Conflicts in Agile Teams: The Impact of Verbal Behaviour in Virtual and In-Person Meetings

Author: Judith Hamhuis
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

ABSTRACT,

In today's fast-paced business environment, Agile methodologies are increasingly implemented by organisations to adapt to the changing needs of the environment. At the same time remote working practices, including online meetings, have become more common. In the Agile method, individuals are divided into multi-disciplinary, self-managing teams, both in the face-to-face and virtual setting. Just like any other team, these teams can experience different types of conflicts driven by different verbal behaviours. However, little is known about how these conflicts differ between virtual and in-person Agile teams and how this might affect job performance. Therefore, this thesis aimed to explore the differences in verbal behaviour associated with task and relationship conflict between effective and ineffective Agile teams in virtual and in-person settings and their impact on team meeting effectiveness and individual job performance. Using a mixed-methods design, eight Agile teams from a large Dutch organisation operating in the financial service sector were analysed through video observations, meeting transcripts and surveys in terms of the type, duration and resolution status of conflicts and their accompanying verbal behaviours. Findings revealed that only ineffective teams experienced relationship conflicts. On the other hand, the more common task conflicts were equally distributed across effective and ineffective teams, as well as in virtual and in-person settings. Furthermore, while face-to-face and virtual teams experienced the same number of conflicts, virtual teams had more unresolved conflicts compared to in-person teams, but when resolved, virtual teams more frequently expressed a clear conclusion in comparison to in-person teams. Furthermore, when analysing the conflicts it became apparent that each product owner was involved in the highest number of conflicts, potentially signifying their important role. Future research should explore the topics on a larger scale within different organisations and further investigate the role of the product owner in conflict situations. Understanding these dynamics and leveraging the positive effects of conflicts can enhance the performance within Agile teams.

Graduation Committee members:

Dr L. Carminati
Dr P. Weritz

Keywords

Agile teams, job performance, task- and relationship conflict, verbal behaviour, video observations, virtual meetings

1. INTRODUCTION

In today's fast-paced business environment, it has become increasingly important for companies to be adaptable to the ever-changing needs of their internal and external environment (Vecchiato, 2015). Over the years, many different methods have been developed to fulfil these goals, one of them being the Agile way of working. The Agile working method is praised for its focus on customer collaboration, flexibility in adopting change (Dybå & Dingsyør, 2008), and improvement of communication (Bjarnason et al., 2011). Based on the four principles of individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan; the Agile way of working was first created for the software development industry (Beck et al., 2019). However, nowadays it has also found its way into project management and thereby replaced traditional management in a variety of different organisations, such as Spotify (Smite et al., 2019), Royal Philips (Dooms & Kilmäkoski, 2005), and John Deere (Berez & Jarayam, 2022).

The adoption of the Agile way of working can have a positive impact on project success in terms of the achievement of company goals as well as improvements in efficiency and stakeholder satisfaction (Serrador & Pinto, 2015). Nevertheless, just like any other team, Agile teams encounter various challenges, one of which is conflict management (Gren, 2017). Conflict is not necessarily a bad thing (Kozlowski & Ilgen, 2006). To reach the mature stages of team development a team needs to pass a period of conflict, which is likely to enhance its performance in those stages (Gren & Lenberg, 2018). Whether conflict is functional and has a positive impact on team performance is partly dependent on the type of conflict: task-related or relationship-related (Kozlowski & Ilgen, 2006). Task conflict occurs when there are disagreements about the content of the task for example in determining the right strategy or allocating resources (Jehn, 1995). Relationship conflict is a result of interpersonal incompatibilities (Jehn, 1995). A third type of conflict, known as process conflict, was later added. This type of conflict relates to issues such as who is responsible for what, how to delegate and schedule tasks, and how to achieve these tasks within the team (Jehn, 1997). Process conflict might hinder the team's productivity (Jehn, 1997). However, the research regarding the possible positive or negative effects of process conflict is contested. While Jehn (1997) highlighted that moderate levels of process conflict could benefit team performance, the research of O'Neill et al. (2013) found strong negative correlations between process conflict and team performance. Hence, process conflict is not included in this research in order to reach clearer conclusions. Task conflict, on the other hand, can have positive outcomes when it increases diversity and imposes different perspectives to enhance team innovation and decision quality (Kozlowski & Ilgen, 2006; Mannix & Neale, 2005). In contrast to task conflict, relationship conflict might negatively impact team information processing and result in lesser team satisfaction and performance (Kozlowski & Ilgen, 2006). Therefore, effective conflict management is crucial for successful Agile teams, especially in the current shift towards remote or hybrid working.

In the past years, the Covid-19 pandemic has forced companies to increasingly adopt remote working practices, making virtual or online meetings a fundamental aspect of collaboration in Agile teams (Ozkan et al., 2022). In the case of online meetings during the Covid-19 pandemic, the team members are generally individually dispersed (Ozkan et al., 2022). It is recommended for Agile teams, also called squad, to frequently operate in a collocated setting since the team instead of the individual is the basis for the Agile way of working (Moe et al., 2009). The advantages of in-person meetings are frequent face-to-face interactions, quick trust-building, simplified problem-solving, instant communication and fast decision-making (Ozkan et al., 2022). Most of these advantages disappear when switching to virtual meetings. Online communication is not as effective as face-to-face communication, because, in the online world, the non-verbal part of communication gets lost (Ivetic, 2017). This may affect the team member's ability to express themselves, understand others and resolve conflicts (Korkala & Maurer, 2014). Especially this last consequence is of great interest, since the missing social cues in online meetings might influence the interpretation of conflicts, the way these conflicts are managed and their consequences.

While the current literature has to a certain extent researched conflict management related to task and relationship conflicts in Agile teams, only a few have partially investigated how such conflicts can differ between virtual and in-person meetings (e.g., Ozkan et al., 2022) and consequently individual job performance and team effectiveness. Indeed, the current research has not yet linked these domains together and mostly focused on factors that influence an Agile team's performance (e.g., Drury-Grogan, 2014; Lindsjørn et al., 2016; Monsalves et al., 2023) and how this might be positively or negatively affected by remote working (Ozkan et al., 2022). Furthermore, as Zhao et al. (2019) stated, there is a lack of different methodologies for investigating team conflict. Current research has predominantly used survey-based data to gather insights into the types of conflict and their impact on team performance. Yet, surveys with self-reports can lead to self-report bias in which the respondent (un)intentionally changes their answers due to cognitive processes, social desirability and survey conditions, resulting in random or systematic misreporting (Bauhoff, 2014). Hence, this thesis answers the call for innovative and more objective research methods to explore conflicts by combining the novel method of video observations with survey data. The use of video observations facilitates both verbal and non-verbal communication to be integrated and thereby reduces the reliance on the retrospective self-assessments of the team members, which might be biased or inaccurate (Lucas & Baird, 2006).

1.1 Research Objective and Question

In light of the above, this thesis thus contributes to filling the existing research gap by utilizing a novel methodology that combines video observations with survey data in order to study the behavioural patterns of Agile teams regarding conflict management in face-to-face and virtual settings and how these differences might influence individual job performance and team effectiveness. Therefore, the research question is as follows:

How does the verbal behaviour associated with task and relationship conflict of Agile team members differ in effective virtual and in-person meetings and affect the team member's job performance?

1.2 Academic and Practical Relevance

This thesis contributes to the emerging body of research on conflict management in Agile teams by specifically focusing on two types of conflicts, namely task and relationship conflicts, and in two different settings, i.e., online meetings and in-person meetings. This paper thus highlights the not yet explored verbal behavioural differences of Agile teams when facing conflict in the aforementioned two settings. This paper offers unique insights into the challenges the teams face and their effects on individual job performance. By observing and analysing the verbal and non-verbal communication of Agile team members during their meetings, this report provides valuable insights into

the behavioural differences of Agile teams in virtual and in-person meetings in situations of task and relationship conflict.

This thesis also has practical implications. Changes in the business environment, including the impact of the Covid-19 pandemic, have prompted companies to explore new management practices to replace traditional management methods (Bernardo Junior & De Padua, 2023). The Agile way of working has shown itself to be a viable replacement for traditional management (Dikert et al., 2016; Serrador & Pinto, 2015). With the shift to remote working or hybrid working, online meetings become an essential element of collaboration in Agile teams. However, communicating effectively in virtual meetings can be challenging. In order for Agile teams to operate efficiently, conflicts should be managed. Therefore, the findings of this report provide helpful recommendations on how to manage task and relationship conflicts in Agile teams, both in in-person meetings as well as in virtual meetings. These recommendations can help companies build more effective and cohesive Agile teams and ultimately achieve better results.

1.3 Outline of this Report

The next section of this report reviews the existing literature relevant to the research question. Following this, the methodology is discussed. Subsequently, this report analyses the results and their theoretical and practical limitations and thereby reflects on their strengths and limitations. The report concludes by answering the research question and proposing recommendations for future research.

2. THEORETICAL FRAMEWORK

This section discusses the definition of Agile and its core principles. Followed by a discussion of the different types of conflict, the challenges of remote working and online meetings, a taxonomy of verbal behaviour, and the effect on job performance.

2.1 Agile Principles

Agile is a concept that was originally developed by the software industry (Ågerfalk & Fitzgerald, 2006). These practices have emerged as a reaction to the plan-based methods that were focused on logical approaches assuming that all problems are specifiable and have predictable and optimal solutions (Nerur et al., 2005). The Agile method, on the other hand, is centred around the four core principles of individuals and interactions over processes and tools; working software over comprehensive documentation; customer collaboration over contract negotiation; and responding to change over following a plan (Beck et al., 2001). While all definitions are based on the same four principles, nowadays a wide variety of definitions of the term 'Agile' exist (Conboy, 2009). After examining over a decade of Agile studies, Conboy (2009) defines agility as "the continual readiness of an ISD [Information Systems Development] method to rapidly or inherently create change, proactively or reactively embrace change, and learn from change while contributing to perceived customer value, through its collective components and relationships with its environment" (p. 340). With its focus on the customer, creativity, value creation and change, the Agile way of working provides great opportunities for sectors beyond software development (Dybå & Dingsyør, 2008). The adoption of Agile teams in other sectors can have significant benefits in terms of enhanced stakeholder satisfaction, improved efficiency, and overall project performance (Serrador & Pinto, 2015).

These Agile teams, referred to as squads, are typically small cross-disciplinary self-managing teams, preferably consisting of five to ten persons (Zia et al., 2018). According to Magpili Smith and Pazos (2018), a self-managing team (SMT), such as an Agile team, is "a group of individuals with diverse skills and knowledge with the collective autonomy and responsibility to plan, manage and execute tasks interdependently to attain a common goal" (p. 3). Due to these characteristics and the absence of a traditional leader, shared leadership is an essential feature of these teams where all team members have a collective responsibility towards the project outcomes (Magpili Smith & Pazos, 2018). In Agile teams, the product owner, not to be confused with a leader, represents the needs and demands of the customer and is responsible for the communication between the customer and the team (Bass, 2015). Agile teams typically follow short development cycles, also known as sprints, consisting of three main meetings: the planning meeting, the refinement meeting and lastly the retrospective meeting (Bass, 2015). Firstly, the sprint planning initiates the sprint cycle by deciding the goal of the sprint, the plan of the sprint and the items that need to be created (Paasivaara & Lassenius, 2009). This meeting is followed by daily stand-up meetings focused on communication, adapting the planning and quick decision-making (Stray et al., 2016). Next, the refinement meeting is held, and the sprint is concluded by the retrospective meeting. In this meeting, the team members answer questions about whether it has been a good sprint and what could be improved (Paasivaara & Lassenius, 2009). These short sprint cycles allow for continuous incremental improvements to adapt quickly to changing customer needs or requirements (Paasivaara & Lassenius, 2009). Hence, the Agile way of working emphasises communication and collaboration among team members, customers and other stakeholders which requires extensive coordination.

