Arousal levels in moments of conflict: An exploratory study of individual's negative verbal behavior in the context of multi- and mono-cultural agile teams

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ABSTRACT,

In today's global economy, organizations increasingly rely on an international and multicultural staff to succeed. However, these cross-cultural collaborations can bring new unique obstacles within multicultural teams compared to monocultural teams. While some scholars suggested that multicultural teams improve employees' quality of work and increase productivity, others noted that they may experience more intra-team conflicts. This thesis looked at four Dutch and five multicultural teams at a large Dutch institution that implements an agile way of working. This thesis explored how conflict episodes, defined according to their duration (i.e., macro, meso, and micro level) and typology (i.e., relation, task and process conflict), are associated with team members' skin conductance responses (SCRs), and how these conflicts may vary between multicultural and monocultural teams. The teams were observed during regular planning, refinement, and retrospective meetings. During these meetings, conflict episodes have been minutely analyzed using a video observation method and are identified by relations-oriented behavior and task-oriented behavior: *defending own position, providing negative feedback, correcting*, and *disagreeing.* The SCRs of each team member was measured using electrodermal measurement devices and has been linked to the specific behavior using event-related electrodermal activity analysis. Findings showed that overall conflict was observed most frequently in multicultural teams. Additionally, cultural teams exhibited more relationship and process conflict, while fewer task conflicts than monocultural teams. Furthermore, the mean SCRs before, after, and all combined were not significantly different in the respective teams. Yet, the mean SCRs during a conflict was significantly different in the monocultural and multicultural teams. Additionally, monocultural teams experienced a higher frequency of SCRs after a conflict, while multicultural teams experienced a higher frequency of SCRs before a conflict. This thesis has thus offered novel insights into an under-researched area of studies exploring the relationship between arousal levels and conflicts in multi- and monocultural agile teams.

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Keywords

Agile management, Multicultural teams, Meeting video-observations, Verbal behavior, Conflict episodes, Electrodermal activity

1. INTRODUCTION

Over the last decade, the agile way of working has arisen in response to the increasing complexity of the globalized world (Annosi, Martini, Brunetta, and Marchegiani, 2020). As a result, it has developed into a massive global trend reshaping workplaces (McMackin and Heffernan, 2020). Agile was initially designed for software creation and was primarily an IT phenomenon. However, due to its popularity, it has now been used in non-IT projects and organizations (Serrador and Pinto, 2015). Furthermore, agile within organizations has become even more popular due to the COVID-19 pandemic that has changed the market world and created an unfamiliar landscape, crafting new business challenges (Al-Omoush, Simón-Moya, and Sendra-García, 2020).

The agile way of working is iterative, collaborative, and well-suited to reacting to change (Hahn and te Brömmelstroet, 2021). Agile projects are broken down into sprints, i.e., short, time-boxed periods, usually with a fixed length of a couple of weeks, within which teams work to complete a specific project and that focus on developing solution elements that can be tested with customers (McMackin and Heffernan, 2020). Each sprint consists of a planning, refinement, retrospective functional, daily stand-up, and demo meetings (Geir Kjetil Hanssen, Tor Stålhane, and Thor Myklebust, 2018). In agile organizations, employees are typically assigned to multidisciplinary and self-managing teams.

Given today's globalized business world, these teams are becoming more and more multicultural, which may bring new unique obstacles with regards to collaboration, compared to monocultural teams (Behfar, Kern, and Brett, 2006). According to Crowder and Friess (2015), cultural differences between members are one aspect that must be considered within agile teams, since they may remarkably influence meeting dynamics. Indeed, in cross-cultural interactions, conflicts may become more frequent and prominent due to misunderstanding and miscommunication. In the literature, conflict is defined as the "perceived difference, discrepancy or incompatibility in desires, interests, beliefs or values between individuals" (Zhao, Thatcher, and Jehn, 2019, p. 3). Conflict is distinguished into three subtypes depending on its duration, namely micro-, meso-, and macro-conflict (Paletz, Schunn, and Kim, 2011).

These moments of conflict are often triggered by verbal behaviors that may threaten people's faces, given that they involve delivering criticisms (Spencer-Oatey and Xing, 2008). Indeed, 'negative' verbal behaviors such as negative relations-oriented leader behavior (e.g., *defending own position*) and task-oriented leader behavior (e.g., *providing negative feedback*) can cause conflicts and weaken social interactions.

When encountering threats during social interactions, higher levels of physiological arousal can be observed (Hoogeboom and Wilderom, 2021; Van Prooijen, Ellemers, Van der Lee, and Scheepers, 2018). According to Hoogeboom et al. (2021), electrodermal activity (EDA) uses skin conductance as a parameter to measure physical arousal. Phasic and tonic parameters are used to derive data on skin conductance responses (SCRs), also known as the "number of peaks" in physical arousal levels during "certain periods of time" (Hoogeboom et al., 2021). For example, during moments of negative relation-oriented and task-oriented leader behavior, EDA may capture variations in eccrine sweat glands in response to sweat secretion in the skin and thus, measure increased physical arousal levels.

Hence, the way individuals visually or verbally react to others' behaviors may differ and show discrepancies from how they physiologically react (Hoogeboom, Saeed, Noordzij, and Wilderom, 2021). However, little is still known about such discrepancy, especially regarding the association between perceived moments of conflict and arousal level variations in agile team members.

1.1 Research objective and question

Therefore, this research aims to examine the relationship between perceived moments of conflicts, as experienced by individual agile team members and prompted by specific verbal behaviors, and team members' skin conductance responses (SCRs) through EDA measurement devices. More specifically, this thesis explores how moments of conflict, their duration (i.e., macro, meso and micro level) and their typology (i.e., relation, task and process conflict), can be associated with skin conductance responses (SCRs), and whether they can vary among multicultural and monocultural teams. To achieve these objectives, the following research question was developed:

How do (micro) conflicts in the context of multi- and monocultural agile squads relate to arousal levels of squad members before, during, and after those episodes?

Thus, this thesis contributes to the Organizational Behavior and team dynamics literature by observing and analyzing the way monocultural and multicultural agile teams act and interact in moments of conflict. More specifically: firstly, it sheds light on conflicts as experienced by self-managing teams that follow a shared leadership model and should be less prone to conflict (Zhao, Thatcher, and Jehn,2019). Secondly, by focusing on arousal data, this thesis implements the triangulation of brand-new methods like video observations and physiological measures to examine more objectively moments of conflict. Thirdly, this thesis explores how multicultural agile teams may respond similarly or differently in terms of their physiological activity compared to monocultural agile teams. This can further illuminate the consequences of having team members from diverse nationalities since cultural clashes can occur subconsciously and thus better be explored through arousal levels (Tröster, Mehra, and Van Knippenberg, 2014).

1.2 Outline of this report

The next section of this report includes the literature review. Afterward, the methodology is presented, followed by the result section and the discussion, in which the research question is answered. Finally, this study's theoretical and practical implications, strengths and limitations, and future recommendations close this thesis.

2. LITERATURE REVIEW

This section expands on the literature regarding agile team dynamics, the (dis-) advantages of cultural diversity within agile teams, and the role of intra-team conflict. These conflicts, identified by looking at negative relations-oriented and task-oriented verbal behaviors, are then addressed through electrodermal activity and skin conductance response as a high

tech, proper measurement of stimuli to explore physiological reactions.

