This possibility will be further explored.

Research question RQ0: Are social satisfaction and instrumental satisfaction associated?

Impact of the interaction types on satisfaction

Functional meaning of interactions

To date, few findings about the kinds of interactions which could lead to a better or worse satisfaction in teams are available, neither on the social nor on the instrumental satisfaction. Nevertheless, the link between process-oriented interactions and instrumental satisfaction was mentioned (de Wit, Greer, & Jehn, 2012; Jehn, 1997; Passos & Caetano, 2005; Standifer et al., 2015). This type of interactions involves for instance tasks and roles organization, questions, information or suggestions on the process, establishing priorities, or time management (Lehmann-Willenbrock, Allen, & Kauffeld, 2013). Based on the literature findings, we form the following hypothesis:

Hypothesis 1a (H1a): Team member instrumental satisfaction is positively associated with the proportion of process-oriented interactions

Furthermore, we will investigate on the relationship between the functional meaning categories of interactions present in group meetings and team member satisfaction. As described in the previous chapters, the functional meaning of interactions "gives details on both the verbal interactive act and the kind of information shared by the group (e.g. to ask for an opinion, to give a fact) (Théry, 2018; Théry & Verstraeten, 2018b). We will try to answer the following research questions:

RQ1a: Are some functional meaning categories positively or negatively correlated with team member social satisfaction?

RQ1b: Are some functional meaning categories positively or negatively correlated with team member instrumental satisfaction?

Convergence among interactions

More generally, the importance of communication among members for team satisfaction has often been mentioned in the literature. Cooperation among members, open discussions, and debates of ideas and opinions, were found to have strong correlations with team member satisfaction (Amason, Thompson, Hochwater, & Harrison, 1995; Hoegl & Gemuenden, 2001). A group climate conducive to exchanges, and especially possible disagreements with other ideas or opinions, was perceived to make members more satisfied with the team (social satisfaction) (Amason et al., 1995; de la Torre-Ruiz et al., 2014). Disagreements among members about the task represent what is commonly known as *task conflict* or more specifically, *content conflict* (Jehn, 1995). A large number of studies looked at the issue of content conflict and its effect on team satisfaction. Most of them pointed out moderate to strong negative relationships between content conflict and social or instrumental satisfaction (De Dreu & Weingart, 2003; Dimas & Lourenço, 2015). The same results were enhanced when considering process conflict, involving disagreements about strategical matters, delegation of duties and resources, or responsibilities for instance (Jehn & Chatman, 2000). However, fewer studies dealt with this type of conflict, which has often

been seen as included in task conflict or neglected until recently (de Wit et al., 2012; Jehn, 1997; Passos & Caetano, 2005). Based on our measures of content and process conflict (convergence i.e. agreements, disagreements or neutral links between interactions), we will form these hypotheses:

Hypothesis 1b (H1b): Team member instrumental satisfaction is negatively associated with the proportion of content conflict in the group

Hypothesis 1c (H1c): Team member social satisfaction is negatively associated with the proportion of content conflict in the group

Hypothesis 1d (H1d): Team member instrumental satisfaction is negatively associated with the proportion of process conflict in the group

Hypothesis 1e (H1e): Team member social satisfaction is negatively associated with the proportion of process conflict in the group

Interpersonal emotional meaning of interactions

Another interesting aspect of interactions which was mentioned as being connected to team member satisfaction is relationship conflict. Relationship conflict refers to any signs of interpersonal disagreements, incompatibilities, signs of irritation, aggressiveness, frustration or anger, called negative interpersonal emotional meaning (Amason et al., 1995; Jehn, 1995; Théry & Verstraeten, 2018b). Relationship conflict is not directly about the task or the process (it can occur independently on task-, process- or relationship-oriented interactions) but corresponds to an additional dimension besides the functional meaning and the possible task or process conflict (Tekleab & Quigley, 2014). Conversely, interactions can carry a positive interpersonal emotional meaning and provide "support to another member, signs of enthusiasm, benevolence" or aiming at supporting someone in the group (Théry & Verstraeten, 2018b).

Most studies on this type of conflict report either no effect (at best), or a negative relationship between relationship conflict and team member social satisfaction, as relationship conflict creates tension and leads to a possible decrease in the involvement of team members, who are more reluctant to consider some future work together (De Dreu & Weingart, 2003; Ross, 1989).

Hypothesis 1f (H1f): Team member social satisfaction is negatively associated with the proportion of relationship conflict in the group (measured via the proportion of negative interpersonal emotional meaning)

It will be, moreover, interesting to see if, in contrast, the proportion of interactions with a positive interpersonal emotional meaning may be associated with team member social satisfaction.

Research question RQ1c: Is the proportion of interactions with positive interpersonal emotional meaning associated with team member social satisfaction?

2.2 Perceived conflict

We approached content-, process- or relationship-oriented conflict factually, as they emerged from the study and coding of interactions. Regardless these objective measures of conflict, perception of conflict can vary a lot from the level of conflict carried out in the team interactions, and even from one member of the group to another. Conflict can consequently be considered to exist from the time a member perceives tension related to disagreements in the group interactions (Barki & Hartwick, 2004; Dimas & Lourenço, 2015). It will be called *perceived conflict*.

