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Teams in the (New) World of Work:

How Teams (In)effectively Handle Adversity in the Dynamic World of Work

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Summary

Societies, institutions, and organizations all require collaboration and teamwork for their progress. However, in a volatile and dynamic world, effective teamwork is not a given and teams constantly face new challenges. For example, they experience resource and materials shortages, company restructuring, lack of a present leader, or teams with dysfunctional members. In an attempt to extend team research in the context of adversity, I investigate how teams react to difficult situations and which processes will (not) help them overcome these. More specifically, this dissertation investigates both *functional and dysfunctional team processes* that occur in the face of adverse events: team adaptation and collective rumination in teams.

In chapter 1, I review theory and previous empirical evidence about teams, team processes, team adaptation, and collective rumination and present my research questions. In chapter 2, I present an experimental study that investigates whether and how teams engage in the four-phase team adaptation process consisting of situation assessment, plan formulation, plan execution, and team learning. More specifically, I assess how teams engage in this adaptation process when they have experienced it in response to different types of situations before (internal versus external team adaptation experience). The study further examines whether the four-phase team adaptation process impacts team performance. Therefore, I contribute to research on team adaptation as follows: First, whereas previous research has conceptualized team adaptation as post-change team performance, I disentangle the process from its outcome, as suggested by the input-process-outcome (IPO) model prominent in team research. Second, I observe behavioral indicators of all four phases inherent in the team adaptation process. Consideration of all four phases of the team adaptation process is needed for a comprehensive understanding of team adaptation but has been neglected by most previous research. Finally, I introduce previous experience as an input factor of the four-phase team adaptation process and thus recognize that teams should be able to learn from previous

actions. This study shows that team adaptation is adaptive but can also be maladaptive. A possible explanation for maladaptation is that teams may sometimes drift from functional to dysfunctional processes. Therefore, I address a potentially dysfunctional team process in chapters 3 and 4.

In chapters 3 and 4, I take another perspective and transition to dysfunctional team processes in response to difficult situations. More specifically, in chapter 3, I introduce the construct of collective rumination in teams. Although previous research has described that teams engage in excessive discussions leading to the amplification of negative attitudes, collective rumination has not been introduced as a team process. To catch up on this, I do a literature review on rumination theory and 12 semi-structured interviews with single team members to develop the construct. I find that collective rumination is a unique discussion pattern and happens in response to a situation that is collectively perceived as uncontrollable and uncertain. It is a team interpersonal process characterized by five dimensions: a) recursive discussions, b) speculation about causes and c) speculation about consequences of the problem, d) sharing negative thoughts and feelings, and e) mutual reinforcement of problem talk. Building on construct development, I develop a measure for collective rumination in teams and present three studies to establish its psychometric properties, namely nomological, convergent, discriminant, criterion-related, and incremental validity. Within these studies, relationships with the emergent state team negative affect and the team outcomes team performance, teamwork engagement, and team cohesion are investigated. As these studies pinpoint the manifold negative consequences of collective rumination, it is critical to understand when and why it occurs.

To understand when and why collective rumination occurs in teams, I focus on the antecedents of collective rumination in chapter 4. More specifically, I present a qualitative study in which 1,243 events that members of teams described as triggers of collective rumination are analyzed. Based on content analysis, I suggest 14 categories of collective

rumination triggers that sprawl over different levels of analysis, such as the environment, organization, leaders, and teams. This study is consistent with event-driven theories and emphasizes the importance of events in triggering collective rumination in teams. Further, the findings highlight several implications for organizational decision-makers, leaders, and teams.

Chapter 5 concludes with a summary of findings and a discussion on broader theoretical and practical implications. Specifically, I encourage research and practice to focus more on the impact of events when they seek to understand team behaviors and outcomes. Moreover, I encourage the investigation of team behaviors that seem widespread and tolerated but are damaging. In providing a more holistic understanding of functional and dysfunctional team processes in response to difficult situations at work, this dissertation sets out to extend team research and support practice in providing teams with the proper knowledge to face challenges in the dynamic world of work today.

Zusammenfassung (German Abstract)

Gesellschaften, Institutionen und Organisationen – sie alle sind auf Teams und deren Zusammenarbeit angewiesen. In der volatilen und dynamischen Welt von heute ist effektive Teamarbeit jedoch keine Selbstverständlichkeit. Teams stehen vor vielen Herausforderungen: beispielsweise kann es sein, dass Waren nicht geliefert werden, ihre Organisation vor einer Umstrukturierung steht oder sie von ihrer Führungskraft alleine gelassen werden. Die vorliegende Dissertation soll deshalb beleuchten, wie Teams auf schwierige Situationen reagieren und welche Prozesse ihnen (nicht) helfen, diese zu meistern. Ich untersuche sowohl funktionale als auch dysfunktionale Teamprozesse, die als Reaktion auf schwierige Situationen auftreten: Teamanpassung (Team Adaptation) und kollektive Rumination in Teams.

In Kapitel 1 stelle ich die Theorie, frühere empirische Erkenntnisse und schließlich meine Forschungsfragen vor. In Kapitel 2 stelle ich eine experimentelle Studie vor, in der untersucht wird, ob und wie Teams den vierphasigen Teamanpassungsprozess durchführen, der aus Situationsbeurteilung, Planformulierung, Planausführung und Teamlernen besteht. Genauer gesagt wurde bewertet, wie Teams diesen Anpassungsprozess durchführen, wenn sie ihn vorher schon mal als Reaktion auf verschiedene Arten von Situationen durchgeführt haben (interne vs. externe Teamanpassungserfahrung). Weiterhin wird untersucht, ob sich der vierphasige Teamanpassungsprozess auf die Teamleistung auswirkt. Somit trägt diese Dissertation wie folgt zur Teamanpassungs-Forschung bei: Während die bisherige Forschung die Teamanpassung als Teamleistung nach einer unerwarteten Veränderung konzeptualisiert hat, trenne ich den Prozess selbst von seinem Ergebnis, wie es das in der Teamforschung bekannte Input-Prozess-Outcome (IPO) Modell nahelegt. Außerdem beobachte ich die Verhaltensindikatoren aller vier dem Teamanpassungsprozess innewohnenden Phasen. Die Berücksichtigung aller vier Phasen des Teamanpassungsprozesses ist für ein umfassendes Verständnis der Teamanpassung erforderlich, wurde jedoch von der bisherigen Forschung

zum größten Teil vernachlässigt. Abschließend führe ich frühere Erfahrungen als einen möglichen Inputfaktor des vierphasigen Teamanpassungsprozesses ein und berücksichtige damit, dass Teams in der Lage sein sollten, aus früheren Handlungen zu lernen. Die vorliegende Studie zeigt, dass Teamanpassung adaptiv aber auch maladaptiv sein kann. Eine mögliche Erklärung ist, dass Teams von funktionalen zu eher dysfunktionalen Prozessen abschweifen können.

In den Kapiteln 3 und 4 nehme ich daher eine andere Perspektive ein und fokussiere mich auf dysfunktionale Teamprozesse im Kontext schwieriger Situationen. Genauer gesagt, stelle ich in Kapitel 3 das Konstrukt der kollektiven Rumination in Teams vor. Obwohl in früheren Untersuchungen beschrieben wurde, dass Teams exzessive Diskussionen führen, die zu einer Verstärkung negativer Einstellungen führen, wurde das Konstrukt der kollektiven Rumination bisher nicht als Teamprozess eingeführt. Um dies nachzuholen und das Konstrukt zu entwickeln, werden eine Literatur-Review und zwölf halbstrukturierte qualitative Interviews durchgeführt. Basierend darauf etabliere ich die kollektive Rumination in Teams als ein einzigartiges Diskussionsmuster, welches als Reaktion auf eine Situation entsteht, die kollektiv als unkontrollierbar und unsicher wahrgenommen wird. Es handelt sich um einen zwischenmenschlichen Teamprozess, der durch fünf Dimensionen gekennzeichnet ist: a) rekursive Diskussionen, b) Spekulationen über Ursachen des Problems und c) Spekulationen über Konsequenzen des Problems, d) (Mit)teilen negativer Gedanken und Gefühle und e) gegenseitige Verstärkung des Problemgesprächs. Aufbauend auf der Konstruktentwicklung entwickele ich eine Skala für kollektive Rumination in Teams und präsentiere drei Studien, die ihre psychometrischen Eigenschaften wie nomologische, konvergente und diskriminante Validität, sowie kriteriumsbezogene und inkrementelle Validität ermitteln. In diesen Studien untersuche ich die Beziehungen zwischen dem Zustand des negativen Team-Affekts und den Effektivitäts-Outcomes Teamleistung, Teamarbeitsengagement und Teamzusammenhalt. Da

diese Studien die vielfältigen negativen Folgen der kollektiven Rumination aufzeigen, ist es wichtig zu verstehen, wann und warum kollektive Rumination in Teams auftritt.

Für ein genaueres Verständnis darüber, wann und warum kollektive Rumination in Teams auftritt, werden in Kapitel 4 mögliche Inputfaktoren der kollektiven Rumination behandelt. Hier wird eine qualitative Studie präsentiert, in der 1.243 Ereignisse analysiert werden, die Teammitglieder als Auslöser für die kollektive Rumination beschrieben. Auf der Grundlage einer Inhaltsanalyse schlage ich vierzehn Kategorien vor, in die sich Auslöser der kollektiven Rumination einordnen lassen. Diese Kategorien erstrecken sich über verschiedene Analyseebenen – die Umwelt, die Organisation, die Führungsebene und Teams. Die vorliegende Studie spiegelt Aussagen der event-fokussierten Literatur wider, indem sie zeigt, dass Events Auslöser für kollektive Rumination in Teams sind. Darüber hinaus kann man aus der Studie mehrere praktische Implikationen für Entscheidungsträger:innen in Organisationen, für Führungskräfte und Teams ziehen.

Abschließend fasse ich in Kapitel 5 meine Ergebnisse zusammen und diskutiere ihre umfassenden theoretischen und praktischen Implikationen. Insbesondere rege ich Forschung und Praxis dazu an, sich stärker auf die Auswirkungen von Events zu konzentrieren, wenn sie versuchen, Teamverhalten und dessen Konsequenzen zu verstehen. Darüber hinaus rege ich die Untersuchung von solchen Teamverhaltensweisen an, die weit verbreitet zu sein scheinen und toleriert werden, aber negativ sind. Durch ein umfassenderes Verständnis von funktionalen und dysfunktionalen Teamprozessen im Kontext schwieriger Arbeitssituationen soll diese Dissertation die Teamforschung erweitern und die Praxis dabei unterstützen, Teams mit dem richtigen Wissen auszustatten, um den Herausforderungen der dynamischen Arbeitswelt von heute zu begegnen.

Introduction and Research Questions

"Hospitals are inundated with patients, front-line workers have taken sick or been quarantined, and staffing problems have increased the workload for everyone. Under these conditions, team efficacy can break down." (Pappas, 2021)

Given the highly dynamic nature of the organizational environment, teams have emerged in recent years to ensure high performance and foster innovation (Gardner et al., 2012). However, being in this dynamic context, they have to face multiple adverse situations such as the recent Covid-19 pandemic or change initiatives in organizations. In response to these situations, teams engage in certain processes to deal with and overcome these challenges. This dissertation aims to enlighten both functional and dysfunctional team processes in response to adverse situations.

Teams are "(a) two or more individuals who (b) interact socially (face-to-face or increasingly virtually); (c) share one or more common goals; (d) are brought together to accomplish organizationally relevant tasks; (e) exhibit interdependencies in terms of work processes, goals, and outcomes; and (g) are collectively embedded in a comprehensive organizational system with boundaries and linkages to the broader system context and task environment" (Kozlowski & Ilgen, 2006, p. 78). Due to the continuous evolution of digitalization, the pursuit of sustainability, innovation, and cost savings, or unexpected events such as the Covid-19 pandemic, teams increasingly find themselves in adverse situations that challenge well-established routines, significantly impact their collaboration (Klonek et al., 2021) and trigger both functional and dysfunctional team processes.

In the face of difficult situations, the success of teams is not only leveraged by team members' unique talents but by their interaction or, in other words, the *team processes* that transform team inputs into outcomes (input-process-outcome (IPO) framework; Hackman & Morris, 1975; Ilgen et al., 2005). According to the IPO framework, team processes play a pivotal role in team effectiveness (McGrath, 1984). Team processes are "interdependent acts

[of team members] that convert inputs to outcomes through cognitive, verbal, and behavioral activities" (Marks et al., 2001, p. 357). They support team members in organizing taskwork and achieving collective goals. In contrast to taskwork, team processes are not what teams are doing for their task work but rather how they interact while performing their task. They can be divided into three dimensions (Marks et al., 2001). Action processes are coordination as well as goal, task, and mutual monitoring in the course of action. Transition processes are mission analysis, goal specification, and strategy formulation between action phases. Interpersonal processes are conflict management, motivating and confidence building, and affect management. They serve the management of interpersonal relationships in both action and transition phases (Marks et al., 2001).

When teams face difficult situations, they engage in behaviors to effectively address the changed circumstances and adjust their usual processes. As a process, *team adaptation* is defined as "adjustments to relevant team processes (i.e., action, interpersonal, transition) in response to the disruption or trigger giving rise to the need for adaptation" (Maynard et al., 2015, p. 5). Although team adaptation has been proposed to be conceptualized as a performance construct, an individual difference construct, or a change in performance, the process perspective has been considered by many researchers in theory, yet only seldomly investigated empirically (Baard et al., 2013). However, for a more comprehensive understanding of organizational behavior, it is essential to distinguish the process from its outcomes and treat team adaptation (the process) and team performance (the outcome) as separate constructs, as also suggested in the IPO model.

According to the most recent adaptation process perspectives (Burke, Stagl, et al., 2006; Rosen et al., 2011), team adaptation is an adaptive cycle consisting of four subsequent phases: situation assessment, plan formulation, plan execution, and team learning. Situation assessment involves information gathering and interpretation whereas plan formulation consists of the determination of an action plan which is then carried out in the course of plan

execution. Finally, team learning involves the reflections and learnings from previous actions. Although every single phase of the four-phase team adaptation process should play a critical role in how teams adjust their usual and well-established team processes in response to non-routine situations, the model has not been empirically investigated holistically. However, this is important because researchers cannot fully explain the consequences of team adaptation when they only consider plan formulation and execution but miss the impact of situation assessment and team learning in their research.

As stated in the IPO framework (Ilgen et al., 2005), team inputs can be the reason for how and why teams engage in a particular behavior. Team inputs can be enduring team characteristics like team cohesion, events like the loss of a team member, or previous experiences like the previous engagement in certain behaviors. Referring to the latter, it seems plausible that teams who went through the adaptation process once may find it easier to adapt to subsequent non-routine situations. More specifically, when teams have gathered experience in adapting to a specific type of unexpected situation (trigger), this might benefit the execution of team adaptation and, consequently, performance in future non-routine conditions. However, it is still unclear whether external versus internal team adaptation experience, as distinguished by previous research (Georganta et al., 2019), changes the execution of the whole four-phase team adaptation process and influences performance consequently. Knowledge about team input variables is helpful to take a predictive account and understand the entire picture of team behaviors. Therefore, my first research question is:

RQ1: How do different types of team adaptation experience (internal versus external) influence the four-phase team adaptation process and consequently team performance?

Aside from processes that turn difficult situations into positive outcomes, a realistic perspective of organizations also includes team processes that turn difficult situations into negative outcomes. This perspective has often been neglected by researchers and therefore needs further investigation. For example, rumination, negative problem talk, or the social

sharing of negative emotions have been described in response to difficult situations (Baer et al., 2018; Marmenout, 2011).

At the dyadic level, co-rumination has been shown to bring about negative outcomes such as emotional exhaustion, increased anger or anxiety, low performance, and reduced well-being in individuals (Baer et al., 2018; Haggard et al., 2011). At the collective level, collective rumination is described as “repetitive and prolonged discussions of adverse events that center on the negative and uncontrollable aspects of the situation” (Knipfer & Kump, 2021, p. 5). It emerges in response to an adverse situation due to the desire for emotional relief and a feeling of closeness. When someone starts complaining and blaming, this likely leads to reinforcement by other conversation members, leading to a shared negative assessment of the situation. Signaling these negative emotions might further result in mutual contagion and emotional extension, resulting in even more negative emotions and a vicious cycle of negativity (Knipfer & Kump, 2021).

Collective rumination has not been introduced as a team process. However, team members interact frequently and are highly interdependent in their tasks (Kozlowski & Ilgen, 2006). Therefore, teams should be particularly prone to collective rumination. Indeed, excessive discussions with detrimental outcomes in teams were described by previous research (Marmenout, 2011). With teams being the most representative collective in today’s organization, it is therefore of critical significance to investigate how collective rumination operates as a team process. Consequently, in this dissertation, I investigate collective rumination and seek to explore its core dimensions, establish a conceptual definition, and an empirical measure. Further, I examine how collective rumination is related to other team interpersonal team processes, the emergent state team negative affect and the team outcomes team cohesion, team work engagement, and team performance. In summary, I ask:

RQ2a: How can collective rumination be conceptualized and measured as a team process?

RQ2b: What is the nomological network of collective rumination in teams, and what are its consequences?

Based on the input-process-(states)-outputs (IPSO) framework frequently used in groups (Marks et al., 2001; Mathieu et al., 2006), I consider collective rumination as a team process that follows input factors and that further affects states and outcomes. Aside from the process and its outcomes, the input factors of collective rumination should be considered, too. Knowledge about the inputs of collective rumination is vital in understanding when and how this behavior originates and when and how it can be avoided. However, it remains unclear in which type of situations teams engage in collective rumination. To investigate the input factors of collective rumination, I ask:

RQ3: *What are the primary input factors of collective rumination, and how can they be categorized?*

In summary, this thesis investigates positive and negative processes of the IP(S)O framework (Ilgen et al., 2005; Mathieu et al., 2006). Specifically, I seek to investigate functional and dysfunctional team processes that turn inputs into both positive and negative outcomes, respectively. Therefore, in the following chapters, I (1) experimentally investigate the team adaptation process and how it is impacted by the type of previous team experience, (2) propose a conceptual definition and measurement of collective rumination in teams and empirically investigate its nomological network as well as outcomes, and finally (3) investigate events as input factors of collective rumination. In doing so, I enlighten teamwork in the face of difficult situations and discuss implications for future research. In the following paragraphs, I briefly present the research approaches of each of the studies in this dissertation. An overview is given in Table 1; the research model of this dissertation is shown in Figure 1.

Research Approach

As the investigation of processes requires a combination of different methods (Spector & Meier, 2014), I use qualitative, quantitative, experimental, and nonexperimental research designs to examine team members and teams.

In **chapter two,** I conduct one experimental study (72 teams, N = 216 participants) to examine the impact of different types of team adaptation experience on the four-phase team adaptation process. As many theoretical models on team adaptation exist but have seldomly been examined empirically before, a highly standardized laboratory approach allows me to observe and draw causal conclusions about the behavior of team adaptation over time and in a setting that does not allow for any confounds. Consequently, responding to previous calls (Rosen et al., 2011), my research adopts a process perspective of team adaptation. It implies that disentangling the four-phase team adaptation process may make sense when investigating its input and outcomes in the future.

In **chapter three**, the goal is to investigate collective rumination at the team level. Therefore, a literature review on rumination theory and 12 semi-structured interviews with single team members serves as the basis to uncover the dimensions and propose a conceptual definition and respective measurement tool for collective rumination in teams. Subsequently, two cross-sectional studies (N = 720), of which the second is a two-wave study, are used to validate the collective rumination measure in samples of individual team members. Finally, a cross-sectional team study (N = 58 teams) allows cross-validation of the measure at the team level and investigate relations to other team processes, emergent states, and outcomes. With this research, I contribute to furthering theory on collective rumination, uncover its five highly correlated dimensions, and develop a measure for its empirical investigation. Further, this research showcases the evidence of collective rumination in organizations and its negative impact on team outcomes, emphasizing the importance of investigating negative team processes.

The goal of **chapter four** is to uncover input factors of collective rumination in teams. For this purpose, I use the knowledge about collective rumination inputs from chapter three. I analyze textual data from four waves of data collection, in which individual team members were asked to describe the situation they and their teams ruminated about. Using qualitative content analysis (Mayring, 2014), 1243 events are analyzed, conceptually similar events are clustered, and clusters are categorized into higher-order categories. This work emphasizes the importance of events and uncovers critical topics that trigger collective rumination. Further, it presents a categorization scheme of collective rumination triggers across multiple levels of analysis, drawing implications for more comprehensive multi-level research accounts on collective rumination in the future. More generally, it highlights the content of excessive problem talk in today's organizations.

Within the following chapters (two to four), I describe theory and methods and discuss implications, raise questions, present limitations, and suggest future research for each of the research accounts. Finally, in **chapter five**, I discuss the main contributions of my dissertation, drawing a perspective for research and practice ahead.

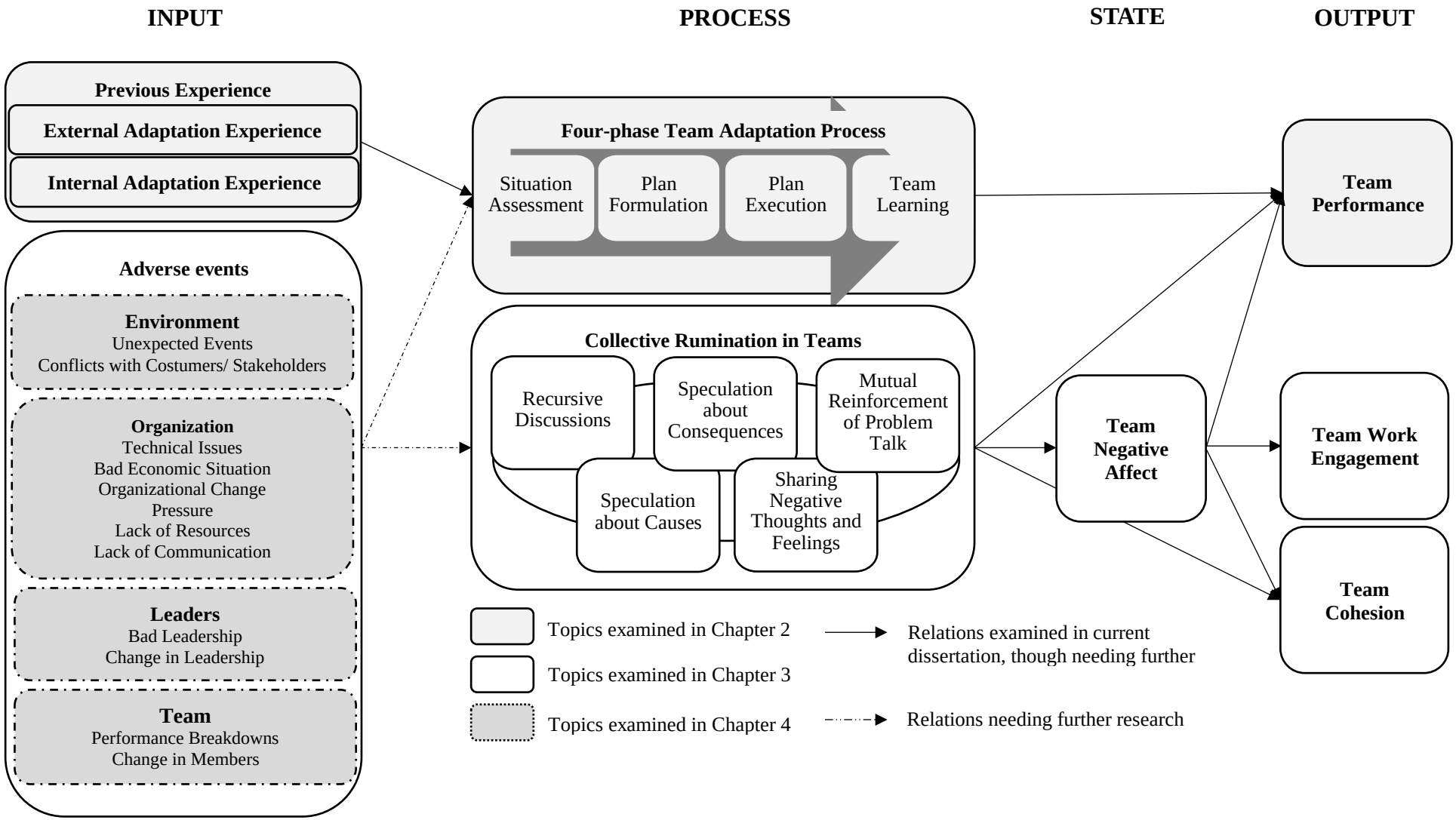
Table 1

Overview of Studies and According Variables in this Dissertation

	Chapter 2	**Chapter 3**				**Chapter 4**
	Study 1	Pre-Study	Study 1	Study 2	Study 3	Study 1
Main Goal	Investigate the impact of internal vs. external team adaptation experience on the team adaptation process and consequently team performance	Uncover dimensions of collective rumination in teams to develop items for a measure	Test the model structure of collective rumination in teams and reduce the item pool	Investigate convergent, discriminant as well as incremental validity	Cross-validate measure at the team level and measure outcomes	Investigate input factors of collective rumination
Research Approach	Experimental study	Qualitative semi-structured interviews	Correlational survey study	Correlational two-wave survey study	Correlational team-survey study	Qualitative content-analysis
Sample	**N = 216** individuals nested in **72 teams**	**N = 12** individual team members	**N = 310** individual team members	**N at T1 = 410** individual team members **N at T1 & T2 = 193** individual team members	**N = 208** individuals nested in **58 teams**	**N = 1243** data points
Focal Concepts of Interest	-	Dimensions of collective rumination	Collective rumination in teams	-	-	Input factors of collective rumination
Independent Variables (Inputs)	Type of adaptation experience (external vs. internal)	-				-
Processes	Team adaptation process			Collective rumination in teams	Collective rumination in teams	
States	-	-	-	-	Team negative affect	-
Dependent Variables (Outcomes)	Team performance	-	-	Team cohesion, team work engagement, team performance	Team cohesion, team work engagement, team performance	-
Correlates	-	-	-	Individual rumination, co-rumination, team motivation and confidence building, team affect management, team conflict management	Team motivation and confidence building, team affect management, team conflict management	-
(Statistical) Analyses	T-test, Regression-based mediation analysis	Qualitative content analysis	Confirmatory factor analysis with maximum likelihood estimator	Confirmatory factor analysis with maximum likelihood estimator, structural equation modelling	Confirmatory factor analysis with maximum likelihood estimator, linear regression	Qualitative content analysis

Figure 1

Research Model of the Current Dissertation in line with the IP(S)O Model from Team Research (Ilgen et al., 2005; Mathieu et al., 2006)



1 Does Experience Really Matter? How Different Types of Adaptation Experience Impact the Team Adaptation Process and Team Performance[1]

In the Forbes article "The Most Effective Teams Adapt to Change", the author highlights the importance of the power of "we" in the face of change (Boss, 2016). The author is correct – in the highly dynamic context of today's world, now, more than ever, team adaptation is a significant aspect of successful teamwork and organizational life (Rico et al., 2020). Adverse events such as unexpected budget cuts, sudden turnover of team members, or unforeseen technological failures are only a few situations that require sudden and functional adaptation of team processes and, therefore, disturb the usual routine of a team.

The significance of team adaptation is also evident in the substantial growth of literature on team adaptation (see Christian et al., 2017 for a meta-analytic review). For example, using the input-mediator-outcome (IMO) team effectiveness framework (Ilgen et al., 2005) as the base, Maynard et al. (2015) presented the relationship between inputs, mediators, and outcomes of team adaptation in a team adaptation framework. In this framework, inputs are conditions of teams before they adapt, mediators include team processes and team member interactions in the course of adaptation, and outcomes are task-related or non-task-related consequences of the just mentioned interactions. These outcomes can then potentially impact team inputs or mediators again.