2.2 Team Conflict

Since communication and collaboration are pivotal elements in the Agile way of working, managing potential conflicts stemming from team members' conversations also plays a crucial role. Conflict is an inevitable aspect of (Agile) team dynamics (Gren, 2017). If conflicts are not sufficiently managed they can negatively impact team satisfaction and performance (Kozlowski & Ilgen, 2006), which can ultimately affect the organisational deliverables and the achievement of company goals (Serrador & Pinto, 2015). These conflicts can arise due to various reasons such as differences in opinions, perspectives (Jehn, 1997) and diversity (Pelled et al., 1999), especially given the absence of a leader (Rzepka & Bojar, 2020). These conflicts can be split into three different types: task conflicts, relationship conflicts and process conflicts (Jehn, 1997). In short, relationship conflicts focus on interpersonal relationships, task conflicts focus on the objectives and content of the tasks, and process conflicts focus on how said tasks should be carried out (Jehn, 1997). Furthermore, conflict can be categorised based on its duration in macro-, meso-, and micro-conflicts. In the upcoming sections, the different types of conflict are discussed in detail.

2.2.1 Task Conflict

According to Jehn (1995), task conflict exists "when there are disagreements among group members about the content of the tasks being performed, including differences in viewpoints, ideas and opinions" (p. 258). Jehn (1995) initially stated that moderate task conflict positively contributes to individual and group performance. Previous research has indeed stated that task conflict increases critical evaluation, which decreases the negative effects of group thinking (Janis, 1982), helps to identify and understand the issues involved (Putnam, 1994) and boosts creativity (Baron, 1991). However, the nature of the task, whether it is routine or non-routine, may impact the relationship between task conflict and individual and group performance (Jehn, 1995). As a result, task conflict was negatively related to performance in routine-task teams but positively related in the

case of nonroutine-task teams, up until a certain point, beyond which individual and group performance declines. Because, eventually, the high level of conflict would cause team members to become overwhelmed and lose focus on the original goal (Jehn, 1995). Later on, four mediating variables were identified: the norms towards task conflict, the belief that the problems are solvable, the emotionality towards the task and the belief that task conflict itself is important (Jehn, 1997). In short, according to Jehn (1997), high-performing groups should have moderate task conflict, regard them as important, have open norms towards task conflict, believe that conflict is resolvable and have little negative emotionality. Pelled et al. (1999) supported this view, by stating that task conflict has a "positive association with cognitive task performance" (p. 22). Further research recognised that task conflict can indeed have positive outcomes as long as it enhances creativity and benefits from different perspectives (Mannix & Neale 2005).

However, other studies found different results. De Dreu and Weingart (2003) found strong negative correlations between task conflict and team performance, contrary to their expectation of a positive correlation between the two variables. In their analysis task conflict and relationship conflict turned out to be equally disruptive (De Dreu & Weingart, 2003). In a similar fashion, Tekleab et al. (2009), were unable to find a positive relationship between task conflict in team formation and team cohesion later on, eliminating the effect of better team cohesion on team performance. However, Tekleab et al. (2009) found a possible reason for the conflicting research outcomes since task conflict can have a positive effect on performance, only if it does not spill over into relationship conflict. This view is supported by Jehn (1997), who stated that unresolved task conflicts may eventually become relationship conflicts, and Pelled et al. (1999), who argued that task conflicts might be taken personally by team members resulting in emotional or relationship conflict. However, vice versa, relationship conflict can be rooted in task conflict (Jehn, 1997), and emotional or relationship conflict might cause team members to criticise each other's ideas, thereby stimulating task conflict (Pelled et al., 1999). De Dreu and Weingart's findings (2003) further support this idea by stating that "the beneficial effects of task conflict for team effectiveness are more likely to come out when the correlation between task and relationship conflict is low rather than high" (p. 746). So, to benefit from the positive effects of task conflict on team performance, relationship conflict should be minimized (De Dreu & Weingart, 2003).

2.2.2 Relationship Conflict

Compared to task conflict, the research on the impact of relationship conflict on team performance is less contested. According to Jehn (1995), relationship conflict arises "when there are interpersonal incompatibilities among group members, which typically includes tension, animosity, and annoyance among members within a group." (p. 258). Conflicts concerning differences in personal taste, political preferences and personal values are all examples of relationship conflict (De Dreu & Weingart, 2003). In the current research, there is a broad consensus on the negative relationship between relationship conflict and individual and team performance (e.g., De Dreu & Weingart, 2003; Jehn, 1995, 1997; Kozlowski & Ilgen, 2006; O'Neill et al., 2013; Rispens et al., 2011; Tekleab et al., 2009). Possible negative consequences of relationship conflict include a negative impact on team information processing, lesser team satisfaction and team performance (Kozlowski & Ilgen, 2006). Furthermore, it might hurt team effectiveness (De Dreu & Weingart, 2003) and interfere with task performance (Jehn, 1997). On the contrary, when a group experiences lower relationship conflict than usual, the group members are more inclined to exchange information and offer support to each other (Tremblay, 2022). Semerci (2019) support this claim by providing evidence that relationship conflict increases the occurrence of knowledge-hiding behaviour and competitive feelings within a team. In conclusion, the negative effects of relationship conflict on performance are widely agreed upon in the current literature. It is therefore crucial for Agile teams to minimize relationship conflict in order to increase their performance.

2.2.3 Conflict Duration

In addition to categorizing conflict as task conflict and relationship conflict, conflicts can be classified based on their duration. Conflict duration refers to the length of a conflict within a team, which can be split into three different categories based on their length, starting from shortest to longest, namely micro-, meso-, and macro-conflict (Paletz et al., 2011). Micro-conflicts are "fleeting, minute-by-minute disagreements" (Paletz et al., 2011, p. 315). In comparison, macro-conflicts are "long-standing disagreements, lasting (and ebbing and flowing) over at least a couple of days" (Paletz et al., 2011, p. 315), and often regard more elaborate topics which are repeated over and over again (Paletz et al., 2011). A third type, called meso-conflicts, covers the middle ground between the other two types of conflict, by "taking place over hours or several times over the course of a day" (Paletz et al., 2011, p. 315). As stated by Paletz et al. (2011), previous research, which mostly focused on self-reported retrospective data, often ignored the effect of micro-conflicts, which due to the nature of this type of conflict is difficult to be recalled, and therefore often overlooked when reporting one's own behaviour. This further strengthens the need to focus on these conflicts and the call for different research methods, such as video observations, which can capture these micro-conflicts, rather than relying solely on self-reported data.

2.3 Challenges in Virtual Meetings

Virtual meetings and geographically distributed teams have become increasingly prevalent in the Agile working method, especially as a result of the Covid-19 pandemic (Ozkan et al., 2022). An older, but still relevant definition of virtual teams by Townsend et al. (1998) defined virtual teams as "groups of geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task" (p. 17). The two most important aspects of this definition that set virtual teams apart from conventional or face-to-face (F2F) teams, as highlighted by Bell and Kozlowski (2002), are their spatial distance and the type of communication. Virtual teams are geographically distributed, while conventional teams are co-located, and virtual teams use technology as a medium to communicate, while most communication in conventional teams happens face-to-face (Bell & Kozlowski, 2002). Virtual teams can offer several advantages, such as allowing greater flexibility for the individual team members and reducing commuting time (Ozkan et al., 2022), or from the organisation's perspective, facilitating easier access to the most skilled individuals regardless of their location (Bell & Kozlowski, 2002). Virtual meetings, in particular, can increase the efficiency of the meeting, the flexibility of the team and the productivity of each team member, by minimizing the number of interruptions (Ozkan et al., 2022). Furthermore, the meetings often start on time and run more effectively, and the daily stand-up meetings can become more goal-oriented and factual (Ozkan et al., 2022).

However, virtual meetings also present several drawbacks. The absence of face-to-face communication, and thereby the opportunity to experience the social aspect, can trigger feelings of depression and loneliness and lower motivation and team

morale (Ozkan et al., 2022). Apart from the feelings, the communication itself may become slower and more difficult (Ozkan et al., 2022). Even though the productivity of the meeting might increase, the productivity of the individual team members can go down, due to the fewer interactions with others and the lack of work pressure (Ozkan et al., 2022). The amount of communication can decrease as well, especially in the case of spontaneous informal communication, which can lead to more conflicts and less trust (Ozkan et al., 2022). These misunderstandings can be caused by the lack of verbal cues (Ivetic, 2017), which may affect the individual team member's ability to express themselves (Ozkan et al., 2022), understand others and resolve conflict (Kahlow et al., 2020; Korkala & Maurer, 2014). Overall, virtual teams offer unique challenges and opportunities in comparison to face-to-face teams. The lack of non-verbal behaviour and social cues might put more emphasis on verbal behaviour. It is important for virtual teams to manage these challenges and find ways to enhance their verbal communication and increase their productivity by building trust, minimising the number of ineffective conflicts and ensuring the individual team member's well-being (Ozkan et al., 2022; Turesky et al., 2020).

2.4 Verbal Behaviour

As virtual meetings rely more on verbal behaviour than on non-verbal cues, what is being said and how this is said becomes increasingly important, especially when managing conflicts (Ozkan et al., 2022). Since Agile teams work with a shared leadership model, all team members ultimately display leadership behaviour (Magpili Smith & Pazos, 2018). Leadership behaviour has the potential to minimise the number of conflicts and their intensity (Ballesteros-Rodríguez et al., 2019), thereby eliminating their detrimental effects (Kozlowski & Ilgen, 2006). Since the way leaders behave when managing conflict has a significant impact on group performance, it is important to understand the different types of leadership behaviour. Yukl (2012) has summarized the previous research on leadership behaviour in one hierarchical taxonomy, consisting of four meta-categories and fifteen specific components. These four meta-categories are task-oriented, relations-oriented, change-oriented, and external-oriented leadership behaviours. Each category can be defined by its primary objective, although the four categories are not mutually exclusive (Behrendt et al., 2017; Yukl, 2012).

Firstly, the main objective of task-oriented behaviour is task efficiency (Anzengruber et al., 2017), and it encompasses behaviours such as planning, scheduling, clarifying, coordinating and monitoring the progress of these tasks (Yukl, 2012). Disagreements can arise regarding these tasks; thus task conflict can occur (Jehn, 1995). By minimizing task and role ambiguity, effective task-oriented behaviour can prevent task conflict (Ballesteros-Rodríguez et al. 2019). Secondly, relations-oriented behaviour is mainly focused on human capital, i.e., "increasing the quality of human resources and relations" (Yukl, 2012, p. 68). This includes supporting, developing, recognizing, and empowering the employees and their capabilities (Ballesteros-Rodríguez et al. 2019; Yukl, 2012). By supporting and respecting all team members, and thus showing effective relations-oriented behaviour, relationship conflict is less likely to occur (Rispens et al., 2011). Thirdly, increased innovation, collective learning and adapting to the external environment are the main goals for change-oriented leadership behaviour, which can for instance be expressed in behaviours that promote change, encourage innovation, and facilitate collective learning (Yukl, 2012). And lastly, external-oriented behaviour is focused on the external environment and aims to promote, guard, and represent the interests of the team (Yukl, 2012).