Association between perceived content conflict/process conflict and relationship conflict

Literature highlighted the high correlation between content or process conflict and relationship conflict, seen as two parts of the same conflict entity (Barki & Hartwick, 2004; Pearson, Ensley, & Amason, 2002). One can consider that relationship conflict may sometimes be a cause of task or process disagreements, more often a consequence of content or process conflict (Behfar, Mannix, Peterson, & Trochim, 2011). The individual perceptions of both types of conflict can also influence each other, especially with content or process conflict generating negative feelings towards team members and then creating a perception of relationship conflict (Behfar et al., 2008; Jehn, 1997; Jehn, Greer, Levine, & Szulanski, 2008). Another explanation for this connection is a misinterpretation of interactions carrying content or process conflict, which generates perceived relationship conflict (De Dreu & van Knippenberg, 2005; Katz & Koenig, 2001; Lindsley, Brass, & Thomas, 1995; Parayitam & Dooley, 2007; Simons & Peterson, 2000).

Hypothesis 2a (H2a): Perceived content conflict is associated with perceived relationship conflict

Hypothesis 2b (H2b): Perceived process conflict is associated with perceived relationship conflict

These perceptions of content, process and relationship conflict will be assessed through individual measurements.

Impact of the interaction types on perceived conflict

Given that the analysis of conflict through its perception by members during team meetings seems relatively new, no result regarding the types of interactions associated with this feeling of conflict has been identified yet. We will then investigate the possible connection between interactions carrying content or process conflict (functional meaning combined with the convergence dimension) and the assessment of content or process conflict by the team members.

Research questions:

RQ2a: Is the proportion of interactions with negative convergence on the content associated with team member perception of content conflict?

RQ2b: Is the proportion of interactions with negative convergence on the process associated with team member perception of process conflict?

Similarly, we will look at the association between the types of interactions displayed during group meetings (on the interpersonal emotional meaning dimension) and perception of relationship conflict by team members.

Research question RQ2c: Is the proportion of interactions with negative interpersonal emotional meaning associated with team member perception of relationship conflict?

Association between perceived conflict and satisfaction

Previously, we mentioned that content, process and relationship conflicts, as they are identified thanks to interaction coding, may have a connection with instrumental or social satisfaction. Another complementary perspective is to look at the relationship between conflict and satisfaction by studying conflict as it is actually perceived by team members, as their perception of disagreements and personal tensions in meetings can be quite different from what was "objectively" coded. As hypothesized for conflict carried out in interactions, perceived conflict is supposed to have a negative relationship with satisfaction (Wall, Galanes, & Love, 1987). Working on data coming directly from members will provide an opportunity to realize whether the conflict they experienced is also related to their satisfaction and in the same way as it was with conflict measured with negative convergence or negative interpersonal emotional meaning of interactions.

Hypothesis 2c (H2c): Team member instrumental satisfaction is negatively associated with perceived content conflict in the group

Hypothesis 2d (H2d): Team member social satisfaction is negatively associated with perceived content conflict in the group

Hypothesis 2e (H2e): Team member instrumental satisfaction is negatively associated with perceived process conflict in the group

Hypothesis 2f (H2f): Team member social satisfaction is negatively associated with perceived process conflict in the group

Hypothesis 2g (H2g): Team member social satisfaction is negatively associated with perceived relationship conflict in the group

All our hypotheses and research questions are summarized in Figure 1.
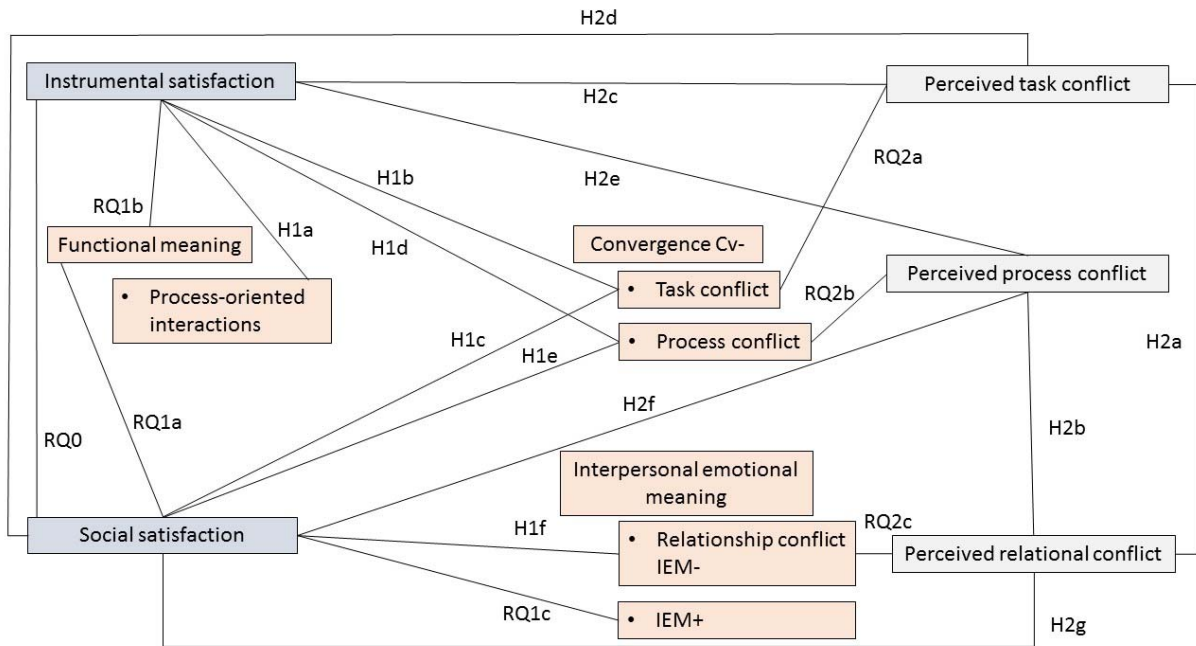
Figure 1: Hypotheses and research questions about interactions, satisfaction and perceived conflict