Despite the rise of team adaptation research in recent years, the input factors of team adaptation are still a black box. To be more specific, it is unknown what factors influence how teams adjust their team processes and, in turn, their performance. However, since it is known that teams learn from non-routine situations that they have experienced in the past (Grote et al., 2018), the type of previously faced non-routine situations might shape a team's adaptation

[1] The study reported in this chapter is based on a paper by Georganta, Stracke, Burke, Knipfer, & Brodbeck (2021) published in *Small Group Research*.

response and, consequently, performance. Particularly, non-routine situations can either be external (changes in the collaborative task environment) or internal (changes in roles, membership, rewards, or structural form of the team; Christian et al., 2017), and the experience of one or the other non-routine situation might impact the teams' ability to adapt to future non-routine conditions (Rico et al., 2020). Therefore, based on the team adaptation framework by Maynard et al. (2015), this experimental study serves to investigate the impact of the internal versus external adaptation experience of a team (input) on the whole team adaptation process (mediator) and, consequently, team performance (output). Moreover, in this study, I explore whether the single phases of the team adaptation process play a differentiated role in linking the type of previous experience and team performance.

The contribution of this work to team adaptation research is threefold: First, in taking a process perspective I examine team adaptation from a different angle and investigate the so far in research underrepresented four-phase team adaptation process (Rico et al., 2020). Instead of previous studies that operationalized team adaptation as post-change team performance (Maynard et al., 2015), I observe behavioral indicators of teams in non-routine situations and consequently measure the four-phase team adaptation process itself. In doing so, I disentangle the team adaptation process from team performance and move beyond the confusions of conceptualization evident in team adaptation research (Christian et al., 2017). Treating the two constructs as separate ones, I can also investigate the direct relationship between the team adaptation process and team performance and potentially challenge previous research that has assumed a strong positive relationship between the two (Frick et al., 2018).

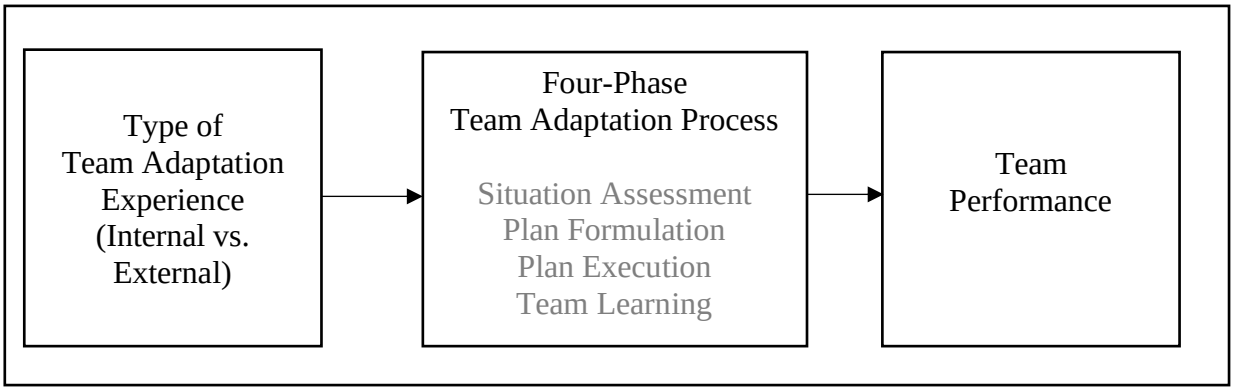
Second, I recognize the significance of team experience for team processes and subsequent outcomes (Huckman et al., 2009) and apply this to the context of team adaptation. Mainly, I explore whether the type of prior adaptation experience (i.e., internal vs. external adaptation experience) impacts team adaptation in subsequent non-routine conditions. In

acknowledging the fact that future team actions are contingent on the earlier state of a team (Matusik et al., 2019) and that teams learn in the course of their activities (Brodbeck & Greitemeyer, 2000), this study investigates whether teams show different levels of team adaptation based on their previous adaptation experience.

Third, this work is among the pioneers that consider all four phases of the team adaptation process (e.g., situation assessment, plan formulation, plan execution, team learning). Indeed, merely two studies have investigated more than one phase of the process (Georganta et al., 2020; Ramos-Villagrasa et al., 2018). Therefore, I respond to the call of Rosen et al. (2011) and present team adaptation as a whole process consisting of four phases. Figure 2 summarizes the research model.

Figure 2

Theoretical Model of Type of Team Adaptation Experience, the Team Adaptation Process, and Team Performance



Theoretical Background and Hypotheses

The Impact of the Four-Phase Team Adaptation Process on Team Performance

In the dynamic world of work, team adaptation is crucial for success. It is the "adjustment[] to relevant team processes (i.e., action, interpersonal, transition) in response to the disruption or trigger giving rise to the need for adaptation" (Maynard et al., 2015, p. 5). Whereas empirical research on team adaptation is still in its infancy, many theoretical models of team adaptation exist (Burke, Stagl, et al., 2006; Kozlowski & Bell, 2007). In taking a

process perspective, the model by Rosen et al. (2011) is one of the most established ones. In this model, the team adaptation process involves four phases that teams subsequently perform in response to adverse situations. They are situation assessment, plan formulation, plan execution, and team learning. In each phase, teams engage in specific team processes such as cue recognition in situation assessment, strategy formulation in plan formulation, coordination in plan execution, and team reflection in team learning. When teams engage in these processes during each adaptation phase, they uncover environmental changes, learn what the situation requires, develop a shared understanding, alter their roles and responsibilities, formulate and implement new strategies, and finally acquire new knowledge via lessons learned (Burke, Pierce, et al., 2006).

To successfully respond to non-routine conditions, teams need to undergo all four adaptation phases to complete the whole adaptation process (Rosen et al., 2011). Yet, most research on team adaptation has only investigated (parts of) the single phases and their impact on team performance (for a metanalytic review, see Christian et al., 2017). For example, the time to assess a non-routine event (Waller, 1999) or being aware of the team's situation (Ellwart et al., 2015) – both parts of situation assessment – contribute to high team performance under non-routine conditions. Similarly, teams who adjust their plans and develop a course of action perform better than teams who do not formulate their plans in non-routine conditions (Christian et al., 2017; DeChurch & Haas, 2008; LePine et al., 2008). Evidence also suggests that plan execution processes such as implicit and explicit coordination (Burtscher et al., 2010; Marques-Quinteiro et al., 2013) and task-oriented activities (Uitdewilligen et al., 2018) are positively related to team performance when teams face non-routine conditions. Finally, team learning (Santos et al., 2015) and reflection (Konradt et al., 2016) contributed to higher performance in non-routine conditions.

However, investigating the impact of only one phase of the team adaptation process on team performance results in a limited understanding of how teams behave in non-routine

conditions. For instance, even when teams have successfully assessed the situation, their performance might still suffer because they showed low levels of plan formulation or team learning. Therefore, I propose that all four team adaptation phases together – or in other words, the complete four-phase team adaptation process as a whole – contributes to team performance under non-routine conditions.

Hypothesis 1: The four-phase team adaptation process is positively related to team performance.

Type of Team Adaptation Experience as Antecedent of the Four-Phase Team Adaptation Process

Team adaptation requires situation assessment, planning, adjustment, and execution of strategies, as well as critical reflection and learning (Burke et al., 2006). These behaviors can only occur due to learning, which appears as a function of experience (Argote & Miron-Spektor, 2011). Therefore, *team adaptation experience*, the prior experience in adapting collectively to non-routine conditions, might help with future team adaptation (Burke et al., 2006; Maynard et al., 2015). With team adaptation experience, teams should be better able to diagnose a new situation, create adaptation plans, and coordinate and monitor their progress while executing these plans. Further, they should also be better at reflecting on their strengths and weaknesses during adaptation.

However, not only the experience itself but also the type of team adaptation experience should impact how teams can adapt to future non-routine conditions (Rico et al., 2020). This is because the collective adaptation to different types of non-routine conditions might also result in different kinds of knowledge and lessons learned (Grote et al., 2018). In team adaptation research, scholars distinguish between two types of non-routine conditions that trigger teams to adapt (Georganta et al., 2019): external or internal conditions that turn into external and internal team adaptation experiences when teams have experienced them.

Teams have gained external adaptation experience when they have previously adapted to *external* non-routine conditions such as changes "in the collective task environment, including changes in situational contingencies and the occurrence of non-routine events" (Christian et al., 2017, p. 65). Those teams remain intact in terms of their roles or task distribution when adapting to situations such as cutting expenses. Therefore, they can remain or even intensify their internal capacities (e.g., quality of interpersonal relationships) and processes (e.g., coordination). Internal stability allows teams to build more resources that can be transformed into future team outputs (Stoverink et al., 2020). Consequently, teams with external team adaptation experience should have more resources available and, subsequently, be better able to adjust to future non-routine conditions than teams with internal adaptation experience.

In contrast, teams have gained internal adaptation experience when they have previously adapted to *internal* non-routine conditions such as changes "in roles, membership, rewards, or structural form of the team" (Christian et al., 2017, p. 65). These teams need to establish relatively new team internal processes and arrangements that possibly come along with internal instability. This, in turn, should result in fewer resources that teams might need when adapting to future non-routine conditions (Hartmann et al., 2019). Indeed, meta-analytic findings have shown that adapting to an internal non-routine condition is more challenging than adapting to an external non-routine condition (Christian et al., 2017), possibly resulting in fewer resources.

With more resources available such as more stable information flow, communication patterns, and social and emotional relationships (see also Kennedy et al., 2016), teams with external team adaptation experience should adapt more effectively to future non-routine conditions than teams with internal team adaptation experience. Not only do resources allow teams to remain flexible (Carmeli et al., 2013), but they also allow teams to develop a deeper understanding of new challenges, appraise new situations (i.e., situation assessment), and

keep up a high level of performance (Wilson et al., 2005). Resources also encourage team processes important for plan formulation, such as clarifying roles or determining strategies in response to non-routine conditions (Weick et al., 2005). Moreover, resources help teams in critical processes for plan execution, such as coordinating actions or monitoring and supporting each other (Stoverink et al., 2020). Finally, with more available resources, teams can also better reflect and learn from their actions while they face non-routine conditions (Alliger et al., 2015). Therefore, I propose:

Hypothesis 2: The type of team adaptation experience is related to the four-phase team adaptation process. Teams with external team adaptation experience demonstrate higher levels of the four-phase team adaptation process than teams with internal adaptation experience.

The Mediating Role of the Four-Phase Team Adaptation Process

Teams with external team adaptation experience are assumed to better engage in the team adaptation process than teams with internal team adaptation experience. Consequently, teams with external team adaptation experience should also perform better than teams with internal team adaptation experience. Drawing on the challenge-hindrance stressor framework (Cavanaugh et al., 2000), teams with external adaptation experience can perceive future non-routine conditions as challenge stressors and, consequently, engage in team adaptation and improve their team performance. This is because the internal structure of teams with external team adaptation experience is still intact, allowing them to remain flexible and confident. Further and as argued above, these teams might have more resources and should consequently be able to perceive future non-routine conditions as opportunities for growth (Tugade & Fredrickson, 2004). This should help them execute each team adaptation phase and, in turn, team performance (Meneghel et al., 2014).

In contrast, teams have unstable internal structures and, therefore, fewer resources due to an internal team adaptation experience. Consequently, they might perceive future non-routine conditions as hindrance stressors – conditions they might not be able to manage. This is because they might already be depleted and perceive future non-routine conditions as

threatening, more damaging, and potentially harmful. Thus, teams with internal team adaptation experience might be disengaged and unable to adapt and perform in the face of future non-routine conditions in the same way as teams with external team adaptation experience (Pearsall et al., 2009; Podsakoff et al., 2007). Indeed, a recent meta-analysis has demonstrated that internal non-routine conditions were perceived as more troublesome than external ones (Christian et al., 2017). Consequently, I propose:

Hypothesis 3: The four-phase team adaptation process mediates the relationship between the type of team adaptation experience and team performance. Teams with external team adaptation experience demonstrate higher levels of the four-phase team adaptation process and reach higher performance than teams with internal team adaptation experience.

I conducted a laboratory experiment to elucidate whether the type of team adaptation experience influences the four-phase team adaptation process and, consequently, team performance. In this context confounding variables could be controlled for. Further, the context allowed to observe the temporal dynamics of team behavior in non-routine conditions that were created similar to those in organizations (e.g., team members leaving, limited resources, and unexpected changes). In contrast to previous studies where computer games or simulations were deployed (e.g., Randall et al., 2011; Santos et al., 2015), teams in the current research collaborated face-to-face, providing a complete picture of the whole team adaptation process, its inputs, and outputs.

Method

To assess the impact of the four-phase team adaptation process on team performance (Hypothesis 1), the effect of the type of team adaptation experience on the four-phase team adaptation process (Hypothesis 2), and the mediating role of the four-phase team adaptation process in the relationship between the type of team adaptation experience and team performance (Hypothesis 3), the type of team adaptation experience was manipulated. Specifically, two groups executing two subsequent team tasks in a between-subjects design were compared. Group A faced an external non-routine condition while completing their first

team task (external team adaptation experience). In contrast, group B faced an internal non-routine condition (internal team adaptation experience) while completing their first team task. During their second team task, both groups faced the respective other non-routine condition (internal non-routine condition for group A, external non-routine condition for group B).

Sample

To determine the required sample size for this experiment, I performed a power analysis with G*Power (version 3.1.9.2; Faul et al., 2007). Intending to reach a power of 0.95 (see Resick et al., 2010), I assumed a medium to large effect size (with α = 0.05). This resulted in 36 teams for each of the two conditions. Participants were acquired from a participant panel of a German university. The sample consisted of 216 individuals (56% female, M_{age}=21.98 years, SD_{age}=13.79), which were randomly assigned to 72 three-member teams. 81% of participants were students, and 60% worked part-time. Participants got a basic compensation of 4€ per person but could earn up to 20€ based on their team performance (see measures below).

Team Task

All 72 teams were welcomed with a cover story, in which they were informed that they were part of the department for product development of a smartphone company. They got the task to develop two creative marketing posters one after another to promote a senior smartphone. The marketing posters aimed to convince different target groups – either the company board or the seniors themselves – to launch or buy the smartphone, respectively. To control for order effects, 36 teams started with the poster targeted at the company board, and 36 teams started with the poster targeted at seniors.

Each team member was assigned a different role (i.e., demographics, finance, or marketing expert). The respective information for each role was explained in a detailed role description. In this role description, each team member was provided with two specific arguments for both the company board and the seniors (four arguments in total). One of the

two arguments for each target group was highlighted as very important, while the other was not. Specifically, the very important argument was printed in bold letters, whereas the less important argument was only mentioned without further emphasis.

Teams got a toolbox, a flipchart, and six printed (two arguments per expert) arguments for each poster. In total, teams got twelve arguments for both target groups. The goal of the two subsequent tasks was that teams select the three more important, highlighted arguments, and use their materials to prepare a very creative poster. For successful task performance, teams were required to share information and collectively coordinate their actions. They had 14 minutes for task completion.

Procedure and Study Design

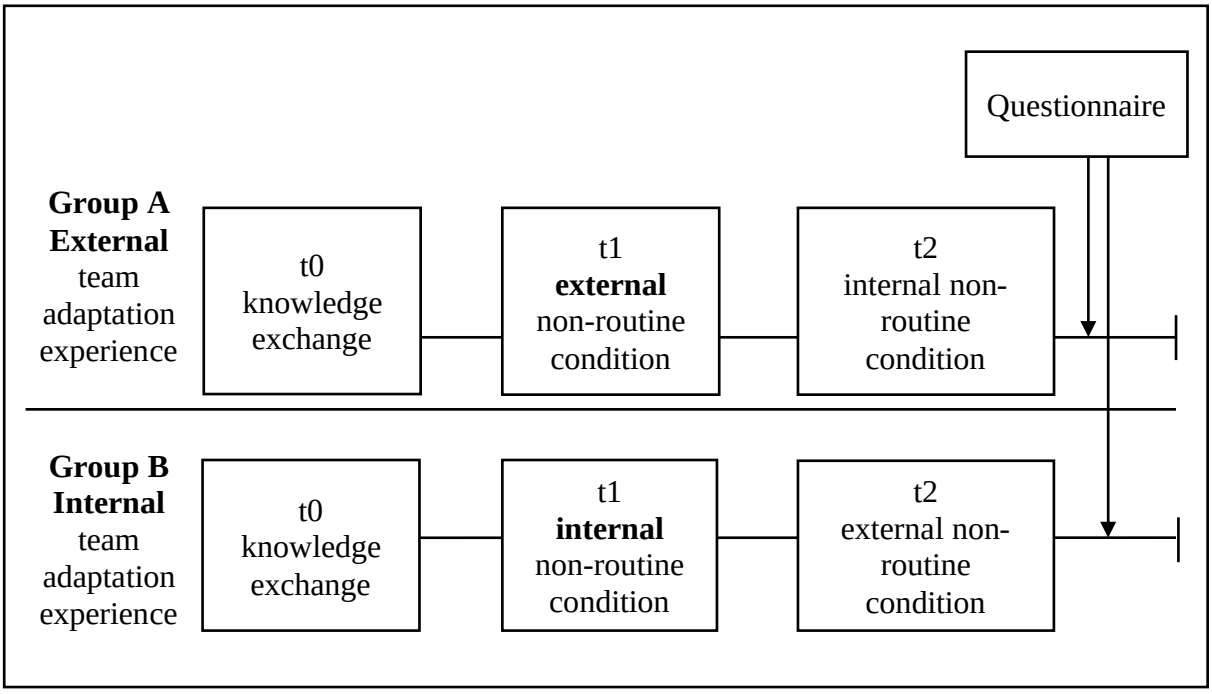
The procedure and study design are displayed in Figure 3. Two instructors ran 72 experimental sessions. A standardized script was used to ensure a standardized procedure where instructors provided the same information, and subsequently, participants had to follow the same steps. Participants first had to sign a consent form for anonymity and voluntariness. Afterwards, they were randomly assigned to a three-person team in one of two groups (Group A or Group B). Each team completed three parts (t0, t1, t2). First, teams had to watch a video that introduced the team task. Subsequently, each team member needed to read their individual role instruction and had two minutes to provide the most relevant information to the rest of the team (t0). Second, teams created the first poster for one of the two target groups (t1). Third, teams created the second poster for the respective other target group (t2).

At t1 and t2, either an external or an internal non-routine condition was introduced. In the external non-routine condition, teams got the information that another team from their company insistently needed further resources. Therefore, the team's resources – toolbox and arguments – were unexpectedly removed. In the internal non-routine condition, teams received the information that one of their team members needed to complete another urgent

task[2]. To control for systematic role effects, the order in which different team members (= different roles) were chosen to complete this task was counterbalanced. Both resources and the team member were given back to the team after six minutes so that teams were left with six remaining minutes to complete their posters. Group A faced the external non-routine condition at t1 (external team adaptation experience) and the internal non-routine condition at t2. Group B faced the internal non-routine condition at t1 (internal team adaptation experience) and the external non-routine condition at t2.

Figure 3

Experimental Design and Procedure of the Study



After t2, a manipulation check was performed using an online questionnaire. Using the same questionnaire, demographics were also assessed. Video and audio data were collected at t1 and t2 to enable the behavioral assessment of the team adaptation process and objective measurement of team performance (argument selection and poster creativity; see measures for details). Team members were thanked at the end of the study. Furthermore, they got their

[2] The team member was separated from the team and required to think of a slogan for the senior phone marketing campaign. They could not see the team and wore a headset so they could not follow the content of team discussions.

compensation which was based on their team performance. The total duration of the experiment was about one hour.

Measures

Four-Phase Team Adaptation Process

The Behaviorally Anchored Rating Scales (BARS; Georganta & Brodbeck, 2018) were used to assess the four phases of the team adaptation process (i.e., situation assessment, plan formulation, plan execution, and team learning). The BARS provide ineffective (e.g., 'Team members did not take into account the consequences of their steps when formulating their plan.'), medium, and effective (e.g., 'The team assigns unexpected changes to their respective significance') behavioral examples for all team processes important for each of the four team adaptation phases. These behavioral examples are placed next to the one-, three-, and five-scale points on a 5-point scale ranging from 1 (poor illustration of phase) to 5 (perfect illustration of phase) and can accordingly be used to rate the occurrence of the team adaptation phases. The BARS measure can be found in Appendix A.

Two raters (blind to the condition) coded the four phases using audio and video recordings. As a baseline, they independently evaluated six teams and rated the four team adaptation phases in t1 and t2. Disagreements were resolved by discussion. Afterwards, each coder independently coded the data of 33 teams. Cases of uncertainty were independently coded by both raters and discussed when disagreements occurred.

As there is evidence that each team adaptation phase should positively impact team performance and the role of the whole team adaptation process was emphasized multiple times, all team adaptation phases should be of equal importance in the face of non-routine conditions. Therefore, for the primary analysis, the scores of each adaptation phase were aggregated to one single four-phase team adaptation process score. However, for exploratory purposes, analyses were also performed with each separate phase.

Team Performance

Team performance was operationalized using two indicators: argument selection and poster creativity. For argument selection, teams had to share and integrate the information that each member got in their unique role description. Specifically, teams received points based on the arguments they collectively chose for the marketing poster they created in t2 (i.e., company board and seniors). Accordingly, teams received between one (i.e., when they did not choose any of the three very important arguments) and five points (i.e., when they chose all three very important arguments; see Appendix B).

For poster creativity, teams had to develop and implement new and creative ideas for a poster as creatively as possible using their available materials from the toolbox (see the toolbox in Appendix B). At the end of the study, two coders independently evaluated the t2 poster using one item ("The poster contains notable creative elements") on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Based on previous definitions of creativity (Sarkar & Chakrabarti, 2011), posters were evaluated as creative when teams used available materials (e.g., a lace) to create innovative elements (e.g., heart) for the fulfillment of a purpose (e.g., the smartphone helps seniors to communicate their love to family members). To reach a common understanding, both coders first independently rated the poster creativity of six teams. Disagreements were resolved by discussion and followed by each rater independently evaluating poster creativity for the 66 remaining teams. The interrater agreement was excellent (Krippendorff's $\alpha = 0.76$ for t2; Cicchetti, 1994). Example posters can be found in Appendix B.

Additional Measures

Demographics (age, gender, nationality, weekly working hours) were also assessed at t2. Further, participants were asked to evaluate four items that considered whether they saw a need for adaptation following the internal ($\alpha = 0.94$) and external non-routine conditions ($\alpha = .74$). Participants rated these items on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). The items were: "Due to the team member loss/loss of resources we had

to adjust our goals."; "Due to the team member loss/loss of resources we had to adjust our processes"; "Due to the team member loss/loss of resources we had to repeat some of our steps"; "Due to the team member loss/loss of resources we had to adjust the way we executed our task." With a moderate average of the four items for both the external (M = 3.34, SD = 0.88) and the internal (M = 3.33, SD = 1.60) non-routine condition, I showed that both non-routine conditions were perceived as requiring team adaptation as a response.

Data Analysis

SPSS (IBM SPSS Statistics Version 26) was used for data analysis. To investigate the impact of the team adaptation process on team performance, I ran linear regressions. Further, I performed a t-test to test the impact of the type of team adaptation experience on the team adaptation process. Finally, to investigate whether the team adaptation process explains the type of adaptation experience and team performance, I used model 4 in the SPSS Process Macro (Hayes, 2012). Means, standard deviations, and correlations of the study variables are demonstrated in Table 2.

Results

Hypothesis Testing

Results partially supported the assumption that the four-phase team adaptation process has a positive impact on team performance (Hypothesis 1). Specifically, in terms of argument selection, the results revealed that higher levels of the four-phase team adaptation process led to lower levels of argument selection ($ß$ = -.35, $t(70)$ = -3.16, p = .002; R^2 = .12, $F(1,71)$ = 9.98, p = .002). However, in terms of poster creativity, the results revealed that higher levels of the four-phase team adaptation process led to higher levels of poster creativity ($ß$ = .33, $t(70)$ = 2.96, p = .004; R^2 = .11, $F(1,71)$ = 8.75, p = .004), supporting Hypothesis 1.

Table 2

Intercorrelations and Descriptive Statistics of Study Variables

	M	*SD*	1	2	3	4	5	6	7	8
1. Type of Team Adaptation Experience	1.50	0.50	-							
2. Four-Phase Team Adaptation Process t2	3.00	1.01	-.18	-						
3. Situation Assessment t2	3.12	1.20	-.34**	.87**	-					
4. Plan Formulation t2	3.08	1.16	-.36**	.89**	.76**	-				
5. Plan Execution t2	2.97	1.11	-.23	.91**	.70**	.85**	-			
6. Team Learning t2	2.81	1.28	.27	.75**	.51**	.44**	.57**	-		
7. Argument Selection t2	2.25	1.68	.25*	-.35**	-.36**	-.38**	-.31**	-.17	-	
8. Poster Creativity t2	3.06	1.10	.10	.33**	.16	.33**	.35**	.30**	-.09	-

*Note. * p < .05. ** p < .001.* Teams with internal team adaptation experience are coded with the value 0, and teams with external team adaptation experience are coded with the value 1.

Results did not support the assumption that the type of team adaptation experience positively impacts the four-phase team adaptation process (Hypothesis 2). Specifically, the comparison of the means of the four-phase team adaptation process between teams with external team adaptation experience (M = 2.82, SD = 0.86) and teams with internal team adaptation experience (M = 3.18, SD = 1.12) revealed no significant differences ($t(70) = 1.53$, $p = .130$).

Based on the finding for Hypothesis 2, the results did also not support the third hypothesis, where the four-phase team adaptation process was assumed to mediate the relationship between the type of team adaptation experience and team performance. Specifically, for both argument selection [β = .19, 95% C.I. (-0.06, 0.45] and poster creativity [β = -0.14, 95% C.I. (-0.38, 0.04)], the confidence intervals for the indirect effect included zero, indicating non-significant findings.

Exploratory Analysis

Because of the missing impact of the type of team adaptation experience on the four-phase team adaptation process, I explored whether the type of team adaptation experience directly impacted team performance. Indeed, in terms of argument selection, teams with external team adaptation experience (M = 2.66, SD = 1.75) performed significantly better ($t(70) = -2.16$, $p = .034$) than teams with internal team adaptation experience (M = 1.83, SD = 1.50). However, in terms of poster creativity, teams with external team adaptation experience (M = 3.16, SD = 0.90) did not perform significantly better ($t(70) = -0.85$, $p = .397$) than teams with internal team adaptation experience (M = 2.94, SD = 1.27).

I also explored the significance of the different team adaptation process phases. Investigating the impact of the type of team adaptation experience on the single adaptation phases revealed the following results: Teams with external team adaptation experience (M = 2.72, SD = 0.97) performed significantly less situation assessment ($t(70) = 3.01$, $p = .004$) than teams with internal team adaptation experience (M = 3.52, SD = 1.28). Similarly, teams with external team adaptation experience (M = 2.67, SD = 0.86) performed significantly less plan formulation ($t(70) = 3.25$, $p = .002$) than teams with internal team adaptation experience (M = 3.50, SD = 1.28). Also, teams with external team adaptation experience (M = 2.72, SD = 0.88) performed marginally less plan execution ($t(70) = 1.94$, $p = .057$) than teams with internal team adaptation experience (M = 3.22, SD = 1.27). However, teams with external team adaptation experience (M = 3.17, SD = 1.20) performed significantly more team learning ($t(70) = -2.37$, $p = .020$) than teams with internal team adaptation experience (M = 2.47, SD = 1.28).

Investigating the impact of each phase of the team adaptation process on team performance revealed the results displayed in Table 3. More situation assessment led to lower levels of argument selection and had no impact on poster creativity. More plan formulation led to lower levels of argument selection but higher levels of poster creativity. Similarly, more

plan execution led to lower levels of argument selection but higher levels of poster creativity. And finally, more team learning did not influence argument selection but led to higher levels of poster creativity.