Even though all these four types of leadership behaviour are important, there is variation in the impact of each of these dimensions on individual and team-level outcomes. Previous studies found task- and relations-oriented behaviour to have a significant effect on for example team effectiveness, job performance and other performance-related outcomes (e.g., Behrendt et al., 2017; Borgmann et al., 2016; Brown et al., 2021; Mayer et al., 2023; Yukl, 2012). Furthermore, both leadership behaviours are "almost equally important in team effectiveness and […] team productivity" (Burke et al., 2006, p. 303). Moreover, verbal task- and relations-oriented leadership behaviour can reduce the negative consequences of task- and relationship conflict and it can increase knowledge sharing within the team (Ballesteros-Rodríguez et al., 2019). Therefore, effective verbal behaviour, especially in relation to task- and relations-oriented behaviour, can help to prevent and manage conflicts leading to more efficient decision-making and higher performance (Bjarnason et al., 2011). Hence, these are the main behaviours this thesis accounts for.

2.5 Job Performance & Meeting Effectiveness

Poorly managed conflicts, stemming from miscommunications and other forms of verbal behaviour, can have detrimental effects on job satisfaction and job performance (Kozlowski & Ilgen, 2006). According to Pulakos et al. (2000), job performance is "what people do that can be observed and measured in terms of each individual's proficiency or level of contribution" to the task (p. 612). One widely adopted theory regarding individual job performance is the job demands-resources (JD-R) theory, which explains how job performance can be influenced by the resources and demands of the job (Bakker & Demerouti, 2017). According to this model, job demands refer to aspects that require physical and/or mental effort, like workload, emotional demands and time pressure (Bakker & Demerouti, 2017). When job demands are high, they might trigger interpersonal (relationship) conflict (Balducci et al., 2011; Liu et al., 2014), which then, in turn, might negatively impact job performance. Thus, the JD-R model supports the relationship between conflicts, which are considered part of the demands, and their impact on job performance and team effectiveness. The way in which these conflicts are managed as well as their corresponding task- and relations-oriented behaviour, are important factors in minimising the negative effects of conflicts on job performance. However, job resources, such as job autonomy, social support and performance feedback, might decrease this impact by lowering job strain and increasing job motivation, which has a positive correlation with job performance (Bakker & Demerouti, 2017). In this JD-R model, job demands and job resources interact with each other, meaning that high levels of job resources can act as a buffer for the negative consequences of job demands, and conversely, high levels of job demands can diminish the positive effects of job resources on job performance (Bakker & Demerouti, 2017). Moreover, the type of conflicts, the way they are managed, and the task- and relations-oriented leadership behaviour are not the only factors that influence individual job performance, factors such as personality, motivation and employee engagement also affect the performance level (Bakker et al., 2012; Bakker & Demerouti, 2017; Borman & Motowidlo, 1997). Nevertheless, as conflicts are inherent to job demands, managing these demands remains crucial to minimise the negative impact of conflicts on job performance, which can ultimately endanger the achievement of company goals (Serrador & Pinto, 2015).

Additionally, at the team level, these unmanaged conflicts may negatively impact the perceived team meeting effectiveness putting the realisation of the organisational objectives at risk, given that meeting effectiveness can be defined as "the extent to

which meetings help achieve the goals of the meeting attendees (i.e., employees) and the organization" (Allen et al., 2014, p. 1065). The specific practices within meetings can allow meetings to run more smoothly (Rogelberg et al., 2006) and may increase the perceived meeting effectiveness (Leach et al., 2009). These practices such as setting an agenda, meeting minutes and asking for input, are all part of the meeting's design characteristics (Rogelberg et al., 2006), which refer to the "temporal, attendee, physical and procedural natures of the meeting" (Cohen et al., 2011, p.91). The meeting's punctuality, the facility quality and the meeting agenda were positively related to perceived meeting effectiveness (Leach et al., 2009). Based on this previous research, Cohen et al. (2011) categorised eighteen different meeting design characteristics, related to the different dimensions of the meeting. When focused on the physical dimension, i.e. the meeting's setting, a virtual meeting might increase the efficiency of the meeting, yet at the same time, the virtual setting might decrease the perceived meeting effectiveness (Ozkan et al., 2022). Furthermore, the physical design characteristic becomes even more important, since the virtual setting may enhance conflict (Ozkan et al., 2022), which, in turn, can have a negative impact on perceived meeting effectiveness (Geimer et al., 2015). Thus, interpersonal or relationship conflict is of great concern especially when meetings are used to verbally target or punish other team members regardless of the meeting's virtual or in-person setting (Geimer et al., 2015). Therefore, besides paying attention to meeting design characteristics, it is essential for Agile teams to address any conflicts that may undermine the team meeting effectiveness and eventually the accomplishment of organisational goals (Allen et al., 2014).

3. METHODOLOGY

3.1 Research Design

This thesis employed a mixed-method research design by using both quantitative and qualitative measures (Östlund et al., 2011). Individually, each approach can answer specific types of questions, however, when combined, they can provide more detailed and in-depth findings, and thus utilize the benefits of triangulation, in which multiple approaches are used to increase confidence in the findings (Heale & Forbes, 2013). Furthermore, a mixed-method design allows for answering confirmatory questions while also gaining additional insights, thereby facilitating the opportunity for a more comprehensive understanding of the research subject (Lund, 2012). In this thesis, different types of data were utilised, including observed video recordings and surveys, and this data was analysed using multiple mixed methods.

Firstly, to investigate the differences in verbal behaviour in moments of conflict between virtual and in-person meetings, several recorded video meetings were observed. This answers the call for novel methodologies, such as video observations, when examining team conflict to decrease the reliance on self-reported data (Zhao et al., 2019). Secondly, after coding minutely each participant's verbal behaviours, moments of conflict were also identified through the researcher's inductive interpretation (Braun & Clarke, 2006). Furthermore, a frequency count on the number, level and type of conflict was conducted to investigate the expected relationship between the number and type of conflicts and job performance. Moreover, to gain a more comprehensive understanding of specific situations of conflict and their corresponding verbal behaviours, episode analysis was performed on a selection of conflict situations (Jarrett & Liu, 2016). Lastly, survey data was analysed to link the individual team member's verbal behaviour to their job performance as well as team effectiveness. Thus, this thesis employed a mixed-method research design, first utilising qualitative methods to identify moments of conflict, followed by a quantitative approach to determine significant differences and potential correlations, and concluded with a qualitative approach to gain deeper insights into the situations of conflict and their accompanying verbal behaviours.

3.2 Data Collection

The research data was collected at a large Dutch financial service company during an extensive research project carried out by the Organisational Behaviour, Change Management and Consultancy Group (OBCC) at the University of Twente. The data consists of transcribed video recordings of the sprint planning, the refinement meeting and the retrospective meeting during one sprint of multiple Agile teams. Thus, with a few exceptions, each team has been recorded three times for all three meetings. The data includes virtual teams and face-to-face teams and their respective meetings. The survey data was gathered before and after each meeting. The data this thesis utilized was collected and applied on an individual level. All video recordings were coded using a verbal codebook developed by the OBCC group. The codebook consists of multiple mutually exclusive categories, which can be used to categorise verbal behaviour. To avoid possible bias in coding, two individuals coded each meeting independently resulting in two event logs. These event logs were later compared to create a final event log thereby reducing the risk of observer bias.

3.3 Sample

The organisation at which this data was collected has used Agile working methods for over seven years. Throughout this organisation, the multidisciplinary Agile teams consist of various individuals with different levels of knowledge, skills and capabilities, and diverse backgrounds and demographics. The sample size for this thesis included eight Agile teams, with four teams operating in a face-to-face setting and the remaining four operating fully in a virtual setting. Demographic data on these teams was collected through surveys. In total 61 individuals were observed, of which 39 (64%) were male, 13 (21%) were female, and 9 did not disclose gender information. The number of team members ranged from 5 to 11, with an average of 7.6 individuals per Agile team. In total 31 individuals were observed in a face-to-face setting and 30 individuals in a virtual setting. The average age was 38.2 (SD = 9.11) and every individual has at least worked within their team for over two months. Only the retrospective meeting was observed for each of these teams. This choice was made since in the retrospective meeting, the team's successes but also their improvements are discussed (Paasivaara & Lassenius, 2009), which can lead to the identification of problems and disagreements that were not addressed before. Therefore, only the retrospective meetings were observed, thus meaning that the number of observed meetings is equal to the number of teams (N = 8).

To classify virtual teams, the definition by Townsend et al. (1998) was used. So, virtual teams are regarded as groups of individuals who are located in different geographical or organisational settings, and who collaborate using different forms of telecommunications and information technologies (Townsend et al., 1998). Applied to this research, all meetings that were held in a fully virtual setting were considered virtual meetings and teams. In order to compare effective and ineffective virtual and in-person meetings a matrix was developed. This resulted in four distinct groups each consisting of two observed teams. The four categories were Agile team members in effective in-person meetings (hereafter referred to as teams A and B), in ineffective in-person meetings (teams C and D), in effective virtual meetings (teams I and II) and lastly, in ineffective virtual

meetings (teams III and IV). Stratified sampling was used to select the two highest-scoring teams and the two lowest-scoring teams on meeting effectiveness (based on the retrospective meeting) for both in-person and online teams. Table 1 provides an overview of the different teams and their respective meeting effectiveness scores on the retrospective meeting, and an explanation of the scores and the scale can be found in section 3.4.3.

Table 1. Perceived meeting effectiveness scores for each selected team

Team	Meeting Effectiveness	SD	Team	Meeting Effectiveness	SD
Effective in-person			*Effective virtual*		
A	5.8	1.2	I	6.1	0.9
B	5.8	0.8	II	5.8	1.1
Ineffective in-person			*Ineffective virtual*		
C	4.4	1.2	III	4.9	1.0
D	4.8	1.2	IV	5.5	1.1

3.4 Measures

3.4.1 Verbal Behaviour & Conflict

All observed video recordings were coded using the verbal codebook developed by the OBCC based on Yukl's taxonomy of leadership behaviour (2012). The mutually exclusive behavioural categories in this codebook were established through previous research (e.g., Behrendt et al., 2017; DeRue et al., 2011; Yukl; 2012). In order to capture all possible moments of conflict, several verbal behaviours that might indicate moments of conflict were selected. These verbal behaviours were: '*Defending one's own position*', '*Giving negative feedback'*, '*Disagreeing*', and '*Governing/correcting'*. *'Defending one's own position'* includes blaming others for one's own mistakes or prioritising one's own self-interests over that of the team, which might lead to feelings of injustice and, in turn, cause conflicts (Hershcovis et al., 2007). Furthermore, at its essence, conflicts involve disagreements between one or more individuals (Paletz et al., 2011). Thus, '*Disagreeing'* behaviour might trigger potential conflicts. Additionally, negative feedback, especially when it is destructive or hostile, might lead to both task and relationship conflict (Peterson & Behfar, 2003). And lastly, *'Governing/correcting'* involves direct orders (e.g., ordering someone to do X instead of Y), which may be perceived as criticism, possibly leading to conflicts (Paletz et al., 2011).