3 Methodology

3.1 Sample and data collection

A study including 264 students (175 men, 89 women) were divided into 41 groups of 5 to 7 students (n_{mean}=6.44). Details regarding the distribution of participants, experience and aims, were given in a previous paper (Théry & Verstraeten, 2018a). All interactions were recorded and videotaped. Measures of team member satisfaction and perception of conflict were collected after each phase of the experiment (design and building).

3.2 Identification of interaction types

All interactions were coded thanks to the INSIDE TEAMS[3D] (IT[3D]) coding system on three interaction dimensions: their functional meaning, convergence and interpersonal emotional meaning (Théry & Verstraeten, 2018b).

3.3 Measures

Team member satisfaction

In accordance with both facets of satisfaction that we wanted to investigate, two scales of satisfaction were used with five Likert-type response options ranging from "Strongly disagree" to "Strongly agree".

To measure social satisfaction, three items were selected from the indicators for team member satisfaction (Gevers & Peeters, 2009; Peeters et al., 2006) and two others were

added from other satisfaction items (Rockmann & Northcraft, 2010), to offer more details about the relationship satisfaction (see Table 1).

Item ID	Item	Origin
SAT_01	Taken as a whole, I was satisfied with the composition of the team	Gevers et al.
SAT_02	Taken as a whole, things went pleasantly within the team	Gevers et al.
SAT_03	If I ever had to participate in a similar project again, I would like to do it with this team	Gevers et al.
SAT_04	I am satisfied with how my fellow group members and I worked together on the exercise	Rockman et al.
SAT_05	I am satisfied with how my fellow group members performed during the exercise	Rockman et al.

Table 1: Scale assessing social satisfaction

Similarly, the assessment of instrumental satisfaction (individual satisfaction with the team's performance) was based on two indicators (Peeters et al., 2006) and on another one (Rockmann & Northcraft, 2010) exploring the members' perceptions of task or team's performance (see Table 2).

Item ID	Item	Origin
SAT_06	I am satisfied with the performance of the team	Gevers et al.
SAT_07	I felt our group effectively coordinated to complete the exercise	Rockman et al.
SAT_08	I am satisfied with the quality of the exercise output	Gevers et al.

Table 2: Scale assessing instrumental satisfaction

For each scale, an exploratory Principal Component Analysis (PCA) was conducted to confirm that its items reflected the same unique underlying construct.

Validation of the social satisfaction scale

An exploratory PCA was first run on the 5 items of the scale assessing social satisfaction and involved 264 respondents. The Kaiser-Meyer-Olkin measure (KMO) validated the sampling adequacy for the analysis (Field, 2009), all communalities for individual items were > .46, which is acceptable. Bartlett's test of sphericity verified that the correlations between items were sufficiently large to apply PCA. One component had an eigenvalue greater than 1, respecting Kaiser's criterion and explained 58.24% of the variance. A measure of scale reliability is given with a very satisfactory Cronbach's alpha (α = .818). All results are detailed in Table 3.

KMO measure		.817
Bartlett's test of sphericity χ^2	432.92	p < .001
Item	Communalities	Factor loading
SAT_01	.661	.813
SAT_02	.456	.675
SAT_03	.645	.803
SAT_04	.571	.756
SAT_05	.578	.760

Table 3: PCA on social satisfaction scale

Validation of the instrumental satisfaction scale

The same methodology was applied to validate the scale assessing instrumental satisfaction. An exploratory PCA on the 3 items of the scale was done with 264 respondents. The Kaiser-Meyer-Olkin measure (KMO), Bartlett's test of sphericity and communalities for individual items validated the use of a PCA. One component emerged (eigenvalue > 1) and explained 71.13% of the variance. Scale reliability is measured and validated (Cronbach's alpha α = .795). All results are detailed in Table 4.