2.1 AGILE TEAMS

Self-managing teams are a relatively recent form of a team that is becoming increasingly common in modern organizations (Dianzhi, Tiejun, Wenjun, and Xin, 2013). A self-managing team is a work design defined as "a relatively whole task; members who each possess a variety of skills relevant to the group task; workers' discretion over such decisions as methods of work, task schedules, and assignment of members to different tasks; and compensation and feedback about performance for the group as a whole" (Cummings, 1978, p. 625). Agile teams are self-organizing and cross-functional, which means that their members present all the skills necessary to deliver a product sprint. Working agile helps an organization to adapt more promptly to the changing environment (Crowder and Friess, 2015). The main advantages of self-managing teams are their flexibility to adjust their structure to various situations, tasks, and conditions (Langfred, 2007) and improve employees' quality of work and increase productivity (Dianzhi et al., 2013). Each team member is called a developer regardless of the work completed. The team performs all sprint development functions such as planning, refinements, and retrospectives. Each sprint starts with a planning meeting, in which the team will determine a list of prioritized features of the sprint (Annosi, Magnusson, Martini, and Appio, 2016). During this meeting, the user story, defined as "a short description of some functionality; its goal, its expected results, how it can be demonstrated" (Geir Kjetil Hanssen, Tor Stålhane, and Thor Myklebust, 2018, p. 13), is broken down into tasks to which resources are assigned. According to Geir et al. (2018), the refinement meeting assesses the sprint outcome from the product owner's point of view. While some items will be completed during the sprint, others might need further refinement in the next one. The retrospective meeting occurs between sprints to evaluate the development process and identify necessary improvement actions. The team is asked to review what worked and did not work during the sprint (Crowder and Friess, 2015). Sharing emotions is one key value of the retrospective (Przybilla, Wiesche, and Krcmar, 2019).

The agile teams work on tasks that are divided into sub-tasks, and since there are no strong leaders in agile teams, each member can choose the sub-task that fits best with their ability (Li and Zhou, 2012). Agile teams tend to be characterized by shared leadership (van Dooren, de Vries, and Janssen, 2012) which is defined as the "distribution of leadership functions among multiple team members" (Engel Small and Rentsch, 2010, p. 203). There is no official manager or leader who oversees the team; instead, the manager takes on the role of a squad facilitator who assists the team in running smoothly (Crowder and Friess, 2015). As a result of this approach, all agile team members are required to act in ways that a team leader would generally do.

2.2 BEHAVIOR IN TEAMS

Since agile teams are characterized by shared leadership, it is useful to understand how agile team members act among each other in terms of their behavior. This thesis analyses the verbal behavior of the agile team members to identify conflict episodes. Verbal behavior is defined as "interaction [between individuals] in an organizational setting" (van Dun, Hicks, and Wilderom, 2017 p. 175), and can be divided into three meta-categories: task-oriented, relations-oriented, and change-oriented behavior (Yukl et al., 2002). Verbal behaviors occur during social interactions with other team members, and task-oriented and relations-oriented leader activities are perceived as critical leadership roles (Hoogeboom and Wilderom, 2019). Task-oriented behaviors are defined as behaviors that "promote the accomplishment of work tasks or mutual objectives in an efficient manner (Hoogeboom and Wilderom, 2019, p. 8; Yukl, 2012; Yukl, Gordon and Taber, 2002).

Task-oriented behavior aims to increase the effectiveness and consistency of team tasks (Genugten, 2020). Task-oriented leader behaviors could respond to task behaviors of followers that the leader does not want to see, in which a leader could engage in corrective action or negative feedback type of behavior (Hoogeboom and Wilderom, 2019; Bass and Avolio, 1995; Sommer, Howell, and Noonan-Hadley, 2016). Furthermore, dissension about task elements may lead to team members disagreeing about task directions or accomplishments (Hoogeboom and Wilderom, 2019, p. 10). Providing negative feedback, correcting, and disagreeing are labeled as task-oriented leader behavior. Negative feedback is defined as "addressing discrepancies in team members' performance-goal accomplishment""" (Hoogeboom et al., 2021, p. 8), while correcting can be defined as "imposing disciplinary action; presenting team members with a "fait accompli"" (Hoogeboom et al., 2021, p. 8), and lastly, disagreeing is defined as "contradicting team members" (Hoogeboom et al., 2021, p. 8). On the contrary, relationship-oriented behaviors depict actions that "show concern for followers' needs, behaving respectfully towards them, providing support, and showing appreciation (Hoogeboom and Wilderom, 2019, p. 9; Bass and Bass, 2008; Keyton and Beck, 2009). Relationship-oriented behavior helps to ensure that team members are dedicated to their duties, are trusting in their abilities, and are willing to work together (Genugten, 2020). However, negative relationship-oriented behavior that reflects anti-social behavior that does not enhance performance may also be observed within teams (Genugten, 2020; Dalal 2005). Defending one's own position is labeled as a negative relations-oriented leader behavior (Genugten, 2020). Defending one's own position can be defined as "emphasizing self-importance" (Hoogeboom et al., 2021, p. 8). Table 1 reports the task- and relationship-oriented behaviors considered in this thesis.

Table 1. Taxonomies of negative relations-oriented behavior and task-oriented behavior component and the verbal categories selected for this thesis

Hoogeboom and Wilderom (2019)	
Behaviour component	**Verbal categories**
Task-oriented	Providing negative feedback
Task-oriented	Correcting
Task-oriented	Disagreeing
Negative relations-oriented	Defending own position

When these four mutually exclusive verbal behaviors occur, they can cause tensions and conflicts between team members due to their face-threatening nature. Additionally, individual cultural differences in communication can add to the complexity of intra-team operations needed to achieve optimal performance. Thus, cultural variations between team members in agile teams are one aspect that must be considered since cultural differences may inevitably surface during the long hours of teamwork during a sprint (Crowder and Fries, 2015).

2.3 CULTURAL DIVERSITY IN TEAMS

Over the years, cultural diversity in teams has become more frequent due to increased globalization (Nam, Lyons, Hwang, and Kim, 2009). Teams can be made up of individuals with different national backgrounds and cultures, who may speak different languages, and have been raised in countries with other value systems. Culture is defined as "a unique combination of

rituals, religious beliefs, ways of thinking, and ways of behaving that unify a group of people" (Nam, Lyons, Hwang, and Kim, 2009, p. 772). A multicultural group is defined as a "collection of individuals with different cultural backgrounds, who are independent in their tasks, [and] who share responsibility for outcomes […]" (Tirmizi, 2008, p. 5). Using this definition, monocultural groups can be defined as a collection of individuals without a different cultural background who are independent in their tasks and share responsibility for outcomes.