3.4.2 Type and Level of Conflict

In order to measure the type of conflict (task- and relationship conflict), the definitions by Jehn (1995, see p. 258) were used. These definitions can be found in section 2.2. As for conflict level, the duration of the conflict (or its reoccurrence) determined whether it was a micro-, meso-, or macro-conflict. The definitions from Palletz et al. (2011, p. 315) were used to define the minimum and maximum timeframes of each level of conflict (see section 2.2.3 for the exact definitions).

3.4.3 Perceived Meeting Effectiveness

Perceived meeting effectiveness was measured during the survey at the end of each retrospective meeting. The survey utilised four items, developed by the OBCC at the UT, based on Rogelberg et al. (2006). The following survey items were used: (1) *This past squad meeting was effective*, (2) *This past squad meeting was productive*, (3) *This past squad meeting was worth my time*, and (4) *This past squad meeting was efficient*. All items were assessed based on a seven-point Likert scale ranging from '*Strongly disagree'* to '*Strongly agree'*, with a high internal consistency (α = .904). Based on this data, the teams in the sample were selected and their respective scores can be found in Table 1.

3.4.4 Job Performance

Similarly, perceived job performance was measured during the survey at the end of each retrospective meeting. The survey consisted of four items, which were developed by the OBCC at the UT and based on Gibson et al. (2009). The participants were asked to what extent they agreed or disagreed with the following statements: (1) *I am consistently high performing*, (2) *I am effective*, (3) *I make few mistakes*, and (4) *I do high quality work*. All items were measured based on a seven-point Likert scale ranging from '*Strongly disagree'* to '*Strongly agree'*, with a high internal consistency (α = .860).

3.5 Data Analysis

3.5.1 Thematic Analysis

To analyse this data, this thesis adopted a mixed-method approach. First, inductive thematic analysis was conducted (Braun & Clarke, 2006) to identify the actual moments of conflict guided by the aforementioned behaviours (see section 3.4.1) as indicators (Hsieh & Shannon, 2005). This analysis involved reviewing the video recordings and their corresponding transcripts of all relevant retrospective meetings in which potential situations of conflict were identified. To increase the reliability of this analysis, the data was coded independently by different students and then compared, thereby minimising the risk of observer bias. Furthermore, the analysis was conducted in line with the different phases for thematic analysis proposed by Braun and Clarke (2006). In order to gain a more comprehensive understanding of the context of these potential situations of conflict, all observations started one minute prior to and ended one minute after the potential conflict situation. Upon reviewing all possible moments of conflict, a conflict was identified and marked when there was a clear disagreement, as outlined in Paletz et al.'s (2011, p. 348-349) coding scheme, based on the researcher's inductive interpretation.

3.5.2 Frequency and Comparative Analyses

After all moments of conflict were marked, a content and a frequency analysis were performed to determine the number of conflicts in each sub-category. This was then used to identify differences between both settings (i.e., virtual and non-virtual) and effective and ineffective meetings. Inferential statistics in the form of a comparative t-test were performed to compare the means and differences of the four categories in the matrix. The type of t-test depended on several assumptions, such as normality, sample size and common variance (Rasch et al., 2009). An independent samples t-test was used if normal distribution was assumed, and the variance of the compared groups was equal. If the variance of the compared groups was unequal, a Welch's t-test was used. A nonparametric Mann-Whitney U-test was used if normal distribution could not be assumed. Additionally, a correlation analysis was conducted to explore the relationship between the frequency of individual verbal behaviours in moments of conflict and job performance. The type of correlation coefficient that was used depended on the normality assumption (De Winter et al., 2016). If normal distribution was assumed and both variables were continuous, the Pearson correlation coefficient was used, otherwise, a Spearman's rank correlation coefficient was utilised.

3.5.3 Episode Analysis

Finally, episode analysis was conducted on a selection of conflict situations to gain deeper insights into these specific situations of

conflict and their corresponding verbal behaviours in order to highlight the distinction between effective and ineffective, virtual and in-person teams. An episode is defined as "a significant moment in the team's ongoing activity […] as occasions of heavy engagement, salient interaction dynamics and strategically important decisions" (Jarrett & Liu, 2016, p. 370). The analysis focused on both the video recordings and the transcripts of these meetings, to fully capture all aspects of the interactions during these moments of conflict.

4. RESULTS

In this section, the findings of the study are presented, starting with the results from the thematic analysis, followed by an overview of the outcomes of the frequency analysis, the results of the statistical calculations and correlation analyses, and concluded with the episode analysis.

4.1 Qualitative Interpretation of Moments of Conflict

Through thematic analysis, the actual moments of conflict were identified based on the predefined trigger behaviours. These behaviours that might indicate a situation of conflict were observed 451 times throughout all retrospective meetings of all teams. The number of observed trigger behaviours for in-person and virtual teams can be found in Table 2 in Appendix 10.1. All video observations were already coded, except for team IV. Following the coding process, the subsequent intercoder reliability analysis resulted in a Cohen's Kappa of 0.29. Afterwards, the differences were discussed and all disagreements could be solved, resulting in one final event log with a 100% agreement.

After reviewing all possible situations of conflict, 38 sets of behaviours were classified as actual conflicts based on the researcher's inductive interpretation. To increase the reliability, the classified moments of conflicts for the in-person teams were cross-checked with another student, resulting in an inter-rater reliability of 78.9% (Lange, 2018). Based on this outcome, sufficient expertise and confidence in the results were reached to assess the potential conflict situations in virtual teams without the need for further comparisons.

While reviewing these conflict situations, it became apparent that the vast majority of conflicts (> 89.5%) had a timespan of several minutes instead of spanning several hours, days or weeks. As a result, almost all conflicts were classified as micro-conflicts regardless of the team type or team meeting effectiveness level. Since it became irrelevant to classify and report the conflicts based on their duration, a new code was inductively generated to be able to make a distinction in the impact of the conflict on the meeting in the shape of the following code:

1. *'Resolved'*
2. *'Resolved with no clear conclusion'*
3. *'Unresolved'*

This new code classifies conflicts based on if and how they are resolved. The code distinguishes conflicts as 'resolved', 'resolved with no clear conclusion' and 'unresolved'. 'Resolved', for conflicts in which a mutual agreement is reached and is verbally expressed by all participants involved in the conflict. In the category 'Resolved with no clear conclusion', the conflicts are also resolved, and mutual agreement is reached, however, this agreement is not verbally expressed by the parties involved. Lastly, in conflicts categorised as 'Unresolved' no mutual agreement is reached during and after the conflict situation. This can occur, for instance, when team members change the subject or decide to postpone the discussion of the topic of the conflict to a later moment in time.

4.2 Frequency of Conflict and Resolution

Tables 3a-c below present detailed information on how often each type of conflict occurred both in absolute numbers as well as relative to all other conflicts within the same team type. The final row in each table, labelled *'Total'*, shows the percentage representing the frequency of each specific conflict type in relative comparison to all conflicts across all team classifications. Since the frequency of conflicts varies between the different teams, using only absolute frequencies would result in an insufficient overview of the conflict situations in all teams. By using relative frequencies expressed as percentages of the total number of conflicts within each team category, it allows for a clear comparison of conflict occurrence across all different types of teams.

Firstly, task conflicts were more prevalent in all meetings than relationship conflicts, with task conflicts accounting for 84.2% of all conflict situations, while relationship conflicts only occurred in 15.8% of all conflict situations, as can be seen in Table 3a-c. Both effective and ineffective meetings experienced the same number of task conflicts. Relationship conflicts, on the other hand, were only present in ineffective meetings, while effective meetings experienced no relationship conflict at all. Similarly, the number of task conflicts in in-person and virtual meetings is equal as well. However, this time, the relationship conflicts were distributed equally among the two team settings. When comparing the total number of conflicts, it is noteworthy that effective teams experienced fewer conflicts than ineffective teams (respectively 16 and 22). However, when comparing in-person and virtual teams, both teams experienced the exact same number of conflicts, distributed equally among both types of teams.

Table 3a. Number and type of conflicts per quadrant

Team	Task Conflict		Relationship Conflict		Total	
	N	%	N	%	N	%
Effective in-person	10	100.0%	0	0.0%	10	100%
Ineffective in-person	6	66.7%	3	33.3%	9	100%
Effective virtual	6	100.0%	0	0.0%	6	100%
Ineffective virtual	10	76.9%	3	23.1%	13	100%
Total	32	84.2%	6	15.8%	38	100%

Table 3b. Number and type of conflicts in effective and ineffective meetings

Meeting	Task Conflict		Relationship Conflict		Total	
	N	%	N	%	N	%
Effective meetings	16	100.0%	0	0.0%	16	100%
Ineffective meetings	16	72.7%	6	27.3%	22	100%
Total	32	84.2%	6	15.8%	38	100%

Table 3c. Number and type of conflicts in in-person and virtual meetings

Meeting	Task Conflict		Relationship Conflict		Total	
	N	%	N	%	N	%
In-person meetings	16	84.2%	3	15.8%	19	100%
Virtual meetings	16	84.2%	3	15.8%	19	100%
Total	32	84.2%	6	15.8%	38	100%

Another notable distinction is the status of conflict resolution among the different teams. As can be seen in Table 4a-c in Appendix 10.2, the majority of conflicts were resolved. However, in virtual teams, a large proportion of all conflicts remained unresolved (42.1% > 10.5%), whereas in in-person teams resolving conflicts with no clear conclusion was more common (31.6% > 15.8%). A similar pattern emerged in effective and ineffective meetings, with teams with effective meetings more frequently resolving conflicts with no clear conclusion (31.3% > 18.2%), while in ineffective meetings more conflicts remained unresolved (31.8% > 18.8%). Even though almost all conflicts were of micro-duration, the absolute length of the conflicts differed. Ineffective in-person teams experienced the longest conflicts, lasting an average of 3.04 minutes, whereas the average conflict in effective virtual teams only lasted for 1.18 minutes. These longer conflicts were also associated with a higher number of trigger behaviours, with ineffective in-person teams exhibiting an average of 4.25 trigger behaviours per conflict, while effective virtual teams, on the other hand, had an average of 1.4 trigger behaviours per conflict.

4.3 Exploratory Quantitative Statistics

Initially, the number of conflicts within the meetings was likely not to be normally distributed. However, after applying a log transformation, the Shapiro-Wilk normality test and the F-test for equal variance did not reject the null hypothesis, suggesting that the data was likely to be normally distributed and have equal variances, i.e. the assumptions for the independent two-sample t-test were met. Therefore, a two-sample t-test was conducted to examine the differences in the total number of conflicts between in-person and virtual teams and between effective and ineffective meetings. When comparing the face-to-face and virtual teams, the t-test indicated no differences ($p = 1$), which is consistent with the observation that both team types have an equal number of conflicts. In effective and ineffective meetings there was an observed difference in the total number of conflicts (respectively 16 and 22), however, according to the performed t-test, this was not likely to be significant ($p = 0.288$).