Table 3

Exploratory Regression Results for the Impact of Single Phases of Team Adaptation on Two Team Performance Outcomes

Variable	Argument Selection				Poster Creativity			
	ß	t(df)	R^2	F	ß	t(df)	R^2	F
Situation Assessment t2	-.36*	-3.22 (70)	.13	10.39*	.16	1.36 (70)	.03	1.84
Plan Formulation t2	-.38**	-3.44 (70)	.15	11.84**	.33*	2.89 (70)	.11	8.37*
Plan Execution t2	-.31*	-2.68 (70)	.09	7.22*	.35*	5.75 (70)	.12	9.86*
Team Learning t2	-.17	-1.43 (70)	.03	2.05	.30*	7.67 (70)	.09	6.98*

Note.* $p < .05$. ** $p < .001$.

Finally, investigating the role of the single adaptation phases as mediating variables between team adaptation experience and the two team performance outcomes revealed the results displayed in Table 4. Teams with external adaptation experience performed argument selection better as they performed less situation assessment. Teams with external adaptation experience also performed argument selection better as they performed less plan formulation. At the same time, teams with external adaptation experience were less creative in their posters because they performed less plan formulation. And finally, teams with external adaptation experience were more creative because they engaged more in team learning.

Table 4

Exploratory Mediation Results (Indirect Effects) for the Impact of Team Adaptation Experience on Two Team Performance Outcomes Mediated by Different Team Adaptation Phases

Variable	Argument Selection				Poster Creativity			
	Effect	SE	95% CI		Effect	SE	95% CI	
			LL	UL			LL	UL
Situation Assessment	**.35**	.17	.06	.72	-.16	.12	-.42	.03
Plan Formulation	**.40**	.18	.10	.78	**-.33**	.13	-.61	-.10
Plan Execution	.20	.13	-.02	.48	-.20	.12	-.45	.00
Team Learning	-.23	.16	-.62	.00	**.18**	.11	.01	.44

Note. Significant indirect effects are presented in bold. Teams with internal team adaptation experience are coded with the value 0, and teams with external team adaptation experience are coded with the value 1.

Discussion

To illuminate factors that influence the team adaptation process and consequently performance as called for by recent research (Rico et al., 2020), the current study served to achieve two goals: First, based on previous evidence stating that future team actions depend on previous ones (Matusik et al., 2019), the aim of this study was to investigate whether different types of team adaptation experience – external or internal team adaptation experience – had an impact on the execution of the four-phase adaptation process. The second aim was to measure the impact of the whole four-phase team adaptation process on team performance as proposed by theory (Rosen et al., 2011). In pursuing these goals, I conducted an experiment and observed team adaptation behavior in the face of non-routine situations. In doing so, I have neither measured only single phases of the four-phase team adaptation process nor assessed it retrospectively as previously criticized (Georganta & Brodbeck, 2018). Further, I treated the four-phase team adaptation process and team performance as separate

constructs (Christian et al., 2017) and considered the importance of behavior and time-dynamic components that are frequently highlighted in relation to team adaptation (Maynard et al., 2015) and team behavior in general (Lehmann-Willenbrock & Allen, 2018).

This study shows that it made no difference whether teams had external or internal team adaptation experience for their engagement in the whole four-phase team adaptation process. However, the engagement in the whole team adaptation process influenced the two indicators of performance, argument selection, and poster creativity, differently. Remarkably, the four-phase team adaptation process negatively impacted how teams shared and integrated information (argument selection) but positively influenced teams in the creativity of their poster (poster creativity). Additionally, exploratory findings hint at the importance of investigating the single phases of the team adaptation process.

The findings of the current study challenge previous literature, which has stated that the successful execution of the four-phase team adaptation must always lead to higher levels of team performance (Burke, Pierce, et al., 2006; Rosen et al., 2011). More specifically, the results imply that the four-phase team adaptation process – where all phases were considered equally and were consequently merged – was destructive for performance requirements that involved cognition and knowledge work (argument selection) but constructive for performance requirements that involved creation and operation (poster creativity). This has two implications. One is that the influence of the four-phase team adaptation process on team performance may differ for different performance requirements. In other words, it seems that the four-phase team adaptation process is helpful for some types of performance requirements but not for other types of performance requirements. For example, it might make a difference whether teams assess the availability of information to plan, execute, and learn for a cognitive performance requirement or whether they consider the availability of their tools and materials to plan, execute and learn for an operational performance requirement. Therefore, the team adaptation process might only be successful for operational and not cognitive tasks.

Another implication is that teams might only be able to focus on one performance requirement but not on several simultaneously (Hobfoll et al., 2018; Vohs & Heatherton, 2000). For example, the engagement in phases such as situation assessment, plan formulation, or plan execution might already use up so much cognitive load that teams cannot engage in cognitive tasks but can still perform operational ones (Vohs & Heatherton, 2000). In the face of a non-routine condition, teams might not be able to engage in the four-phase team adaptation process and at the same time consider the requirements for several performance measures. Indeed, a too complex task environment and the need to adapt might teams might keep teams from achieving the expected results (Landon et al., 2015). To support this reasoning, the content of the four-phase adaptation process might be more important than previously assumed, as teams in this study may have only engaged in team adaptation directed towards one performance requirement (the creative one). Future research should distinguish different performance requirements and investigate the number of performance requirements that teams can handle in the face of non-routine conditions.

The findings of this study also imply that it does not matter for the execution of the whole team adaptation process whether teams have external versus internal team adaptation experience. With both types of experiences, teams have possibly acquired and lost essential team resources to complete the whole team adaptation process afterward. For example, as teams with external adaptation experience could remain intact internally (e.g., roles, task distribution), they might have been so stable that they could coordinate themselves and rely on their knowledge from previous experiences. At the same time, they might not have seen the need to assess the situation or make a plan in the face of a new non-routine problem. On the other hand, teams with internal team adaptation experience were probably forced to set things up and take action from the beginning, thus assessing the situation and formulating a plan. At the same time, they might have been so busy engaging in these processes that they probably lost time and resources to engage in other important ones. In support of this

reasoning, exploratory findings show that teams with external team adaptation experience focused less on situation assessment and plan formulation but more on learning. In contrast, teams with internal team adaptation experience focused more on situation assessment and plan formulation and more minor on team learning. These findings challenge previous research (Rosen et al., 2011) and imply that the single phases of team adaptation cannot be treated equally as different triggers might elicit them.

Finally, the exploratory findings showed that teams with external team adaptation experience showed better team performance in argument selection than teams with internal team adaptation experience. This implies that teams with external team adaptation experience rather focused on executing their actual task instead of being distracted by adapting to the non-routine condition. Specifically, because teams could keep their internal stability, they might not have seen the need for adaptation and therefore focused on their task at hand. In other words, their internal stability was a resource that helped them for future team outputs (Stoverink et al., 2020).

Suggestions for Future Research

This study has several implications for future research: First, research on team adaptation should consider that team adaptation might also involve a dark side (Frick et al., 2018). Specifically, we need to acknowledge that some adaptation processes might not work for some performance requirements, are executed incorrectly, or circumstances lead teams to engage in more dysfunctional processes. For example, teams might drift into speculative and excessive discussions during situation assessment (Knipfer & Kump, 2021). Further, the developmental stage of the team might not only influence how the team adaptation process is executed but also influence the connection between the team adaptation process and team performance. Indeed, previous literature has highlighted how important timing is for team performance (Ilgen et al., 2005). Overall, researchers should illuminate the boundary conditions of the team adaptation process, develop ideas about when it can go wrong, and

investigate features that might foster the relationship between the four-phase team adaptation process and team performance.

Second, besides investigating explicit processes of team adaptation – the behavior itself – research should also consider implicit cognitive or emotional features in the investigation of team adaptation. Indeed, teams learn implicitly due to their activities (Argote, 1993), and this newly acquired implicit knowledge might support teams in adverse non-routine situations (Reber, 1989). Further, emergent states, "cognitive, motivational, and affective states of teams" (Marks et al., 2001, p. 357), are necessary for team adaptation (Christian et al., 2017). Concretely, it has been argued that it is of utmost importance that teams can update their mental models during team adaptation (Uitdewilligen et al., 2013). Creating a collective understanding of each team member's expertise or adding or updating new cognitive elements allow teams to remain flexible in non-routine conditions (Lewis & Herndon, 2011; Rico et al., 2020; Rosen et al., 2011). Therefore, future research should acknowledge both explicit and implicit processes to understand team adaptation fully. For instance, research could explore whether the ability to update their shared mental models (Santos et al., 2015) impacts the relationship between the type of team adaptation experience and the four-phase team adaptation process.

Finally, the exploratory findings of this study show that an internal team adaptation experience triggers some phases of the four-phase team adaptation process, and an external adaptation experience triggers other phases of the four-phase team adaptation process. Further, some phases were critical for one performance requirement, and some were important for another. Therefore, future research should investigate the interplay between single phases and the four-phase team adaptation process as a whole. Specifically, it should tackle the importance of each of the phases for the whole process and investigate whether single team adaptation phases can cancel each other out when the team adaptation process is considered as a whole. Further, it should focus on the types of triggers that elicit team

adaptation phases and investigate which outcomes can be expected from single adaptation phases.

Limitations

The findings of this study provide several implications regarding the dynamic nature of the core of team adaptation, the so-far underrepresented team adaptation process (Rico et al., 2020). However, some limitations still need to be acknowledged. I investigated the relationship between the type of team adaptation experience, the four-phase team adaptation process, and team performance in a laboratory study and could therefore exclude undesired effects. However, the external validity of laboratory experiments can still be challenged. Additionally, I used teams that did not know each other and had minimal experience working together. This might have influenced the way teams adjusted to new situations (Kennedy et al., 2016) and implies that this study's findings are predominantly meaningful for teams in early developmental stages. Future research should replicate this study's design in a field setting with more experienced teams.

Furthermore, this study's focus was only on the execution of the four-phase team adaptation process but not the content of the conversations. Therefore, teams with different types of team experience might have discussed other things and performed different levels of situation assessment, plan formulation, plan execution, and team learning. Previous evidence has shown that different types of team planning lead to varying levels of team performance (DeChurch & Haas, 2008). Relatedly, the focus teams take in team learning (either "here and now" or future actions) can impact team outcomes in different ways (Schmutz et al., 2018). Consequently, to understand the four-phase team adaptation process, its inputs, and outcomes in more detail, future research should observe the execution of the four-phase team adaptation process and additionally analyze its content.

Finally, I did not recognize that the quality of the non-routine condition that teams have faced in this study could have directly impacted the team adaptation process. For

example, Maynard et al. (2015) emphasized that the severity of unexpected situations can affect the team adaptation process and team performance. Specifically, teams can respond differently when facing internal compared to external non-routine conditions (Christian et al., 2017). Therefore, the inconsistent findings in this study might be because teams with external and teams with internal team adaptation experience also faced different non-routine conditions when they were in the second task round, where the team adaptation process and team performance were observed. Therefore, I encourage future research to acknowledge the quality of the specific non-routine conditions in the planning stage of new studies. Consequently, they should also measure its severity directly to estimate and control its impact on the execution of the team adaptation process.

Practical Implications

This research has practical implications for teams, leaders, and organizations. This study's findings imply that in response to non-routine conditions, the four-phase team adaptation process should be tailored to the actual task that teams need to perform. As the results demonstrated different consequences for different types of tasks, teams should continuously monitor the necessity of the team adaptation process and determine whether it aligns with the task at hand. With leadership being of utmost importance in the face of non-routine conditions (Hannah et al., 2009), leaders should direct their teams through team adaptation and constantly encourage reflection about whether the team adaptation process carried out by the team corresponds to their actual task (Otte et al., 2019).

The exploratory results show that teams with external team adaptation experience perform cognitive tasks better in future non-routine or adverse situations than teams with internal team adaptation experience. Further, when teams with external adaptation experience focus on what they have learned from this situation, they perform creative tasks better than teams with internal experience. Accordingly, organizations could develop team training (e.g., Salas et al., 2008) in which teams go through external non-routine conditions. In line,

previous evidence has demonstrated that team-interaction training (Marks et al., 2000) as well as procedural training (Hockey et al., 2007) are more suited for the development of adaptive teams than more traditional team training (Gorman et al., 2010).

Conclusion

In an attempt to further elucidate team adaptation research, I performed an experimental study. I observed whether the type of team adaptation experience influenced the four-phase team adaptation process and whether it impacted team performance. In emphasizing the dynamic nature of the four-phase team adaptation process, my research draws implications about the relevance of team adaptation for team performance. Because this study's findings show that the four-phase adaptation process is not helpful for all performance requirements, I discuss potential missing pieces for the adaptation puzzle. Based on my discussion of the current limitations of this study, I draw specific implications for research and encourage future research to pick them up and further enlighten team adaptation research.

3 Immersed in Negativity: The Concept and Impact of Collective Rumination in Teams[3]

Remember the last time you and your team encountered an adverse situation where you experienced a collective feeling of uncertainty or even paralysis. For example, it might have been during the pandemic, when organizations had to introduce several new measures that dramatically changed how we worked. Or, it was in the face of financial problems where organizational change was presented with the consequences still being unclear. As described in the previous chapter, some teams might do their best to adapt to these situations to get out. However, others might respond with intrusive discussions that creep up between meetings, in the coffee kitchen, or office hall. When I interviewed team members to learn more about these kinds of conversations, they described them as extreme, repetitive, and excessive discussions and stated that they did not bear any progress for the team. At the same time, they acknowledged that they, too, took part in these discussions, were even drawn into them, and were often puzzled at the end why they took part in the first place.

Team members may look for emotional and social support in situations where adversity strikes. One way of doing so is turning to each other and sharing negative thoughts and feelings (Knipfer & Kump, 2021). However, discussions about negative emotions lead to poor outcomes (Rimé et al., 2020). Participants might share and converge on a negatively biased situation assessment, become victims to emotional contagion, and consequently immerse in negativity, making them unable to manage and overcome the adverse situation (Knipfer & Kump, 2021). Notably, negative emotions are revived repeatedly and may provoke a process called *rumination* (Rimé et al., 2020). With the current work, I seek to understand these harmful and excessive discussions about adverse work situations in teams, which I refer to as collective rumination (Knipfer & Kump, 2021; Marmenout, 2011).

[3] This chapter is based on a working paper by Stracke, Knipfer, & Peus (2022) after the invitation to revise at *The Journal of Applied Psychology*.

Theory about collective rumination has just recently been introduced to the organizational context. Based on co-rumination – the excessive discussion of *individual* problems within a dyadic relationship – *collective rumination* refers to repetitive and prolonged discussions of shared adversity that center on the negative and uncontrollable aspects of the problematic situation (Knipfer & Kump, 2021; Marmenout, 2011). So far, collective rumination theory teaches us how "problem talk" emerges between organizational members. However, it has not investigated how collective rumination manifests in the most prominent example of organizational collectives: teams. This is surprising as previous research has provided a tentative description about how the existence of collective rumination amplifies negative attitudes in teams (Marmenout, 2011), which may consequently lead to detrimental outcomes. Yet, we cannot advance and test the theory on collective rumination without a more systematic concept that would also allow for the development of a measure.

Thus, I pursue the following goals with this research: Drawing on theory of rumination and exploratory semi-structured interviews, I seek to a) propose a conceptual model of collective rumination in teams that allows to b) test theory about its impact on team functioning. To develop theory on collective rumination in teams, I draw on the model of mood and emotions in small groups and work teams and group affective tone research (Barsade & Knight, 2015; Collins et al., 2013; Kelly & Barsade, 2001). Particularly, I theorize about collective rumination as a specific (dysfunctional) form of sharing negative moods and emotions, preceding negative team affect. Building on the input-processes-states-outputs (IPSO) framework (Marks et al., 2001; Mathieu et al., 2006), I also test the impact of collective rumination (process) on team functioning (output) and therefore, team cohesion (Mathieu et al., 2015), team work engagement (Costa et al., 2014b), and team performance (Hoegl & Parboteeah, 2003) with the emergent state negative team affect (state) explaining the latter effects.

The contributions of this research are as follows: First, I want to elucidate the concept, nomological network, and outcomes of collective rumination. To advance collective rumination theory (Knipfer & Kump, 2021; Marmenout, 2011), I theorize about its structure and provide a conceptual definition of its manifestation in teams. In doing so, I also test and advance theory on emotions in small groups (Barsade & Knight, 2015; Collins et al., 2013; Kelly & Barsade, 2001). Particularly, I integrate both literature streams and propose that collective rumination is a more extreme form of sharing negative moods and emotions in adverse situations where teams collectively feel uncertain and out of control. Drawing on the IPSO framework prominent in group research (Marks et al., 2001; Mathieu et al., 2006), I finally present a model of collective rumination and relate it to relevant outcomes, informing collective rumination theory that has only recently attracted the interest of OB literature.

Second, I investigate collective rumination in the context of teams. In doing so, I propose it as a new and negative team process to group research (Marks et al., 2001). I, therefore, respond to the call to investigate more dysfunctional interaction patterns, as their understanding is essential to creating desirable conditions in which groups can successfully be productive (Kauffeld & Meyers, 2009). Consequently, my research is necessary to understand and prevent negative team outcomes, such as low team cohesion, low team work engagement, and low team performance.

Third, building on my conceptual model, I present a collective rumination scale as suggested by previous research (Knipfer & Kump, 2021). This scale will help empirically investigate antecedents, contingencies, and outcomes of collective rumination.

Finally, regarding practical implications, I hope to make people aware of collective rumination and consequently support teams and their leaders to observe indicators of collective rumination as a standard but somewhat dysfunctional reaction to events at work.

Collective Rumination in Teams

Collective rumination is a typical response of collectives to shared adversity (Knipfer & Kump, 2021; Marmenout, 2011). This means that all ruminators are similarly affected by adversity and start ruminating because they need emotional relief and social support. Defined as repetitive and excessive discussions of adverse situations amongst multiple organization members that center on negative and uncontrollable aspects (Knipfer & Kump, 2021, p. 5; Marmenout, 2011), collective rumination involves rapid convergence on a negative assessment of the adverse situation and immersion in negativity via mutual emotional contagion. Consequently, negative emotions are reactivated, which results in a vicious cycle of negativity and reinforcement. This vicious circle depletes organizational members' cognitive and emotional resources so that it will become more challenging for them to deal with adversity. As a result, collective rumination should harm organizations. Because ruminators collectively perceive a constant lack of control over the situation, they may have diminished commitment to improving the situation actively. They can finally not accept adversity as a challenge (Knipfer & Kump, 2021).

Teams are everywhere in organizations. They work on their tasks interdependently and have a collective responsibility for outcomes (Kozlowski & Ilgen, 2006). Consequently, they should be particularly prone to collective rumination. Therefore, as a collective construct, I conceptualize collective rumination as an interpersonal process. Team processes are team member interactions that convert team inputs into outcomes (Marks et al., 2001). Team interpersonal processes can happen in both action and evaluation phases as they focus on the interaction of team members. Therefore, they need to be constantly managed (Marks et al., 2001). Interpersonal processes are (a) conflict management – the way how teams operate in situations of conflicts; (b) motivating and confidence building – the way how teams keep up their motivation and confidence; and finally, (c) affect management – the way teams handle emotions in stressful conditions. Like these interpersonal processes, collective rumination is

an interaction in response to an adverse situation and governs interpersonal activities (Knipfer & Kump, 2021). Therefore, I consider it an interpersonal process, too.

When collective rumination happens in teams

Earlier literature suggested that behaviors, features, or events are consequences of certain other events (Morgeson et al., 2015). In line, literature on group affective tone (Collins et al., 2013) stated that the exposure to common affective events leads to processes of affect convergence (i.e., collective rumination). To get ideas about when and how collective rumination occurs in teams, I reviewed previous literature on rumination. Further, I validated and refined common themes with exploratory interviews with team members from the field.[4] Based on my results, collective rumination should follow a *shared* and *adverse*, more specifically uncontrollable and uncertain, event (Knipfer & Kump, 2021; Marmenout, 2011). The interview guideline can be found in Appendix C.

Collective rumination was proposed to happen in response to organizational problems (Marmenout, 2011) or *situations that affect all organization members similarly* (Knipfer & Kump, 2021). My interviewees also indicated that their teams collectively ruminated in response to *shared* events: *Well, I guess this is an issue that has affected us all. I guess... That was, I think, such a collective, unspoken agreement: We are all affected by it (16041330).* Relatedly, the Affective Events Theory also stated that *shared* experiences trigger the assimilation of affective states (Weiss & Cropanzano, 1996).

Besides being shared, triggers of collective rumination were also characterized as adverse (Knipfer & Kump, 2021). Workplace adversity can be viewed as "any negative, stressful, traumatic, or difficult situation or episode of hardship that is encountered in the occupational setting" (Jackson et al., 2007, p. 3). Therefore, adversity lies in people's perceptions, which is why it should be operationalized as those states raised in response to

[4] I interviewed eight female and four male team members (M_{age}= 40.50; SD_{age}=10.91), working in academia, automotive, consulting, finance, or service. All interviews were conducted in German, based on a semi-structured interview guideline, and audio-recorded after requesting permission. The content analysis allowed cluster conceptually similar statements into higher-order categories, resembling those found in the literature.

adversity: uncertainty and a lack of control. Uncertainty is defined as the "perceived inability to predict something accurately" (Milliken, 1987, p. 136). To put it differently, people lack the knowledge to understand a specific situation. In support, my interviewees told me that their teams ruminated out of uncertainty. For example, someone said: *And that just made me and my colleagues feel insecure. Because we didn't know what she would do afterwards (13031100).* Further, another interviewee spoke of the *internal motivators, the fear, the uncertainty, the feeling of powerlessness* (16041330).

Because knowledge is a determinant for feelings of control (Terry & Jimmieson, 1999), uncertainty involves people feeling a lack of control. Particularly, if people miss information about a situation's nature and consequences, they also feel incapable of managing the situation (Bordia et al., 2004). The interviewees also mentioned a perceived lack of control when they described trigger situations of collective rumination: *The reason for this is the supposed assessment that you can't change the situation anyway, that you're trapped." (...) „But that's this mindset: We cannot change anything anyway (11041700).* Relatedly, one interviewee said: *But then, too, it is clear that (...) we are talking about a subject that concerns us all, but we cannot change anything about it. We don't really have the possibility to change the situation* (13031100). Supporting these statements, previous literature has described that collective rumination happened in response to a merger (Marmenout, 2011). A merger is also a shared event and both uncertain and beyond the team's control (Bordia et al., 2004) and therefore meets the criteria (shared, uncertain, and uncontrollable) described above. Consequently, I argue that collective rumination happens in response to a shared, uncertain, and uncontrollable event. With this being laid out, I seek to theorize about the manifestation of collective rumination to provide a systematic conceptualization of collective rumination in teams in the following paragraphs.

Behavioral dimensions of collective rumination in teams

To explore the behavioral dimensions of collective rumination, I first present a literature review of previous theoretical accounts of individual rumination, co-rumination, and collective rumination (see Table 5). Based on earlier descriptions of individual rumination, co-rumination, and collective rumination, as well as insights from the interview data (Figure 4), I established five dimensions on the manifestation of collective rumination in teams: *recursive discussions, speculating about causes, speculating about consequences, sharing negative thoughts and feelings, and mutual reinforcement of problem talk.*

Table 5

Synthesis of research on individual, co-rumination, and collective rumination

Author(s)	Construct	Definition of Rumination	Defining Elements
Nolen-Hoeksema (1991)	Response-Style-Theory of Rumination	• "Ruminative responses involve repetitively focusing on the fact that one is depressed; on one's symptoms of depression; and on the causes, meanings, and consequences of depressive symptoms." (p. 569) • "Ruminative responses, as defined here, differ from structured problem solving in that individuals simply think about or talk about how unmotivated, sad, and lethargic they feel without doing anything to relieve their symptoms, or they worry about the meanings of the symptoms without making plans to change their situation" (p. 569)	- repetitive focus on one's own depressive symptoms - thinking about possible causes and consequences - focus on negative emotional state - problem-focused - passive

Martin and Tesser (1996)	Goal Progress Theory of Rumination	• "Rumination is a class of conscious thoughts that revolve around a common instrumental theme and that recur in the absence of immediate environmental demands requiring the thoughts. Although the occurrence of these thoughts does not depend on direct cueing by the external environment, indirect cueing by the environment is likely given the high accessibility of goal-related concepts. Although the external environment may maintain any thought through repeated cueing, the maintenance of ruminative thoughts is not dependent upon such cueing." (p. 7)	- common instrumental theme - absence of immediate environmental demand - conscious thoughts - recurring thoughts - indirect cueing
Rose (2002)	Co-Rumination	• "Co-rumination refers to excessively discussing personal problems within a dyadic relationship and is characterized by frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings." (p.1830) • "Co-rumination is both social (unlike rumination) and also potentially maladaptive (unlike self-disclosure as typically defined) due to the negative focus." (p.1830)	- frequent discussion of individual problems - discussing the same problem repeatedly - mutual encouragement of problem talk - speculating about problems - focusing on negative feelings
Marmenout (2011)	Collective Rumination	• "I define *collective rumination* in the organizational context as repetitively and passively discussing organizational problems and their negative consequences with a group of peers. Indeed, with peers reiterating the same negative ideas, echoing each other's fears, collective rumination appears to accurately capture the nature of peer interaction and to explain how employee reactions become more detrimental over time." (p. 799)	- repetitive and passive discussion - problem-related - speculation about causes and consequences - reiterating negative ideas - echoing each other's fears

Knipfer and Kump (2021)	Collective Rumination	• "Building on Marmenout's work, we define collective rumination as repetitive and excessive discussions of adverse situations amongst organization members that center on negative and uncontrollable aspects." (p. 5) • "(…) in collective rumination, all interlocutors are affected by the adverse situation and share their thoughts and emotions with each other." (p.5) • "two or more organization members—who are interdependent in their social interactions and act as a "collective" (Morgeson & Hofmann, 1999)—ruminate together." (p. 6)	- repetitive and excessive discussions - shared problem that affects multiple organization members - centers on negative and uncontrollable aspects

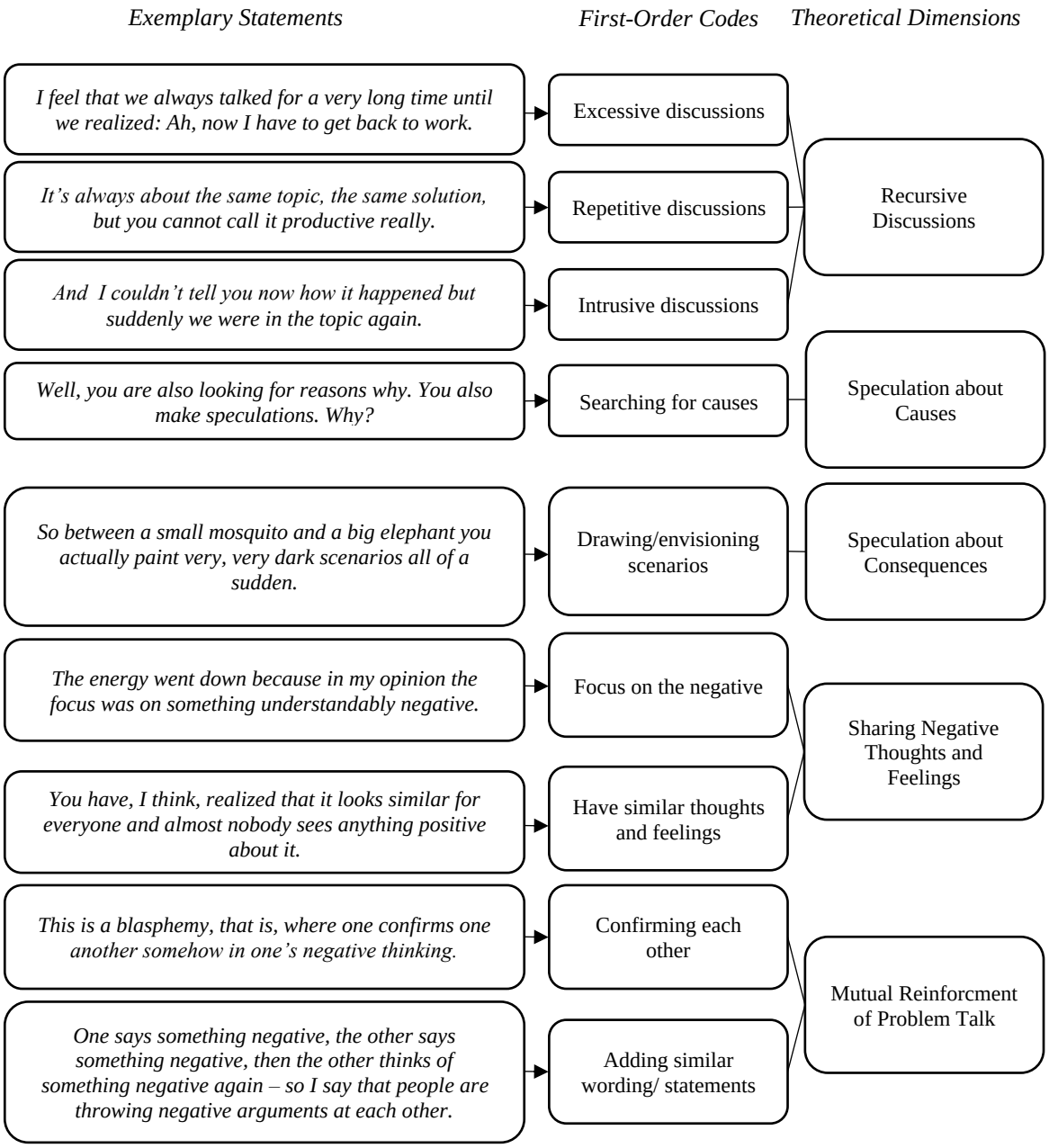
Recursive Discussions

Rumination consisted of repetitive and intrusive thoughts or discussions across all accounts. For example, Nolen-Hoeksema (1991) defined individual rumination as some kind of *repetitive, passive, and negative thinking*. Further, it was conceptualized as *unintended*, *intrusive*, *recurring*, and *conscious* thoughts (Martin & Tesser, 1996), which did not require an immediate environmental demand. In the work-context, *intrusive*, *pervasive*, *recurrent* thoughts about a work-related problem were used to describe individual rumination (Baranik et al., 2017). Additionally, in co-rumination, in line with individual rumination, two individuals discuss problems *frequently* and *repeatedly* and therefore do not engage in other activities (Haggard et al., 2011; Rose, 2002). Finally, *repetitive*, *passive*, and *excessive* discussions were used to describe collective rumination (Knipfer & Kump, 2021). My exploratory interviews revealed similar patterns. One interviewee said: *I feel that we always talked for a very long time until we realized: Ah, now I have to get back to work (13031100).* Moreover, another interviewee also reported on how the discussions intruded themselves on the team members again and again: *Well, of course, if you as a team connect well with each other globally, and then you get on this 'hamster wheel', it is also a great danger. (...) But in fact, it is like you would always run against a wall and find your way back and forth and no way out. (...) We have started to work again, and I couldn't tell you now how it happened, but suddenly we*

were on the topic again. (15041800). As a result, all accounts have in common that rumination manifests in passive, repetitive, and unintended thoughts, which I refer to as *recursive discussions* for collective rumination.