KMO measure		.700
Bartlett's test of sphericity χ^2	243.95	p < .001
Item	Communalities	Factor loading
SAT_06	.675	.821
SAT_07	.703	.838
SAT_08	.756	.870

Table 4: PCA on scale assessing instrumental satisfaction

Perceived conflict

5 items were chosen to indicate the level of conflict perceived by members of the group during the exercise. 3 items derived from the Intragroup Conflicts Items (Jehn, 1995) and 2 new items were added to take into account conflict on the task (see Tables 5, 6 and 7). A factor analysis (ACP) was conducted to determine whether the 3 items chosen to assess relationship conflict reflected a single component or if different factors existed within this conflict scale.

Item ID	Item
CONF_01	There was friction in the team
CONF_02	Some personalities were opposed to others in the team
CONF_03	Some tensions or signs of irritation were perceptible

Table 5: Scale assessing relationship conflict

Item ID	Item
CONF_04	Some members of the team disagreed on the content of the task

Table 6: Item assessing task conflict (content)

Item ID	Item
CONF_05	Some members of the team disagreed on the organization

Table 7: Item assessing task conflict (process)

Validation of the conflict scales

We subjected the 264 responses to the scale assessing relationship conflict to a PCA, as the KMO, Bartlett's test of sphericity and communalities values supported it. This analysis indicated a single component (which explained 62.21% of the variance) and validated the 3-item conflict scale (see Table 8). The reliability of the scale is also ensured (Cronbach's α = .766).

KMO measure		.669
Bartlett's test of sphericity χ²	134.51	p < .001
Item	**Communalities**	**Factor loading**
CONF_01	.592	.770
CONF_02	.623	.789
CONF_03	.651	.807

Table 8: PCA on relationship conflict scale

4 Results

Various factors were partly used as control to refine our understanding of team member satisfaction and perceived conflict. Thus, the distribution of interactions, the sex of participants and the degree of acquaintance among team members are observed throughout the analysis.

4.1 Interactions

Sex of team members

One first question was to focus on interactions and see if men's and women's interactions were different, whether we considered functional meaning, convergence among interactions or interpersonal emotional meaning. Regarding the functional meaning, men and women differ significantly on their proportion of four categories. Men (Mdn = 0.345) were found to use more interactions dealing with offering an opinion on the content (*OOc*) than women (Mdn = .321, U = 6582.00, p = .040, r = -.127). Similarly, men (Mdn = .115) showed a higher proportion of interactions offering a suggestion on the content (*OSc*) than women (Mdn = .100, U = 6544.00, p = .034, r = -.131). Conversely, the proportion of interactions offering metacommunication (*OM*) was significantly higher for women (Mdn = .024) than men (Mdn = .015), U = 6139.5, p = .004, r = -.175. The same result was found on the interactions asking for an opinion on the content (*AOc*), with women (Mdn = .071)

displaying a significantly higher proportion of these interactions in comparison with men (Mdn = .054, U = 6273.50, p = .010, r = -.159). However, as the r values pointed it out, the effect of sex on the functional meaning proportions was rather low.

Mann-Whitney tests were also run to determine if the sex of the team members had a correlation with the proportion of convergence in their interactions. Proportion of positive convergence ($Cv+$) in women's interactions (Mdn = .150) was significantly higher than men's (Mdn = .129, U = 6422.50, p = .020, r = -.143). Nevertheless, the proportion of negative convergence did not differ significantly according to the sex of the speaker.

In the same way, interpersonal emotional meaning was explored to consider differences between men and women. No significant result indicated a difference of proportion in the interactions carrying interpersonal emotional meaning regarding the sex.

Degree of acquaintance

One second question was to explore possible differences in the functional meaning, convergence and interpersonal emotional meaning displayed by members depending on their degree of acquaintance with the rest of the group. Regarding functional meaning categories, members with a higher degree of acquaintance of the group interacted significantly and proportionally more on the categories "Offers metacommunication (*OM*)" (r_s = .312, p < .001), "Fosters the conversation, fills the silence, digresses (*SConv*)" (r_s = .245, p < .001), "Exchanges polite small-talk, apologizes (*SPol*)" (r_s = .157, p = .015) and "Makes jokes (*SJok*)" (r_s = .128, p = .047). Nevertheless, these correlations are weak. No other distinction was highlighted.

4.2 Satisfaction

Team member participation and balance among members

Regarding team member satisfaction, it was worth comprehending if the proportion of interactions offered by the members themselves impacted their degree of satisfaction. No correlation between the total number of interactions of an individual or the proportion of his interactions in the group, and instrumental or social satisfaction was found, neither on the design phase, nor on the building phase. Nevertheless, the balance in the distribution of the interactions seemed more important: a correlation appeared between social satisfaction and mean standard deviation in the proportion of members interactions (r_s = -.442, p = .004 for the entire exercise). No causality can be strictly validated with this correlation test, even though satisfaction is thought as the result of the exercise and its interactions balance (Behfar et al., 2008; Kong et al., 2015). Thus, groups where there was a balance among the members participation were more socially satisfied on average than groups facing a huge disparity in the members proportion of interactions, whether a member spoke far more than the other team members or shared very few interactions. When investigating at the item level in social satisfaction, we noticed that groups with higher differences in interaction proportions were less satisfied regarding the team composition (r_s = -.405, p= .009), found the exercise less pleasant (r_s = -.457, p = .009), showed less willingness to stay with the same group for a similar exercise in the future (r_s = -.331, p = .035) and were less satisfied with the behaviours of the other members (r_s = -.362, p = .020). Dissatisfaction can indeed be felt if

members are very passive considering the interactions and do not talk much, giving the impression they do not really make a contribution in the group. Conversely, a member who dominates the interactions proportion can be perceived as monopolizing the discussion and may rightly or wrongly create an atmosphere hardly conductive to a free exchange of ideas, preventing other members from talking. In both cases, this may create an imbalance impacting negatively social satisfaction. We therefore should be careful about understanding this relation as no causality can be strongly affirmed.