Research by Stahl and Maznevski (2021) showed that increased diversity in general benefits teams by increasing their creativity, learning, and synergy. More specifically, having a diverse range of cultures within a team can benefit the team in terms of a greater collective knowledge and skills (Homroy and Soo, 2020; Lazear 1999). Diversity may have its advantages, but it also introduces problems. Individuals working in culturally diverse teams may identify less with their work unit because they may struggle to identify with a group that does not share similar characteristics (Luijters, van der Zee, and Otten, 2008). Hence, diverse teams may also experience workflow disadvantages, such as increased tensions and decreased cooperation and social inclusion. In particular, self-managing teams are more prone to fail if a conflict occurs, as the conflict must be resolved by the team members themselves as no official leader exists (van Dooren, de Vries, and Janssen, 2012). Additionally, multiple researchers have linked cultural diversity within a team to the frequency of conflict incurring (e.g., Behfar et al., 2006; Paletz et al., 2018).

2.4 INTRA-TEAM CONFLICT

Conflict can take place between members due to differences in cultures (Dianzhi, Tiejun, Wenjun, and Xin, 2013). Conflict is characterized as a perceived disparity, inconsistency, or incompatibility between individuals' preferences, interests, convictions, or values (Zhao, Thatcher, and Jehn, 2019). Consequently, intrateam conflict is a dispute at the team level caused by actual or perceived incompatibilities or disagreements among members (Shah, Peterson, Jones, and Ferguson, 2020). Indeed, one team member can initiate or elicit confrontation with other group members, meaning that one individuals' actions and behavior can cause team conflict (Shah, Peterson, Jones, and Ferguson, 2020). The study performed by Shah et al. (2020) discovered that individual team members might be conflict instigators, responders to the instigator(s), or neutral observers. According to the literature, there are three types of team conflict: relationship conflict, task conflict, and process conflict (Dianzhi, Tiejun, Wenjun, and Xin, 2013). These types of conflicts are essential to a team's successful functioning and are strongly positively correlated with cultural diversity (Stahl and Maznevski, 2021).

2.3.1 Task Conflict

Task conflict is defined as "perceived disagreement among team members regarding issues of a specific task the team is working on" (Dianzhi, Tiejun, Wenjun, and Xin, 2013, p. 2). Task conflict is less damaging to one's personal identity, requires less strong negative feelings, and encourages team members to seek out the best judgments and decisions possible (De Dreu and Van Vianen, 2001, p. 313). According to Dianzhi, Tiejun, Wenjun, and Xin (2013), the level of task conflict are significantly higher than relationship conflict and process conflict in self-managing teams. Additionally, Tröster et al. (2014) researched that individuals working in multicultural teams may have different ideas about arranging their tasks because culture (e.g., language, values) affects the manner and preferences in how individuals like to organize themselves for a work task. This is explained by the social categorization theory, stating that "people tend to categorize each other into in-group and out-group members on the basis of salient characters, such as nationality" (Tröster et al., 2014, p. 248). Therefore, task conflict is more likely to occur in multicultural teams than monocultural teams because in-group members are treated more favorably than out-group members. This will likely cause more uncertainty and conflict in terms of how to organize a task successfully.

2.3.2 *Relationship Conflict*

Relationship conflict is defined as "perceived disagreement among team members regarding issues not related to tasks or goals" (Jehn and Bendersky; Dianzhi, Tiejun, Wenjun, and Xin, 2013, p. 1), and energy and time is probably devoted to "discussing, resolving, or ignoring the conflict instead of working on the tasks" (Dianzhi, Tiejun, Wenjun, and Xin, 2013, p. 2; Jehn and Bendersky;). Relationship conflicts exist when group members experience interpersonal incompatibilities that often include differences in personality, opinion, or preferences in relation to non-task issues (Jehn and Bendersky, 2003). More culturally diverse teams may also find it more challenging to establish and maintain interpersonal contact and collaboration. According to the similarity-attraction theory, an individual is drawn to one-alike (Tröster, Mehra, and van Knippenberg, 2014). A substantial amount of cross-cultural literature indicates that individuals in different cultures usually prefer their own group and are unfavorably inclined towards individuals of a different culture (Levine & Campbell, 1972; Osbeck, Moghaddam, and Perreault, 1997). A multicultural team can expect to face more relationship conflicts, thus experience more difficulty in establishing and maintaining interpersonal connection and cooperation (Tröster et al., 2014), because people like to socialize with others they think are like them (Varela, Cater, and Michel, 2011).

2.3.3 Process Conflict

Process conflict is defined as "perceived disagreement among team members regarding issues of means or methods by which team goals would be obtained" (Dianzhi, Tiejun, Wenjun, and Xin, 2013, p. 2). Research has shown that the more culturally diverse a team is, the more likely its participants would disagree over how to organize their workflow (Tröster, Mehra, and Van Knippenberg, 2014).

2.3.4 Conflict Duration

To examine these three types of intra-team conflict, a further distinction has been made in terms of the time duration of such moments of conflict, so that it is possible to distinguish between micro-, meso-, and macro-conflict. Micro-conflicts are defined as "fleeting minute-by-minute disagreements" (Paletz, Schunn, and Kim, 2011, p. 315), and are, thus, short-term behaviors rather than long-term ones. Micro-conflicts can be more challenging to recognize and remember, hence why micro-conflicts are best measured by observation rather than self-report data that is currently often used to measure conflict (Paletz, Schunn, and Kim, 2011, p. 316). According to research by Wächtler (2020), the greatest majority of conflicts revealed a micro conflict's duration. According to research by Paletz, Schunn, and Kim (2011), it is likely that micro-conflicts are less emotionally charged and easier to overcome, as it is more likely to be a simple agreement. Meso-conflict is defined as disputes that are "more drawn out, taking place over hours or several times over the course of a day" (Paletz, Schunn, and Kim, 2011, p. 315). Research by Paletz et al. (2018) showed that task conflicts and process conflicts accounted for most micro-conflicts, while relationship conflicts were highly uncommon. Lastly, macro-

conflict is defined as "long-standing disagreements, lasting (ebbing and flowing) over at least a couple of days" (Paletz, Schunn, and Kim, 2011, p. 315). Paletz et al. (2018) focused on micro-conflicts and discovered that highly diverse teams experienced a smaller number of micro-conflicts. On the other hand, most other studies linked higher cultural diversity to increased intragroup conflict (Cheng et al., 2012; Jehn, Northcraft, and Neale, 1999; Stahl et al., 2010). These moments of conflict are often triggered by behaviors that may threaten people's faces, given that they involve delivering criticisms (Spencer-Oatey and Xing, 2008).

Interestingly, to signal the approaching of a conflict through the negative behaviours in a person, even before other individuals note them, Electrodermal Activity (EDA) can be used (Looff et al., 2019). Not only a higher EDA reactivity is observed during stressful events and interpersonal clashes, but also higher levels of physiological arousal can be found as people experience threats through social encounters with others (Genugten, 2020; van Prooijen, Ellemers, van der Lee, and Scheepers, 2018).

2.5 ELECTRODERMAL ACTIVITY AND SKIN CONDUCTANCE RESPONSE

Stimuli and arousals are indeed firstly felt physiologically (e.g., sweat secretion) than mentally, so that an individual becomes conscious about a stimulus only when the mind perceives these physiological changes. The user's physiological changes can go unnoticed, but technical and neuroscientific advancements allow the analysis of physiological shifts to reveal an individuals' internal response to stimuli (Caruelle, Gustafsson, Shams, and Lervik-Olsen, 2019, p. 146).