Figure 4

Emergence of the Theoretical Dimensions of Collective Rumination in Teams



Speculation about Causes and Consequences

An important part of the thoughts in individual rumination and discussions in co- and collective rumination are *speculations* about both *causes* and *consequences.* These are considered two discriminant dimensions, but are reported in one paragraph in this paper. For example, individual rumination involves *thinking about the causes, meaning, and consequences* of depressive symptoms in the clinical setting (Nolen-Hoeksema, 1991). Relatedly, in co-rumination, two individuals talk about *problem causes and consequences* and speculate about parts of the problem that are not understood very well (see also Haggard et al., 2011). Also, descriptions of collective rumination contained the *discussion of problems* and their *negative consequences* (Marmenout, 2011). Finally, interviewees from team settings said: *Well, you are also looking for reasons why. You also make speculations. Why? (…) What is the motivation? Is it about the progress of the company? Or is it about supporting his personal interests? (11041700)* or *Between a small mosquito and a big elephant, you actually paint very, very dark scenarios all of a sudden. (...) And the longer it takes to meander around, the darker the scenarios become (15041800).*

(Sharing) Negative Thoughts and Feelings

Negative thoughts and feelings are certainly the most prominent part of rumination. For example, in the work context individual rumination contains *negative thoughts about work-related problems* (Baranik et al., 2017). Similarly, co-rumination –the frequent discussion of personal problems – focuses *on negative feelings* (Rose, 2002). In line, also collective rumination theory describes that participants talk about *negative consequences* of a problem, reiterate *negative ideas*, and center on the *negative aspects of a situation* (Knipfer & Kump, 2021; Marmenout, 2011). The negative focus was also evident in the interviews: *The energy went down because, in my opinion, the focus was on something understandably negative (…) we, I think, realized that it looks similar for everyone, and almost nobody sees anything*

positive about it. Maybe this has even worsened everything because we said: "Everybody thinks it sucks." (16041330).

Mutual Reinforcement of Problem Talk

To distinguish collective rumination from previous rumination concepts, I also explored whether unique interaction patterns were evident in social forms of rumination. Indeed, co-ruminators *mutually encouraged each other* to talk about problems (Haggard et al., 2011). Also, groups in collective ruminators *reiterated the same negative ideas* and *echoed each other's fears* making the reaction to a problem a more severe one (Marmenout, 2011). Additionally, collective ruminators should *confirm each other's statements* because they converge in negative perspectives and perform active impression management. In line, patterns of complaining-supporting-complaining in team meetings were described by prior team research (Kauffeld & Meyers, 2009). Further, also the interviewed team members talked about this dynamic. One said: *One says something negative, the other says something negative, then the other thinks of something negative again. So I say that people are throwing negative arguments at each other* (02091730). Another one said: *And you actually mutually reinforce what the situation is like. (...) This is intensified because all of them probably have a similar basic feeling, and by talking about it, you first feel relieved because everybody agrees, but it doesn't really help. (...) this is a blasphemy, where one confirms one another somehow in one's negative thinking* (11041700).

Collective Rumination in Teams: A Conceptual Definition

With the synthesis of prior conceptualizations of rumination, I was able to extract its defining dimensions, which could be categorized into higher-order themes (see Table 5). These are, in line with the interviews (see Figure 4), *recursive* (recurring, repetitive, excessive, intrusive), *speculative*, and *negative* (problem-focused) thoughts. Instead of thinking their thoughts in individual rumination, team members in collective rumination *share negative thoughts and feelings* and *reinforce each other to ruminate* in joint discussions.

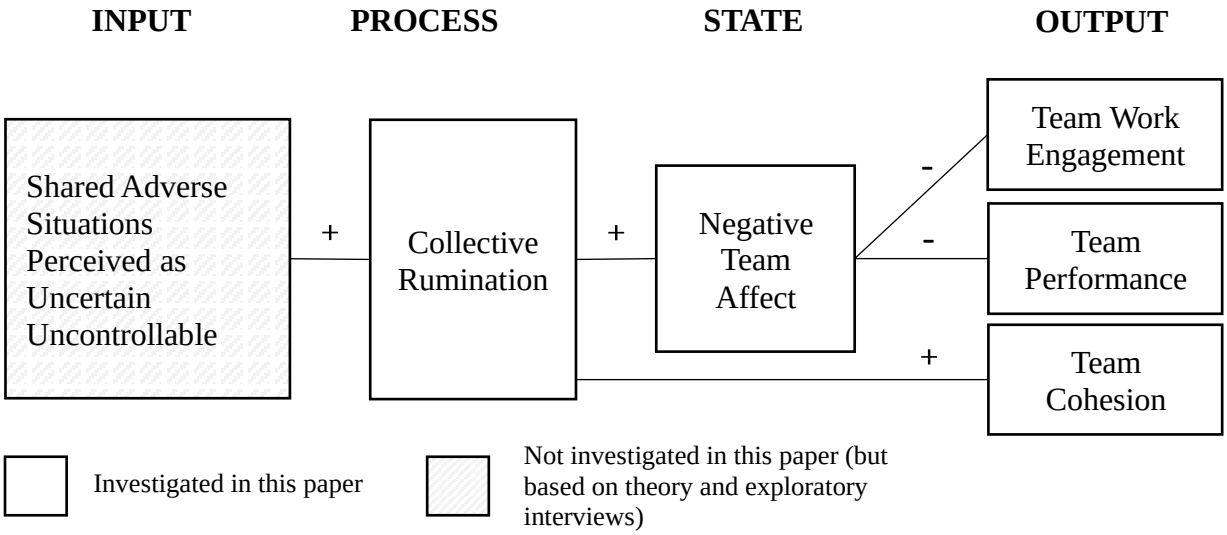
Consequently, I define collective rumination as an attempt to make sense of a shared problem at work, which the team perceives as uncertain and beyond its control. In collective rumination in teams, team members *repetitively discuss the same aspects, speculate about causes and consequences, share their negative thoughts and feelings, and mutually reinforce their problem talk.*

A Research Model of Collective Rumination in Teams

Building on the conceptual definition, I draw on theory on mood and emotions in small groups and work teams (Kelly & Barsade, 2001) as well as research on group affective tone (Collins et al., 2013) and build a research model of collective rumination in teams (Figure 5). The model is aligned with the prominent IPSO framework in group research (Mathieu et al., 2008). I chose the IPSO framework because it "specifically acknowledges the creation and influence of emergent states" (Collins et al., 2013, p. 45). In this model, collective rumination is the precursor of the emergent state team negative affect and the nonaffective outcomes of team performance, team work engagement, and team cohesion. Additionally, team negative affect explains the relationship between collective rumination and team performance and team work engagement.

Figure 5

Research model of collective rumination based on the inputs-processes-states-outputs framework (Figure adapted from Collins et al., 2013)



Collective Rumination and its Relation to Team Functioning

I argue that collective rumination shapes team functioning in different ways. Team functioning consists of a) how well the team performs (task-related or tangible outcomes) and b) how the team members feel (team-related outcomes; Mathieu, Gallagher, et al., 2019). The latter means that a team functions well when team members have positive experiences, states, attitudes, or behaviors that are beneficial for stakeholders, too. Among others, team cohesion is such an outcome as it represents the shared experience or commitment of team members towards each other and the purpose of the team. Therefore, team cohesion is frequently considered an indicator for team functioning (Mathieu et al., 2015). Further, because it is directly related to the shared experiences of single team members, I consider it a team-related outcome.

Because collective rumination should eventually have a function, I assume that it is positively related to team cohesion. This is because team members *turn to each other* to share their negative thoughts and feelings (Knipfer & Kump, 2021). Further, it can be conceptualized as a form of social support that provides people with the opportunity to talk to others and consequently receive instrumental aid (Cohen & Wills, 1985). In line with this argument, Marmenout (2011) mentioned the echo-hypothesis (Burt, 2001) and argued that mutual support should increase cohesion. Indeed, when team members share their negative thoughts and feelings and mutually reinforce each other, this should also feel supportive. This reasoning was justified previously, as it was shown that co-rumination fostered relationship quality (Haggard et al., 2011). Relationships at work satisfy social needs (Gagné & Deci, 2005) and support collective ruminators to not feel alone with their negative feelings, which is why collective rumination should increase team cohesion ("We are all in this together."). Therefore, my hypothesis is:

Hypothesis 1: Collective rumination in teams is positively related to team cohesion.

However, collective rumination should negatively impact team work engagement and team performance. Although team work engagement is defined as a shared experience, this experience is still directed towards work instead of the team because it is a "positive and fulfilling, emergent motivational state of work-related well-being" (Costa et al., 2014b, p. 418). I argue that collective ruminators, similar to individual ruminators (Nolen-Hoeksema, 1991), spend so much time with recursive problem talk and speculations about causes and consequences that they likely exhaust their cognitive and emotional resources. However, every time a resource is lost, there are fewer resources for collectives to outweigh this loss (Conservation of Resources Theory (CoR); Hobfoll et al., 2018). As a result, teams may enter a preservation state in which team members' energy levels are impaired, resulting in low work motivation. This passive state which was also described by previous collective rumination accounts (Marmenout, 2011), contrasts the concept of team work engagement characterized by high energy levels and immersion in work (Costa et al., 2014b, p. 418). Further, teams that collectively ruminate will also miss resources needed for conflict management – a prerequisite of team work engagement. Finally, as discussed in more detail later, collective rumination in teams will increase team negative affect (Kelly & Barsade, 2001). All in all, this will impair team work engagement – and I found preliminary evidence for this assumption in the interview study. Hence, I assume:

Hypothesis 2: Collective rumination in teams is negatively related to team work engagement.

Team performance is a tangible indicator of team functioning that may also be important for other stakeholders (Mathieu & Gilson, 2012). It represents how a team meets established quality, cost, and time objectives (Hoegl & Parboteeah, 2003). Unfortunately, collective rumination may cause two things: a feeling of helplessness (Knipfer & Kump, 2021; Martinko & Gardner, 1982) and, as argued above, the loss of a resource. However, a combination of the two results in a self-fulfilling prophecy. The collective agreement that

teams cannot do anything about the problem anyway – a consequence of recursive and speculative discussions – leads to the feeling that any action would be meaningless. Indeed, helplessness has been associated with low-performance outcomes (e.g., Diener & Dweck, 1978). Additionally, because teams get immersed in their problem talk and consequently waste their time, emotional, and cognitive resources (Knipfer & Kump, 2021; Marmenout, 2011), they cannot even try and take action. In support, individual rumination deterred problem-solving and creativity due to the loss of a resource (Nolen-Hoeksema, 1991). As a consequence of these two conditions, teams will be stuck in a state of paralysis, not being able to meet quality, cost, and time expectations. Therefore, I assume:

Hypothesis 3: Collective rumination in teams is negatively related to team performance.

Collective Rumination and its Relation to Team Negative Affect

One cannot talk about rumination without acknowledging the role of negative emotions. Therefore, I draw on theory on moods and emotions in small groups and work teams (Kelly & Barsade, 2001) and research on group affective tone (Collins et al., 2013) and propose collective rumination as the precedent of team negative affect. The two just mentioned accounts suggest that the combination of inputs and affective processes (bottom-up and top-down) lead to sustained affect at the group level (Collins et al., 2013; Kelly & Barsade, 2001).

Team affect is an affective state, and therefore, it is inherently dynamic and fluctuates depending on team context, inputs, processes, and outcomes (Marks et al., 2001). In other words, it emerges from the group's affective context (top-down) and the affective convergence of individual team members' states as the result of several processes (bottom-up; Barsade & Gibson, 2012; Kelly & Barsade, 2001). Consequently, team processes foster the emergence of team negative affect (Barsade & Gibson, 2012), and so does collective rumination. In particular, collective rumination involves several bottom-up processes (Collins

et al., 2013), where team members implicitly and explicitly share their negative emotions (Kelly & Barsade, 2001). “In order to not be expelled” (Knipfer & Kump, 2021, p. 8), collective ruminators will support previously mentioned negativity instead of raising the atmosphere and voicing alternative opinions (Knipfer & Kump, 2021). This mutual reinforcement of problem talk will trigger and sustain negative emotions that are subsequently picked up by other team members and taken to interpret the situation (van Kleef & Fischer, 2016). Further, when teams get no answers to their speculations, they remain in feelings of uncertainty, paralysis, and psychological strain (Bordia et al., 2004). Finally, processes such as emotional contagion, vicarious affect, affective impression management, and affective influence (Kelly & Barsade, 2001) will also happen in collective rumination so that the emotions of individual team members converge to a shared affective state (Knipfer & Kump, 2021). Therefore, I assume:

Hypothesis 4: Collective rumination in teams is positively related to team negative affect.

Team Negative Affect as a Mediator

Based on the hypothesis that collective rumination is the antecedent of team negative affect, I also argue that team negative affect is one reason for the negative relationship between collective rumination and both team work engagement and team performance. For example, because “the existence of positive group affect will correlate highly with team work engagement” (Costa et al., 2014b, p. 14), the lack of positive affect will probably lead to decreased work engagement. Caused by collective rumination, team negative affect will sustain for an extended time, impeding a positive atmosphere, diminishing motivation, and leading to disengagement behaviors such as absenteeism (George, 1990). In fact, intense affective responses only pass away slowly and additionally require higher cognitive efforts than low or moderate affective responses (Rimé et al., 2011). In other words, because teams may try to understand their affective responses (Bledow et al., 2011), they may have to do a lot of cognitive work (Rimé, 2009). All in all, collective rumination might trigger sustained

team negative affect that exhausts team members' emotional and mental resources resulting in negative attitudes towards work. Therefore, I hypothesize:

Hypothesis 5: Team negative affect should mediate the relationship between collective rumination and team work engagement.

Similarly, team negative affect should link the relationship between collective rumination and team performance. When team members' cognition is occupied with team negative affect, they will be distracted from their actual tasks (Jordan et al., 2015; Rimé, 2009). Consequently, teams may be impaired in their work tasks' quality and quantity. Further, a negative focus caused by recursive speculations and mutual reinforcement of negative emotions should lower motivation to accomplish work tasks for their organization (George, 1990). Therefore, teams should be unable to take flexible actions, and team performance should decrease, which is why I assume:

Hypothesis 6: Team negative affect should mediate the relationships between collective rumination in teams and team performance.

Study 1: Item Generation, Psychometric Properties, and Model Refinement

To test the just presented research model, the goal of the first study was to develop a measure of collective rumination. To this end, an item pool was created and used to test the conceptual model of collective rumination based on a sample of working adults.

Item Development

As a reminder, the definition of collective rumination presents itself as a first-order five-dimensional construct, thus a composite of five distinct yet related dimensions (recursive discussions, speculation about causes, speculation about consequences, sharing negative thoughts and feelings, and mutual reinforcement of problem talk) that are reflected by respective indicators. Following recommendations for scale development (MacKenzie et al., 2011), two contributors to this research, and two research assistants generated an item set for each collective rumination dimension based on the literature review and exploratory

semi-structured interviews. Items from the co-rumination at work scale were also considered and adjusted for the team level (Haggard et al., 2011). Two scholars in the field of rumination critically reviewed the item pool and provided feedback regarding content validity, unclear wording, and sufficiency. Based on their feedback, items were deleted and adjusted, resulting in a final item pool of 100 items (see Appendix D).

Sample and Procedure

For this study, the panel provider Respondi was used to gather data from working adults (full-time in a team, more than a year in their current job) in Germany. After participants were provided with a short description of collective rumination, they should, if possible, describe a *shared*, *uncertain*, and *uncontrollable* situation in which their teams ruminated. The technique behind this is called retrospective event history and has the advantage that, although evidence for causality is still lacking, it implies that a causal flow is likely (Spector, 2019). Afterwards, participants were asked to rate the collective rumination item pool on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) and provide their sociodemographic information.

Participants who could not describe a specific collective rumination incident were excluded as well as those who admitted that they did not complete the survey honestly. Further, I excluded participants who failed an attention check or answered the questionnaire in less than 25% of the average duration. I also checked for conspicuous response patterns. The final sample consisted of 310 participants (150 females, 159 males, one n.a.) with 270 participants between the ages of 25 and 55. A third (38.39%) of participants worked in companies with less than 100 employees, 34.52% worked in companies with 100 to 1000 employees, and 27.10% worked in companies with more than 1000 employees. Further, 40.32% of participants worked in two to six-member teams and 58.06% in teams with more than seven members. Participants worked in fields like the public sector (15.81%), health care

(11.61%), finance (9.68%), IT & technology (8.06%), trade and commerce (7.74%), or industrial production (7.74%).

Model Test and Refinement

I used the package "lavaan" in R (Rosseel et al., 2021) and performed confirmatory factor analysis to test three models (Table 6). In the first model (one-factor model), 100 items loaded on one factor. In the second model, 100 items loaded on their respective dimension, and the five dimensions were allowed to covary. This was our proposed first-order factor model. Finally, the third model was a second-order latent model manifested in the five dimensions and their indicators. I explored goodness of fit with χ^2, root mean square error of approximation (RMSEA), a 95% confidence interval (CI), the standardized root mean square residual (SRMR), the comparative fit index (CFI), and the Tucker-Lewis index (TLI) for each model. I followed the recommendations of Hu and Bentler (1998) and specified an acceptable model with an RMSEA up to .06 or below, an SRMR up to .08 or below, and CFI and TLI values close to .95 or greater. I compared models based on a significant $\Delta\chi^2$, fit values, AIC and BIC, where smaller values indicated a better model. As can be seen in Table 6, the second model was the best model.

Table 6

Confirmatory factor analysis for the 100-item pool of collective rumination (Study 1)

Model	χ^2(df)	$\Delta\chi^2$(df)	**RMSEA**	**SRMR**	**CFI**	**TLI**	AIC	BIC
2	8,652 (4840)		.05 [.05, .05]	.05	.85	.85	70,270	71,428
3	8,706 (4845)	54.29 (5)**	.05 [.05, .05]	.05	.85	.85	70,314	71,454
1	10,609 (4850)	1957.2 0 (10)**	.06 [.06, .06]	.05	.78	.77	72,207	73,328

Note. The $\Delta\chi^2$ is in relation to the first-order model. Numbers in parentheses after the RMSEA are 95% confidence intervals (CI). 1 = One-factor model, 2 = First-order factor model, 3 = Second-order factor model.
**$p < .01$.

Afterwards, I sought to reduce the item pool to propose a re-specified model with

fewer indicators. To this end, I removed items that loaded on multiple factors and chose three items that represented broad content validity and had high factor loadings. With this being done, I tested the first-order model with 15 indicators (Table 7).

Table 7

Dimensions and factor loadings of the 15-items collective rumination scale (Study 1)

Dimensions	Items	Factor Loading
Recursive discussions	Although we have talked about some aspects of the problem, we will talk about them again and again.*	.85
	We talk about the same thoughts regarding our problem again and again.*	.86
	In our discussions, we always end up discussing the problem again and again.	.81
Speculation about causes	We jointly speculate about the reasons for our problem.*	.76
	We speculate about all potential reasons why the problem might have occurred.*	.77
	We speculate about a number of reasons that could have caused our problem.	.71
Speculation about consequences	In our discussions, we speculate about the worst scenarios related to our problem.*	.85
	When we talk about our problem, we focus on many potential negative consequences.*	.84
	We talk a lot about all the negative consequences that might happen because of our problem.	.81
Sharing negative thoughts and feelings	We primarily focus on the negative aspects of our problem in our discussions.*	.84
	Negative feelings and thoughts often come up in our discussions about the problem.	.84
	Our discussions about the problem are often dominated by negative thoughts and feelings.*	.83
Mutually reinforcing problem talk	In our discussions, we reinforce each other in our negative thoughts.*	.86
	In our discussions, we reinforce each other in our negative feelings.*	.86
	Over the course of our discussions, our negative feelings about the problem become even worse.	.83

Note. The items were initially developed in German and validated in English in Study 2. All items were rated on a 5-point Likert Scale 1 (strongly disagree) to 5 (strongly agree). The ten items with an asterisk may be used for a more parsimonious assessment of collective rumination.

I present descriptive statistics of the first-order model in Table 8. It yielded excellent results, χ^2 = 89.54, p = .22, RMSEA = .02 [.00, .04], SRMR = .02, CFI = 1.00, TLI = 1.00, AIC = 10,482, and BIC = 10,687. All first-order factor loadings were significant (p < .01) and

ranged from .71 to .86. All α of internal consistency exceeded the .70 criterion (MacKenzie et al., 2011), with the sub-dimensions ranging from .79 (*speculating about causes*) to .89 (*mutually reinforcing problem talk*). The dimensions further explained a sufficiently high variance. Particularly, the values of average variance explained (AVE) surpassed the .5 cutoff and ranged from .56 (*speculating about causes*) to .72 (*mutually reinforcing problem talk*).

Finally, I examined the necessity of each first-order sub-dimension. Therefore, I tested whether the sub-dimensions' AVE values (see Table 8) surpassed the squared correlation with the respective other dimensions. This was not the case for any except for the dimension of *speculating about causes*, indicating a lack of distinctiveness of the other sub-dimensions.

Table 8

Test of psychometrical properties and factorial validity of the five collective rumination dimensions (Study 1)

Dimension	**1**	**2**	**3**	**4**	**5**	**M**	**SD**	**AVE**	**MVS**
1. Recursive discussions	(.88)					3.33	.95	.71	0.85
2. Speculation about causes	.72	(.79)				3.30	0.91	.56	0.54
3. Speculation about consequences	.90	.74	(.87)			3.30	0.99	.69	0.82
4. Sharing negative thoughts and feelings	.92	.70	.90	(.87)		3.31	1.01	.70	0.89
5. Mutually reinforcing problem talk	.87	.64	.83	.95	(.89)	3.23	1.00	.72	0.89
Collective rumination						3.30	0.85	-	-
Cronbach's α	.97								

Note. N=310. Numbers in parentheses on the diagonal are Cronbach's alpha. All correlation coefficients are statistically significant ($p < .01$). AVE = average variance extracted; MVS= maximum shared squared variance

However, when I compared the proposed model with a series of alternative (more parsimonious) models, the proposed five-dimensional baseline model outperformed the alternative models (Table 9). In the alternative models, I merged the dimensions of *sharing negative thoughts and feelings* and *mutually reinforcing problem talk* (model A), the dimensions of *sharing negative thoughts and feelings, mutually reinforcing problem talk* and

recursive discussions (model B), or all dimensions except for *speculating about causes* (model C). As the proposed model was the best one, I kept the dimensions of *recursive discussions, speculating about consequences, sharing negative thoughts and feelings,* and *mutually reinforcing problem talk* distinguished ones, which aligns with my theoretical conceptualization of collective rumination.

Table 9

Fit statistics for the five-dimensional collective rumination model and three alternative models (Study 1)

Model	$\chi^2(df)$	$\Delta\chi^2(df)$	RMSEA	SRMR	CFI	TLI	AIC	BIC
1	89.54 (80)		.02 [.00, .04]	.02	1.00	1.00	10,482	10,687
A	117.36 (84)	27.82 (4)**	.04 [.02, .05]	.02	.99	.99	10,502	10,692
B	175.00 (87)	85.46 (7)**	.06 [.05, .07]	.03	.97	97	10,553	10,733
C	228.79 (89)	139.25 (9)**	.07 [.06, .08]	.03	.96	.95	10,603	10,775

Note. The $\Delta\chi^2$ is in relation to the first-order model. Numbers in parentheses after the RMSEA are 95% confidence intervals (CI). 1 = Baseline model, A = sharing negative thoughts and feelings and mutually reinforcing problem talk dimensions merged, B = sharing negative thoughts and feelings, mutually reinforcing problem talk and recursive discussions dimensions merged, C = all dimensions except for speculating about causes merged.
*p < .05; **p < .01

Study 2: Scale Validation and Nomological Network

Data for the second study, collected at two points of time, was conducted to show convergent, discriminant, and incremental validity as well as to cross-validate the collective rumination scale in the English language.

Convergent, Discriminant, and Incremental Validity of Collective Rumination in Teams

Conceptually, collective rumination builds on individual and co-rumination, which is why all three constructs contain repetitive, intrusive, speculative, and negative thoughts or discussions (Knipfer & Kump, 2021; Nolen-Hoeksema, 1991; Rose, 2002). Therefore, the constructs should be positively related. However, the focal problem that triggers individual

and co-rumination is an individual-level one, whereas the problem that triggers collective rumination is shared and, therefore, a team-level one. Consequently, collective rumination should involve a unique interaction pattern, including multiple team members. It also involves negatively biased discussions instead of negatively biased thoughts and feelings. Finally, it involves mutual reinforcement of problem talk, where team members echo, validate, and reinforce each other's negative statements (Knipfer & Kump, 2021). This dynamic is not given in individual rumination and can only happen to a certain extent in co-rumination, where friends mutually encourage each other to talk about the problem (Haggard et al., 2011). Additionally, even when entire teams engage in collective rumination, this does not mean that single team members do so individually or co-ruminate with a close friend. Consequently, I argue that collective rumination differs from individual or co-rumination. Therefore, I seek to show discriminant validity for these constructs.