Sex of team members

No significant difference in satisfaction was noticed between men and women, whether we isolated social satisfaction or instrumental satisfaction.

Degree of acquaintance

The impact of the degree of acquaintance was also taken into account to realize whether a member with previous connections with other members faced significantly different levels of satisfaction in comparison with members discovering the entire group or most of it. No result could be highlighted regarding satisfaction and the degree of acquaintance among members. Furthermore, the degree of acquaintance among members did not provide information about the relationships and kindness between members, which may have provided complementary information.

Performance and Satisfaction

Even though the participants had no level of performance to reach (no target was given, as the aim was to get the highest performance), they may have felt more or less satisfied about the outcomes (instrumental satisfaction after the building phase). A correlation test between individual instrumental satisfaction (building phase) and measured performance was then done. A low correlation was found (r_s = .320, p<.001).

As the result of performance may be difficult to evaluate, abstract in the eyes of the participants and hard to translate in terms of quality of the outcomes, we also considered the associations between instrumental satisfaction and initial height, cost, initial height on cost, and ratio H_3 on H_0 (height after the last resistance test on the initial height seen as an indicator of resistance of the tower). Low correlations were found between instrumental satisfaction and initial height H_0 (r_s = .244, p<.001) and between instrumental satisfaction and the ratio initial height on cost (r_s = .231, p<.001). This may indicate that members based on the initial height and the ratio initial height on cost to assess their performance, regardless of the stability factor. As the groups were provided with no reference for the height or cost considered as good or for a maximum performance, the performance representation remains hard to understand and analyse further.

Interaction types and Satisfaction

Functional meaning

As asked in our research questions RQ1a and RQ1b, we wanted to identify the functional meaning categories played in the groups whose proportion was related to social or instrumental satisfaction. Correlations were significant only for the building phase and on the Socialization categories. For instrumental satisfaction, correlations were found only with

the proportion of interactions belonging to the *SConv* categories ("Fosters the conversation, fills the silence, digresses") ($r_s = .431$, $p = .005$). For social satisfaction, correlations emerged for the categories SConv ($r_s = .520$, $p < .001$) and SJok ("Makes jokes") ($r_s = .311$, $p = .048$). Interactions in these categories are likely to contribute to a more relaxed environment to perform and influence positively the assessment of social relationships. Conversely, groups which were more confident with their outcomes may have contributed to more interactions belonging to the Socializing categories.

The positive association between instrumental satisfaction and the proportion of process-oriented interactions was also stated (H1a). This hypothesis is rejected, whether on the design phase or the building phase. Tests were also done when isolating process-oriented interactions depending on whether they belong to the Asking, Offering or Deciding categories, and gave the same results.

Convergence

We stated that task conflict (both content and process) may be negatively related to instrumental and social satisfaction in the group (hypotheses H1b to H1e). On the design phase, no hypothesis could be validated. On the building phase, a significant negative correlation between group social satisfaction and content conflict (interactions dealing with the content of the task and coded as Cv- on the convergence dimension) was raised ($r_s = -.355$, $p = .023$), which confirmed H1c: when more interactions were in opposition during the building phase, the level of social satisfaction was lower. However, no correlation was found between process conflict (interactions dealing with the process and coded as Cv- on the convergence dimension) and social satisfaction. Hypothesis H1e is rejected. Regarding the instrumental satisfaction, a correlation was significant with the proportion of interactions carrying negative convergence on the content ($r_s = -.314$, $p = .046$). H1b is confirmed. Thus, exchanges of divergent information or points of view were correlated with lower satisfaction on the team and on the task, and may be harmful to an efficient team work and its outcomes, but no causality can be proven in this relationship. Once again, no result emerged regarding the process conflict: H1d is not supported, but this type of conflict is quite rare in the groups (mean = .165%, maximum = 1.000% for the design phase, mean = .371%, maximum = 3.960% for the building phase). This could explain why process conflict was ignored from the participants and its limited effect on group dynamics.

Conversely, the proportion of interactions carrying positive convergence (Cv+) was not associated with social or instrumental satisfaction, neither on the design phase, nor on the building phase.