EDA is relevant to the study of stimuli as it is a psychological measure of physiological arousal (Akinola, 2010). When stimuli occur, skin conductance levels will shift, revealing physiological responses before the positive or negative stimuli are consciously recognized (Akinola, 2010). The amount of sweat secreted by eccrine sweat glands, which are mostly found in the hypodermis of the palmar and plantar regions, determine EDA variations (Sequeira, Hot, Silvert, and Delplanque, 2009). More sweat is secreted when the stimulus is more emotionally arousing. The arousal dimension is part of the circumplex model of affect which operationalizes emotions in a spatial model. The spatial model consists of emotional valence ranging from positive (pleasant) to negative (unpleasant), and emotional arousal (intensity) ranging from calm to excited (van Dooren, de Vries, and Janssen, 2012). Thus, arousal is a term used to describe how calm or excited people are. However, the claim that a particular physiological reaction (such as an increase in emotional arousal) is related to a specific psychological condition (such as conflict) will be pushing the boundaries of inference (Akinola, 2010).

EDA can be separated into *tonic* and *phasic* activity. The tonic activity varies slowly and is referred to as skin conductance activity (SCA). The phasic activity varies in response to a specific and discrete stimulus. A stimulus (conflict episode) perceived as personally significant will create an emotional response (emotional arousal). The brain sends a signal through the sympathetic brand of the autonomic nervous system to the eccrine sweat glands to activate them. An abrupt rise in skin conductance is referred to as skin conductance response (SCR) (Caruelle, Gustafsson, Shams, and Lervik-Olsen, 2019).

There are contradicting findings regarding the effect of culture on emotional arousal. According to Lim (2016), there are cross-cultural differences in emotional arousal levels; for instance, the Western culture is associated with higher arousal emotions, while the Easter culture is associated with lower arousal emotions. In addition, the arousal levels may be affected by the ideal affect, which is defined as the "affective state that people ideally want to feel" (Lim, 2016, p. 243) because individuals may experience emotions in a way that is considered to be ideal in their culture. However, other research argued that emotions are ultimately determined by genetics and that individuals with a different cultural background experience similar emotions during identical situations (Lim, 2016; Ekman 1987).

Additionally, studies have linked positive words to positive emotions and positive emotions to arousals. For instance, Heaphy and Dutton (2008) noted that positive workplace social relationships had immediate and long-term impacts on the cardiovascular, immune, and neuroendocrine systems. However, far less work has been conducted exploring their 'negative' counterparts. Research has reported that negative interactions have a greater effect on workers than constructive interactions (Duffy, Ganster, and Pagon, 2002; Heaphy and Dutton, 2008). Negative relationship-oriented behaviors, such as defending one's own position, are also likely to activate higher arousal levels (Genugten, 2020; Scheepers, 2009; Scheepers and Ellemers, 2005). Furthermore, rage is likewise associated with a higher physiological arousal level (Genugten, 2020; Berkowitz, 1990), and so is anxiety (Genugten, 2020; Ravaja, Turpeinen, Saari, Puttonen, and Keltikangas-Järvinen, 2008). Hence, an individual who engages in negative relationship-oriented behavior is likely to feel elevated levels of frustration or fear, as well as higher physiological arousal. Thus, within-personal physiological processes can accompany negative relationship-oriented behaviors and task behaviors. Physiological responses can therefore be seen as important inferential elements for a wide range of workplace behaviors. However, since scarce research has been conducted so far on these topics, these represent reasons to use electrodermal activity (EDA) to identify whether emotional arousal can identify moments of conflict in both multicultural and monocultural teams.

3. METHODOLOGY

3.1 DATA COLLECTION

The data for this research was collected during a large-scale research project at a large Dutch institution in the Netherlands that switched to an agile way of working. The study was conducted by the Change Management and Organizational Behaviour (CMOB) research group of the University of Twente. In this study, the data collection and analysis take place at the individual level. The data contains 27 transcribed video recordings of meetings. Each meeting lasts around one hour, in which team members are in their natural working setting or in a surrounding that closely resembles their natural working situation. During each meeting, the agile team members wore BIOPAC bracelets to measure physical arousal levels. The Observer XT software has been used to "aid the coding, management, and analysis of observational data" (Snell, 2011, p. 254).

3.2 SAMPLE

Similar to Wächtler (2020), the sample includes nine agile teams, also referred to as squads, consisting of 71 individuals that operate in sprints that are divided into three types of meetings: planning, refinement, and retrospective meeting. Hence, in total, 27 meetings were analyzed. The average time participants have been working using Agile management practices is 3,6 years, and a total of 89% have worked Agile for a minimum of one year. The demographic data of each participant (gender, age, nationality) was gathered using surveys. Out of the 71 individuals, 16 (22.5%) are women, 51 (71.8%) are men, and 4 individuals (5,7%) did not specify their gender. On average, the participants were 39.3 years old, with the youngest participant

being 22 and the oldest 65. In addition, the sample consists of individuals of different nationalities. A total of 44 individuals (62%) are Dutch and thus represent the largest proportion of the sample. The remaining individuals have the following nationality: seven Indians, two Poles, two Germans, two English (GB), and one member each of Armenian, Belgian (Flemish), Brazilian, Hungarian, Peruvian, Slovakian, Spanish, Thai, and Russian. The remaining five participants did not reveal their nationality or the language in which they are most fluent.

Tirmizi's (2008) concept was used to define multicultural teams. Multicultural teams are described as "a collection of individuals with different cultural backgrounds, who are interdependent in their tasks, [and] who share responsibility for outcomes [...]" (Tirmizi, 2008, p. 5). Any Agile team with at least three diverse cultural identities represented among the team members was classified as multicultural in this study. The cultural background of each participant was obtained via a survey in which each individual had the option to report their nationality. As a result of this sampling process, four monocultural teams (team A, B, C, D) and five multicultural teams (team 1, 2, 3, 4, 5) have been identified. For several teams, a special arrangement was made in deciding their degree of cultural diversity. Within team 1, the nationalities of participants could not be determined; therefore, the survey answer to the question "most fluent language" was used to determine the cultural background of that individual. Within team 4, the cultural background of the individual members has been determined by using a combination of self-reported nationality and self-reported fluent language. This is because the team comprises only two nationalities (Dutch, Indian), while India is known to have a large cultural diversity due to its different regions (Panda and Gupta, 2004). Both team one and team four were deemed multicultural after these special arrangements.

3.3 MEASURES

3.3.1 Conflict Level

Conflict within this study is defined as any form of disagreement that takes place between two or more Agile team members due to differences in values, opinions, goals, needs, or objectives. To identify possible problem scenarios that demonstrate moments of conflict within monocultural and multicultural Agile teams, four verbal behaviors (see Table 1) were selected from the coding scheme developed by the CMOB research group of the University of Twente. Each video was coded separately by two students to ensure that bias was controlled during the coding process. Both students created a separate event log, which was compared in the end to the final event long. A data profile was created in Observer XT 15 to identify moments in the video recordings in which a verbal behavioral trigger (Table 1) took place. A total of 706 chosen verbal behaviors were coded, and these could potentially indicate an episode of conflict within the team meeting.