Because I conceptualize collective rumination as an interpersonal team process, I seek to explore its relation to other team interpersonal processes, which are conflict management, motivating and confidence building, and affect management (Marks et al., 2001). Conflict management refers to the handling of conflicts that have arisen (reactive conflict management) or that may arise (preemptive conflict management). Managing conflict reactively, teams need to identify potential conflict markers, engage in problem-solving, make compromises, and be open and flexible. Further, to manage conflict preemptively, teams need to establish cooperative rules and monitor potential sources of conflict (Marks et al., 2001). Motivating and confidence building is defined as the generation and preservation of collective confidence, motivation, and task-related coherence regarding a mission's achievement (Marks et al., 2001). Therefore, teams high in motivating and confidence building should believe in their skills and stimulate each other to keep up their high performance. Finally, affect management is defined as regulating member emotions during mission accomplishment (Marks et al., 2001). More specifically, it involves creating social cohesion, frustration, or

excitement to balance team members' emotional levels (George, 1990).

With the supposed lack of mental and cognitive resources happening as a consequence of collective rumination (Afifi et al., 2013), team members might be overburdened when they are required to engage in other processes. Consequently, it may be hard for teams to apply motivational strategies or manage conflict. Additionally, being immersed in negativity and biased in their negative perceptions that were collectively reinforced (Knipfer & Kump, 2021), teams will have a difficult time overcoming the downward spiral and calibrating their emotional levels instead. Therefore, collective rumination and other interpersonal processes should be discriminant.

In this study, I also aim to demonstrate that collective rumination, beyond the conceptually similar construct co-rumination, explains incremental variance in team cohesion, team work engagement, and team performance (Darlington, 1968). With immersion in negativity, sharing negative thoughts and feelings, and mutual reinforcement of problem talk being unique interaction patterns of collective rumination, I argue that collective rumination will have a more negative impact on outcomes than co-rumination.

Sample and Procedure

In Study 2, the panel provider Appinio was used as it provided the possibility to recruit an English-speaking sample. Participation requirements were working full-time and working in a team setting. In comparison to Study 1, data for this study were collected at two time points, the first data collection taking place five days after the first. I chose this time-lag because it represents one working week (= five days). The procedure of both time points was the same as in Study 1. For T1, participants who did not describe a specific collective rumination situation or admitted that they were not honest in their response were excluded from data analysis.

The final sample at T1 included 410 participants (247 females, 163 males). The majority (335 people) were between 25 and 55 years old. While 153 participants worked in

smaller companies (< 100 employees), 70 worked in medium-sized companies (100 to 1000 employees), and 187 worked in big enterprises (>1000 employees). Further, 199 participants worked in smaller teams (two to six members), and 211 participants worked in teams with more than seven members. Participants worked in sectors such as health care (13.41%), academia (12.68), the public sector (12.20%), IT & technology (9.76%), finance (9.51%), or transport and tourism (7.07%).

340 that completed the questionnaire at T1 also completed the questionnaire at T2. Yet, 147 participants did not describe the same collective rumination situation in T1 and T2. This was important because I sought to investigate the collective rumination response in the face of one specific situation. Therefore, the final T2 sample included 193 participants, of which 115 were female, and 78 were male. Most of them (163 people) were between 25 and 55 years old. Whereas 70 participants worked in smaller companies (< 100 employees), 51 worked in medium-sized ones (100 to 1000 employees), and 72 in big enterprises (>1000 employees). Fields of work were health care (16.06%), academia (13.47), the public sector (10.88%), IT & technology (8.29%), transport and tourism (6.74%), or finance (6.22%).

Measures

To measure collective rumination in teams the 15-items collective rumination scale developed in Study 1 was used. The reliability scores of the single dimensions (.75 < **α** < .84) and the composite (**α** = .90) were satisfactory. For individual rumination, I used nine items of the perseverative thinking questionnaire (PTQ; Ehring et al., 2011) and adjusted them to work-related thoughts (**α** = .93). An example item was “Work related thoughts intrude into my mind”. Co-rumination was measured with the scale comprised by Haggard et al. (2011)**,** including items such as “When I have a problem at work, we talk to each other about it for a long time” (**α** = .87). I measured team negative affect using the negative affect adjectives from Bledow et al. (2011). An example item was “When we discuss our problem, we are all unhappy.” (**α** = .81). Five items were used for each team conflict management (**α** = .85), team

motivating and confidence building (**α** = .86), and team affect management **(**α = .85; Mathieu, Luciano, et al., 2019**)**. Example items were "Our team actively deals with personal conflicts in fair and equitable ways.", "Our team actively works to encourage each other to perform our very best.", and "Our team actively works to manage stress." For team cohesion, I used the six-item cohesion scale by Mathieu et al. (2015), e.g., "There is a feeling of unity and cohesion in my team" (***α*** =.91). For team work engagement, I used nine items by Costa et al. (2014a), ***α*** = .92), e.g., "At our work, we feel bursting with energy." Participants rated all items on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Finally, for team performance, participants rated four items taken from Shaw et al. (2011), ***α*** = .84, on a 5-point Likert scale from 1 (very low) to 5 (very high). An example statement would be "Please rate the team's quality of work."

Results

I analyzed the data from T1 for model validation and to determine convergent as well as discriminant validity.[5] To assess incremental validity, I used data from the merged dataset. Particularly, collective and co-rumination were taken from T1 and the outcomes from T2.

Model Validation

Similar to Study 1, confirmatory factor analysis was performed in lavaan (Rosseel et al., 2021) using the maximum likelihood estimator and full information likelihood criterion for missing data. As presented in Table 10 and similar to Study 1, the five-dimensional baseline model yielded the best fit again compared to a one-factor or higher-order model.

Standards of Study 1 were used to assess the model further. Descriptive statistics of single dimensions are provided in Table 11. The first-order factor loadings were statistically significant ($p < .01$) and between .67 and .84. The single dimensions were also reliable, with Cronbach's alpha ranging from .76 (*sharing negative thoughts and feelings*) to .85 (*recursive discussions*). Also, the AVE values surpassed the .5 cutoff and ranged from .52 (*speculation*

[5] Collective rumination in T1 and collective rumination in T2 were highly correlated (r = .80).

of consequences) to .65 (*recursive discussions*).

Table 10

Confirmatory factor analysis for the 15-item measure of collective rumination (Study 2)

Model	χ^2	$\Delta\chi^2(df)$	RMSEA	SRMR	CFI	TLI	AIC	BIC
2	147.55 (80)		.05 [.03, .06]	.03	.98	.97	14,480	14,700
3	168.36 (85)	20.81 (5)**	.05 [.04, .06]	.04	.97	.96	14,490	14,691
1	761.74 (90)	614.19 (10)**	.14 [.13, .14]	.08	.76	.72	15,074	15,254

Note. The $\Delta\chi^2$ is in relation to the first-order model. Numbers in parentheses after the RMSEA are 95% confidence intervals (CI). 1 = One-factor model, 2 = First-order factor model, 3 = Second-order factor model. *p < .05; **p < .01

Table 11

Intercorrelations and descriptive statistics of collective rumination dimensions (Study 2)

Dimension	1	2	3	4	*5*	Mean	*SD*	AVE	MVS
1. Recursive Discussions	(.85)					3.46	0.86	.65	.54
2. Speculation about Causes	.49	(.79)				3.48	0.79	.57	.24
3. Speculation about Consequences	.64	.45	(.76)			3.45	0.81	.52	.59
4. Sharing Negative Thoughts and Feelings	.73	.36	.77	(.76)		3.43	0.77	.52	.67
5. Mutually Reinforcing Problem Talk	.67	.40	.66	.82	(.83)	3.17	0.89	.62	.67

Note. *N*=410. Numbers in parentheses on the diagonal are Cronbach's alpha. All correlation coefficients are statistically significant (*p* < .01).

The fact that the AVE values for speculation of consequences and both sharing negative thoughts and feelings and mutually reinforcing problem talk did not surpass the maximum squared correlation with other dimensions indicated a lack of distinctiveness. However, when I merged the dimensions of *sharing negative thoughts and feelings* and *mutually reinforcing problem talk* (model D) or all three dimensions (model E), the alternative models yielded a

worse fit, as shown in Table 12. Therefore, I retained all five dimensions as distinguished ones.

Table 12

Fit statistics for the five-dimensional collective rumination model and two alternative models (Study 2)

Model	χ^2	$\Delta\chi^2(df)$	RMSEA	SRMR	CFI	TLI	AIC	BIC
1	147.55 (80)		.05 [.03, .06]	.03	.98	.97	14,480	14,700
D	213.33 (84)	65.77 (4)**	.06 [.05, .07]	.04	.95	.94	14,537	14,691
E	311.31 (87)	163.77 (7)**	.08 [.07, .09]	.05	.92	.90	14,629	14,822

Note. The $\Delta\chi^2$ is in relation to the first-order model. Numbers in parentheses after the RMSEA are 95% confidence intervals (CI). 1 = Baseline model, D = sharing negative thoughts and feelings and mutually reinforcing problem talk dimensions merged, E = sharing negative thoughts and feelings, mutually reinforcing problem talk and speculation about consequences dimensions merged.
*p < .05; **p < .01

Convergent and Discriminant Validity

I used the correlations of the study variables (displayed in Table 13) to investigate the convergent and discriminant validity of collective rumination. Implying convergent validity and supporting my assumptions, I detected moderate and positive correlations between collective rumination in teams and individual rumination (r = .41, p < .01) as well as co-rumination (r = .40, p < .01; for effect size classification, see Cohen, 1988).

Following the recommendations by MacKenzie et al. (2011), I also set out to show that conceptually similar constructs were discriminant from collective rumination. Indeed, the AVE of collective rumination in teams (.58) exceeded its maximum squared correlation with individual rumination (.17). Additionally, I compared a series of unconstrained models where collective rumination and individual rumination or collective rumination and co-rumination, respectively, were treated as distinct constructs (i.e., they were allowed to covary freely) with models where collective rumination and individual rumination or collective rumination and co-rumination, respectively, were assumed to share more than half of their variance (i.e., their

covariance was set to .71; see Table 14). Because the chi-square difference tests were significant and ΔCFI-values greater than .02, I demonstrate that the freely estimated models outperform the constrained models, and therefore, collective rumination in teams is distinct from individual rumination and co-rumination.

Table 13

Intercorrelations and descriptive statistics of the nomological network of collective rumination (Study 2)

Variable	1	2	3	4	5	6	M	SD
1. Collective rumination	(.88)						3.40	0.63
2. Individual rumination	.41**	(.93)					3.19	0.85
3. Co-rumination	.40**	.36**	(.87)				3.15	0.70
4. Team conflict management	-.06	- .11*	.22**	(.85)			3.67	0.74
5. Team motivating and confidence building	- .03	- .07	.24**	.72**	(.86)		3.64	0.75
6. Team affect management	- .10*	- .13*	.27**	.69**	.68**	(.85)	3.54	0.75
Collective rumination								
AVE	.58							
MVS	.17							

Note. N=410. Numbers in parentheses on the diagonal are Cronbach's alpha. AVE = average variance extracted; MVS= maximum shared squared variance; All measures were assessed at T1.
**p < .05, ** p < .01*

Collective rumination in teams also had a negative relationship with team conflict management (r = - .06, p = -.21), team motivating and confidence building (r = - .03, p = .61), and team affect management (r = - .10, p =.04). Although most correlations lacked significance, they did not dissent theory. Therefore, Study 2 provided support for convergent and discriminant validity of the 15-item collective rumination measure.

Table 14

Discriminant validity of collective rumination with co-rumination and individual rumination (Study 2)

Model	χ^2 ***(df)***	χ^2_{diff} ***(df)***	**CFI**	**ΔCFI**	**SRMR**	**RMSEA**
Unconstrained two-factor model: Collective rumination and co-rumination	175.58 (76)		.953		.05	.06
Constrained two-factor model: Collective rumination and co-rumination	268.73 (77)	**93.14**(1)**	.910	.043	.32	.08
Unconstrained two-factor model: Collective rumination and individual rumination	185.48 (76)		.965		.03	.06
Constrained two-factor model: Collective rumination and individual rumination	256.23 (77)	**70.75**(1)**	.943	.022	.32	.08

Note. Unconstrained model: Constructs are assumed to be distinct.; Constrained model: Constructs are supposed to share more than half of the variance.
**p* < .05, ** *p* < .01

Incremental Validity

I performed usefulness analysis (Darlington, 1968) to show that collective rumination explains variance in team cohesion, team work engagement, and team performance over and above co-rumination. In doing so, I compared a model with a direct path from both collective rumination and co-rumination to the outcomes of team cohesion, team work engagement, and team performance (model 1a) with a model where I set the direct path from collective rumination to all outcomes to zero (model 1b). Table 15 shows that collective rumination was a significant and negative predictor of team cohesion (β = - .27 *p* < .01), team work engagement (β = - .39, *p* < .01), and team performance (β = - .22, *p* = .02), when controlling for co-rumination (Model 1a). When I eliminated the direct path from collective rumination to team cohesion, team work engagement, and team performance (Model 1b; Johnson et al., 2012), I found a significantly worse fit, $\Delta\chi^2(3) = 19.29$, *p* < .01, than for Model 1a. The comparison revealed that collective rumination explained variance in the team outcomes above co-rumination. All in all, Study 2 showed convergent and discriminant validity of the

collective rumination measure and its predictive validity for team cohesion, team work engagement, and team performance incrementally to co-rumination.

Table 15

Structural equation modeling for incremental validity of the collective rumination construct above and beyond co-rumination (Study 2)

	Model 1a			**Model 1b**		
	Team Cohesion	Team Work Engage-ment	Team Performance	Team Cohesion	Team Work Engage-ment	Team Performance
Co-Rumination	.32**	.40**	.23*	.19*	.20*	.14
Collective Rumination	-.27**	-.39**	-.22*	0	0	0
R^2	.10	.16	.05	.04	.04	.02
Delta-R^2	.06	.07	.03			
$\chi^2(df)$	781.80 (485)			801.09 (488)		
Delta-χ^2	19.29**					

Note: N = 193 (Study 2, T1 & T2). The table reports standardized beta coefficients; the ΔR^2 and the $\Delta\chi^2$ for Model 1a are in comparison with the R^2 for Model 1b. Values in bold represent tests of incremental validity hypotheses. Co-Rumination and Collective Rumination are measured at T1, Outcomes at T2.
*p < .05, ***p* < .01

Study 3: Test of a Research Model of Collective Rumination in Teams

Study 3 served to cross-validate the collective rumination measure and test the research model (hypotheses 1-6; Figure 5) at the team level. In doing so, I reexplored team-level variables from the previous studies and checked for within-team agreement and between-team variance of our measures.

Sample and Procedure

This study used snowball sampling to acquire team members and their teams in various organizational contexts. Three people contacted their personal networks and asked their contacts whether they, together with their teams, would volunteer for the study. The first

15 teams who completed the study with at least three persons were incentivized with a 30€-voucher from a sustainable German drugstore that sells office snacks.

I checked the data for several quality criteria and excluded participants who did not meet them. Specifically, I removed participants who did not pass more than two bogus items correctly or showed conspicuous response patterns. Further, I removed participants who did not honestly answer the items. I also removed all participants in teams with less than three members. Therefore, the final sample consisted of 208 participants, nested in 58 teams of three to five people. Participants were aged 33.48 years (*SD = 31.40)* on average; 139 were female, 68 were male, and one did not provide an answer. Of those, 50% were working in smaller companies (< 100 employees), 24.52% were working in medium-sized companies (100 to 1000 employees), and 25.48% were working in big enterprises (>1000 employees). Work sectors were IT & technology (25.96%), trade and commerce (16.34%), finance (6.73%), health care (6.25%), academia (5.29%), or transport and tourism (5.29%).

Measures

For collective rumination, team interpersonal processes, team negative affect, team cohesion, team work engagement, and team performance, I used the same measures as in Study 2. However, to ward off common method bias, I participants needed to rate team cohesion on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and team work engagement on a scale from 1 (never) to 7 (always). The unit of analysis was the team, so I used the composite mean of team members' responses and aggregated all measures to the team level. Agreement indices (r_{wg} and ICCs) were used to justify the data aggregation (Chen et al., 2005). The justification threshold was a median $r_{wg} > .70$ (Lance et al., 2006). Median r_{wg} values of the five dimension were > .70 and *ICC*(1) values ranged from .16 (speculation of causes) to .41 (sharing negative thoughts and feelings; all $p < .01$). *ICC*(2) values ranged from .42 (speculation of causes) to .71 (sharing negative thoughts and feelings). The remaining study constructs revealed median r_{wg} values > .90, *ICC*(1) values from .25 to .47 (all $p < .01$)

and *ICC*(2) values between .54 to .76.

Results

Model Validation

Like in the previous studies, I performed confirmatory factor analysis again (lavaan package in R; Rosseel et al., 2021). The baseline model yielded satisfactory fit values (Hu & Bentler, 1998) with χ^2 = 121.67, p < .01, SRMR = .06 , CFI = .95, and TLI = .93.[6] Only the RMSEA indicated poor fit with a value of .10 [.06, .13]. However, previous research has repeatedly shown poor RMSEA fit in small samples (Kenny et al., 2014), which is why this finding can be disregarded. The first-order factors were significantly related to their respective indicators, indicated by their factor loadings ranging from .75 to .94. The dimensions were highly reliable: Cronbach's alphas ranged from .86 (*speculation of consequences*) to .93 (sharing negative thoughts and feelings). Also, the AVE values of each dimension surpassed the .5 cutoff, and the baseline model outperformed an alternative, more parsimonious three-factor model with speculation of causes, speculation of consequences as separate factors, and the remaining three dimensions as a merged factor, $\Delta\chi^2$ = 28.04, p < .01.

Descriptive measures and correlations are demonstrated in Table 16. I reexplored the relationships between collective rumination and team interpersonal processes revealing that collective rumination had a significant and negative relationship with team conflict management, team motivating and confidence building, team affect management. It was also negatively related to the outcomes (team cohesion, team work engagement, and team performance).

Test of Hypotheses

For hypothesis testing, I performed simple linear regressions in lavaan. This is because of the limited sample size in this Study. Contrary to Hypothesis 1, collective rumination and

[6] The 10-items version from Study 2 was tested again and yielded good fit, χ^2=48.22, p<.01, RMSEA = .13 [.07, .18], SRMR = .05, CFI = .95 and TLI=.91. It also shared 99% of the variance with the 15-items scale.

team cohesion were negatively related (F(1, 56) = 9.92, $p < .01$, R2 = .15; $b = -.49$, $p < .01$) instead of positively. However, in support of Hypotheses 2 and 3, collective rumination was negatively linked to team work engagement (F(1, 56) = 12.42, $p < .01$, R2 = .18; $b = -.57$, $p < .01$) as well as team performance (F(1, 56) = 10.67, $p < .01$, R2 = .16; $b = -.34$, $p < .01$). Additionally, the results supported Hypothesis 4 and revealed a positive link between collective rumination and team negative affect (F(1, 56) = 63.66, $p < .01$, R2 = .53; $b = .75$, $p < .01$).

Table 16

Intercorrelations and descriptive statistics of collective rumination, functional team interpersonal processes, and outcomes (Study 3)

	1	2	3	4	5	6	7	8	ICC(1)	ICC(2)	r_{wg}	M	SD
1. Collective rumination	(.95)								.35	.66	.94	3.09	0.59
2. Team conflict management	- .40**	(.91)							.40	.71	.95	4.01	0.45
3. Team motivating and confidence building	- .47**	.80**	(.92)						.47	.76	.94	3.84	0.53
4. Team affect management	- .36*	.86**	.81**	(.92)					.42	.72	.93	3.57	0.57
5. Team negative affect	.73**	- .34**	- .41**	- .32*	(.91)				.25	.54	.92	3.07	0.60
6. Team cohesion	- .39**	.82**	.77**	.85**	.32*	(.95)			.37	.68	.96	5.50	0.75
7. Team work engagement	- .42**	.60**	.76**	.62***	.48**	.61**	(.97)		.43	.73	.97	4.96	0.80
8. Team performance	- .40**	.53**	.68**	.44**	.51**	.53**	.74**	(.90)	.36	.67	.93	3.91	0.52

Note. N=58 teams. Numbers in parentheses on the diagonal are the Cronbach's alpha.
*$p < .05$, ** $p < .01$

To test Hypotheses 5 and 6, I first tested the "a-paths", which would be the relationship between collective rumination and team negative affect (see above). Having shown a positive link, I tested the links between team negative affect and both team work engagement, and team performance (i.e., the "b-paths"), controlling for collective rumination.

Finally, I used the mediation package in R (Tingley et al., 2014) and performed 1000 bootstraps to derive 95% confidence intervals belonging to the indirect effects or product terms (i.e., “ab”; Preacher & Hayes, 2008). Supporting Hypothesis 5, I found the link between collective rumination and team work engagement mediated by team negative affect. This is because the total effect and the effect of team negative affect on team work engagement controlling for collective rumination were significant (b = -.47, p =.04). Finally, a significant indirect effect (b = -.35) was revealed with 95% confidence intervals ranging from -.63 to -.09.

Similarly, in support of Hypothesis 6, the relationship between collective rumination and team performance was also explained by team negative affect. Notably, the total effect was significant, and the impact of team negative affect on team work engagement controlling for collective rumination was significant (b = -.40, p <.01). Finally, a significant indirect effect (b = -.30) was revealed with 95% confidence intervals ranging from -.63 to -.09.

All in all, Study 3 showed that collective rumination was negatively related to team cohesion, team work engagement, and team performance, partly mediated by team negative affect. Further, the proposed conceptual model could be cross-validated at the team level as data indicated within-team agreement and reliability of the measure at the team level. Finally, I also reexplored the connection between collective rumination and other functional team interpersonal processes and showed that their relationships were exclusively negative.

Discussion

In this work, I investigated collective rumination in teams – excessive and repetitive discussion of a shared problem at work that is perceived as uncertain and beyond the team’s control. I found that collective rumination consists of recursive discussions of the problem, speculation about its causes and consequences, sharing negative thoughts and feelings, and mutually reinforcing problem talk. I tested the conceptual model of rumination by developing a 15-items collective rumination scale showing convergent, discriminant, and incremental

validity.

This work provides ample evidence that collective rumination is real. Specifically, the scale validation studies showed that teams engaged in collective rumination to respond to a shared, uncertain, and uncontrollable event. Supposedly, by engaging in collective rumination, many teams may exhaust cognitive and emotional resources and are therefore incapable of engaging in action and overcoming their problem. Instead, team members engage in lengthy discussions in which they share their negative emotions and feelings, make speculations, and mutually reinforce their problem talk. As a consequence, collective rumination seems to have multiple detrimental effects on the affected teams and their members. The presented studies have revealed negative relationships with functional interpersonal team processes such as conflict management, affect management, and motivating and confidence building. Additionally, collective rumination was negatively related to team functioning, specifically team cohesion, team work engagement, and team performance.

Theoretical Implications

From this work, the following implications can be drawn. This research contributes to theory on collective rumination. Particularly, collective rumination is a collective phenomenon (Knipfer & Kump, 2021) and, therefore, different from constructs such as individual rumination (Nolen-Hoeksema, 1991) or co-rumination (Haggard et al., 2011). Collective rumination consists of *recursive discussions, speculating about causes and consequences, sharing negative thoughts and feelings, and mutually reinforcing problem talk.* It is an attempt to make sense of a shared event perceived as uncertain and beyond the team's control. In teams, it aligns with the process of sharing *negative* emotions (Kelly & Barsade, 2001), evoking team *negative* affect and diminishing team functioning.

With this being laid out, knowledge about collective rumination is beneficial for the group literature. Particularly, collective rumination can be seen as an ineffective interpersonal

team process that impairs team functioning. Whereas there are various examples of somewhat functional team processes (e.g., team adaptation) in the face of adverse events, collective rumination is – as far as this research shows – a rather negative team process. In particular, collective rumination was negatively related to functional interpersonal team processes such as team conflict management, team motivating and confidence building, and team affect management. Consequently, the immersion in collective rumination seems to come at the cost of more positive social interactions. Furthermore, it appears to impair the ability to manage adverse events or work problems, diminishing team functioning subsequently. This was proposed but not yet tested by Knipfer and Kump (2021).

In contrast to initial assumptions, collective rumination is negatively related to team cohesion. This finding contradicts research on co-rumination, suggesting that relationships of co-ruminators become more intimate and consequently more satisfying (Haggard et al., 2011). A reason for this could be that in co-rumination, a close friend, who him- or herself is unaffected by the adverse situation, can better challenge the ruminator's negative view and may therefore turn negative thoughts and feelings into rather constructive ones (Behfar et al., 2019). This interaction should cause better feelings for the ruminator. Moreover, co-rumination happens in friendships where relationship quality is high already. A high relationship quality might counterbalance the negativity that results from rumination. In contrast, ruminators in teams will not be challenged by their team members as all team members face adversity collectively. Further, relationships in teams are not as intimate as in friendships, resulting in fewer possibilities to counterbalance negativity. Therefore, although the results in this study did not support the hypothesis that collective rumination fosters team cohesion, they, even more, demonstrate how important it is to investigate collective rumination: At the team level, it seems to be a unique and distinct construct, having different outcomes than co-rumination.

In line with initial assumptions, collective rumination had a negative relationship with team performance and team work engagement. As argued above, in the face of an uncertain and uncontrollable situation that impacts all team members, team members mutually reinforce their problem talk instead of challenging their assumptions. I assume that teams lose their cognitive and emotional resources during collective rumination and cannot overcome a passive and defensive state, hindering them from engaging in action (Hobfoll et al., 2018; Knipfer & Kump, 2021).

The sharing of negative thoughts and feelings of each single team member also feeds into a downward spiral resulting in the emergence of team negative affect. Indeed, this study shows that collective rumination is positively related to negative team affect, supporting the theory on mood and emotions in small groups and work teams (Kelly & Barsade, 2001) and negative group affective tone (Collins et al., 2013). Although it is also likely that team negative affect triggers collective rumination– and this makes sense when thinking of the downward spiral – the theories propose that group affect is, among others, the consequence of the explicit and implicit sharing of emotions (Kelly & Barsade, 2001), which is the core of collective rumination (Knipfer & Kump, 2021). The theories further propose that team affect also impacts other non-affective outcomes (Collins et al., 2013; Kelly & Barsade, 2001), which is in line with the results in this study. Particularly, supporting the IPSO team research model (Collins et al., 2013), the emergent state team negative affect mediated the relationship between collective rumination and both team performance and team work engagement. These findings highlight the negative consequences of collective rumination in teams.

This research also implies that collective rumination is distinct from individual and co-rumination, showing that previous measures cannot capture rumination at the team level. This justifies the introduction of a measurement scale for collective rumination. Therefore, the current research answers a recent call to elucidate the multi-level nature of rumination and provide solutions for its measurement on the collective level (Knipfer & Kump, 2021). In

developing the measure, I mainly considered the specific interactional patterns that distinguish social and more dynamic forms of rumination. Across three studies, the 15-item collective rumination scale provided consistent evidence that collective rumination has five dimensions that can be measured with three items each.