Interpersonal emotional meaning

Contrary to what was stated in hypothesis H1f, team member social satisfaction was not correlated to the proportion of interactions carrying a negative interpersonal emotional meaning. This can mean on one hand that negative interpersonal emotional meaning is not perceived as something unpleasant or harmful to the team work climate (essentially members cutting each other off), maybe due to the short amount of time to debate, make decisions and then carry out the building task. On the other hand, this result may also show that less satisfied groups did not use more interactions with negative interpersonal emotional meaning. We come to the same conclusion while observing a possible correlation

between team member social satisfaction after the design phase and his use of negative interpersonal emotional meaning during the building phase.

We then addressed the issue of positive interpersonal emotional meaning to see if its proportion in the groups interactions affected the social satisfaction of their members (RQ1c). This study showed no evidence of higher social satisfaction when more interactions carrying positive interpersonal emotional meaning were proportionally shared. However, the level of positive interpersonal emotional meaning was particularly low in our groups (mean = 1.529%, maximum = 16.667% on the design phase, mean = 2.693%, maximum = 17.949% on the building phase). Therefore, it may not have been hugely perceived by team members (especially with the rhythm of the exercise) and may not have led to a particularly pleasant feeling in the team or higher social satisfaction.

Correlations between both types of satisfaction

Previous authors emphasized a correlation between team member instrumental satisfaction and social satisfaction (De Dreu & Weingart, 2003). Our study provided findings which were consistent with previous researches (r_s = .546, p < .001 on the design phase, r_s = .636, p < .001 on the building phase).

4.3 Perceived conflict

Sex of team members

No difference between men and women was noticed in the perception of task conflict (content or process) or relationship conflict.

Degree of acquaintance

The perception of task and relationship conflict in the team did not significantly differ either according to the degree of acquaintance a member shared with the rest of the group.

Correlations between perceived task conflict and perceived relationship conflict

As stated in the hypotheses H2a and H2b, the individual perceptions of content or process conflict, and relationship conflict were quite highly correlated on both phases of the exercise. We got r_s values of .517 (design) and .633 (building) for content conflict and relationship conflict (p < .001) and r_s values of .470 (design) and .681 (building) for process conflict and relationship conflict (p < .001).

Interaction types and perceived conflict

We confronted the measure of conflict level (negative convergence, negative interpersonal emotional meaning) and the perception of conflict in groups (RQ2a and RQ2b). Thus, links were considered between the proportion of content or process interactions carrying negative convergence, and perception of content or process conflict. An intermediate correlation was found for content conflict (r_s = .369, p = .018 for design, r_s = .418, p = .007 for building), but none for process conflict.

The same tests were run with interactions carrying negative interpersonal emotional meaning and relationship conflict (RQ2c), with no significant result. It may result from the

small amount of interactions carrying relationship conflict, and the fact that members may not have perceived interruptions in their interactions as something conflictual, but just something usual or inherent to the exercise.

4.4 Satisfaction and perceived conflict

Finally, it was worth studying the connections between perceived conflict and team member satisfaction. As mentioned theoretically and stated previously, we suggested that the more the perception of task or relationship conflict was high, the more it generated worse team member instrumental and social satisfaction. All our hypotheses (H2c to H2g) were confirmed, as all correlations were negative, moderate to high, and significant. All results are synthesized in Table 9.

	Instrumental satisfaction				Social satisfaction			
	Design		Building		Design		Building	
	r_s	p	r_s	p	r_s	p	r_s	p
Perceived content conflict	-.472**	.002	-.407**	.008	-.513***	.001	-.729***	<.001
Perceived process conflict	-.540***	<.001	-.455**	.003	-.378*	.015	-.669***	<.001
Perceived relationship conflict					-.522***	<.001	-.734***	<.001
*p < .05, ** < .01, *** < .001								

Table 9: Correlations between satisfaction and perceived conflict

These results were particularly interesting but did not enable us to validate the causality between perceived conflict and satisfaction. As satisfaction is seen as a consequence of group dynamics, we can easily consider that conflict, as it is perceived, directly impacts satisfaction. However, the implications among these phenomena are difficult to extract: perceived content or process conflict may be an intermediate in the relationship between perceived relationship conflict and instrumental satisfaction, as well as perceived relationship conflict may be mediating the connection between perceived content or process conflict and social satisfaction.