The transcripts of the video recordings were opened via ATLAS.ti to determine whether the verbal behaviors indeed detected a potential conflict episode. The scenario was marked as a conflict if an apparent disagreement between two or more individuals took place, using the coding guide developed by Paletz et al. (2011); namely, the coding of a conflict episode starts when the first sign of disagreement takes place and stops when the disagreement is finished. Additionally, a 'no' does not directly account for a conflict. Yet, contradicting a team member does account for a conflict, and facial expressions, gestures, tone of voice, or body language can also be used to identify a conflict episode. The coding of conflicts out of the negative behaviors results from the interpretation of two independent coders. Initially, an inter-rater reliability of 65.93% was established. When an agreement was not reached, a third coder was asked to evaluate the conflict to finalize the coding. In the end, an inter-rater reliability of 100% was reached. In total, 91 conflict episodes have been identified. Next, the coding scheme developed by Paletz et al. (2011) is used to determine the duration of the conflict to decide whether it is a micro-, meso-, or macro-conflict.

3.3.2 Conflict Type

After having identified conflict episodes, the type of conflict was determined using the coding guide of Paletz et al. (2011). The coding guide divides conflict into three subcategories, namely task, process, and relationship conflict. The definitions of the conflict types can be found in section 3.2.

3.3.3 Physical Arousal

The next step was to match the physical arousal data with the conflict episodes. Arousal data was collected using special bracelets. These BIOPAC bracelets use electrodes in the hand palm of the non-dominant hand to measure emotional arousal. To match EDA data to a specific employee, the transmitters were numbered and connected to the same employee number used in the video observations. After having identified the conflict episodes in Observer XT, the external physiological data was imported into the Observer. The observational data and the physiological arousal data were synchronized with one another. The physical arousal levels were measured, including one minute before and one minute after the conflict occurred. In total, 12,677 peaks in arousal levels have been identified.

The software points out significant increases in arousal, also known as peaks. Therefore, only two statements can be made: conflicts induce an increase (peak) in SCRs, and conflicts do not induce an increase (peak) in SCRs. The increases in SCRs (peaks) are measured using the BIOPAC system, hardware device MP160. The system transforms the skin conductance level data to provide skin conductance response signals, locates the responses, and marks them correctly. There is a tonic (baseline) and phasic skin conductance activity that was measured on the individual level. The tonic skin conductance activity is the level of skin conductance in the absence of any particular discrete environmental event or external stimuli. The phasic skin conductance activity measurements are associated with short-term events and occur in the presence of discrete environmental stimuli (e.g., in the event of conflict), showing the abrupt increases.

After the EDA data was collected, the slew rate limiter function provided by BIOPAC AcqKnowledge (version 5.0.5) was applied to eliminate certain motions or noises from the data. For instance, it filters out motions such as an employee hitting the table. According to BIOPAC Systems Inc. (2019), the slew rate limiter function allows one to precisely adjust the minimum and maximum allowable change to set an acceptable rate of change of motion artifacts. With the slew rate limiter function, any artifact exceeding the selected amplitude range will automatically be removed.

Next, the event-related EDA function of AcqKnowledge was used to extract EDA measurements that are linked to a specific stimulus, i.e., the aforementioned behavioral triggers. It locates stimuli events and identifies SCRs that pass a certain threshold (tonic baseline) within a set timeframe, known as the latency window.

3.4 DATA ANALYSIS

3.4.1 Thematic Analysis

This research utilizes deductive thematic analysis to identify the type and level of the conflict episodes in all 27 meetings. Thematic analysis is a method for "identifying, analyzing, and interpreting patterns of meaning ('themes') within qualitative data" (Clarke and Braun, 2016, p. 297). According to the six phases described in the 'Phases of Thematic Analysis' by Braun and Clarke (2006, p. 35), the first step was to familiarize with the data by reading the transcripts and watching the video recordings of all meetings. A potential conflict episode was identified using the aforesaid (see Table 1) behavioral triggers in monocultural and multicultural teams. Following Paletz et al., 2018), the triggered situations included one minute before and one minute after the potential conflict occurred. All triggered scenarios were reviewed and marked as a conflict if a clear disagreement between two or more individuals took place, as described by the coding guide by Paletz et al. (2011). The second step was to generate initial codes about the type of conflicts. However, the codes used within this analysis were already created by previously presented literature. The deductively codes used are about conflict level and conflict type (see 2.4) during conflict episodes. The third step was to search for themes. The themes established reflect behavioral variations between multicultural and monocultural Agile teams. The several codes were combined into two single themes: conflict level and conflict type. The fourth step was to review the themes; however, no problems were encountered with the themes, and nothing had to be adjusted. The fifth step was to define and name the themes (see 2.4). Lastly, the report was produced using the independent two-sample t-test, chi-square test, and multinomial logistic regression to convert the insights into a readable piece of writing.

3.4.2 Frequency

Firstly, through content analysis, the frequency of conflict duration (micro, meso, and macro) and conflict type (task, process, and relationship) has been counted within the monocultural and multicultural teams to answer how often these appear throughout the respective meetings. This eliminates differences in conflict occurrences within the respective teams.

Secondly, the frequency of individual team members' arousal peaks before, during, and after a conflict were compared between monoculture and multicultural teams. However, every conflict was different in terms of duration; some lasted a few seconds while others lasted a few minutes. Since this could have affected the number of arousal peaks measured, the number of arousal peaks before, during, and after a conflict had to be standardized. The standardization was calculated by taking the number of peaks in each episode of conflict and dividing the number by the total number of arousal peaks in each meeting. With this process, the data is turned into a uniform format which allows further analysis of the data. In this case, it is used to perform an independent two-sample t-test.

3.4.3 Independent two-sample t-test

The two-sample t-test is used to test whether the means of the individuals' number of arousal peaks before, during, and after in conflict are equal or not in monocultural and multicultural teams.

3.4.4 Multinomial logistic regression

The multinomial logistic regression was performed to explain the relationship between conflict type or conflict level, and the number of arousal peaks before, during, and after an episode of conflict. The logistic regression is not sensitive to the magnitude of the variable, so the number of peaks in arousal levels did not have to be standardized. This test was performed additionally and did not necessarily answer the research question of this thesis but gives additional interesting insights. It was used to determine whether arousal levels can predict the conflict type and duration. The results can be found in the Appendix.

4. RESULTS

The results of the quantitative tests are presented in this section. The frequency of conflict level and type was addressed first, after which the SCRs occurrences as a result of a conflict episode were discussed. Next, the data from the monocultural and multicultural teams were compared, taking into account the different Agile meetings.

4.1 Conflict Type

A frequency analysis was performed to assess the frequency of an observed conflict type incurring. As shown in Table 2, the most notable outcome of this analysis on the individual level is that the most common observed conflict type is a task conflict within the monocultural and multicultural teams with 81.08% and 59.26% as a percentage of all conflicts within the respective team type. Hence, individuals working in a Dutch-only team were associated with experiencing a higher tendency for task conflict compared to multicultural teams. The second most frequent conflict type experienced by agile team members in mono- and multicultural teams is process conflict with 18.92% and 37.04%. For this, culturally diverse teams showed a lower frequency compared to their task conflict, yet almost doubled the frequency of process conflicts in monocultural teams. Lastly, none of the monocultural squad members experienced a relationship conflict, while multicultural team members experienced relationship conflict with 3.7%.