Avenues for Future Research

Although this work has advanced research on collective rumination, there is still room for further investigations. Notably, future research should investigate the input factors and boundary conditions of collective rumination in teams across all organizational levels. For example, future research should explore whether teams with low team efficacy beliefs are more prone to collective rumination. This is because they might not be confident in their team abilities even before engaging in collective rumination (Zaccaro et al., 1995). Additionally, research should also consider the role of leadership. Can supportive leadership counterbalance the negative impact of collective rumination? For example, empowering leadership (Srivastava et al., 2006)**,** where teams are given control and confidence, might prevent or reduce the impact of collective rumination in teams. Moreover, Knipfer and Kump (2021) suggested that a highly bureaucratic structure with low discretion in decision-making may increase teams' helplessness when they face work problems. Therefore, future research should illuminate team, leadership, and organizational factors that will increase or diminish the likelihood of collective rumination in teams. Finally, the interviews and quantitative studies implied that adverse events such as leadership changes, routine breakdowns, organizational change initiatives, or performance problems of the firm often triggered teams to ruminate. Therefore, aside from investigating features as inputs of collective rumination, future research should draw on Event System Theory (Morgeson et al., 2015) and explore which types of events trigger collective rumination in teams.

Research should shed light on other outcomes of collective rumination. For example, researchers might want to know whether rumination impairs innovation. This is because

ruminating teams might be so absorbed by the negative discussions that they may not be able to create novel and valuable ideas. Besides, outcomes should be investigated at other levels of analysis. For example, research should investigate the impact on individual team members, such as reduced organizational or team commitment. For example, at the organizational level, Knipfer and Kump (2021) proposed that collective rumination impairs organizational resilience.

Practical Implications

With the new knowledge gained, this work also provides implications for practitioners. Awareness of collective rumination might help both teams and their leaders to detect early signs and prevent collective rumination early on. Leaders should try to foster another interpretation of the adverse situation so that teams cannot perceive it as uncertain or uncontrollable. For instance, when leaders share all their information in the face of a change process, teams might not feel so insecure about it. Additionally, teams should also have the possibility to voice their ideas to feel more in control of the problem. All things that support teams engaging in proactive behaviors (Bashshur & Oc, 2014) helps teams to overcome their passive state of helplessness. Finally, leaders and organizations should employ team training to practice affect management (Marks et al., 2001). When teams know how to manage their emotions, this might help them reduce a team's tendency to engage in rumination and help them break the negativity-rumination-spiral. Team members themselves can counteract collective rumination, too: For example, they could react to collective rumination initiators with positive statements (Lehmann-Willenbrock et al., 2011), nudge different explanations (Roese & Epstude, 2017), or try to reframe the situation as a positive one (Baer et al., 2018).

Limitations

Of course, this research has limitations. The first one is that all studies included a cross-sectional design which is why none allows for causal conclusions. Although I present strong theory and, in support, the results indicate a negative impact of collective rumination,

future research should eliminate the possibility of reversed causality. Although team negative affect is undoubtedly a consequence of collective rumination, it may also cause collective rumination again (Kelly & Barsade, 2001). Therefore, team negative affect could be a critical antecedent of collective rumination, which is why the recursive relationship of the two constructs should be explored by longitudinal research. On a similar note, although I conceptualized collective rumination as an interpersonal process, I did not examine its dynamic and emergence over time (Fulmer & Ostroff, 2015). Future research may investigate collective rumination multiple times to explore its fluctuations and relationship with other team variables. In this context, although survey responses can reliably and validly assess team processes, I agree with previous calls for behavioral measurements such as video-based and behavioral trace measures as they would allow for a better elucidation of the dynamics of team processes (Marks et al., 2001; Mathieu, Luciano, et al., 2019). The scale developed in the current work may lay the groundwork for behavioral measures and coding schemes.

Second, the data of the first two studies are based on the perceptions of single team members instead of whole teams. However, I argue that collective rumination "originates in experiences, attitudes, perceptions, values, cognitions, or behaviors that are held in common by the members of the team" (Klein & Kozlowski, 2000, p. 215), which is why team members should also be able to gauge the behavior of the whole team (e.g., Gucciardi et al., 2018). Indeed, this presumption is evident in the third study, where high agreement existed in individual ratings of collective rumination. However, future research should collect more data at the team level to further validate these findings.

Conclusion

Teams are the core of every organization, but they are often hit by organizational adversity. In response, teams often engage in excessive negative discussions, yet, they cannot even explain how these discussions occurred. This work sheds light on the concept and measurement of collective rumination as teams' ineffective attempts to cope with a shared

problem at work. It provides the groundwork for future investigations and shapes the way for a better understanding of collective rumination in today's organizations.

4 Triggers of Collective Rumination in Teams: An Inductive Study[7]

When teams face adverse situations, many will engage in team adaptation, assess the situation, formulate and execute a plan, and learn from their actions. However, as discussed in chapter 3, others may respond with collective rumination – excessive and repetitive discussions about adverse events (Knipfer & Kump, 2021). Considered a team behavior, collective rumination should resemble a unique pattern of team interactions (a process) that transform inputs into states and outcomes (IPSO model; Mathieu et al., 2006), and that leads to team negative affect, diminished team cohesion, team work engagement, and team performance (Stracke & Knipfer, 2022). Therefore, with the studies in chapter 3, I have begun to cover the P, S, and O of the prominent IPO- (input-process-output) or IPSO- (input-process-states-output) models (Ilgen et al., 2005; Mathieu et al., 2006). Nevertheless, the input factors – or triggers – of collective rumination have not been investigated in greater depth (Stracke & Knipfer, 2022). However, this is important when we seek to understand when teams engage in collective rumination.

In team research, input factors were often referred to as team member characteristics (e.g., skills), team-level features such as task structure or leader influence, and organizational or contextual features such as organizational design features (Mathieu, Gallagher, et al., 2019). These features are relatively salient, enduring, and stable characteristics of a team and its environment (Morgeson et al., 2015). Indeed, these features can undoubtedly foster collective rumination in teams but are they really the trigger? Especially because, according to theory, collective rumination happens in response to adversity (Knipfer & Kump, 2021), it may be dubious whether stable characteristics are why teams engage in collective rumination in the first place.

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[7] This chapter is based on a working paper by Stracke & Knipfer (2021), currently under review at *Applied Psychology: An International Review*.

A new discussion emerged recently in the organizational behavior literature, emphasizing the importance of events in shaping attitudes and behaviors (Morgeson et al., 2015). However, this topic is not new because research has long argued that events can stimulate thoughts, feelings, and actions, produce alternation in behaviors, and provoke subsequent events (Weiss & Cropanzano, 1996). Also, critical events trigger interpersonal conflicts at the team level and further impact team and task processes (Morgeson & DeRue, 2006). In fact, the recent pandemic, a critical event, impacted team behaviors immensely (Klonek et al., 2021). Finally, in the literature on collective rumination, another critical event, a merger, triggered collective rumination in teams (Marmenout, 2011). This reasoning suggests that it is time to pick up the discussion around organizational events and acknowledge that they play a more critical role in team processes and outcomes than team researchers might have previously thought. Specifically, they seem to play a significant role in the occurrence of collective rumination.

This research aims to explore what kind of organizational events are input factors of collective rumination in teams. Using content analysis, 1243 events described as triggers of collective rumination were analyzed and categorized. Categories were then classified in the organizational levels *environment*, *organization*, *leaders*, and *teams*. Consequently, this research contributes to the literature as follows: First, it contributes to collective rumination research (Knipfer & Kump, 2021) and investigates those events that trigger collective rumination using the most prominent collective of today's organizations: teams. Doing so fills a void of the often-used IPO model: Whereas the collective rumination process and multiple outcomes have been investigated in the third chapter of this dissertation, inputs of collective rumination still need to be explored. This is because the knowledge about the input factors of collective rumination can help future researchers understand when it originates, create experimental studies for further exploration of the phenomenon, and advance collective rumination theory.

Second, this research challenges previous team research and emphasizes that events play a neglected role in the onset of (dysfunctional) team processes. More specifically, in line with event-driven theories (Morgeson et al., 2015; Weiss & Cropanzano, 1996), it presents evidence that events should be considered more often as triggers for affective reactions. Using event-driven explanations, team research could provide more fine-grained explanations of why and how team processes (and outcomes) occur, even when team features remain stable. These explanations allow a predictive approach to foresee and manage future collective rumination in teams. Finally, this research contributes to organizational research and practice and sheds light on those events that are of such concern to organizational teams that they engage in excessive, sometimes daily, problem talk and play a sustained role in teams' day-to-day lives. Consequently, this work should raise awareness about the consequences of those events and provide implications for practitioners to counter collective rumination in teams.

Collective Rumination in Teams

Recently, collective rumination was introduced as a significant risk for organizational resilience (Knipfer & Kump, 2021). It emerges in the face of adversity when organizational members need emotional relief and social support. When adversity strikes, organizational members may turn to each other to discuss their negative thoughts and feelings, using collective rumination as a coping mechanism. However, as organizational members are most of the time similarly affected by the problem, their negative feelings are amplified at the collective level. Specifically, they reinforce their negative emotions by emotional contagion and mutual support and develop a converged negative assessment of the situation immersing in high levels of negativity (Knipfer & Kump, 2021).

Although collective rumination is not bounded to teams (Knipfer & Kump, 2021), it will most likely happen in teams, the most apparent organizational collective. Work teams are referred to as "(a) two or more individuals who (b) interact socially (face-to-face or

increasingly virtually); (c) share one or more common goals; (d) are brought together to accomplish organizationally relevant tasks; (e) exhibit interdependencies in terms of work processes, goals, and outcomes; and (g) are collectively embedded in a comprehensive organizational system with boundaries and linkages to the broader system context and task environment" (Kozlowski & Ilgen, 2006, p. 78). Per definition, team members are frequently in touch with each other and should share many experiences such as adverse events. Additionally, because they are highly interdependent and might thus feel closer to each other than random organizational members, they should be more likely to share their negative thoughts and feelings with their teams. With adverse situations affecting all of them to a similar degree, they should reinforce their negative problem talk. Negative problem talk is reinforced because team members amplify their negative attentional scope through social validation processes (Klinger et al., 2018; Whitmer & Gotlib, 2013), transfer individual negativity to the team level through explicit processes such as emotion sharing and implicit processes such as emotional contagion (Hatfield et al., 1993; Kelly & Barsade, 2001), and finally develop a biased interpretation through group pressure (Kump & Knipfer, 2016). Hence, for this research, I investigate collective rumination in the context of teams and, therefore, regard it as a team process (see also chapter 3).

The input-process-outcome framework (Hackman & Morris, 1975; Ilgen et al., 2005; McGrath, 1964) is used for many team research models. Inputs are precedent factors that stimulate team member interactions (Mathieu, Gallagher, et al., 2019), and team processes are "members' interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed towards organizing taskwork to achieve collective goals" (Marks et al., 2001, p. 357). Outcomes are products of team behaviors that can be valued by one or more instances (Mathieu et al., 2000). In teams, *collective rumination* is defined as a process where team members attempt to make sense of a shared problem at work, which the team perceives as uncertain and beyond its control. It includes five dimensions: recursive

discussions, speculation about causes, speculation about consequences, sharing negative thoughts and feelings, and mutual reinforcement of problem talk (Stracke & Knipfer, 2022, p. 11).

Recursive discussions happen without any immediate demand, sustain for an extended time, and are repetitive, frequent, and intrusive. Speculation about causes encompasses the team's attempt to understand the origin and reasons for adversity. For example, it involves excessive discussions about possible scapegoats and what could have been done to avoid adversity. Through speculation about consequences, team members discuss worst-case scenarios regarding the event and try to anticipate the adversity's impact on the team and its members. During their discussions, team members will share their thoughts and feelings, leading them to immerse in negativity and develop converged affect at the team level. Therefore, sharing negative thoughts and feelings refers to the component of communicating but also having thoughts and feelings in common. Finally, mutual reinforcement of problem talk refers to the unique dynamic that happens during collective rumination compared to individual and co-rumination. It means that team members support their negative statements and create a self-reinforcing loop that makes the adversity look even worse (Stracke & Knipfer, 2022).

As shown in chapter 3, there is initial evidence that collective rumination results in decreased team cohesion, work engagement, and team performance (Stracke & Knipfer, 2022). This is because team members exhaust their cognitive and emotional resources (Rimé et al., 2011), resulting in a lack of energy and proactivity. Through high immersion in negativity, collective rumination should also create a negative atmosphere, impairing work motivation and enthusiasm (Stracke & Knipfer, 2022). Finally, collective rumination is an extreme form of sharing negative emotions leading to an increase in team negative affect (Collins et al., 2013; Kelly & Barsade, 2001). Consequently, whereas the collective rumination process and some of its outcomes are initially understood in the context of teams

(Stracke & Knipfer, 2022), the input factors of collective rumination remain a blind spot. Consequently, this work serves to explore the trigger events of collective rumination.

Input Factors of Collective Rumination in Teams

Input factors of team processes shape performance and are located at the individual, team, and organizational levels (McGrath, 1984). They are referred to as "antecedent factors that enable and constrain members' interactions" (Mathieu, Gallagher, et al., 2019, p. 18). Most of the time, team researchers mention team member characteristics such as personalities, team-level factors such as task structure, and organizational and contextual factors such as organizational design features when they talk about input factors (e.g., Mathieu, Gallagher, et al., 2019). However, the just mentioned variables are *features*, which are relatively salient, enduring, and stable characteristics of a team and their environment (Morgeson et al., 2015). Indeed, a recent review about team effectiveness implies that most team scholars have only focused on structural and compositional team features as team input variables (Mathieu, Gallagher, et al., 2019). More specifically, previous research has investigated task characteristics, team interdependence or member characteristics, and member demographics or personalities as input factors for team processes. Looking at the field of problem talk, Baer et al. (2018) also explored a feature (unfair leadership) as the input variable for excessive discussions.

Although they acknowledge features as essential input factors of organizational behavior, event-driven theories discuss the fact that *events* – not features – shape the majority of our experience (Morgeson et al., 2015). Per definition, events take place *at the intersection of different entities* or, in other words, organizational units that can explicitly be denoted, such as individuals, teams, organizations, and environments (Allport, 1940; Allport, 1954, 1967). Further, events *originate outside or externally* from the focal entity of interest, making them different from an entity's response to the events (Morgeson et al., 2015). Finally, compared to enduring features, events are happenings *bounded in space and time* (Morgeson et al., 2015).

Indeed, teams are hit by many incidents bounded in space and time, such as a global pandemic, a merger, or a change of the management board. Whereas features are often used in variance-oriented theories that explore how a change in one feature impacts the change in another, events should be part of more dynamic process theories that investigate the impact of single events on different outcomes (Morgeson et al., 2015).

Although features can be the reason for problem talk (Baer et al., 2018), Knipfer and Kump (2021) argue that collective rumination (a more extreme form of problem talk) emerges in response to *shared adversity*. *Workplace adversity* is defined as "any negative, stressful, traumatic, or difficult situation or episode of hardship that is encountered in the occupational setting" (Jackson et al., 2007, p. 3). Per definition, situations and episodes are distinctive, brief units at a particular time (Merriam-Webster, n.d.-a, n.d.-b) and thus, somewhat resemble the definition of events given above. Therefore, collective rumination should happen as a consequence of events. In support, research on group emotional tone states that exposure to common affective events can trigger processes of emotion sharing (Collins et al., 2013). Further, excessive and dysfunctional discussions amongst organization members were described as the consequence of adverse events such as the global Covid-19 pandemic (Knipfer & Kump, 2021) or a merger scenario (Marmenout, 2011).

In organizational teams, shared adversity should be any situation that is stressful, traumatic, or difficult (as defined in workplace adversity) and goes along with high uncertainty and a perceived lack of control (Stracke & Knipfer, 2022). Specifically, it has been argued that collective rumination happens in the face of a shared, uncertain, and uncontrollable event. The reason is that uncertainty as the "perceived inability to predict something accurately" (Milliken, 1987, p. 136) also means a (perceived) lack of control over the situation. Indeed, events such as an organizational merger (Marmenout, 2011) often go along with high uncertainty as consequences are frequently not transparent and therefore unclear. As people, therefore, perceive a lack of control, they may be drawn into "widespread

rumors, which often exaggerate the negative aspects of the change" (Bordia et al., 2004, p. 346).

Whereas a universal description of events as triggers of collective rumination is clear (shared, uncertain, uncontrollable), the details remain uncovered. Therefore, the specific content of input events that trigger collective rumination should be analyzed in this work. Notably, they are grouped into multiple categories and allocated to their respective level of analysis. This is because events at different levels might differently impact collective rumination. Particularly, higher-level events should have a more substantial impact than those at lower levels because events at higher levels have a more considerable bearing and, therefore, an increased likelihood that they impact multiple levels simultaneously (Morgeson et al., 2015). Consequently, compared to single-level effects (an event at one level affects a phenomenon at the same level), top-down effects (an event at a higher level affects a phenomenon at a lower level) should have a much more significant impact on organizational phenomena (Morgeson et al., 2015). Finally, knowledge about the level of event emergence helps to provide practical implications for managers and organizations that would like to anticipate and prevent collective rumination in teams.

An Inductive Study of Collective Rumination Triggers

Sample and Procedure

The database of this study was the result of a four-wave data collection and provided textual descriptions of adverse events that triggered collective rumination in teams. The German panel provider Respondi was used for online data collection for the first three waves. For the fourth wave, the German panel provider Appinio was used. Retrospective event history (Glick et al., 1990) was used to collect the data. Specifically, based on the theorizing on collective rumination in chapter 3 (Stracke & Knipfer, 2022), participants were asked whether they and their teams had lately encountered a situation in their team that anticipated excessive problem talk, and that was *shared* as well as perceived as *uncertain* and

uncontrollable. Participants should describe this situation in detail in their own words. Afterwards, as discussed in the previous chapter, they were asked to rate collective rumination in teams as well as other team variables. However, the current study only focuses on the situations described by participants.

Two raters analyzed the described situations. First, they independently screened 1656 situations and suggested exclusion when situations were not explicit or when situations were identified as features based on previous definitions (Morgeson et al., 2015). They excluded 357 situations because of unclear descriptions, such as only providing a sequence of letters. Further, both coders classified 56 situations as features and therefore excluded them. As a result, the analysis included event descriptions of 1243 participants. Six hundred twenty-one participants were women, and 591 were men (1 miscellaneous). Further, 80 participants had an age under 25 years, 452 were between 26 and 35 years, 301 participants were between 36 and 45 years, 287 were between 46 and 55 years, and 123 participants had an age higher than 55 years. The participants worked in the public sector (12.0%), health care (9.3%), industrial production (9.1%), academia and education (8.1%), transport and tourism (7.8%), finance (7.4%), or IT and technology (7.3%).

Data analysis

I analyzed the data using qualitative content analysis by Mayring (2014). Particularly, I coded the first 25% of events (i.e., 312) inductively by giving them a descriptive label that covered the broader topic of the event. For instance, *bad leadership* was a descriptive label for a situation where someone described a negative treatment by their leader. Alternatively, *organizational change (spatial)* was a descriptive label when someone described that their organization was moving locations. After coding the first wave of data, I grouped descriptive codes into 14 first-order codes, such as bad leadership, organizational change, bad economic situation, or interpersonal conflicts.

When describing events, previous event-focused theories (e.g., Morgeson et al., 2015) highlighted the importance of the organizational level at which events originated. Therefore, I applied deductive coding and categorized the events into organizational levels of origin, such as the *individual*, *team*, *leader*, *organization*, and *environment*. Differing from previous research, I included the *leader's* level as this was salient in the data and offered a more fine-grained categorization of corporate events. If I did not include *leadership* as a different level, it would have been hard to categorize leadership events as leadership belongs to both the organizational level (as part of the management) and the team (as part of the team) level.

After the first wave of data was coded, a second coder used the existing coding scheme and coded the situations of the first data wave. Disagreements were resolved through discussion to make agreements for each situation. Afterwards, both coders coded the remaining data. The emergence of codes is depicted in Figure 6. Substantial agreement (Cohen's Kappa = .73) was reached for the first-order codes, and substantial agreement was reached again (Cohen's Kappa = .74) to categorize codes into different levels of analysis.

Results

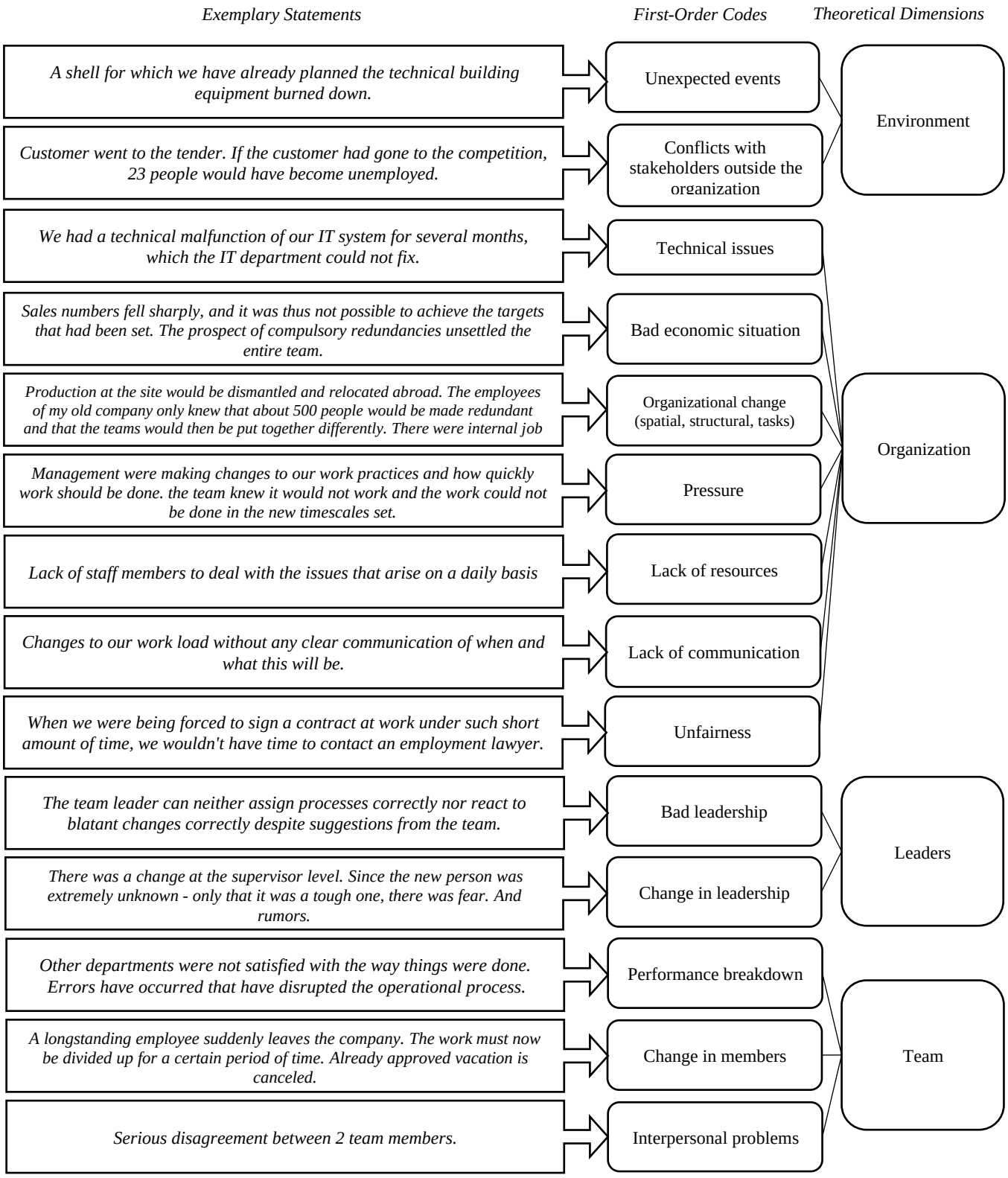
The analysis uncovered 14 first-order codes attributed to each level of analysis except for the individual one.

Environment

At the environment level, two categories (11.7% of all the events) emerged: 67.8% of the events within this level were unexpected events, and 32.2% were stakeholder conflicts. Unexpected events described unexpected situations outside the organization, and examples were changes in law or orders, the pandemic, or criminal acts. Exemplary incidents were „New legal situation, no information received, application in practice not clear" or "Covid 19 meaning we had to completely reorganize the way we delivered our service, without knowing how long the disruption and uncertainty would last." It is worth mentioning that in 51 out of the 100 events belonging to this category, Covid-19 caused excessive discussions.

Figure 6

Emergence of First-Order Codes



The second category, stakeholder conflicts, included a conflict/uncomfortable situation with a supplier or customer. For example, events were “Customer's lack of understanding regarding concrete technical possibilities. The customer demanded certain things to be implemented that were technically not feasible” or “We had a very angry and aggressive customer. This was due to something that wasn't our fault and completely out of our control. Yet, they took it upon themselves to blame us and got very aggressive because they expected a certain outcome.”

Organization

The majority of all events (60.8%) originated at the level of the organization. Specifically, teams talked about a *bad economic situation* in 10.8% of all events within this level. A bad economic situation was defined as financial problems of the entire company, such as insolvency, short-time work, a decline in turnover, or wrong order position. Statements such as “We had hardly any orders for a long period of time, then short-time work, the threat of job cuts and yet planning for another location” or “Shares in the group decreased, cost savings, no promotions, uncertainty about job and price-performance of own work” were examples for this category. Further, the category that included the most cases (59.8%) within this level was *organizational change*. I refer to it as any change of structure, tasks, or location within the company. Example incidents were “During a restructuring, our entire team was to be distributed to other posts; this has caused great uncertainty” or “There was a takeover of a competitor. There were store closures and various restructuring measures.”

A category that co-occurred a lot with *change* was a *lack of communication*. This category included 7.8% of events within the level of the organization. Events in this category were described as being unclear or with too little communication or knowledge about the events. Although a lack of communication can be found in many change incidents, too, this category was distinct as people explicitly mentioned that they excessively talked about the lack of communication itself (instead of the change). An example incident was “unclear

conditions under which a project had to be developed (time frame, money, staff).” Another example was “cost-cutting measures were taken, several branches were closed but the information was withheld from the team for a long time.”

Some organization-level events were also categorized as *technical issues* (4.9%). I defined *technical issues* as challenges caused by technical equipment or (external) services. For example, an event like “technical problems that could not be solved by us or the responsible personnel and disrupted the process“ was coded as part of this category. Further, an event in this category was “the computer systems went down, and there was a delay in getting it back up and running. We had no idea how much data would be lost or how long it would take to catch up.” Although a technical issue can either emerge in the environment or the organization, its management is most often problematic at the level of the organization. That is why I placed the code *technical issues* within the level of the organization.

Another category within the level of the organization was a *lack of resources*. It is referred to as insufficient information or a lack of personnel or technical equipment. It occurred in 6.3% of the cases within this level. Events of this category were described as “Too few staff and too many tasks to perform. Simply impossible but no one is interested.” or “Problem with funding. We didn’t have enough money to carry out the project. We had to think outside the box to figure out how to raise enough money to carry out the tasks. It was a hard thing to do.”

Unfair events (5.0%) also had their origin at the level of the organization. Events were coded as unfair when teams of the survey participants experienced an unfair distribution of resources or rights. Unfair events were, for example, “Prohibition of mobile working despite company agreement” or “When we were being forced to sign a contract at work under such short amount of time, we wouldn't have time to contact an employment lawyer.”

Finally, 5.3% of events were coded as *situations of pressure* when they included too high expectations or complex tasks, tight time schedules, or short-term tasks. Examples were "Stress due to a difficult order" or "Too much work. Too few people. Too little time."

Leader

One hundred twenty-eight (10.3%) events originated at the level of the leader. Among these, 45.3% were coded as *bad leadership*. This category was defined as a lack of competence, presence, or interest of the supervisor or top management. Participants described events in this category as "An unfair boss who favors employees and destroys others and works very unprofessionally depending on her mood." or "Poor management and leadership. Increasing episodes of professional bullying."