Furthermore, the Shapiro-Wilk normality test indicated that the number of trigger behaviours displayed by an individual was likely not to be normally distributed ($p < 0.001$), despite the sample size ($N = 61$) exceeding 30 (Kwak & Kim, 2017). Therefore, it was deemed appropriate to utilise Spearman's rank correlation instead of Pearson's correlation coefficient, considering the non-normal distribution of the data. After conducting a Spearman's rank correlation analysis on the frequency of trigger behaviours per individual in classified conflict situations and their individual job performance score, no significant correlation has been found ($p = 0.645$). Similarly, on the team level, there was no significant correlation between the number of conflicts within a specific team meeting and its meeting effectiveness score when using Spearman's rank correlation ($p = 0.908$).

4.4 Conflict Episodes

To highlight the differences between effective and ineffective, in-person and virtual teams, two conflict episodes were selected and analysed.

4.4.1 Conflict Team D

The first episode involves an 8-minute-long conflict in ineffective in-person Team D. This conflict stood out because of its prolonged duration and its highly emotional nature. Additionally, it was one of the few macro-conflicts observed in all retrospective meetings. The conflict initially revolves around a specific task and the communication issues surrounding it but eventually transforms into a relationship conflict. Given its duration and the reoccurrence of the conflict throughout the meeting, a qualitative description was deemed more suitable, with additional relevant excerpts of the transcripts provided in Appendix 10.3.

The conflict primarily focuses on two participants, Follower 1 (the product owner) and Follower 5. Follower 1 expresses the need for clear communication by giving negative feedback while referring to past problems that occurred due to insufficient communication. F1 and F5 then start a discussion about whether F5 had spoken with another person. This part, illustrated by Excerpt 1, is focused on past issues and fails to contribute to finding a solution. The conflict then shifts back to team communication and dealing with impediments, before focusing on the attendance of certain team members at previous stand-up meetings. The conflict escalates with the tone of voice becoming increasingly negative, shifting the focus from task-related to personal-related matters, as highlighted by Excerpt 2. Eventually, F7 intervenes and tries to steer the discussion towards a solution. Ultimately the conflict is temporarily resolved as a team member decides to postpone the discussion to another meeting. This conflict sheds light on how ineffective teams often tend to dwell on the past instead of focusing on a solution. Furthermore, 21 trigger behaviours were observed during this conflict, of which 9 were displayed by the product owner, who continuously reinforced the conflict. Out of these 21 trigger behaviours, 71.4% of the time the behaviour of defending one's own position was observed, which can signal a relationship conflict (Hoogeboom et al., 2021), which was especially prominent in the later stages of the conflict.

4.4.2 Conflict Team I

The second episode focuses on a task conflict within effective virtual Team I. The conflict mostly revolves around Follower 1 (the product owner), 3 and 7 as they discuss which meeting should be used for team updates. The excerpt in Appendix 10.4 provides the complete transcript of the conflict situation. Unlike the ineffective in-person conflict of Team D, the effective virtual conflict of Team I only consists of a few instances of a single trigger behaviour, namely disagreeing, all expressed in a friendly and almost passive manner. Although the product owner still plays a substantial role in the conflict, they do not escalate it; instead, they summarise the opinions of others and guide the team to a solution. In contrast to the previous conflict in Team D where the product owner predominantly displayed negative task- and relations-oriented leadership behaviours, the product owner in Team I demonstrated higher levels of positive task- and relations-oriented leadership behaviours by providing positive feedback and enabling collaboration. Notably, the conflict ends with a clear expressed conclusion by all team members. The product owner, Follower 1, ensures that all team members can voice their opinion, partially overcoming the restrictions of the online environment. This conflict is a good representation of the typical development of conflicts in effective teams in contrast to ineffective teams, by showcasing how the team addresses the

conflict differently, focusing on the future rather than the past, and expressing their opinion in a professional and less emotional manner. Moreover, it demonstrates the manner of conflict resolution at the end of a conflict situation, which is typical for virtual teams.

5. DISCUSSION

5.1 Theoretical Implications

This thesis investigated the behavioural differences in situations of conflict between Agile in-person and virtual teams and their potential influence on individual job performance and team meeting effectiveness.

5.1.1 Conflict Frequency and Type

The first notable finding is the prevalence of task conflicts over relationship conflicts. This indicates that Agile teams primarily encounter conflicts related to tasks, objectives and different viewpoints rather than interpersonal relationships. Task conflicts, more than relationship conflicts, have been recognised as potentially beneficial to team performance and effectiveness (Mannix & Neale, 2005). Interestingly, the comparison of conflict frequency between effective and ineffective meetings revealed no significant differences, in contrast to previous research (Karn & Cowling, 2008). This seems to suggest that the mere presence of a conflict does not solely determine the team meeting's effectiveness, as conflicts are a part of establishing team dynamics (Gren & Lenberg, 2018). A potential reason for the absence of differences in the conflict frequency is that along with the overall conflict frequency, the *nature* and the *type* of conflict might also be important determinants of team meeting effectiveness. Indeed, when considering relationship conflicts, it is noteworthy that only ineffective teams experienced this particular type of conflict. Therefore, it seems that relationship conflicts are substantially more deleterious to team meeting effectiveness than task conflicts. This aligns with the widely accepted idea that relationship conflicts have a detrimental effect on team performance (e.g., De Dreu & Weingart, 2003; Jehn, 1995, 1997; Kozlowski & Ilgen, 2006; O'Neill et al., 2013; Rispens et al., 2011; Tekleab et al., 2009). Furthermore, in line with Tekleab et al. (2009), task conflict can spill over into relationship conflict, thereby negatively impacting team meeting effectiveness, as observed twice exclusively in ineffective teams. These findings, combined with the absence of a significant correlation between conflict frequency and team meeting effectiveness, seem to suggest that the conflict type and how teams manage and leverage the positive effects of conflicts might be more influential indicators of team meeting effectiveness than solely the actual number of conflicts.

Moreover, the comparison between the virtual and in-person settings revealed that both team settings experienced the exact same frequency and type of conflicts. In contrast to previous research (Kahlow et al., 2020; Ozkan et al., 2022), the virtual setting did not result in a higher number of conflicts. While in both settings conflicts were often caused by disagreements on project status, problem-solving approaches and task organisation, in virtual teams specifically, in accordance with previous literature (Kahlow et al., 2020; Ozkan et al, 2022), miscommunication indeed emerged as one of the root causes of conflict. One potential reason for the extensive miscommunication might be the lack of verbal cues, following prior research (Ivetic, 2017). However, another possible cause may be the less interactive online environment, making it more difficult to concentrate and listen to each other (Fauville et al., 2023). Instead, team members were more focused on the repetitive reiteration of individual perspectives while misunderstanding the perspectives of others, highlighting the previously identified challenges of the virtual setting (Ozkan et al., 2022).

5.1.2 Conflict Resolution

Low-performing teams tend to resolve their conflicts less often compared to high-performing teams, consistent with prior research (Gren, 2017). One possible reason might be the different ways in which the teams handle their conflicts. Low-performing teams often dwell on the past and what went wrong, sometimes even blaming others for it, instead of focusing on how to solve the conflict. In contrast, high-performing teams prioritise conflict resolution and employ future-oriented strategies to prevent similar issues from arising again, and therefore only shortly introduce the problem and its history and then quickly move on to their proposed solution. These variances in conflict resolution techniques contribute to previously identified differences in patterns of conflict resolution between effective and ineffective teams (Behfar et al., 2008). Similarly, virtual teams had a lower percentual conflict resolution than face-to-face teams, in line with previous research (Chiravuri et al., 2011; Ozkan et al., 2022), possibly due to the lack of verbal cues and increased likelihood of miscommunication (Ozkan et al., 2022). However, when resolving conflicts, the virtual teams demonstrated a higher tendency to express explicit agreement, while in in-person teams no clear conflict conclusion was more common. This might be attributed to the effort of virtual teams to overcome the previously identified communication barriers in the online environment (Ozkan et al., 2022), by asking for individual agreement from each participant and ensuring everyone could express their perspective. Whereas due to the absence of communication barriers in the face-to-face setting, teams seemed to assume that if a team member disagreed, they would voice their opinion immediately. This possibly explains why virtual teams more often expressed a clear conclusion in conflict resolution in comparison to in-person teams, which is consistent with previous research that the online environment can increase the productivity of the meeting (Ozkan et al., 2022).

5.1.3 Product Owner & Verbal Behaviour

Yukl's (2012) verbal leadership behaviours of providing negative (task) feedback, correcting, and disagreeing on (task-related) matters were often observed to trigger task conflicts, whereas the behaviour of defending one's own position frequently triggered relationship conflicts, aligning with previous literature on negative task- and relations-oriented leadership behaviour (Hoogeboom et al., 2021). Prior research suggests that verbal task- and relationship-oriented leadership behaviour can play an important role in minimising the number of conflicts and their potential negative impact on the team and individual job performance (Ballesteros-Rodríguez et al., 2019; Rzepka & Bojar, 2020). While the product owner is not explicitly a leader, based on the shared leadership principle in Agile teams, they still exhibit verbal leadership behaviours and have their own leadership style (Magpili Smith & Pazos, 2018). Notably, across all teams, the product owner was consistently involved in the highest number of conflicts and often exhibited more verbal behaviours compared to other team members, suggesting that the product owner has an impact on conflict occurrence, in accordance with previous literature (Ballesteros-Rodríguez et al., 2019). However, the product owner did often not display the most trigger behaviours in situations of conflict, possibly implying that their role may be more of a moderator role, playing a prominent part in the development of conflicts. Since there was no significant correlation between the frequency of trigger behaviours and individual job performance scores, in contrast to previous literature (Hoogeboom et al., 2021), the mere presence of trigger behaviours might not negatively impact job performance. Hence, participating in conflicts does not

automatically equate to negative outcomes, it may even indicate active participation and engagement in the team process.

In conclusion, the findings suggest that while the different verbal behaviours have a role in the occurrence and progression of conflicts, the presence of conflicts alone does not necessarily negatively impact team meeting effectiveness and job performance. Instead, it is the duration, nature and process of the conflicts that seem to influence the potential positive or negative impact on the team. Hence, conflicts should not automatically be viewed as indicators of ineffective teams, as they are a natural part of establishing team relations (Gren & Lenberg, 2018; Jovanovic et al., 2016). However, how the team handles conflicts seems to be crucial in determining their impact, especially considering the unique challenges and opportunities of the face-to-face and virtual settings.

5.2 Practical Implications

As for practical implications, Agile and HR managers as well as training personnel can benefit from informing and training their employees on how to perceive, approach and solve conflicts. By teaching the team members how to identify and effectively address conflicts with a strong focus on conflict resolution, organisations and their leaders can leverage the potential benefits of conflicts, while minimising their negative impact on team meeting effectiveness and job performance. Furthermore, while the number of conflicts in both virtual and in-person meetings was quite similar, the root cause of the conflict situations differed. Therefore, (Agile) HR managers could tailor conflict management approaches specifically to the virtual setting, by providing training and workshops, emphasising effective communication of team members' own opinions as well as truly listening to and understanding the opinions of others, even if the other team member has a completely different communication style. These workshops should also emphasise the potential role of the product owner in the conflict and how various positive or negative verbal behaviours can either enhance or minimise the conflict situation.

Hence, by proactively addressing conflicts through conflict resolution and communication training, and fostering a safe and creative workplace, both in the virtual and face-to-face setting, Agile organisations can improve the management of conflicts and potentially enhance collaboration, effectiveness and performance within their teams.