Next, a frequency analysis was performed to assess the frequency of a conflict type incurring per type of Agile meeting. As depicted in Table 2, team members working in monocultural teams experienced task conflicts most often (40.54% of the time) during the refinement meetings. In comparison, team members working in multicultural teams experienced task conflict most often (20.37% of the time) during the planning and retrospective meeting. Moreover, team members in monocultural teams experience process conflicts most often (8.11% of the time) during the refinement meetings, while team members in multicultural teams experienced process conflicts most often (22.22% of the time) in the retrospective meeting. Lastly, team members working in monocultural teams did not experience a relationship conflict in any of the meetings. In contrast, team members working in multicultural teams experienced this 1.85% of the time during both the planning and refinement meetings.

Table 2. Frequency of conflict type

Conflict Type	Meeting	Mono-cultural Team	Multicultural Team
Task	Planning	18.92%	20.37%
	Refinement	40.54 %	18.52%
	Retrospective	21.62%	20.37%
	Task total	81.08%	59.26%
Process	Planning	5.41%	9.26%
	Refinement	8.11%	5.56%
	Retrospective	5.41%	22.22%

	Process total	18.92%	37.04%
Relationship	Planning	0%	1.85%
	Refinement	0%	1.85%
	Retrospective	0%	0%
	Relationship total	0%	3.7%
Conflict type total		100%	100%
Average conflicts per team (n)		9.3	10.8

4.2 Conflict Level

Next, a frequency analysis was performed to assess the frequency of an observed conflict level incurring within a monocultural and multicultural team. As shown in Table 3, the most common conflict level experienced by an agile team member working in either a monocultural or multicultural team is a 'micro conflict' with 94.59% and 100% as a percentage of all conflict levels within the respective team type. Thus, overall, an agile team member working in a multicultural team seems likely to experience only micro conflicts. Contrarily, an agile team member working in a monocultural team is more likely to also experience, albeit still in small percentage, both meso and macro conflicts.

Following, a frequency analysis was performed to assess the frequency of a conflict level taking place per type of Agile meeting in monocultural and multicultural teams. As shown by Table 3, within the monocultural teams, a micro conflict took place most often (45.95% of the time) during a refinement meeting and least often (24.32% of the time) in both the planning and retrospective meeting. While in multicultural teams, a micro conflict took place most often (42.59% of the time) during a retrospective meeting and least often (25.93% of the time) during the refinement meeting. Furthermore, in monocultural teams, a meso conflict took place most often (2.7% of the time) during a refinement meeting and not a single time during the planning and retrospective meeting. Within the multicultural teams, no meso conflict took place within any type of Agile meeting. In the monocultural teams, a macro conflict occurred most often (2.7% of the time) during a retrospective meeting but never during a planning or refinement meeting. Within the multicultural teams, not a single macro conflict took place within any type of Agile meeting.

Table 3. Frequency of conflict level

Conflict Level	**Meeting**	**Mono-cultural Team**	**Multicultural Team**
Micro	Planning	24.32%	31.48%
	Refinement	45.95%	25.93%
	Retrospective	24.32%	42.59%
	Micro total	**94.59%**	**100%**
Meso	Planning	0%	0%
	Refinement	2.7%	0%
	Retrospective	0%	0%
	Meso total	2.7%	0%
Macro	Planning	0%	0%
	Refinement	0%	0%
	Retrospective	2.7%	0%
	Macro total	2.7%	0%
Conflict level total		100%	100%

4.3 Comparing SCRs in monocultural and multicultural teams

An independent t-test was performed to evaluate whether the mean SCRs before, during, and after a conflict were statistically different in monocultural and multicultural groups (Table 4). The t-test comparing *all* SCRs between monocultural and multicultural teams was not significant (t = -1.238; p = .217). The t-test comparing the SCRs *before* a conflict between monocultural and multicultural teams was not significant (t = 253; p = .801). However, the t-test comparing the SCRs *during* a conflict between monocultural and multicultural teams was significant (t = -1.979; p = .049). The t-test comparing the SCRs *after* a conflict between monocultural and multicultural teams was also not significant (t = .511; p = .609).

Logistic parameter	**Mono-cultural teams**		**Multi-cultural teams**		**df**	**t**	**p**
	M	**SD**	**M**	**SD**			
SCRs before conflict	.0025 3	.00258	.00235	.00202	589	.253	.801
SCRs during conflict	.0021 8	.00339	.00328	.00770	262.155	-1.979	.049
SCRS after conflict	.0024 3	.00219	.00234	.00197	589	.511	.609
All SCRs combined	.0070 2	.00636	.00797	.01019	310.987	-1.238	.217

Table 4. Independent sample test

4.4 Comparing Arousal Peak Frequencies

A frequency distribution was run to identify the number of peaks in SCRs (measured on the individual level) each time a conflict took place. Agile team members working in a monocultural team experienced at least one arousal peak *before* the conflict took place 91,0% of the time, *during* conflict 76,6% of the time, and *after* the conflict took place 91,5% of the time (N = 376). In

comparison, agile team members working in a multicultural team experienced at least one arousal peak *before* the conflict 92,9% of the time, *during* a conflict 83,3% of the time, and *after* conflict 90,5% of the time (N = 210). Thus, overall, conflict experienced by monocultural agile team members seemed to induce SCRs more frequently after a conflict took place compared to multicultural teams. While conflict experienced by multicultural agile team members seemed to induce SCRs more frequently before and during a conflict took place.

Table 7. Frequency of arousal peaks during conflict

	Monocultural Team	**Multicultural Team**
Peaks in arousal before conflict (%)	91.0%	92.9%
Peaks in arousal during conflict (%)	76.6%	83.3%
Peaks in arousal after conflict (%)	91.5%	90.5%

5. DISCUSSION

This research uses both qualitative analyses (i.e., thematic and content) as well as quantitative analyses (namely t-tests and logistic regression) to examine how moments of conflict, their duration (macro, meso, and micro level) and their typology (relation, task, and process conflict) can vary among multicultural and monocultural teams and be associated with skin conductance responses. As will be argued next, the findings enrich the theory on conflicts in mono- versus multicultural agile teams.

Firstly, this study showed a higher frequency of task conflicts taking place both in monocultural and multicultural teams. Findings by Dianzhi et al. (2013), who reported that task conflict occurs more frequently in self-managing teams than relationship and process conflicts, clearly supported the results of this study.

Secondly, the findings of this thesis reported a higher frequency of task conflict taking place in monocultural teams, which directly contradicts earlier findings by Tröster et al., (2014) who found that task conflict is more likely to take place in multicultural teams. This discrepancy could be due to the Dutch culture that, on the one hand, is characterized by a rather direct way of speaking, and on the other hand, encourages team members to speak up even when against the general or dominant idea to reach a final consensus. This is explained by Hofstede and Minkov (2010), who stated that individualist cultures (e.g., the Netherlands) value speaking one's mind, in which confrontation is perceived as beneficial, as a collision of viewpoints are expected to lead to a greater truth. In contrast, direct confrontation and conflict with another individual is considered unpleasant and undesirable in most collectivistic cultures (e.g., India, Brazil). Hence, the word "no" is rarely used because it is confrontational. Instead, politer ways of saying "no" are used, such as "you may be correct" (Hofstede et al., 2010, p. 106). As a result, task conflict may be identified more often in a monocultural team than a multicultural team because confrontation was expressed more directly and openly. An additional explanation could be that Dutch-only teams are not afraid of misunderstanding as no translation needs to occur and thus voice their opinions more freely.