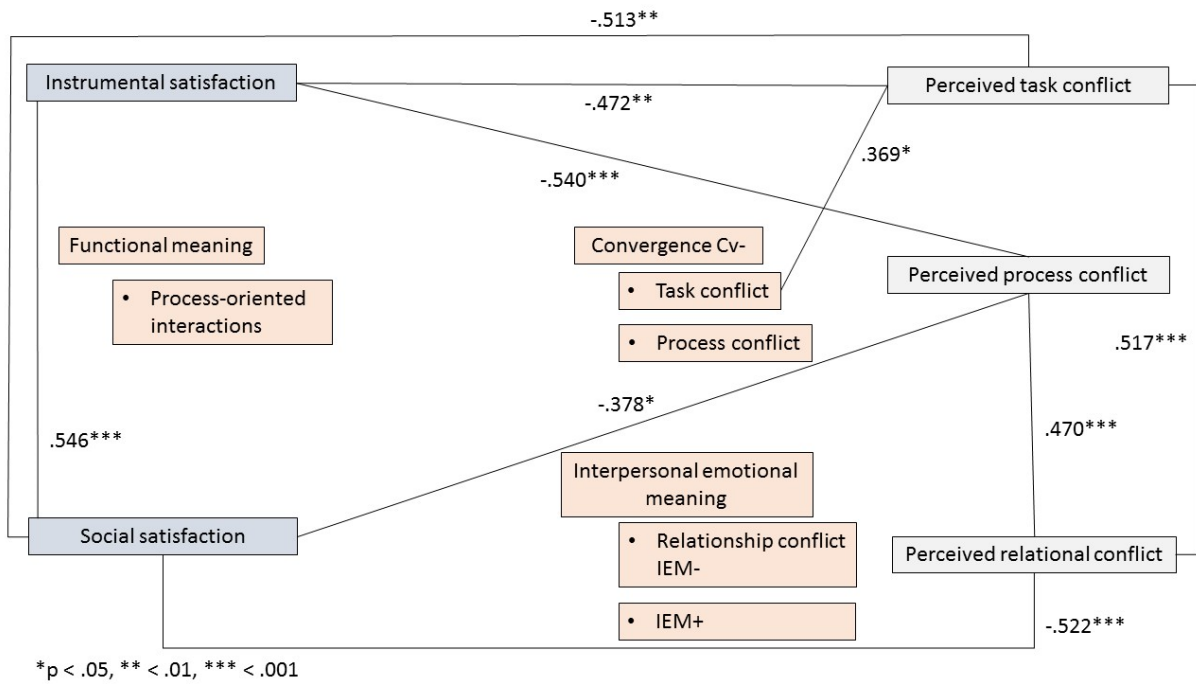A summary of all the correlations we validated are provided in figures 2 and 3.

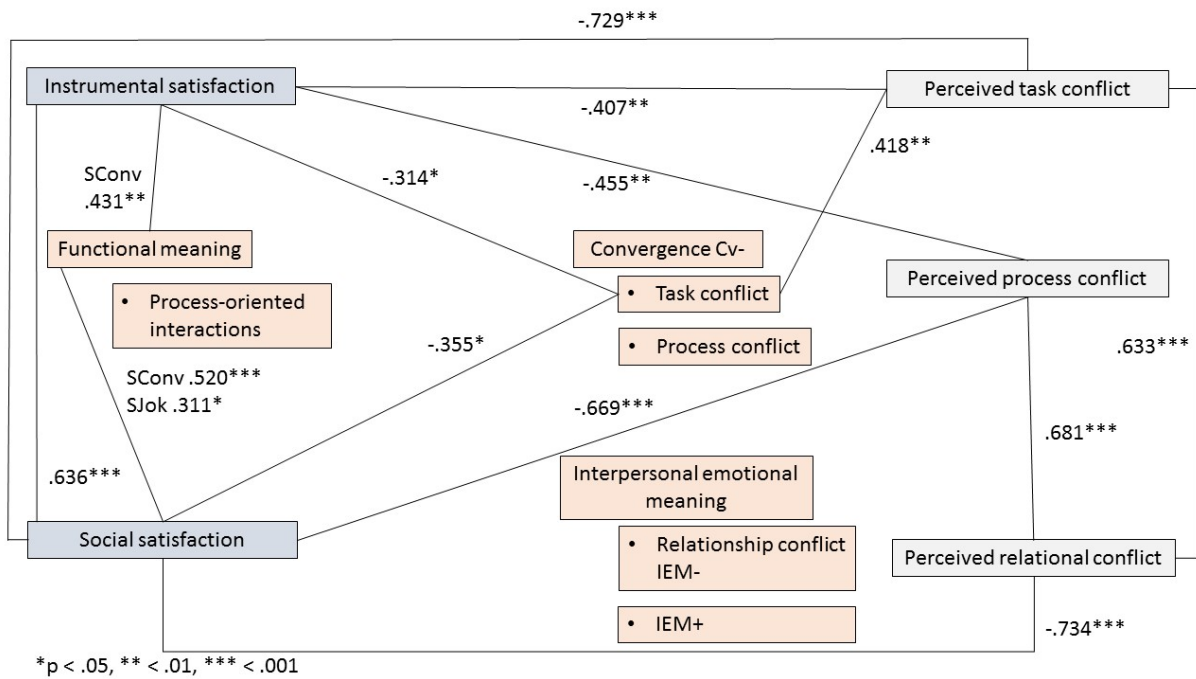**Figure 1: Correlations on the design phase**

Figure 2: Correlations on the building phase

5 Discussion

In the present study, we examined the influence of interactions on team member satisfaction. One finding was the importance of interactions coded in socialization categories (functional meaning) for both instrumental and social satisfaction. The link between socialization interactions and social satisfaction is quite obvious: as the atmosphere was friendly, members found the exercise more pleasant and may be more willing to work with the same team in the future, for instance, or on the other way, they may socialize more if

they feel satisfied about the team. The link with instrumental satisfaction is more difficult to explain. Do socialization interactions have a positive impact on instrumental satisfaction by creating a climate considered as effective? Conversely, does the instrumental satisfaction encourage a member to socialize? Or does the correlation between social and instrumental satisfaction play a role in the association between socialization interactions and instrumental satisfaction?