6. LIMITATIONS AND FUTURE RESEARCH

Despite its strengths, as with all research, this research also encountered some limitations that should be noted. First of all, all data were collected exclusively from a single financial service organisation based in the Netherlands. This can lead to possible biases due to firm-specific factors and dynamics and it might limit the generalisability of the findings beyond this specific setting. Therefore, future research should aim to include several teams from multiple companies in different sectors and countries to mitigate the effects of this possible bias. Furthermore, because of the Covid-19 Pandemic, the data collection process became increasingly difficult, resulting in a relatively small sample of eight meetings. However, by also comparing the team members' verbal behaviour on the individual level a larger sample size could be reached, with 61 observed individuals and a total of 451 observations of the trigger behaviours. Still, caution should be exercised when interpreting the results of the quantitative analysis. Further research could conduct this research on a larger scale and utilise a larger sample size. Additionally, the teams involved in this study participated on a voluntary basis, which could lead to intrinsic biases in the data collection since it is plausible that only relatively high-performing teams would want to participate in an observational study, potentially skewing the results and limiting the generalisability. Thus, it is recommended for future research to also include possible low-performing teams in their data set to ensure a more comprehensive and representative overview of teams across all different performance levels. Moreover, this research fully focused on the potential conflicts in retrospective meetings. In these meetings, the achievements of the team as well as their areas of improvement are discussed (Paasivaara & Lassenius, 2009), potentially leading to the identification of problems and disagreements possibly resulting in conflict situations. However, it is recommended for future research to look into additional meetings within the sprint as well, to identify novel situations of conflict and examine possible variations in the nature of conflicts across these meetings. Lastly, the inductive interpretation of conflicts allowed for a more nuanced and flexible understanding of these situations, however, it also introduces a certain degree of subjectivity. Even though there has been cross-validation of the results of the conflict identification and classification, certain discrepancies still persisted. While a relatively high agreement could be reached (78.9%), initially there were some differences which in the end could not all be resolved. During the comparison process, it was noted that most differences in the classification were focused on task and process conflict. This might indicate that task and process conflict are not mutually exclusive, which further reinforces the decision of excluding process conflict in this thesis. Therefore, future research could investigate the relationship between task and process conflict to gain a better understanding of their interplay and potential overlap.

As one last suggestion for future research, another area worth exploring is the role of the product owner in conflict situations. As noted in the discussion section, product owners often displayed more verbal behaviours than others within the team, therefore taking on a leading and guiding role in the meeting. Future research could potentially examine the influence and strength of these verbal behaviours in the occurrence, development and resolution of conflicts.

7. CONCLUSION

This thesis explored the differences in verbal behaviours associated with task and relationship conflict between effective and ineffective Agile teams in the in-person and online setting, as well as their potential impact on team meeting effectiveness and individual job performance. The findings revealed several distinctions. Firstly, task conflicts were more common than relationship conflicts, however, all relationship conflicts were exclusively experienced in ineffective teams. Virtual and in-person teams, on the other hand, experienced the same number and type of conflicts. Furthermore, virtual teams were less likely to resolve their conflicts in comparison to in-person teams, but when resolved, virtual teams more often expressed a clear conclusion. Therefore, it seemed that effective and ineffective, and online and in-person teams handle their conflicts differently, generating different impacts on team meeting effectiveness and individual performance. Hence, organisations and their leaders should adapt their conflict management training to these different settings, emphasising communication and encouraging teams to focus on finding solutions, in order to leverage the benefits of conflicts on the team's performance.

8. ACKNOWLEDGEMENTS

Firstly, I would like to thank Lara Carminati and Pauline Weritz for their incredible support and helpful feedback during the process of writing this thesis. I would also like to thank Aninka Spekle for her support in the coding process. Finally, I would like to thank my fellow students in the thesis circle for their support.

9. REFERENCES

Ågerfalk, P. J., & Fitzgerald, B. (2006). Flexible and Distributed Software Processes: Old Petunias in New Bowls? *Communications of the ACM, 49(10),* 26-34. https://doi.org/10.1145/1164394.1164416

Allen, J. A., Lehmann-Willenbrock, N. K., & Landowski, N. (2014). Linking Pre-meeting Communication to Meeting Effectiveness. *Journal of Managerial Psychology, 29(8),* 1064-1081. https://doi.org/10.1108/JMP-09-2012-0265

Anzengruber J., Goetz, M. A., Nold, H., & Woefle, M. (2017). Effectiveness of managerial capabilities at different hierarchical levels. *Journal of Managerial Psychology, 32(2),* 134-148. https://doi.org/10.1108/JMP-12-2015-0451

Bäcklander, G. (2019). Doing complexity leadership theory: How agile coaches at Spotify practise enabling leadership. *Creativity and Innovation Management, 28(1),* 42-60. https://doi.org/10.1111/caim.12303

Bakker, A. B., & Demerouti, E. (2017). Job Demands-Resources Theory: Taking Stock and Looking Forward. *Journal of Occupational Health Psychology, 22(3),* 273-285. https://doi.org/10.1037/ocp0000056

Bakker, A. B., Tims, M., & Derks, D. (2012). Proactive personality and job performance: The role of job crafting and work engagement. *Human Relations, 65(10),* 1359-1378. https://doi.org/10.1177/0018726712453471

Balducci, C., Fraccaroli, F., & Schaufeli, W. B. (2011). Workplace bullying and its relation with work characteristics, personality, and post-traumatic stress symptoms: An integrated model. *Anxiety, Stress and Coping, 24(5),* 499-513. https://doi.org/10.1080/10615806.2011.555533

Ballesteros-Rodríguez, J. L., Díaz-Díaz, N. L., Aguiar-Díaz, I., & De Saá-Pérez, P. (2019). The Role of Leadership in the Management of Conflict and Knowledge Sharing in the Research Groups of a Spanish Public University. *Public Organization Review, 20,* 421-436. https://doi.org/10.1007/s11115-019-00451-7

Baron, A. R. (1991). Positive effects of conflict: A cognitive perspective. *Employee Responsibilities and Rights Journal, 4,* 25-36. https://doi.org/10.1007/BF01390436

Bass, J. M. (2015). How product owner teams scale agile methods to large distributed enterprises. *Empirical Software Engineering, 20(6),* 1525-1557. https://doi.org/10.1007/s10664-014-9322-z

Bauhoff, S. (2014). *Self-Report Bias in Estimating Cross-Sectional and Treatment Effects.* In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 5798-5800). Springer, Dordrecht.

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J., & Thomas, D. (2001). The Agile Manifesto. https://agilemanifesto.org/

Behfar, K. J., Peterson, R. S., Mannix, E. A., & Trochim, W. M. K. (2008). The Critical Role of Conflict Resolution in Teams: A Close Look at the Links Between Conflict Type, Conflict Management, and Team Outcomes. *Journal of Applied Psychology, 93(1),* 170-188. https://doi.org/10.1037/0021-9010.93.1.170

Behrendt P., Matz, S., & Göritz, A. S. (2017). An integrative model of leadership behaviour. *The Leadership Quarterly, 28(1),* 229-244. https://doi.org/10.1016/j.leaqua.2016.08.002

Bell, B. S., & Kozlowski, S. W. J. (2002). A Typology of Virtual Teams: Implications for Effective Leadership. *Group & Organization Management, 27(1),* 14-49. https://doi.org/10.1177/1059601102027001003

Berez, S., & Jayaram, G. (2022, August 12). John Deere Takes an Agile Approach to an ERP Upgrade. Industry Week. https://www.industryweek.com/technology-and-iiot/article/21248597/john-deere-takes-an-agile-approach-to-an-erp-upgrade

Bernardo Junior, R., & de Padua, S. I. D. (2023). Toward agile Business Process Management: Description of the concepts and a proposed definition. *Knowledge and Process Management, 30(1),* 14-32. https://doi.org/10.1002/kpm.1737

Bjarnason, E., Wnuk, K., & Regnell B. (2011). A case study on benefits and side-effects of agile practices in large-scale requirements engineering. *Proceedings of the 1st Workshop on Agile Requirements Engineering (AREW '11), 3,* 1-5. https://doi.org/10.1145/2068783.2068786

Borgmann, L., Rowold, J., Bormann, K. C. (2016). Integrating leadership research: a meta-analytical test of Yukl's meta-categories of leadership. *Personnel Review, 45(6),* 1340-1366. https://doi.org/10.1108/PR-07-2014-0145

Borman, W. C., & Motowidlo S. J. (1997). Task Performance and Contextual Performance: The Meaning for Personnel Selection Research. *Human Performance, 10(2),* 99-109. https://doi.org/10.1207/s15327043hup1002_3

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3(2),* 77-101. https://doi.org/10.1191/1478088706qp063oa

Brown, S. G., Hill, N. S., & Lorinkova, N. M. (2021). Leadership and virtual team performance: A meta-analytic investigation. *European Journal of Work and Organizational Psychology, 30(5),* 619-623. https://doi.org/https://doi.org/10.1080/1359432X.2021.1914719

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly, 17(3),* 288-307. https://doi.org/10.1016/j.leaqua.2006.02.007

Chiravuri, A., Nazareth, D. L., & Ramamurthy, K. (2011). Cognitive Conflict and Consensus Generation in Virtual Teams During Knowledge Capture: Comparative Effectiveness of Techniques. *Journal of Management Information Systems, 28(1),* 311-350. https://doi.org/10.2753/MIS0742-1222280110

Cohen, M. A., Rogelberg, S. G., Allen, J. A., & Luong, A. (2011). Meeting Design Characteristics and Attendee Perceptions of Staff/Team Meeting Quality. *Group*

Dynamics: Theory, Research, and Practice, 15(1), 90-104. https://doi.org/10.1037/a0021549

Conboy, K. (2009). Agility From First Principles: Reconstructing the Concept of Agility in Information Systems Development. *Information Systems Research, 20(3),* 329-354. https://doi.org/10.1287/isre.1090.0236

De Dreu, C. K. W., & Weingart, L. R. (2003). Task Versus Relationship Conflict, Team Performance, and Team Member Satisfaction: A Meta-Analysis. *Journal of Applied Psychology, 88(4),* 741-749. https://doi.org/10.1037/0021-9010.88.4.741

DeRue, D. S., Nahrgang, J. D., Wellman, N., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: an integration and meta-analytic test of their relative validity. *Personnel Psychology, 64(1),* 7-52. https://doi.org/10.1111/j.1744-6570.2010.01201.x

De Winter, J. C. F., Gosling, S. D., & Potter, J. (2016). Comparing the Pearson and Spearman correlation coefficients across distributions and sample sizes: A tutorial using simulations and empirical data. *Psychological Methods, 21(3),* 273-290. https://doi.org/10.137/met0000079

Dikert, K., Paasivaara, M., & Lassenius, C. (2016). Challenge and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software, 119,* 87-108. https://doi.org/10.1016/j.jss.2016.06.013

Dooms, K., & Kylmäkoski, R. (2005). Comprehensive Documentation Made Agile – Experiments with RaPiD7 in Philips. In F. Bomarius, S. Komi-Sirviö (Eds.), *Lecture Notes in Computer Science: Vol 3547*. Heidelberg, Germany: Springer. https://doi.org/10.1007/11497455_19

Drury-Grogan, M. L. (2014). Performance on agile teams: Relating iteration objectives and critical decisions to project management success factors. *Information and Software Technology, 56(5),* 506-515. https://doi.org/10.1016/j.infsof.2013.11.003

Dybå, T., & Dingsyør, T. (2008). Empirical studies of agile software development: A systematic review. *Information and Software Technology, 50(9-10),* 833-859. https://doi.org/10.1016/j.infsof.2008.01.006.