Thirdly, this study found a higher frequency of micro conflicts in multicultural team meetings than monocultural teams. These findings contradict the earlier findings of Paletz et al. (2018), who found that highly diverse teams experience fewer micro-conflicts than monocultural teams.

Fourthly, looking at the findings of this study, micro conflicts predominantly took place during the planning and retrospective meetings. Thus, one may suggest that the nature of a team meeting (e.g., whether it is focused on work output or not) influences the occurrence of a micro-conflict. The contradicting findings could be due to the fact that this study looked at agile meetings (planning, refinement, and retrospective) in which there is no output of work. At the same time, Paletz et al. (2018) focused on team meetings fostering creative discussions. It may be that multicultural teams face more communication challenges in retrospective or planning meetings compared to actual output generating sessions. It could even be that a precise articulation of thoughts and opinions about past performance or future directions is more important than input in innovative ideas. However, this needs additional research.

Fiflty, findings of this study suggested that both relationship and process conflicts occur most often in a multicultural team. These findings are supported by Tröster et al. (2014), who reported that multicultural teams are expected to experience more relationship conflicts based on the similarity-attraction theory and more process conflicts due to the higher likelihood of disagreeing about how to organize task workflow.

Sixthly, the findings of this study show that SCRs before, after, and all combined incurred during a conflict episode are not statistically different in monocultural and multicultural teams. These findings are supported by some researchers who see emotion as "a universal construct and that a large part of emotional experience is biologically based" (Izard, 1994, as cited in Lim, 2016). However, the SCRs incurring during a conflict are statistically different in monocultural and multicultural teams. This, on the other hand, is supported by the review of Lim (2016), who argued that there could indeed be cross-cultural differences in arousal levels.

Lastly, additional findings focused on the frequency of SCRs of individual team members in monocultural and multicultural teams. This study found that agile team members working in monocultural teams experienced the highest frequency of SCRs *after* the conflict. In contrast, team members in multicultural teams experienced the highest frequency of SCRs *before* the conflict. Thus, during the conflict itself, the SCRs frequency was not the highest, while this is the time that negative verbal behavior was expressed. These findings directly contradict Genugten et al.'s (2020) results, according to which negative relationship-oriented behavior activates higher levels of physical arousal. This discrepancy in findings could be due to individuals experiencing emotions (e.g., anxiety, anger) before voicing their concerns that ultimately lead to a conflict episode. As a result, our bodies may 'prepare' for a conflict by activating the sympathetic nervous system, hence why the arousal levels can be higher before the conflict. However, this is a topic that needs to be researched.

5.1 Theoretical and practical implications

The findings of this thesis have presented critical theoretical and practical implications. By distinguishing monocultural and multicultural teams, this thesis contributes to cross-cultural and agile research by showing that team members working in a monocultural, and multicultural team do experience the same mean number of arousal peaks before, after, and during the entire conflict episode. Yet, the results showed that the monocultural and multicultural teams did not experience the same mean number of arousal peaks during conflict. Thus, it explains how

the arousal levels of individual team members and the composition of agile teams are connected to behavior.

Although a previous study has focused on the biological correlates, that is, the effect of positive-oriented behavior on SCRs (see, e.g., Genugten, 2020), there is no prior research on the effect of negative relations-oriented behavior on the SCRs of an agile team member working in a monocultural or multicultural team. The participants in this study had to wear a special bracelet that allowed EDA measurements; the participants no longer had to recall their emotions during a particular state. This can help advance the understanding of an agile coach of how agile team members visually or verbally react to negative behaviors compared to how they physiologically react. As a result, it gives a closer, realistic picture of workplace relationships. When observing the SCRs, an agile coach may learn how the agile team members working in a monocultural team may react differently during observed conflict episodes than an individual working in a multicultural team. This can further illuminate the consequences of having team members from diverse nationalities since cultural clashes can occur subconsciously and thus better be explored through arousal levels. Additionally, the results can help an agile team coach understand the effect of having culturally diverse teams in terms of conflict. Perhaps, an agile coach could provide more coaching to a multicultural team, as a conflict is more likely to take place in such a team composition.

5.2 Limitations and further research

As in all research, the previously presented findings are subject to limitations. All agile team members participating in this study were working for the same financial organization located in the Netherlands. As a result of the firm-specific traits (e.g., work culture or job responsibilities), potential bias may arise as different companies may possess different traits that could affect employees' behavior. Consequently, future research could randomly select teams from a list of different companies that have incorporated the agile way of working to avoid this bias.

Moreover, the cultural background of each participant is obtained from the self-reported survey in which participants were asked to report their nationality and most fluent language. As a result, a Dutch agile team member could have been incorrectly classified as an international team member, or the other way around. This potential problem was partly solved by classifying a team to be multicultural only if at least three agile team members had a different cultural background. However, future research should also take into account the degree to which an individual has adopted element(s) of the Dutch culture while originally belonging to a different culture.

Also, the observational data was partly collected during the Covid-19 pandemic, which prevented the collection of additional observational data. As a result, a limited number of meetings have been recorded. Because of this, the number of meetings recorded (N= 27) was relatively small. This may have affected, for instance, the frequency of macro conflicts. The findings of this thesis have shown that macro conflicts are highly uncommon compared to other conflict levels. Since macro conflicts take place when a conflict is raised in multiple meetings, future research could focus on a larger number of meetings, as a larger dataset could lead to more considerable variances.

Furthermore, this study did not consider who was involved in the conflict, instead it solely focused on the impact of conflict on the SCRs of all individual team members. Therefore, future research should focus on the SCRs of individuals directly involved in the conflict, perhaps categorizing the participants in conflict investigators, responders to the investigator(s), or neutral observers.

In addition, the individuals' SCRs were measured one minute before and one minute after a conflict took place. During these minutes, besides the verbal behaviors considered in this thesis and linked to conflict episodes, the frequency of an individuals' SCRs peaks could have been influenced by another verbal behavior (e.g., giving positive feedback, delegating), either causing a drop or peak. Therefore, future research could acknowledge the different verbal behaviors taking place during the one minute before and after a conflict and discover how these verbal behaviors could potentially influence SCRs. Additionally, future studies could focus not only on the SCRs significant peaks as done in this thesis, but also on the SCRs drops.

Lastly, the BioPac Guide (2015) stated that the participants should clean their skin with water and not use soap or other substances to prevent the artificial modification of conductance. During the recording of the meetings, this cannot be controlled within the study. Very cold or dry conditions (e.g., air-conditioned rooms) could affect the result too, because dry electrodes depend on the sweat that may take some time to signal under such conditions. In future research, protocols could be implemented that require a warmup and a baseline period.