Furthermore, we found that negative convergence on the content was negatively correlated with instrumental and social satisfaction (building phase), in accordance with the idea that content conflict created discomfort which made members not feel like working with the same group again (DeChurch & Marks, 2001; Hackman, 1987; Pelled, 1996; Shaw et al., 2011; Wageman, Hackman, & Lehman, 2005). No result appeared for negative convergence on the process. Regarding the design phase which did not highlight any results, it would be interesting to think about the way instrumental satisfaction was assessed by team members. After the design phase, participants were asked to assess their satisfaction towards the team performance, the quality of the output, and the team coordination. As the exercise was not over yet and the ultimate goal was to build the best tower ever, most participants found it difficult to assess performance after the design phase. Performance was then experienced as an abstract concept whose assessment may have been somehow random. Observed relationship conflict was, contrary to our expectations, not negatively correlated to social satisfaction, which may be due to the low level of negative interpersonal emotional meaning, and especially the limited number of interactions revealing interpersonal tension or incompatibilities.

We then associated interactions in groups and the perception of conflict by team members. We confirmed that perceived content conflict was correlated with the proportion of content interactions carrying negative convergence. The observation of content conflict (negative convergence on the content) may then be a reliable predictor of perceived conflict. However, perceived process conflict showed no correlation with the proportion of opposed process interactions. Again, few process interactions with negative convergence were displayed during the exercise, and the latter may have gone unnoticed. Similarly, observed relationship conflict was confronted by the proportion of interactions carrying a negative interpersonal emotional meaning, and no significant correlation appeared, which can again be understood by the very few number of interpersonal tensions in the groups (short exercise, videotaped experiment, low stakes for the participants).

Finally, the impact of perceived conflict on satisfaction was considered. As expected, the perceptions of content and process conflict were negatively correlated with both instrumental and social satisfaction, and the perception of relationship conflict was negatively correlated with social satisfaction. These findings confirm that perceived conflict, in any kind, results in lower satisfaction of team members.

6 Implications

Our study involves some practical implications. First of all, socialization interactions are associated with higher satisfaction, but also better outcomes (Théry & Verstraeten, 2018a). This highlights the importance of promoting a pleasant climate during meetings, which will

benefit both team members and performance. Secondly, perceived task and relationship conflicts seem to be associated with lower team member satisfaction. As task conflict (up to a certain level) was found to be beneficial to performance (Théry & Verstraeten, 2018a), a balance must be found to increase performance, but also to mitigate the negative effect of task conflict on satisfaction, particularly through conflict management (Bang & Park, 2015). It also points out the importance of accepting confrontation of ideas and make sure that this confrontation is as benevolent as possible. Furthermore, further research is needed to understand how perceived conflict is consistent with the measured conflict (negative convergence, negative interpersonal emotional meaning) and which factors impact the perception of conflict in team meetings. Finally, special attention must be paid to the distribution of interactions and ensure a balance between members to get better member satisfaction.

7 Limitations

First, the formulation of the items chosen for the conflict scales is quite factual: global disagreements on the content or the process in the group, perception of relational issues, tensions, irritation or friction, whether the member is involved or not. This formulation may put the member who answers in a position of observer, as if he was evaluating conflict from the outside. The evaluation of conflict could benefit from a formulation including a more personal view from the member, taking into account the conflict as he personally perceived it inside the group. Then, the exercise intended to recreate a team meeting situation (task to carry out, decision to make, role distribution required, …) but involved a tight time constraint which may have impacted group dynamics, group interactions and even the satisfaction and perception of conflict by team members. Furthermore, due to the artificial nature of the experiment involving students who met only for one meeting, it may be interesting to replicate the study with different conditions (employees in companies, observations of real meetings, longitudinal studies of the same groups, …) and observe the possible differences. Moreover, a better understanding of the expectations of team members regarding meetings (behaviours, organization, …) is necessary to be able to improve teams functioning, their satisfaction and longevity. More generally, it would be worth investigating other criteria influencing team member satisfaction (such as previous affinities between members, interest in the task, context in which the meeting is set up) as satisfaction is not the sole result of interactions in the team, as put forward with the correlation tests. Similarly, the perception of conflict is not entirely explained by the types of interactions played in groups. Further research is then needed to get a bigger picture of the criteria generating or reducing perceived conflict. The environment and the history of the groups may be explored to understand what creates this conflict perception, as well as obtaining information from members themselves (interviews, personality tests, for instance). The impact of culture may also be taken into account as perception of conflict and the associations between perceived conflict and member satisfaction differ according to the culture of the member (Bisseling & Sobral, 2011; Parayitam, Olson, & Bao, 2010). Finally, the definition of the interaction units, focusing on their content regardless their duration, is well accepted in the field of group dynamics, but has a shortcoming for the study of the correlations between interactions and their results. For instance, if we consider the importance of a balance in the members contributions in a meeting for higher satisfaction

(number of interactions), the importance of a balanced time distribution among the members is also to consider.

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