Fauville, G., Luo, M., Queiroz, A. C., Lee, A., Bailenson, J. N., & Hancock, J. (2023). Video-conferencing usage dynamics and nonverbal mechanisms exacerbate Zoom Fatigue, particularly for women. *Computers in Human Behavior Reports, 10(1).* https://doi.org/10.1016/j.chbr.2023.100271

Geimer, J. L., Leach, D. J., DeSimone, J. A., Rogelberg, S. G., & Warr, P. B. (2015). Meetings at work: Perceived effectiveness and recommended improvements. *Journal of Business Research, 68,* 2015-2026. https://doi.org/10.1016/j.jbusres.2015.02.015

Gerster, D., Dremel, C., & Brenner, W. (2020). How Enterprises Adopt Agile Forms of Organizational Design: A Multiple-Case Study. *Data Base for Advances in Information Systems, 51(1),* 84-103. https://doi.org/10.1145/3380799.3380807

Gibson, C. B., Cooper, C. D., & Conger, J. A. (2009). Do you see what we see? The complex effects of perceptual distance between leaders and teams. *Journal of Applied Psychology, 94(1),* 62-76. https://doi.org/10.1037/a0013073

Gioia, D. A., Corley, K. G., & Hamilton, A, L. (2012). Seeking Qualitative Rigor in Inductive Research: Notes on Gioia Methodology. *Organizational Research Methods, 16(1),* 15-31. https://doi.org/10.1177/1094428112452151

Gren, L. (2017). The Links between Agile Practices, Interpersonal Conflict, and Perceived Productivity. *In Proceedings of the 21st International Conference on Evaluation and Assessment in Software Engineering (EASE '17)* (pp.292-297). New York, USA: Association for Computing Machinery. https://doi.org/10.1145/3084226.3084269

Gren, L., & Lenberg, P. (2018). The importance of conflict resolution techniques in autonomous agile teams. *Proceedings of ACM International Conference Series 19th International Conference on Agile Software Development, XP 2018 Porto, 19,* 1-4. https://doi.org/10.1145/3234152.3234185

Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence-Based Nursing, 16(4)* https://doi.org/10.1136/eb-2013-101494

Hershcovis, S., Turner, N., Barling, J., Arnold, K., Dupré, K. E., Inness, M., LeBlanc, M. M., & Sivanathan N. (2007). Predicting workplace aggression: A meta-analysis. *Journal of Applied Psychology, 92(1),* 228-238. https://doi.org/10.1037/0021-9010.92.1.228

Hoogeboom, M. A. M. G., Saeed, A., Noordzij, M. L., & Wilderom, C. P. M. (2021). Physiological arousal variability accompanying relations-oriented behaviors of effective leaders: Triangulating skin conductance, video-based behavior coding and perceived effectiveness. *The Leadership Quarterly, 32(6).* https://doi.org/10.1016/j.leaqua.2020.101493

Hsieh, H. F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research, 15(9),* 1277-1288. https://doi.org/10.1177/1049732305276687

Ivetic, P. (2017). Holding the House of Cards Together: Possible Pitfalls with Self-organizing Teams in Organizations. *Econophysics, Sociophysics & Other Multidisciplinary Sciences Journal (ESMSJ), 8(2),* 51-57.

Janis, I. L. (1982). *Groupthink* (2nd ed.). Houghton Mifflin.

Jarrett, M., & Liu, F. (2016). "Zooming With": A Participatory Approach to the Use of Video Ethnography in Organizational Studies. *Organizational Research Methods, 21(2),* 366-385. https://doi.org/10.1177/1094428116656238

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

Jehn, K. A. (1997). A Qualitative Analysis of Conflict Types and Dimensions in Organizational Groups. *Administrative Science Quarterly, 42(3),* 530-557. https://doi.org/10.2307/2393737

Jovanovic, M., Mesquida, A. L., Radakovic, N., & Mas, A. (2016). Agile retrospective games for different team development phases. *Journal of Universal Computer*

Science, 22(12), 1489-1508. https://doi.org/10.3217/jucs-022-12-1489

Kahlow J., Klecka, H., & Ruppel, E. (2020). What the differences between online and face-to-face work groups mean for hybrid groups: A state-of-the-art review. *Review of Communication Research, 8,* 51-77.

Karn, J. S. & Cowling, A. J. (2008). Measuring the effect of conflict on software engineering teams. *Behavior Research Methods, 40(2),* 582-589. https://doi.org/10.3758/BRM.40.2.582

Korkala, M., & Maurer, F. (2014). Waste identification as the means for improving communication in globally distributed agile software development. *Journal of Systems and Software, 95,* 122-140. https://doi.org/10.1016/j.jss.2014.03.080

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the Effectiveness of Work Groups and Teams. *Psychological Science in the Public Interest, 7(3),* 77-124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Kwak, S. G., & Kim, J. H. (2017). Central limit theorem: the cornerstone of modern statistics. *Korean Journal of Anesthesiology, 70(2),* 144-156. https://doi.org/10.4097/kjae.2017.70.2.144

Lange, R. T. (2018*). Inter-rater Reliability.* In J.S. Kreutzer, J. DeLuca, B. Caplan (Ed.), *Encyclopedia of Clinical Neuropsychology* (pp. 1348). Springer, Cham.

Leach, D. J., Rogelberg, S. G., Warr, P. B., & Burnfield, J. L. (2009). Perceived meeting effectiveness: The role of design characteristics. *Journal of Business and Psychology, 24,* 65-76. https://doi.org/10.1007/s10869-009-9092-6

Lensges, M. L., Kloppenborg, T. J., & Forte, F. (2018). Identifying Key Agile Behaviors That Enhance Traditional Project Management Methodology. *Journal of Strategic Innovation and Sustainability*, *13*(2). https://doi.org/10.33423/jsis.v13i2.604

Lindsjørn, Y., Sjøberg, D. I. K., Dingsøyr, T., Bergersen, G. R., & Dybå, T. (2016). Teamwork quality and project success in software development: A survey of agile development teams. *Journal of Systems and Software, 122,* 274-286. https://doi.org/10.1016/j.jss.2016.09.028

Liu, Y., Wang, M., Chang, C. H., Shi, J., Zhou, L., & Shao, R. (2014). Work-Family Conflict, Emotional Exhaustion, and Displaced Aggression Toward Others: The Moderating Roles of Workplace Interpersonal Conflict and Perceived Managerial Family Support. *Journal of Applied Psychology, 100(3)*. https://doi.org/10.1037/a0038387

Lucas, R. E., & Baird, B. M. (2006). *Global self-assessment.* In M. Eid & E. Diener (Ed.), *Handbook of multimethod measurement in psychology* (pp. 29-42). American Psychological Association.

Lund, T. (2012). Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. *Scandinavian Journal of Educational Research, 56(2),* 155-165. https://doi.org/10.1080/00313831.2011.568674

Magpili Smith, N. C., & Pazos, P. (2018). Self-Managing Team Performance: A Systematic Review of Multilevel Input Factors. *Small Group Research, 49(1),* 3-33. https://doi.org/10.1177/1046496417710500

Mahadevan, D. (2017). ING's agile transformation. *McKinsey Quarterly*. https://www.mckinsey.com/industries/financial-services/our-insights/ings-agile-transformation#/

Mannix, E., & Neale, M. A. (2005). What Differences Make a Difference?: The Promise and Reality of Diverse Teams in Organizations. Psychological Science in the Public Interest, 6(2), 31-55. https://doi.org/10.1111/j.1529-1006.2005.00022.x

Mayer, C., Sivatheerthan, T., Mütze-Niewöhner, S., & Nitsch, V. (2023). Sharing leadership behaviors in virtual teams: effects of shared leadership behaviors on team member satisfaction and productivity. *Team Performance Management, 29(1/2),* 90-112. https://doi.org/10.1108/TPM-07-2022-0054

Moe, N. B., Dingsyør, T., Dybå, T. (2009). Overcoming Barriers to Self-Management in Software Teams. *IEEE Software, 26(6),* 20-26. https://doi.org/10.1109/MS.2009.182

Monsalves, D., Cornide-Reyes, H., & Riquelme, F. (2023). Relationships Between Social Interactions and Belbin Role Types in Collaborative Agile Teams. *IEEE Access, 11,* 17002-17020. https://doi.org/10.1109/ACCESS.2023.3245325

Nerur, S., Mahapatra, R., & Mangalaraj, G. (2005). Challenges of migrating to agile methodologies. *Communications of the ACM, 48(5),* 720-78. https://doi.org/10.1145/1060710.1060712

O'Neill, T. A., Allen, N. J., & Hastings, S. E. (2013). Examining the "Pros" and "Cons" of Team Conflict: A Team-Level Meta-Analysis of Task, Relationship, and Process Conflict. *Human Performance, 26(3),* 236-260. https://doi.org/ 10.1080/08959285.2013.795573

Östlund, U., Kidd, L., Wengström, Y., & Rowa-Dewar, N. (2011). Combining qualitative and quantitative research with mixed method research designs: A methodological review. *International Journal of Nursing Studies, 48(3),* 369-383. https://doi.org/10.1016/j.ijnurstu.2010.10.005

Ozkan, N., Erdil, O., & Gök, M. S. (2022). Agile Teams Working from Home During the Covid-19 Pandemic: A Literature Review on New Advantages and Challenges. In: A. Przybyłek, A. Jarzębowicz, L. Luković (Eds.), *Lean and agile software development. LASD 2022. Lecture Notes in Business Information Processing: Vol 438* (pp. 38-60). Springer. https://doi.org/10.1007/978-3-030-94238-0_3

Paasivaara, M., & Lassenius, C. (2009). Using Scrum in Distributed Agile Development: A Multiple Case Study. *Proceedings of the 4th IEEE International Conference on Global Software Engineering, ICGSE 2009,* 195-204. https://doi.org/10.1109/ICGSE.2009.27

Paletz, S. B. F., Schunn, C. D., & Kim, K. H. (2011). Intragroup Conflict Under the Microscope: Micro-Conflicts in Naturalistic Team Discussions. *Negotiation and Conflict Management Research, 4(4),* 277-380. https://doi.org/10.1111/j.1750-4716.2011.00085.x

Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the Black Box: An Analysis of Work Group Diversity, Conflict and Performance. *Administrative Science Quarterly, 44(1),* 1-28. https://doi.org/10.2307/2667029

Peterson, R. S., & Behfar, K. J. (2003). The dynamic relationship between performance feedback, trust, and conflict in groups: A longitudinal study. *Organizational Behavior and Human Decision Processes, 92(1/2),* 102-112. https://doi.org/10.1016/S0749-5978(03)00090-6

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon K. E. (2000). Adaptability in the Workplace: Development of a Taxonomy of Adaptive Performance. *Journal of Applied Psychology, 83(4),* 612-624. https://doi.org/10.1037//0021-9010.85.4.612

Putnam, L. L. (1994). Productive Conflict: Negotiation as Implicit Coordination. *International Journal of Conflict Management, 5(3),* 285-299. https://doi.org/10.1108/eb022748

Rasch, D. Kubinger, K. D., & Moder, K. (2011). The two-sample t-test: pre-testing its assumptions does not pay off. *Statistical Papers, 52,* 219-231. https://doi.org/10.1007/s00362-009-0224-x

Rispens, S., Greer, L., Jehn, K. A., & Thatcher, S. M. B. (2011). Not So Bad After All: How Relational Closeness Buffers the Association Between Relationship Conflict and Helpful and Deviant Group Behaviors. *Negotiation and Conflict Management Research, 4(4),* 277-296. https://doi.org/10.1111/j.1750-4716.2011.00083.x

Rogelberg, S. G., Leach, D. J., Warr, P. B., & Burnfield, J. L. (2006). "Not another meeting!" Are meeting time demands related to employee well-being? *Journal of Applied Psychology, 91(1),* 83. https://doi.org/10.1037/0021-9010.91.1.83

Rzepka, A., & Bojar, E. (2020). Leadership as One of the Factors Shaping the Development of an Agile Organization. *Review of Integrative Business & Economics Research, 9(3),* 383-391.