In most events at the leader's level (54.7%), teams were concerned about *leadership changes* caused by restructuring, lay-offs, or retirement. Events such as "team leader was unexpectedly dismissed" or "The boss was kicked out for unknown reasons and the whole team did not know what to do next" were described in this category. Events in this category also co-occurred with change multiple times. However, they were more about the leader and not the organization itself.

Team

Finally, 213 (17.1%) of 1243 events happened at the team level. One of the three categories at this level was *performance breakdowns* (22.5%). It was defined as the incorrect or insufficient fulfillment of a team's task. Example events were "The specified targets and performance indicators were not achieved" or "some people were not pulling their weight, and the project suffered."

Events were coded as *changes in team membership* (35.2%) when team members were laid off, resigned from the employment themselves, or when whole teams were dissolved. I coded events such as "that a team member was dismissed without notice from one day to the next and thus there was no handover" or "The team had to be broken down, and some people

were to be moved to a different location and others would have to move to a different area of the building" as changes in team membership. This category, too, co-occurred a lot with change. However, change events in this category were described at the team and not at the leader or organizational level.

Finally, the majority of events at the team level were categorized as *interpersonal problems* (42.2%). This category was used when teams had different opinions or conflicts as well as communication misunderstandings. For example, one team member reported: "The team is divided by a new blasphemous colleague, because she passes everything on to our manager." Another noted: "Big disagreement between 2 team members". The analysis of the events showed that events from every level trigger collective rumination in teams, with the majority happening at the level of the organization. The results and further ideas for collective rumination research are depicted in Figure 6.

Discussion

In the current study, I explored events described as triggers of collective rumination in teams. The study demonstrates that events originate at different levels of analysis and cover situations that participants perceived as shared, uncertain, and uncontrollable. Most events were categorized as *unexpected events* at the level of the environment (e.g., the pandemic), classified as *change* and a *lack of communication* at the level of the organization (e.g., a merger or an important happening and the team was informed, respectively), and finally *interpersonal problems* at the level of the team (e.g., a dysfunctional team member). Knowledge about those events has theoretical implications for collective rumination and group research and practical implications for organizations, teams, and team members. Although it is hard to avoid any of those events in organizational life, information on them helps researchers make better predictions regarding their consequences and thus draw implications for organizational practice.

Implications for Research

This study is important for collective rumination research and research on teams and workgroups. First, I provide a comprehensive overview of input events of collective rumination. Indeed, the study shows that adverse events trigger collective rumination in teams (Knipfer & Kump, 2021) and that, more specifically, many of them are shared, uncertain, and uncontrollable. Further, events are happening at the environment, organization, leader, and team level. Supporting previous research (e.g., Morgeson et al., 2015), top-down effects occurred much more often than direct-level effects, and bottom-up-level effects were not evident at all. Consequently, it seems that events from higher levels than the team level are more likely triggers of collective rumination in teams than events emerging at the team level itself. To be more specific, more than 70% of events that were described as triggers of collective rumination in teams happened at the environmental and organizational levels.

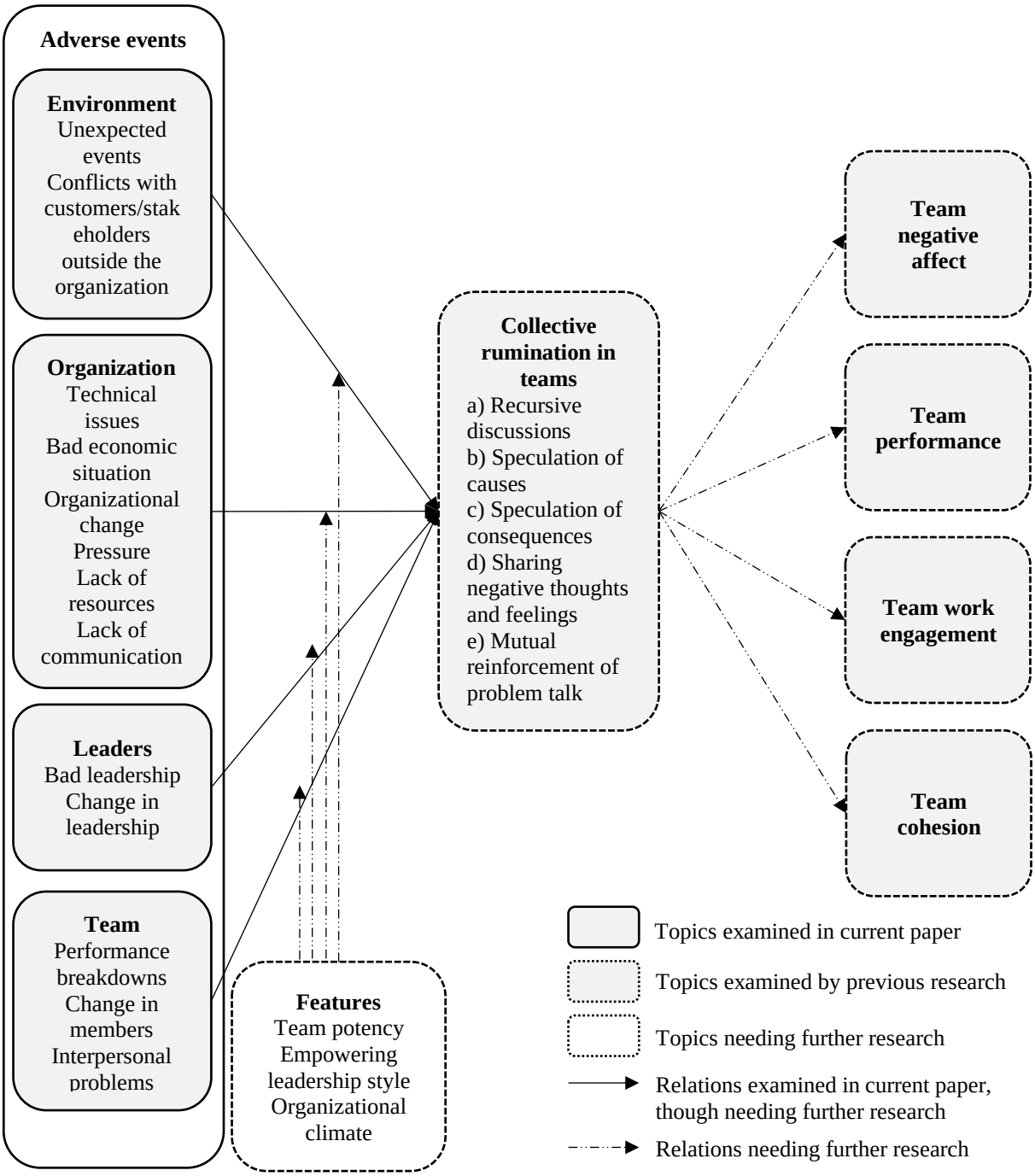
In comparison, as few as 17% originated at the team level and none at the individual level. Indeed, one could come to the idea that events at the team level affect teams more because they are way closer. However, higher-level events may involve more uncertainty and less control and, consequently, provide more room for speculation.

Because events such as change or the pandemic were the most representative input factors of collective rumination, the findings of this study highlight that one should be wary when it comes to oversimplifying the context.[8] Specifically, this study implies that future research should not only consider the team level when investigating collective rumination but it also highlights the importance of developing predictive and comprehensive accounts of collective rumination including multiple levels of analysis. Therefore, in Figure 7, I suggest how collective rumination research could use this study's results for future studies that seek a deeper understanding of how events across all levels impact collective rumination in teams.

[8] In saying this, it needs to be acknowledged that three out of four waves of data collection have taken place during the pandemic. This might have impacted this study's findings.

Figure 7

A Theoretical Model of Collective Rumination Triggers in Teams



Second, this work highlights how events are essential for collective rumination in teams and other team behaviors in general. Prior research has mainly investigated team features or, more specifically, enduring characteristics as input factors of team processes (Mathieu, Gallagher, et al., 2019). In contrast, the current work highlights that events trigger

collective rumination in teams and, consequently, team outcomes, such as decreased team work engagement, team cohesion, and team performance (see Figure 7; as investigated in Stracke & Knipfer, 2022). Specifically, features may impact team behavior continuously, but events should explain why episodes of team behaviors (such as collective rumination) occur. In support, Georganta et al. (2019) demonstrated that events were important for team adaptation. Further, events likely trigger other processes such as conflict management or affect management (Mathieu, Luciano, et al., 2019).

Third, because this study highlights the importance of events aside from features, future research should also investigate the interaction of events and features. Notably, it might be worthwhile to assess how features impact team behaviors that occur due to events. Specifically, as displayed in Figure 7, features like team potency (Guzzo et al., 1993), empowering leadership (Zhang & Bartol, 2010), or a positive organizational climate (Parke & Seo, 2017) might mitigate the impact of events on collective rumination. A high manifestation of these features might either reduce collective rumination or trigger teams to engage in alternative functional behaviors such as team reflection (Otte et al., 2019).

Finally, this study is vital for organizational behavior literature in general and the organizational change literature specifically. It implies that change events were evident across all levels of analysis as triggers of collective rumination. Consequently, the concept of collective rumination should be interesting for the change literature because it might explain change-prominent phenomena such as resistance to change (Coghlan, 1994). Collective rumination might also be fascinating for the leadership literature. It can be one of the multiple explanations for the negative impact of destructive leadership on both team and individual outcomes (Schyns & Schilling, 2013).

Implications for Practice

Unfortunately, most events cannot be avoided. However, organizational decision-makers and leaders can influence how employees interpret events and, consequently, the

behaviors in response to events. Further, they can also make an impact. Specifically, organizational decision-makers and leaders can update their teams so that they do not feel that they are missing information to assess the situation. In fact, prior literature emphasized how important it was that organizations were open, honest, transparent, and present when they communicated difficult situations (Walker et al., 2016).

Furthermore, decision-makers should encourage employees to contribute to decisions and provide them with possibilities to voice their concerns and give feedback. For example, Jacinda Ardern, Prime Minister of New Zealand, was frequently acknowledged as a good example during the pandemic because she often and transparently communicated the state of affairs. She also involved the New Zealanders by calling them “our team of five million” (McGuire et al., 2020).

Leaders can also try to be more present for their team and display more team-focused behaviors. Further, they should try to avoid conflicts with their teams. For instance, leaders could practice dimensions of transformational leadership as this leadership style has been shown to positively impact employee satisfaction several times (Braun et al., 2013; Eliyana et al., 2019). Transformational leaders communicate a strong vision, consider and personally recognize individual needs, or encourage alternative ways to solve problems. When teams feel well informed, appreciated, and seen, they might not engage in speculative problem talk (Bordia et al., 2004).

Collective rumination was also a consequence of events that happened at the team level. Specifically, team-level events triggered collective rumination in teams, where disliked team members entered the team, beloved team members left it, or interpersonal conflicts seemed endless. However, most of the events at the team level were only *perceived* as uncontrollable. Notably, in most cases, teams should have been able to control the problems when they engaged in other behaviors, such as team reflection that should foster the creation of specific strategies that might help them deal with the adversity (Knipfer & Kump, 2021).

To be more precise, when teams question the problem talk and ask themselves whether it is true that they cannot change the situation, they may realize that they can come up with solutions instead of continuing the problem talk. In this context, teams could appoint a challenging listener that regularly prompts teams to reconsider their assumptions and statements when they engage in problem talk (Behfar et al., 2019; Knipfer & Kump, 2021).

Finally, because change initiatives as precursors of collective rumination were so prominent in the current study, I want to discuss the change context explicitly. Especially now that the digital transformation has arrived in any organization, most organizations need to introduce change initiatives. This study highlights the risk of change initiatives, especially when teams perceive a lack of transparent communication and agency. Notably, during the course of a change, teams should not have any reason for speculations. This state can be achieved by making teams feel secure about the change and giving them enough reasons to trust the change management. Therefore, leaders should frequently deliver change-related updates, explain the reasons for current actions, take care of employees' inquiries, and realize when change recipients struggle (Gilley et al., 2009).

Furthermore, teams should feel involved during a change. To help teams feel more involved, decision-makers should encourage psychological ownership. It is the "state in which individuals feel as though the target of ownership (or a piece of that target) is "theirs" (i.e., it is "MINE")" (Pierce et al., 2001, p. 299). When teams feel that they are co-actors in implementing change, this could lead to feelings of control (Pierce et al., 2001), organizational commitment, job satisfaction (Mayhew et al., 2007), or work engagement (Rapti et al., 2017).

Limitations and Future Research

Although I collected the descriptions of events from actual team members, the findings of this study should be high in external validity. However, the following limitations need to be acknowledged: First, only single team members and not whole teams described the

events in this study. I argue that single team members can also gauge and exemplify events and team behaviors in a team's life cycle. However, research that collects data on whole teams or additionally assesses the perception of team leaders may be a great complement to this study.

Second, this study is not experimental, so I cannot draw causal conclusions. However, I used retrospective event history, which allows the element of time into a research design and thus, implies that a causal flow is likely (Spector, 2019). Nevertheless, future research should employ experimental methods and specifically test the causal impact of events on collective rumination. It would also be interesting to know whether different types of events (e.g., higher-level events) have a more substantial effect on collective rumination than other types of events (e.g., lower-level events).

Third, although 1243 incidents were coded by two coders and interrater reliability was substantial, qualitative research always leaves room for interpretation. Precisely, because some events happen so closely in time and space, other people could interpret an event as part of one category, although it was coded as belonging to another one in this study. For instance, participants sometimes described events such as a decrease in profits due to the pandemic. However, this event can be coded as an unexpected situation in the environment or a bad economic situation in the organization. In the current work, I coded the most conspicuous event, yet, future studies should also explore the co-occurrence of events and investigate those related events that possibly have a more severe impact on organizational processes and outcomes.

Conclusion

The Covid-19 pandemic has taught us how the occurrence of one single event impacts whole organizations, leaders, teams, and team members. Collective rumination was only one of the pandemic's consequences (Knipfer & Kump, 2021) but has convincingly shown that events need to be considered when discussing organizational behavior. In this paper, I

investigated events as input factors of collective rumination. In showing that events triggered collective rumination in teams at each level, I provided a comprehensive and multi-level perspective for future research. The findings of this study have theoretical and practical implications and hopefully help teams and their leaders overcome or altogether avoid collective rumination in the future.

5 General Conclusions

Summary of Findings

The importance of team processes or team member interactions that explain how teams transform inputs into outcomes could not be emphasized more. This is especially true in a highly dynamic work environment where teams face difficult situations daily. In this work, I explored processes that transform difficult situations into positive or negative outcomes: team adaptation and collective rumination in teams.

In the first set of studies, I investigated how the type of previous adaptation experience (internal vs. external) influenced the team adaptation process and, consequently, team performance. I found that the team adaptation process positively impacted team creativity but harmed a cognitive performance task. Further, neither internal nor external team adaptation experience influenced the whole four-phase team adaptation process. However, exploratory findings reveal that both types of team adaptation experience shaped the single phases of the team adaptation process (situation assessment, plan formulation, plan execution, and team learning) differentially. This study implies that the whole team adaptation process can be dysfunctional when it is not designed for a specific purpose. Further, this study emphasizes the importance of disentangling the single adaptation phases and investigating their roles in the whole team adaptation process.

In chapter 3, I turned to collective rumination. In the course of exploratory interviews and three consecutive studies, I showed that collective rumination is a dysfunctional way of making sense of a shared, uncertain, and uncontrollable event. It consists of recursive discussions, speculation about causes, speculation about consequences, sharing negative thoughts and feelings, and mutual reinforcement of problem talk. Collective rumination was negatively related to team performance, team work engagement, and team cohesion, partly because of its negative relationship with team negative affect. Therefore, this work shows that collective rumination is a relevant team process that deserves more attention by group

research in the OB literature. To allow future research to continue the investigation of collective rumination, I also provided a 15-items collective rumination scale.

In chapter 4, I investigated shared, uncertain, and uncontrollable events that preceded collective rumination. In investigating these so-called trigger situations, I show that mainly events across the environmental, organizational, leader, and team level triggered collective rumination in teams. I also provided a category system of these input events and showed that structural or spatial change events were the most representative triggers. Whereas these findings underline the importance of event-driven research in organizational behavior and provide specific methodological implications for future collective rumination research, they provide substantial implications for practitioners. Specifically, knowledge about those events helps leaders foresee collective rumination in their teams and possibly avoid it altogether by being more transparent about the current event and allowing the team to actively shape the event's aftermath.

Main Contributions for Theory

I have elaborated on each of my studies' specific implications in chapters two to four and would like to highlight more general contributions here. First, this dissertation draws attention to team processes or, in other words, behaviors that occur in response to adverse events and transform inputs into outcomes in the domain of organizational behavior. In doing so, I responded to the call of Morgeson et al. (2015) who called for a more specific description of social and cognitive processes linking novel, critical, and disruptive events, and their outcomes. These processes influence organizational entities in their action (Morgeson et al., 2015). Therefore, with teams being the "basic building blocks of present-day organizational designs" (Mathieu, Gallagher, et al., 2019), it is ultimately vital to investigate these processes at the team level.

This dissertation examines both functional and dysfunctional team processes, namely team adaptation and collective rumination. In doing so, it presents a broad view of a team's

day-to-day life and a more comprehensive perspective of organizational behavior. It also allows for a deeper understanding of team effectiveness in the context of adversity. Future team research may focus more on team processes that link events and their outcomes, and consider both, functional and dysfunctional processes. For example, whereas I have investigated team adaptation and collective rumination separately from each other, future research may investigate them together in the face of adverse situations. Specifically, future research should assess whether collective rumination can happen during the team adaptation process or whether the team adaptation process might be supportive in mitigating collective rumination.

Second, this dissertation also underlines the importance of events as triggers of organizational behavior in general and as inputs of team behaviors specifically. In doing so, I answer the call for research on more dynamic contextual influences and their impact on teams (Maloney et al., 2016). The Covid-19 pandemic has prompted researchers to investigate the pandemic's impact on team processes (Klonek et al., 2021). Doing this type of research allows for more proactive and predictive accounts (Morgeson et al., 2015) that can be used in managing future events. Specifically, it enables us to foresee and prepare for events (Morgeson et al., 2015) instead of only reacting to them. As pandemics are becoming more likely in the future, we may use the knowledge from the Covid-19 pandemic to prepare for future pandemics and potentially diminish collective rumination as a response. Additionally, research could use this knowledge, create event scenarios, and implement them in both future studies and team training to prepare teams even better for future adverse situations. However, not only pandemics are rising in the volatile, uncertain, complex, and ambiguous world today. Research should also focus on events such as (terror) attacks, climate catastrophes, or wars and investigate how they impact social behavior.

Main Contributions for Practice

Presently in 2022, organizational environments are designed to improve effectiveness, efficiency, and profitability. This overshadows the nucleus of organizations: the human beings involved. When effectiveness, efficiency, and profitability suffer, the root cause might not be solely based on economic factors. It may be due to the fact that humans are forced to function even though multiple adverse events happen in the (organizational) world. The positive aspect of this is that we as humans can function: once our inner needs (for example the needs for autonomy, competence, and relatedness, see Self-Determination-Theory; Ryan & Deci, 2000) are satisfied, we may even thrive amidst adversity. Organizations can actively take part in this based on the findings of this dissertation. I encourage organizations to assume responsibility and support humans to thrive in the context of adversity. Therefore, I want to inspire research to continue with the investigation of team processes in the dynamic world of work. Further, I am sharing practical implications for teams and their leaders.

Starting with leaders, research has emphasized the importance of leadership in adverse situations (Sharma & Pearsall, 2016). In the face of an adverse situation, people usually feel lost and uncertain. Therefore, as a first step, it is important that leaders are accessible and show up as a support system in the face of adverse situations. Consequently, servant leadership (van Dierendonck, 2010) may be of interest to team leaders themselves or a person employed to manage adverse situations (e.g., a change). Servant leadership includes providing direction and stewardship, the empowerment and development of people, humility, or putting the interest of others first. Finally, it also includes authenticity and interpersonal acceptance, which means the ability to comprehend and go through the feelings of others (van Dierendonck, 2010). Indeed, successful leaders in the pandemic have offered empathy, genuine support, and encouraged self-care (Beilstein et al., 2021; Hopper, 2021).

Further, when teams find themselves in shared, uncertain, and uncontrollable situations that, as shown in this dissertation, trigger collective rumination, leaders can make

an impact if they are active and involve themselves in resolving the situation. The findings of this dissertation suggest that depending on the actual tasks of the team, leaders could support their teams in fostering proper situation assessment, plan formulation, plan execution, as well as learning and reflection in non-routine situations. For example, teams may find situation assessment easier when leaders show informational fairness, which means they communicate information openly (Colquitt et al., 2001). Further, plan formulation and execution might be supported when leaders set a good example (Dionne et al., 2004), create common goals (Dionne et al., 2010), and foster an atmosphere of feedback (Geister et al., 2016). Finally, team leaders can empower their teams by fostering reflection and learning and asking for their feedback and suggestions. For instance, Jacinda Ardern, the Prime Minister of New Zealand, has often been seen as an exemplary leader in the course of the pandemic (Wilson, 2020). Her success model was based on leadership practices such as informing and educating, conveying direction, uniting, and fostering planning, sensemaking, and feedback (Wilson, 2020).

The current dissertation also has implications for teams themselves. With this dissertation's emphasis on team processes in response to adverse events, it raises awareness that team behaviors impact their emotional states, how they stick to each other, and how they perform. Some processes, such as team learning or team reflection (Otte et al., 2019), will help teams function, and others, such as collective rumination, will derail teams (as shown in this dissertation). Therefore, teams should continuously monitor whether their current behaviors help them stick together and perform their tasks. For example, in adverse situations, a daily check-in can help uncover how teams feel and whether they are still on track with desirable team processes or whether they will drift into dysfunctional processes such as collective rumination.

To conclude, this dissertation aimed to enlighten team behaviors in the context of adversity. Investigating both positive and negative team processes allowed me to provide a realistic account of what teams might experience in organizations today. In the light of a

corporate world that is unpredictable and dynamic, I hope that this dissertation inspires future research to dig deeper into responsive team processes to keep teams in action, motivated, and happy.

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Appendix A: Chapter 2 – Behaviorally Anchored Rating Scales (BARS; Georganta & Brodbeck, 2018)

Phase 1 – Situation Assessment

Beim Situation Assessment registriert das Team veränderungsrelevante Hinweisreize in der Umwelt und misst diesen ihre Bedeutung zu. Insbesondere werden diejenigen Informationen verstärkt wahrgenommen, welche die Ziele, Mission oder Aufgabenbewältigung des Teams betreffen. Das Team versucht dabei, die Konsequenzen der gegenwärtigen Entwicklung abzuschätzen und Lösungen für Probleme zu generieren.

5	Das Team erfasst seine gegenwärtige Situation. Das Team ordnet Veränderungen die entsprechende Bedeutung zu. Das Team registriert alle eingetretenen Veränderungen aufmerksam. Die Teammitglieder achten aufmerksam auf Informationen, die einen Einfluss auf ihre Aufgabe haben könnten.
4	Das Team zeigt Verhaltensweisen, die sowohl bei 5 als auch bei 3 beschrieben werden.
3	Das Team erfasst teilweise seine gegenwärtige Situation. Das Team beschäftigt sich manchmal mit der Bedeutung der eingetretenen Veränderungen. Das Team erfasst zum Teil die eingetretenen Veränderungen. Die Teammitglieder beachten manchmal Informationen, die direkt mit der Gruppenaufgabe zusammenhängen.
2	Das Team zeigt Verhaltensweisen, die sowohl bei 3 als auch bei 1 beschrieben werden.
1	Im Team erfolgt keine Erfassung der gegenwärtigen Situation. Das Team überlegt nicht, welche Bedeutung die aufgetretenen Veränderungen für die Aufgabe haben könnten. Das Team übersieht eingetretene Veränderungen. Das Team ignoriert Informationen, die ihre Aufgabe beeinflussen.

Phase 2 – Plan Formulation

Auf Basis der eingeordneten Informationen erarbeitet das Team einen Handlungsplan. Dabei werden auch die Gruppen- ziele festgelegt, sowie individuelle Erwartungen und Verantwortlichkeiten der Teammitglieder geklärt.

5	Das Team entwickelt verschiedene Handlungspläne. Das Team legt eine Abfolge mehrerer Handlungen fest. Die Teammitglieder berücksichtigen die Konsequenzen ihrer Handlungsschritte bei der Formulierung ihres Plans. Es findet zwischen den Teammitgliedern eine eindeutige Rollenzuweisung während der Entwicklung des Handlungsplans statt.
4	Das Team zeigt Verhaltensweisen, die sowohl bei 5 als auch bei 3 beschrieben werden.
3	Alternative Handlungspläne werden angedeutet. Das Team plant partiell eine Abfolge mehrerer Handlungen. Die Konsequenzen des Handlungsplans werden bei dessen Entwicklung zum Teil beachtet. Vereinzelt wird Teammitgliedern während der Entwicklung des Handlungsplans eine eindeutige Rolle zugewiesen.
2	Das Team zeigt Verhaltensweisen, die sowohl bei 3 als auch bei 1 beschrieben werden.
1	Das Team entwirft keine alternativen Handlungspläne. Das Team organisiert keine Abfolge mehrerer Handlungsschritte. Die Teammitglieder achten bei der Entwicklung des Handlungsplans nicht auf dessen Konsequenzen. Während der Entwicklung des Handlungsplans erfolgt keine eindeutige Rollenzuweisung.

Phase 3 – Plan Execution

Plan Execution umfasst die Umsetzung des Handlungsplans, um schließlich das Gruppenziel zu erreichen.

5	Das Team hält sich an den entwickelten Handlungsplan. Das Team setzt den entwickelten Handlungsplan Schritt für Schritt um. Die Teammitglieder werden über die Absicht hinter den einzelnen Handlungsschritten informiert. Die Umsetzung des Handlungsplans erfolgt ohne Unterbrechungen.
4	Das Team zeigt Verhaltensweisen, die sowohl bei 5 als auch bei 3 beschrieben werden.

3	Das Team hält sich zum Teil an den entwickelten Handlungsplan. Das Team setzt den entwickelten Handlungsplan stellenweise Schritt für Schritt um. In manchen Fällen erfahren die Teammitglieder die Absicht hinter den einzelnen Handlungsschritten. Die konkrete Umsetzung des Handlungsplans erfolgt unvollständig.
2	Das Team zeigt Verhaltensweisen, die sowohl bei 3 als auch bei 1 beschrieben werden.
1	Die Teammitglieder vollziehen Handlungsschritte, die nicht im entwickelten Plan enthalten sind. Das Team setzt die ausgearbeiteten Handlungsschritte in einer abweichenden Reihenfolge um. Die Teammitglieder klären die anderen nicht über die Absicht hinter ihren einzelnen Handlungsschritten auf. Die konkrete Umsetzung des Handlungsplans findet nicht statt.

Phase 4 – Team Learning
Beim Team Learning reflektieren die Teammitglieder über vergangene Ereignisse und lernen aus eigenen Erfahrungen. Dabei wird das Wissen auf Teamebene im Hinblick auf zukünftiges Verhalten richtungsweisend verändert.

5	Das Team erkennt die eigenen Erfolge. Das Team reflektiert über die eigenen Stärken und Schwächen. Die Teammitglieder erkennen die Fehler in ihren bisherigen Handlungen. Die Teammitglieder lernen aus den Fehlern und übertragen dieses Wissen auf zukünftige Handlungen.
4	Das Team zeigt Verhaltensweisen, die sowohl bei 5 als auch bei 3 beschrieben werden.
3	Das Team erkennt zum Teil die eigenen Erfolge. Die Gruppe reflektiert teilweise über die eigenen Stärken und Schwächen. Den Teammitgliedern sind die Fehler in ihren Handlungen nur teilweise bewusst. Vereinzelt lernen die Teammitglieder aus ihren Fehlern und übertragen dieses Wissen auf zukünftige Handlungen.
2	Das Team zeigt Verhaltensweisen, die sowohl bei 3 als auch bei 1 beschrieben werden.
1	Das Team erkennt die eigenen Erfolge nicht. Das Team beschäftigt sich nicht mit den eigenen Stärken und Schwächen. Die Teammitglieder erkennen die Fehler in ihren bisherigen Handlungen nicht. Die Teammitglieder lernen nicht aus den eigenen Fehlern.