6. CONCLUSION

This study examined differences in the SCRs during task, process, and relationship conflicts in monocultural and multicultural agile teams who work in a large financial institution. On average, a multicultural team experiences more conflicts than monocultural teams. Both teams predominantly faced micro-conflicts and task conflicts. The SCRs before, after, and all combined during an observed conflict episode were not statistically different in monocultural and multicultural teams. Thus, Agile team members working in a culturally diverse team do experience comparable feelings to Dutch-only teams before, after, and all combined as a results of a conflict episode. However, the SCRs during a conflict are statistically different in monocultural and multicultural teams. Thus, during a conflict episode, Agile team members working in a monocultural team do not experience comparable feelings to Dutch-only teams. Additional findings showed that agile team members working in a monocultural team experienced the highest frequency of SCRs after an episode of conflict. In contrast, team members in multicultural teams experienced the highest frequency of SCRs before the conflict. This thesis has thus offered interesting and novel insights into an under-researched area of studies exploring the relationship between arousal levels and conflicts in mono- and multicultural agile teams.

7. ACKNOWLEDGEMENTS

The completion of this study could not have been possible without the guidance of my two supervisors Lara Carminati and Desirée van Dun. I would like to thank you both for your positivity, patience, enthusiasm, motivation, and knowledge. Besides my supervisors, I would like to thank Lisanne Foss for preparing all the data needed to complete this thesis. Finally, I would like to thank my parents and sister for their love, understanding, and support throughout this research.

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9. APPENDIX

9.1 Number of Arousal Peaks Predicting Conflict level

A multinomial logistic regression was performed to ascertain the effects of the number of arousal peaks before, during, and after a conflict took place on the likelihood an agile team members experienced a specific conflict level. For the monocultural teams, the logistic regression model was statistically significant, as shown by the goodness-of-fit test (Table 8) showing a p-value of .999. Shown by Table 9, the set of coefficients shows a comparison between individuals' experiencing arousal peaks when a meso conflict incurred and those experiencing arousal peaks when a micro conflict incurred. Only the arousal peaks during the conflict were a significant predictor (b=156.33, s.e. = 70.28, p = .026) in the model, as individuals scoring higher on the arousal peaks *during* conflict were more likely to experience a meso conflict. The number of arousal peaks *before* (b = 121.74, s.e. = .167.68, and p = .468) and *during* a conflict (b = -.017, s.e. = .093, p = .751) are non-significant predictors of conflict level.

Table 8. Goodness-of-fit monocultural teams

	Chi-Square	df	Sig.
Pearson	265.867	342	.999
Deviance	71.259	342	1.000

Table 9. *Multinominal Logistic Regression monocultural teams*

		Monocultural Teams		
Conflict level		**B**	**Std. Error**	**Sig.**
Meso	**Intercept**	-3.775	.597	
	Arousal Peaks During conflict (n)	156.33	70.28	.026
	Arousal Peaks Before conflict (n)	121.74	167.68	.468
	Arousal Peals After conflict (n)	-414.33	279.98	.139

a. The reference category is: Micro Conflict

For the multicultural teams, the logistic regression model was statistically significant, as shown by the goodness-of-fit test (Table 10) showing a p-value 1.000. Shown by Table 11, the multinomial logistic regression test was statistically significant, as shown by the goodness-of-fit test that showed a p-value of 1.000. However, when multinomial logistic regression test is run, it shows that the number of conflicts before, during, and after a conflict episode are non-significant predictors of conflict level.

Table 10. Goodness-of-fit multicultural teams

	Chi-Square	df	Sig.
Pearson	201.867	404	1.000
Deviance	68.185	404	1.000

Table 11. *Multinominal Logistic Regression multicultural teams*

		Multicultural Teams		
Conflict level		**B**	**Std. Error**	**Sig.**
Meso	**Intercept**	-2.921	.590	
	Arousal Peaks During conflict (n)	-133.803	177.144	.450
	Arousal Peaks Before conflict (n)	-554.581	375.620	.140
	Arousal Peals After conflict (n)	447.785	297.073	.132
Macro	**Intercept**	-3.234	1.177	
	Arousal Peaks During conflict (n)	1163.192	1007.774	.249
	Arousal Peaks Before conflict (n)	-2665.527	2736.507	.330
	Arousal Peals After conflict (n)	-3321.241	3021.970	.272

9.2 Number of Arousal Peaks Predicting Conflict Type

In the monocultural teams, the logistic regression model was statistically significant, as shown by the goodness-of-fit test that shows a p-value of .953 (Table 12). Shown by Table 13, the set of coefficients shows a comparison between individuals' experiencing peaks when a task, process, or relationship conflict incurred. Only the arousal peaks before a process conflict were a significant predictor (b = 126.286, s.e.= 64.504, p = .050) in this model, as individuals scoring higher on the arousal peaks *before* a conflict were more likely to experience a process conflict. The number of arousal peaks *during* (b = 1.401, s.e. = 33.533, p = .967) and *after* a conflict (b = 148.304, s.e. = 77.217, p = .055) are non-significant predictors of process conflict. Regarding relationship conflict, the number of arousal peaks *before* a conflict (b = -425.481, s.e. = 278.235, p = .126), *during* a conflict (b = 78.829, s.e. = 175.818, p = .654), and *after* a conflict (b=-9.828, s.e. = 197.703, p = .960) are non-significant predictors of a conflict level.

Table 12. *Goodness-of-fit monocultural teams*

	Chi-Square	df	Sig.
Pearson	623.192	684	.953
Deviance	534.956	684	1.000

Table 13. *Multinomial Logistic Regression monocultural teams*

		Monocultural Teams		
Conflict Type[a]		**B**	**Std. error**	**Sig.**
Process	**Intercept**	-.454	.007	
	Arousal Peaks During conflict (n)	1.401	33.533	.967
	Arousal Peaks Before conflict (n)	126.286	64.504	.050
	Arousal Peals After conflict (n)	-148.304	77.217	.055
	Intercept	-2.882	.000	

Relationship	**Arousal Peaks During conflict (n)**	-425.481	278.235	.126
	Arousal Peaks Before conflict (n)	78.829	175.818	.654
	Arousal Peals After conflict (n)	-9.828	197.703	.960

a. The reference category is: Task

In the multicultural teams, the logistic regression model was statistically significant, as shown by the goodness-of-fit test that shows a p-value of .489 (Table 14). Shown by Table 15, the set of coefficients shows a comparison between individuals' experiencing peaks when a task, process, or relationship conflict incurred. However, when multinomial logistic regression test is run, it shows that the SCRs before, during, and after a conflict episode are non-significant predictors of conflict type.

Table 14. *Goodness-of-fit multicultural teams*

	Chi-Square	**df**	**Sig.**
Pearson	201.868	202	.489
Deviance	178.279	202	.884

Table 15. *Multinomial Logistic Regression cultural teams*

		Multicultural Teams		
Conflict Type[a]		**B**	**Std. error**	**Sig.**
Process	**Intercept**	-1.946	.308	
	Arousal Peaks During conflict (n)	8.468	23.957	.724
	Arousal Peaks Before conflict (n)	-139.505	140.608	.321
	Arousal Peals After conflict (n)	243.096	140.050	.083

a. The reference category is: Task