Semerci, A. B. (2019). Examination of knowledge hiding with conflict, competition and personal values. *International Journal of Conflict Management, 30(1),* 111-131. https://doi.org/10.1108/IJCMA-03-2018-0044

Serrador, P., & Pinto, J. L. (2015). Does Agile work? – A quantitative analysis of agile project success. *International Journal of Project Management, 33(5),* 1040-1051. https://doi.org/10.1016/j.ijproman.2015.01.006

Smite, D., Moe, N. B., Levinta, G., & Floryan, M. (2019). Spotify Guilds: How to Succeed With Knowledge Sharing in Large-Scale Agile Organizations. *IEEE Software, 36(2),* 51-57. https://doi.org/10.1109/MS.2018.2886178

Stray, V., Sjøberg, D. I. K., & Dybå, T. (2016). The daily stand-up meeting: A grounded theory study. *Journal of Systems and Software, 114,* 101-124. https://doi.org/10.1016/j.jss.2016.01.004

Tekleab, A. G., Quigley, N. R., & Tesluk, P. E. (2009). A Longitudinal Study of Team Conflict, Conflict Management, Cohesion, and Team Effectiveness. *Group & Organization Management, 34(2),* 170-205. https://doi.org/0.1177/1059601108331218

Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual teams: Technology and the workplace of the future. *Academy of Management Executive, 12(3),* 17-29. https://doi.org/10.5465/ame.1998.1109047

Tremblay, M. (2022). Intragroup conflict dynamics and their linkages with horizontal power disparity configurations, upper management conflicts and coworker support. *International Journal of Conflict Management, 34(2),* 339-366. https://doi.org/10.1108/IJCMA-04-2022-0078

Turesky, E. F., Smith, C. D., & Turesky, T. K. (2020). A call to action for virtual team leaders: practitioner perspectives on trust, conflict and the need for organizational support. *Organizational Management Journal, 17(4/5),* 185-206. https://doi.org/10.1108/OMJ-09-2019-0798

Vecchiato, R. (2015). Strategic planning and organizational flexibility in turbulent environments. *Foresight, 17(3),* 257-273. https://doi.org/10.1108/FS-05-2014-0032

Yukl, G. (2012). Effective Leadership Behaviour: What We Know and What Questions Need More Attention. *Academy of Management Perspectives, 26(4),* 66-85. https://doi.org/10.5465/amp.2012.0088

Zhao, E., Thatcher, S. M. B., & Jehn, K. (2019). Instigating, Engaging in, and Managing Group Conflict: A Review of Literature Addressing the Critical Role of the Leader in Group Conflict. *Academy of Management Annals, 13(1).* https://doi.org/10.5465/annals.2016.0153

Zia A., Arshad, W., & Mahmood, W. (2018). Preference in using Agile development with larger team size. *International Journal of Advanced Computer Science and Applications, 9(7),* 116-123. https://doi.org/10.14569/IJACSA.2018.090716

10. APPENDIX

10.1 Observed Trigger Behaviours

The table below describes the absolute and relative frequency of the observed trigger behaviours in in-person and virtual teams. The relative frequency of each behaviour is in comparison to the total number of observed trigger behaviours within that particular team category.

Table 2. Observed trigger behaviours in virtual and in-person teams

Team	**'Defending one's own position'**		**'Giving negative feedback'**		**'Disagreeing'**		**'Governing/correcting'**		**Total**
	N	%	N	%	N	%	N	%	N
In-person	108	58.1%	30	16.1%	37	19.9%	11	5.9%	186
Virtual	47	17.7%	96	36.2%	87	32.8%	35	13.2%	265
Total	155	34.4%	126	27.9%	124	27.5%	46	10.2%	451

10.2 Conflict Resolution

The tables below show the absolute and relative frequency of the status of the conflict resolution for all quadrants, for effective and ineffective meetings, and in-person and virtual teams (respectively Table 4a, Table 4b, and Table 4c). The relative frequency is in comparison to the total number of conflicts within the specific team classification.

Table 4a. Status of conflict resolution per quadrant

Team	**Resolved**		**Resolved with no clear conclusion**		**Unresolved**		**Total**	
	N	%	N	%	N	%	N	%
Effective in-person	6	60.0%	4	40.0%	0	0.0%	10	100%
Ineffective in-person	5	55.6%	2	22.2%	2	22.2%	9	100%
Effective virtual	2	33.3%	1	16.7%	3	50.0%	6	100%
Ineffective virtual	6	46.2%	2	15.4%	5	38.5%	13	100%
Total	19	50.0%	9	23.7%	10	26.3%	38	100%

Table 4b. Status of conflict resolution in effective and ineffective meetings

Team	**Resolved**		**Resolved with no clear conclusion**		**Unresolved**		**Total**	
	N	%	N	%	N	%	N	%
Effective meetings	8	50.0%	5	31.3%	3	18.8%	16	100.0%
Ineffective meetings	11	50.0%	4	18.2%	7	31.8%	22	100.0%
Total	19	50.0%	9	23.7%	10	26.3%	38	100.0%

Table 4c. Status of conflict resolution in in-person and virtual meetings

Team	**Resolved**		**Resolved with no clear conclusion**		**Unresolved**		**Total**	
	N	%	N	%	N	%	N	%
In-person meetings	11	57.9%	6	31.6%	2	10.5%	19	100.0%
Virtual meetings	8	42.1%	3	15.8%	8	42.1%	19	100.0%
Total	19	50.0%	9	23.7%	10	26.3%	38	100.0%

10.3 Episode Conflict D-2

The following two excerpts from the transcript of ineffective in-person Team D illustrate the qualitative description of the conflict as described in section 4.4 of the results. Excerpt 1 highlights the team's tendency to focus on the past instead of on a solution, and excerpt 2 shows how the task conflict escalated into a relationship conflict. It should be noted that the tone of voice and the accompanying non-verbal cues became increasingly negative throughout this conflict.

Excerpt 1

F5: I think we start <should be defined>, if we don't know what to do <>.

F1: nee but I ask you to go to [name] to get an understanding of what needed to be done. So you could have refined it.

F5: We need to do that now

F1: but I asked-

F5: to do that

F1: to have that done before this sprint.

F5: so you create this story, you should <get it done>

F1: no not always, because you agreed that you would go to [name] to see what needed to be done.

F5: <>

F1: but that was already done before I took it in the sprint.

F5: <> because I don't really have the <>

F1: but that is a different problem, right?

F5: no, this is like <> this sprint <>. So I tried to help him for <>. So now I have that, so which system <> I don't know, I don't have the <>-

F1: ok, I – I get that, but then this approach and this story hè that it should've-. Actually what we should have done there is when you notice like when you say a – actually I don't have access to the system then basically we should've created a different story, put this one on this backlog. Say like hé what do we need to do to get access to that system so that you can actually look at it. Then you could've created another story for like hé let's – let's define it and we will see what the issue is and so hè that's done.

F5: but what-

F1: that's not always what I mean.

Excerpt 2

F5: <> I talked about this in the the stand-up but you missed it. That was stand up <> and you were not there and we did another one when I was not there and when I came back into <> the stand-up, the second stand-up. But would be the third because of the <>.

F1: pff ok.

F5: so if you don't know about this <> was blocked. You are not in this <>

F1: ok, so now were are going to also be very nitty gritty-

F5: no

F1: if certain people are not in the stand-up, but I don't – I don't

F5: <>

F1: know what is going on and why you are so being so frustrated.

F5: <> work with him, I just did this.

F1: I know

Furthermore, Table 5 presents the frequency of the trigger behaviours during conflict D-2 as highlighted in the episode analysis.

Table 5. Observed trigger behaviours in conflict D-2

Follower	**'Defending one's own position'**		**'Giving negative feedback'**		**'Disagreeing'**		**'Governing/correcting'**		**Total**
	N	%	N	%	N	%	N	%	N
F1	7	77.8%	1	11.1%	0	0.0%	1	11.1%	9
F5	8	80.0%	0	0.0%	2	20.0%	0	0.0%	2
F7	0	0.0%	0	0.0%	0	0.0%	2	100.0%	10
Total	15	71.4%	1	4.8%	2	9.5%	3	14.3%	21

10.4 Episode Conflict I-4

The transcript of the retrospective meeting of effective virtual Team I during conflict situation I-4 is shown in excerpt 1 below.

Excerpt 1

F1: Yeah, so with the idea than to plan maybe, eh, **fifteen minutes longer standup in one day of the week**? To do that?

F3: Yeah that's-

F7: Or – yeah that's also fine, **or we can make use of the demo time**, eh, instead of really giving the demo or apart – maybe with [name] and [name] I don't mind but if – if they leave after that before retro. We take, eh, eh, a small gap of fifteen minutes, twenty minutes what's happening, where we are, what's the direction and this is what we are doing. Not a story by story but as a whole where we are and where we are heading to and of course the stories are all part of it.

F3: Yeah.

F1: Yeah that is—

F3: But if we, yeah, sorry. Go ahead.

F1: I wanted to say, um, in the scrum methodology **typically that is also addressed in the sprint planning**. And but – yeah also in the sprint planning we are separated.

F3: Hmm.

F1: So than indeed **we should reserve fifteen minutes per sprint** to indeed provide updates to each other. Also with – about the direction on the various areas. That's a good idea, I like it.

F3: Yeah, but, eh**, maybe not towards the end of the sprint**? So **[Follower 7] not maybe, as part of the demo but maybe in the middle or beginning** so that the ideas can also be shared and it can be done differently than we do it.

F7: Yeah. I don't mind if weekly once or per sprint but this is something, yeah will help everyone.

F3: Soon after the planning, I mean maybe, um, **one day after the planning or**?

F1: Yeah, I would – I would do it **at the start of the planning**.

F3: Okay.

F1: So maybe, because then we are going to plan for the next sprint, it's also the most logical moment give a heads up to everybody okay this is where we stand and this is what is ahead of us. And then we can plan separate, eh, the stories for the – the various subjects. Yeah in – in smaller groups, but then at least we have a joined view on all the subjects and where we stand.

F3: Hmm.

F1: That would be my proposal, er, happy to also listen from [Follower 8], [Follower 6], [Follower 2], what's your opinion, [Follower 5]?

F5: No I agree I like – I like it do it at the beginning yep.

F6: Yeah I agree too.

F8: Me too