Appendix B: Chapter 2 – Team Performance Measures

Argument Selection

We have **three** roles: Role A, Role B, Role C

Each team gets 6 arguments in their information sheets.

This means that each role gets 2 arguments: Argument 1: more important argument

Argument 2: less important argument

1. The team chooses one argument from each role and of each role the more important argument.

Combination of arguments	A1, B1, C1
Credits	5
Incentive	30€ (10€ each)

2. The team chooses one argument from each role and of each role at least two of the more important arguments.

Combination of arguments	A1, B1, C2 A1, B2, C1 A2, B1, C1
Credits	4
Incentive	27€ (9€ each)

3. The team chooses one argument from each role and of each role at least one of the more important arguments.

Combination of arguments	A1, B2, C2 A2, B2, C1 A2, B1, C2
Credits	3
Incentive	24€ (8€ each)

4. The team chooses one argument from each role and of each role always the less important argument.

Combination of arguments	A2, B2, C2
Credits	2
Incentive	21€ (7€ each)

5. The team chooses one argument from each role and one of the more important arguments of another role.

Combination of arguments	A1, A2, B2 A1, A2, C2 B1, B2, A2 B1, B2, C2 C1, C2, A2 C1, C2, B2
Credits	1
Incentive	15€ (5€ each)

Evaluation Form Argument Selection:

	Argumente	**Ziel-gruppe**	**Rolle**	**Prio**	**Aus-gewählt**	**Credits/ Ear-nings**
A1	Höhere Lebenserwartung führ zu breiterem Markt.	Vor-stand	Demo-graphie	1		
A2	Momentan wenig Profit trotz steigender Anzahl an Senioren.	Vor-stand	Demo-graphie	2		
B1	Konkurrenzfähigkeit steigern durch Entwicklung des ersten Senioren-SMARTphones.	Vor-stand	Marke-ting	1		
B2	Senioren-Smartphone führt zu positive Image der Firma.	Vor-stand	Marke-ting	2		
C1	Verbesserung der finanziellen Situation durch neues Produkt.	Vor-stand	Finanz	1		
C2	Kostengünstige Umsetzung/ Vermarktung eines Senioren-Smartphones.	Vor-stand	Finanz	2		
					Credits	
					Aus-zah-lung	
A1	Erweiterung der kognitiven Fähigkeiten durch Smartphone-Nutzung.	Kunden	Demo-graphie	1		
A2	Senioren fühlen sich weniger ausgeschlossen von der Gesellschaft.	Kunden	Demo-graphie	2		
B1	Einfache Bedienung aufgrund eines angepassten Deisgns (laute Töne, Senioren-Apps)	Kunden	Marke-ting	1		
B2	Bessere/ einfachere Kommunikationsmöglichkeiten mit der Familie	Kunden	Marke-ting	2		
C1	Kostengünstiges Angebot von Senioren-Smartphones	Kunden	Finanz	1		
C2	Senioren-Smartphones von Firma X als	Kunden	Finanz	2		

	Statussymbol					
					Credits	
					Auszahlung	

Evaluation Poster Creativity:

	1 Strongly Agree	2 Diasgree	3 Half/half	4 Agree	5 Strongly Agree
The poster contains really creative elements (use of eye-catchers, little jokes).					

Toolbox:

Example Posters:

Appendix C: Chapter 3 – Exploratory Interview Study: Interview Guideline

INTERVIEW LEITFADEN

Team Rumination

Vielen Dank, dass Sie sich die Zeit für das Interview nehmen. Ziel dieser Studie ist es, verschiedene Wege im Umgang mit schwierigen Situationen eines Teams zu untersuchen. Langfristig gesehen würden wir gerne unproduktive Verhaltensmuster in der Team-Zusammenarbeit aufdecken und rausfinden, wie sich diese auf verschiedene Team-Ergebnisse auswirken könnten. Sicher gibt oder gab es bei Ihnen im Team auch mal Situationen, in denen Prozesse weniger produktiv verlaufen sind, sich Gespräche immer wieder um das gleiche negative Thema drehten und bei denen Sie das Gefühl haben, dass Sie keinen Schritt weiterkommen. Zum Beispiel diskutiert man eine gemeinsam als negativ wahrgenommene Sache immer wieder bis ins kleinste Detail und merkt überhaupt nicht, wie dabei die Zeit vergeht. Dieses Phänomen bezeichne ich als Team Rumination. Ich definiere Team Rumination als eine Abfolge immer wieder auftretender, exzessiver und länger andauernde Konversationen von Teammitgliedern über eine gemeinsam als negativ wahrgenommene Situation, über die Gründe sowie über die Konsequenzen der Situation.

Ich versichere, dass Ihre Angaben und Daten völlig anonym und streng vertraulich behandelt werden. Rückschlüsse auf Ihre Person sind zu keiner Zeit möglich. Um alle Informationen vollständig zu erfassen, würde ich das Interview gerne aufnehmen. Geht das für Sie in Ordnung?

Gliederung Interview Leitfaden

Module	Methode	Zweck	Zu Beachten	Seite
Einführung Team Rumination	• **Fragen nach Rolle, Größe, Beschaffenheit des Teams/ der Organisation** • **Beschreibung Team Rumination** • **Frage, inwieweit Interviewee Team Rumination selbst schon einmal erlebt hat** • **Frage nach genauer Beschreibung des Prozesses**	• Verständnis Team-Kontext • Weiß Interviewee, wovon er/ sie spricht? • Kommt Team Rumination überhaupt vor? • Unvoreingenommene Beschreibung von Team Rumination (ohne, dass man mit genaueren Nachfragen schon irgendwelche wichtigen Aspekte vorweg genommen hat)	• **Auf Teamebene achten** • **Zur Not aus beobachten-der Position beschreiben lassen** • **10 Minuten**	3/4
Struktur/ Prozess	• **Frage, wie sich das Phänomen von einer einzelnen Person auf das**	• **Beschreibung der Entfaltung des Prozesses**	• **Auf Teamebene achten**	4/5

	Team übertragen hat (Multi-Level) • **Fragen nach dem Vorkommen oder womöglich der Interaktion kognitiver und emotionaler Events** • **Frage nach Bewusstsein über den Prozess** • **Frage nach Termination des Prozesses**	• **Wie entsteht Team Rumination von einer einzelnen Person auf das ganze Team?** • **Wieso unproduktiv?** • **Möglichkeit eines Turnovers?** • **Grund für Ende einzelner Konversationen?** • **Grund für Ende der Team Rumination genere** • **Vorkommen emotionaler und kognitiver Events**	• **15 Minuten**	
Outcome	• **Fragen nach persönlichen Ergebnissen/ Eindrücken/ Konsequenzen** • **Fragen nach Konsequenzen für das Team**	• **Identifikation negativer und/ oder positiver Ergebnisse für das Team oder die einzelnen Mitglieder**	• **Auf individuelle und Teamebene achten** • **5 Minuten**	5
Konkrete Situation	•	• **Spezielle oder typische Auslöser?** • **Interne oder Externe Trigger?** • **Beschreibung der Entfaltung des Prozesses** • **Wie entfaltet sich die Konversation von einer einzelnen Person auf das ganze Team?** • **Vorkommen emotionaler und kognitiver Events** • **Bewusstsein für das, was gerade passiert?** • **Wie wurde die Konversation**	•	5/6

		beendet? • **Gedanken/ Gefühle nach der Konversation** • **Team-Gedanken/ Gefühle nach der Konversation**		
Sonstiges	• **Fragen nach Sonstigen Auffälligkeiten**	• **Identifikation von Ereignissen oder Faktoren, die wir bisher nicht beachtet haben**	•	6
Demographische Daten	• **Frage nach Alter, Geschlecht, Beruf** • **Frage nach Teamtyp, Teamgröße, Hierarchie, Unternehmensgröße, Art des Unternehmens**	• **Einordnung der Teams**	• **5 Minuten**	6
Team-Work Einschätzung	• **Frage auf Skalen**	• **Einordnung der generellen Zusammenarbeit**	• **1 Minute**	6

Modul I: Einführung Team Rumination

1. Beschreibung Team Rumination

- Wie schon gesagt, gibt oder gab es sicherlich mal Situationen, in denen Prozesse in Ihrem Team weniger produktiv verlaufen sind, und Gespräche sich womöglich immer wieder um das gleiche Thema drehen und bis ins kleinste Detail diskutiert wurden oder auch immer noch werden … ohne Lösung! Ich möchte nun gerne auf das einmal schon oben kurz angerissene Phänomen der Team Rumination eingehen. Wie gesagt definiere ich Team Rumination als eine Abfolge immer wieder auftretender, exzessiver und länger andauernde Konversationen von Teammitgliedern über eine gemeinsam als negativ wahrgenommene Situation, über die Gründe sowie über die Konsequenzen der Situation.

2. Frage nach persönlicher Erfahrung mit Team Rumination

- Ich würde nun gerne wissen, ob Sie für dieses Phänomen ein konkretes Beispiel haben, das Sie auch genauer erklären können.
    - Wenn ja: zu 3.
    - Wenn nein: zu 4.

3. Frage nach der Beschreibung des Teams/ Phänomens

Haben Sie das Phänomen in einem Team beobachtet oder waren Sie selbst Teil des Teams?

- Welcher Branche gehört das Unternehmen an, in dem das Phänomen aufgetreten ist? _____
- Wie groß ist das Unternehmen? _____
- Was hat Ihr Team für eine Rolle im Unternehmen/ welchen Bereich deckt Ihr Team ab? _____
- Wie groß ist Ihr Team? _____
- Wie lange arbeitet/e das Team zusammen (in Jahren)? _____
- Wie lang war der Zeitraum, in dem das Team ruminiert hat?

Bitte beschreiben Sie die das als gemeinsam wahrgenommene Problem und das damit verbundene Phänomen der Team Rumination genauso, wie sie sich daran erinnern.

- Was war die gemeinsam als negativ wahrgenommene Situation und der Grund dafür, dass Sie begonnen haben, als Team über das Problem zu sprechen?
- Worum drehten sich die Gespräche konkret? Können Sie das ausführen?
- Fanden die Diskussionen eher im formellen oder informellen Kontext statt?
- Wie häufig haben Sie im Team über das Thema gesprochen?
- Wie lange dauerten die einzelnen Gespräche?

Halten Sie dabei immer das Team als Ganzes im Blick.

4. Frage nach anderem Phänomen

- Sie sagten, dass Sie Team Rumination, so wie oben definiert, bisher noch nicht erlebt haben. Haben Sie etwas Ähnliches erlebt?
    - Wie unterscheidet sich diese von unserer Definition von Team Rumination?

Modul II: Prozess und Struktur

Ich würde nun gerne mehr über den genauen Prozess der Team Rumination erfahren. Bitte beschreiben Sie einmal den ganzen Entstehungsprozess von Team Rumination, angefangen von der gemeinsamen Wahrnehmung des Problems über die Äußerung eines bestimmten Teammitglieds und die Beteiligung verschiedener Teammitglieder bis hin zum Unterlassen der Gespräche.

- Beschreiben Sie bitte, wie es passiert ist, dass Personen im formellen oder informellen Kontext immer wieder mit dem gleichen Thema anfangen. (Mitteilungsbedürfnis?)
    - Gab es bestimmte Trigger für die einzelnen Konversationen?
- Bitte beschreiben Sie jeweils mit einem Beispiel, was inhaltlich besprochen wurde, wie zum Beispiel Lösungsansätze, Spekulationen, Konsequenzen, Schuldzuweisungen etc.
- Wie kommt es aus Ihrer Sicht dazu, dass Sie immer wieder über das gleiche Thema sprechen?
    - Wer startet die Gespräche und warum?
    - Was war die Motivation, das Thema in der Gruppe zu besprechen?
- Bitte beschreiben Sie, wie die ganze Sache von einem individuellen Phänomen zu einem Teamphänomen wurde.

    - Man würde ja davon ausgehen, dass jede Person erst mal für sich alleine eine Meinung und Emotionen bildet. Wie passiert es, dass sich die Meinungen und Emotionen auf das Team übertragen?
- Wie kommt es aus Ihrer Sicht dazu, dass die Gespräche unproduktiv sind? Warum gelingt es aus Ihrer Sicht nicht, eine Lösung für das Thema zu finden?
    - Warum denken Sie, dass Sie als Team immer wieder über das gleiche Thema sprechen, ohne zu einer Lösung zu kommen?
- War Ihnen in dem Moment bewusst, dass die Gespräche nicht konstruktiv sind?
- Was hätte passieren müssen, damit die Gespräche zu einer Lösung führen?
- War der Prozess eher rational oder eher emotional (heiß oder kalt)?
- Was führte in der Regel dazu, dass Sie die Gespräche wieder beendet/abgebrochen haben?
- Was führte dazu, dass Sie aufhörten, immer wieder über das Thema zu sprechen?

Modul III: Outcome

- Was waren Ihre persönlichen Konsequenzen aus der Team Rumination (dem immer wieder diskutieren; sowohl positiv als auch negativ)?
    - Wie hat sich Team Rumination auf Ihre eigene Interpretation des Problems ausgewirkt?
    - Wie haben Sie sich in der Zeit gefühlt?
- Was waren Ihrer Meinung nach die Konsequenzen für das ganze Team (sowohl positiv als auch negativ)?
    - Wie würden Sie die gemeinsame Interpretation der Situation des Teams beschreiben?
    - Wie würden Sie die Stimmung im Team beschreiben?

Modul IV: Konkretes Gespräch als Beispiel

Ich würde gerne noch genauer verstehen, was in einem solchen Gespräch abläuft. Nehmen wir also mal eine ganz konkrete Situation, in der Sie über das gerade beschriebene Problem gesprochen haben und zu keiner Lösung kamen.

- Können Sie die Situation so genau wie möglich für mich beschreiben? Wo und wann fand das Gespräch statt? Wer war alles beteiligt? Wie lange haben Sie ca. gesprochen?
- Gab es einen bestimmten Auslöser für den Beginn des Gesprächs?
- Wer hat das Gespräch begonnen? Wieso hat die Person das Gespräch gesucht? (Brauchte sie z.B. Hilfe bei der Interpretation des Problems?) Was war die Motivation, das Thema in der Gruppe zu besprechen?
- Wie ist es passiert, dass das ganze Team in die Diskussion eingestiegen ist, obwohl nur eine Person begonnen hat?
- Wie kam es dazu, dass andere mit in die Diskussion eingestiegen sind?
    - Bitte beschreiben Sie, ob und wie Sie sich in Ihrer Meinungsbildung angesteckt haben.
    - Bitte beschreiben Sie, ob und wie Sie sich in Ihrer Emotionsbildung angesteckt haben.
    - Wie haben sich Team-Emotionen entwickelt? (Übergang Individuum Team)
    - Wie haben sich Team-Meinungen entwickelt? (Übergang Individuum Team)
    - Können Sie beschreiben inwieweit ihre Emotionen die Interpretation des Problems beeinflusst haben oder andersherum?
- War der Prozess eher rational oder eher emotional (heiß oder kalt)?
- Warum haben Sie das Gespräch als unproduktiv empfunden? Wie kam es aus Ihrer Sicht dazu, dass es unproduktiv wurde?
- War Ihnen in dem Moment bewusst, dass Sie sich nur im Kreis drehen?
- Wie hätte man das Gespräch so gestalten können, dass sie wieder produktiv wird?

- Was hat dazu geführt, dass das Team das Gespräch beendet haben?
- Wie haben Sie sich unmittelbar nach dem Gespräch gefühlt? Was haben Sie unmittelbar nach dem Gespräch gedacht?
- Wie war die Stimmung im Team unmittelbar nach dem Gespräch? Was war das Ergebnis des Gesprächs in Bezug auf das Problem?

Modul VII: Sonstiges

Habe ich Ihrer Meinung nach jetzt etwas Wichtiges vergessen zu fragen? Was ist Ihnen noch aufgefallen oder wichtig, worüber wir jetzt noch nicht gesprochen haben? Was ist für Sie am bezeichnensten für den ganzen Prozess?

Modul VIII: Demographische Daten

Abschließend bitte ich Sie einige Angaben zu Ihrer Person zu machen.

a. Geschlecht: □ männlich □ weiblich

b. Alter: ____

c. Beruf: _____

d. Wie lange sind Sie insgesamt schon berufstätig (in Jahren)?_____

Modul IX: Team-Work

Auf einer Skala von 1 bis 6, wie würden Sie die Zusammenarbeit in Ihrem Team beschreiben?

Sehr ineffizient 1					Sehr effizient 6

Auf einer Skala von 1 bis 6, wie flexibel ist ihr Team im Umgang mit unerwarteten Situationen?

Sehr unflexibel 1					Sehr flexibel 6

Auf einer Skala von 1 bis 6, wie ist die allgemeine Leistung Ihres Teams?

Sehr niedrig 1					Sehr hoch 6

Appendix D: Chapter 3 – Study 1: Initial Item Pool (100 Items)

Recursive Discussions	1. Wenn wir über unser Problem sprechen, reden wir immer wieder über die gleichen Aspekte. 2. Obwohl wir schon über einige Aspekte des Problems gesprochen haben, sprechen wir immer wieder über diese Aspekte. 3. Im Mittelpunkt unserer Gespräche stehen immer die gleichen Aspekte unseres Problems. 4. Unsere Gespräche drehen sich immer um die gleichen Aspekte des Problems. 5. Auch wenn wir es nicht wollen, besprechen wir immer wieder die gleichen Aspekte unseres Problems. 6. Die gleichen Aspekte des Problems werden von verschiedenen Teammitgliedern immer wieder genannt. 7. Wann immer wir uns treffen, beginnen wir wieder, die gleichen Aspekte unseres Problems zu diskutieren. 8. Obwohl wir viel über das Problem gesprochen haben, sprechen wir immer wieder darüber. 9. Wir sprechen immer wieder über die gleichen Gedanken, die wir zu unserem Problem haben. 10. Im Mittelpunkt unserer Gespräche steht immer unser Problem. 11. Auch wenn wir es nicht wollen, besprechen wir unser Problem übermäßig lang und oft. 12. Irgendwie passiert es, dass wir immer wieder anfangen, unser Problem zu besprechen. 13. In unseren Gesprächen über unser Problem werden immer wieder die gleichen Aspekte aufgegriffen. 14. Auch wenn alle Aspekte eines Problems bereits besprochen wurden, werden sie immer wieder aufgegriffen. 15. Wenn wir über unser Problem sprechen, kann es leicht passieren, dass wir Aspekte immer wieder besprechen. 16. In unseren Gesprächen kommen wir immer wieder auf unser Problem zurück. 17. In unseren Gesprächen fangen wir immer wieder an, über unser Problem zu diskutieren. 18. Gespräche über unser Problem passieren häufig. 19. Wir sprechen übermäßig über unser Problem. 20. Wir konzentrieren uns in den Gesprächen über unser Problem nur auf eine begrenzte Anzahl von Aspekten. 21. Wir neigen dazu, über unser Problem noch einmal zu sprechen, auch wenn wir das Thema längst gewechselt haben. 22. Wann immer wir uns treffen, beginnen wir unabsichtlich wieder mit Gesprächen über unser Problem.

Speculation about Causes	23. Wir sprechen viel über die Ursachen unseres Problems, um zu verstehen, wie es überhaupt dazu kam.
	24. Wir spekulieren gemeinsam über die Gründe für unser Problem. 25. Wir sprechen viel über Aspekte unseres Problems, die für uns keinen Sinn ergeben. 26. Wir sprechen über alle möglichen Gründe, warum unser Problem aufgetreten sein könnte. 27. Wir sprechen sehr lange über unser Problem und versuchen herauszufinden, warum es aufgetreten sein könnte. 28. Wir zerpflücken die verschiedenen Aspekte unseres Problems, um dessen Ursachen zu verstehen. 29. Problembezogene Aspekte, die wir nicht verstehen, nehmen in unseren Gesprächen viel Raum ein. 30. Um unser Problem als Ganzes zu verstehen, zerlegen wir es in einzelne Teile. 31. Wir sprechen häufig über unser Problem, weil wir dessen Ursachen nicht verstehen. 32. Verschiedene Teammitglieder versuchen, unterschiedliche Ursachen für das Problem zu finden. 33. In unseren Gesprächen ziehen wir vermeintlich neue Informationen heran, um die Ursachen unseres Problems zu verstehen. 34. Gespräche über die Ursachen unseres Problems enthalten häufig Gerüchte. 35. Gerüchte über mögliche Ursachen unseres Problems verbreiten sich schnell. 36. Wir versuchen, die Ursache für unser Problem zu verstehen, wissen jedoch nicht, was das Problem wirklich verursacht hat. 37. Wir spekulieren über viele verschiedene Ursachen, die unser Problem ausgelöst haben könnten. 38. Obwohl es keine Anhaltspunkte dafür gibt, warum unser Problem aufgetreten ist, konzentrieren sich unsere Gespräche dennoch auf viele mögliche Ursachen. 39. Wir versuchen, alle möglichen Ursachen für unser Problem zu finden, auch wenn einige von ihnen nicht viel Sinn ergeben.
Speculation about Consequences	40. In unseren Gesprächen spekulieren wir über die schlimmsten Szenarien im Zusammenhang mit unserem Problem. 41. Wenn wir über unser Problem sprechen, konzentrieren wir uns auf viele mögliche negative Folgen. 42. Wir diskutieren die schlimmsten Szenarien, die aufgrund unseres Problems passieren können. 43. Wir malen uns die schlimmsten Szenarien aus, die aufgrund unseres Problems passieren können. 44. Wir versuchen, jede einzelne Konsequenz unseres Problems herauszufinden

	45. Wir sprechen viel über all die negativen Konsequenzen, die aufgrund unseres Problems eintreten können.
	46. Wir verbringen viel Zeit damit darüber zu sprechen, was für schlechte Dinge aufgrund unseres Problems passieren werden. 47. Wir sprechen viel über die negativen Folgen, die unser Problem haben könnte. 48. Wir erzählen uns gegenseitig, wie sehr wir von den negativen Folgen unseres Problems betroffen sein werden. 49. Wir spekulieren über die Schwere der Folgen für uns alle. 50. Wir spekulieren darüber, wie sich die Zukunft aufgrund unseres Problems verändern könnte. 51. Wir stellen uns alle möglichen Konsequenzen vor, die unser Problem verursachen kann. 52. Wir besprechen die Folgen, die im schlimmsten Fall auftreten können. 53. Wir machen uns Sorgen um die schlechten Dinge, die aufgrund unseres Problems passieren können. 54. Wir sind uns einig, dass unser Problem negative Konsequenzen für das Team haben wird. 55. Eine Spekulation folgt auf die nächste, wenn wir über die Folgen unseres Problems sprechen. 56. Die Spekulationen über die Folgen unseres Problems nehmen sehr viel Platz in unseren Gesprächen ein. 57. Wir dramatisieren unser Problem, indem wir über mögliche negative Folgen sprechen.
Sharing Negative Thoughts and Feelings	58. Die Gespräche über unser Problem sind eher emotional als rational. 59. Wenn wir über unser Problem sprechen, drücken wir unsere negativen Gedanken und Gefühle aus. 60. Wenn wir über unser Problem sprechen, bringen wir unsere Unzufriedenheit mit der Situation zum Ausdruck. 61. Wenn wir über unser Problem sprechen, versinken wir zunehmend in unserer eigenen Negativität. 62. Wenn wir über einen negativen Aspekt unseres Problems sprechen, beginnen wir auch über andere negative Aspekte zu sprechen. 63. Wenn wir über unser Problem sprechen, nehmen wir leicht die negativen Emotionen der anderen auf. 64. Während unserer Gespräche stecken wir uns gegenseitig mit unseren negativen Gefühlen an. 65. Wir konzentrieren uns in unseren Gesprächen vor allem auf die negativen Aspekte unseres Problems. 66. Weil sich jeder auf das Negative konzentriert, ist es schwer, positive Aspekte unseres Problems anzusprechen. 67. Es ist leicht, negative Aspekte unseres Problems

	anzusprechen, da sich die Gespräche ohnehin um negative Aspekte drehen.
	68. Negative Gedanken und Gefühle werden geteilt, wenn wir unser Problem besprechen. 69. Es ist wahrscheinlich, dass wir von den negativen Gedanken und Gefühlen unserer KollegInnen angesteckt werden. 70. Wenn wir über unser Problem sprechen, werden wir wahrscheinlich negative Gedanken und Gefühle haben. 71. Negative Gefühle und Gedanken kommen in den Gesprächen über unser Problem oft vor. 72. In unseren Gesprächen verbreiten sich negative Gedanken und Gefühle leicht im Team. 73. In der Regel wird unser ganzes Team von den negativen Gedanken und Gefühlen über unser Problem erfasst. 74. Wir werden leicht von den Gefühlen der Anderen beeinflusst. 75. Gespräche über unser Problem werden oft von negativen Gedanken und Gefühlen bestimmt.
Mutual Reinforcement of Problem Talk	76. Wenn wir über unser Problem sprechen, breiten sich unsere negativen Gedanken und Gefühle auf andere Teammitglieder aus. 77. Wir neigen dazu, unser Problem in sehr negativer Weise zu betrachten. 78. Wenn wir über unser Problem sprechen, stellen wir die Argumente der jeweils anderen kaum in Frage. 79. Wir neigen dazu, die Meinungen der jeweils anderen in unseren Gesprächen zu bestätigen. 80. Die Gespräche über unser Problem sind von gegenseitiger Bestätigung geprägt. 81. Wir neigen dazu, die Meinungen des anderen zu bestätigen, anstatt sie in Frage zu stellen. 82. In unseren Gesprächen bestärken wir uns gegenseitig in unseren negativen Gedanken über unser Problem. 83. Wir feuern unsere Gespräche immer wieder von Neuem an, indem wir vermeintlich neue Informationen immer wieder ansprechen. 84. In unseren Gesprächen bestärken wir uns gegenseitig in unseren negativen Gefühlen. 85. Im Laufe unserer Gespräche werden unsere negativen Gefühle gegenüber unserem Problem noch stärker. 86. In unseren Gesprächen zeigen alle die gleiche negative Sicht auf unser Problem. 87. In unseren Gesprächen beschreibt jede/r im Team unser Problem sehr ähnlich. 88. In unseren Gesprächen verwenden verschiedene Teammitglieder die gleichen Worte, um ihre Gefühle zu

	beschreiben. 89. In unseren Gesprächen unterstützen wir unsere Sichtweisen auf unser Problem gegenseitig.
	90. Unsere Meinung über unser Problem wird im Verlauf unserer Gespräche immer schlechter. 91. Das ganze Team teilt die gleichen negativen Gefühle und Gedanken über unser Problem. 92. Während unserer Gespräche gleichen sich die Meinungen zu unserem Problem einander an. 93. Unsere Gespräche zeigen, dass die Sichtweisen aller Teammitglieder über unser Problem sehr ähnlich sind. 94. Wir neigen in unseren Gesprächen dazu, die negativen Meinungen der anderen zu unserem Problem zu bestätigen. 95. Anstatt über unser Problem kritisch zu diskutieren, teilen wir eher unsere negative Meinung darüber. 96. Wir bauen häufig auf den negativen Aussagen der jeweils anderen auf. 97. Unterschiedliche Meinungen im Team werden im Laufe unserer Gespräche immer ähnlicher. 98. Wenn wir unser Problem besprechen, akzeptieren wir leicht die negative Meinung der jeweils anderen. 99. Wenn wir über unser Problem sprechen, wird unsere gemeinsame Meinung darüber immer negativer. 100. Wenn wir unser Problem besprechen, überzeugen uns vor allem negative Aspekte.