

Revisiting Team Psychological Safety at Work: A Case Study Approach
to Its Dimensions, Intergroup Variations, and Influencing Factors

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Anna-Christina Leisin-Strecker

from

Germany

Approved on the application of

Prof. Dr. Wolfgang Jenewein

and

Prof. Dr. Felicitas Morhart

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The President:

Prof. Dr. Bernhard Ehrenzeller

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Anna-Christina Leisin-Strecker

Abstract

Previous research has shown the central role of psychological safety for promoting employee engagement, learning, innovation, and performance. Research now calls for a more thorough understanding of how team psychological safety is fostered and the ways in which its perceptions vary between groups. Research also suggests agreement on a common measurement instrument, an emphasis on conducting studies in globally dispersed teams, and greater use of qualitative methods. I answer these calls by investigating the dimensionality of team psychological safety, intergroup variations, and influencing factors. Over 4 years, I was part of a German automobile manufacturer and its North American mobility services subsidiary and conducted a case study comprising two studies. In Study 1, I used a 10-item survey to analyze perceptions of team psychological safety among 61 respondents. Based on this analysis, I posit that team psychological safety consists of two dimensions: perceived appreciation and perceived vulnerability. Furthermore, I found significant variations between genders, showing that women reported lower team psychological safety than men. These variations were partially explained by more ego strength by women, enabling them to admit issues surrounding team psychological safety more easily. There were no significant variations between frequency of remote collaboration, between the parent company, subsidiary, and markets, and between German and American citizens. In Study 2, I conducted 90 interviews and numerous participant observations to explore factors influencing team psychological safety. I advance existing knowledge on such factors by concluding that the following skills and virtues are crucial for team psychological safety: bottom-up empathy, ownership, and ego strength. In addition, I determined the importance of self-awareness, mindset flexibility, and genuine interest in others. Moreover, women's leadership, a clear mission, mediators in teams, dynamic roles, and autonomy in exploratory tasks were all positively related to team psychological safety. In contrast, interdependence between members of the parent company, subsidiary, and markets was ascribed a negative influence. Overall, my research offers new impulses for scholars in the field of psychological safety, contributes to the current state of literature, and helps managers to develop a psychologically safe team climate.

Zusammenfassung

Die bisherige Forschung hat die zentrale Rolle von psychologischer Sicherheit für das Lernen, das Engagement, sowie für die Leistung und Innovation am Arbeitsplatz gezeigt. Nun ist ein tieferes Verständnis darüber erforderlich, wie psychologische Sicherheit in Teams gestärkt werden kann, und wie diese zwischen Gruppen variiert. Die Forschung empfiehlt auch die Einigung auf ein Messinstrument, den Fokus auf die Durchführung von Studien in global verteilten Teams, sowie die Anwendung qualitativer Methoden. Diese Dissertation kommt diesen Anforderungen nach, indem sowohl Dimensionen von psychologischer Sicherheit als auch Gruppenunterschiede und Einflussfaktoren ermittelt wurden. Über einen Zeitraum von vier Jahren wurde bei einem deutschen Automobilhersteller und dessen nordamerikanischer Tochtergesellschaft für Mobilitätsdienste eine Fallstudie in zwei Teilen durchgeführt. In Studie 1 wurden mittels eines 10-Item Fragebogens die psychologische Sicherheit im Team von 61 Befragten analysiert. Durch diese Analyse wird vorgeschlagen, dass psychologische Sicherheit im Team aus zwei Dimensionen besteht: wahrgenommene Wertschätzung und wahrgenommene Fähigkeit zur Verletzlichkeit. Darüber hinaus wurden signifikante Unterschiede zwischen den Geschlechtern gefunden. Demnach berichteten Frauen geringere psychologische Sicherheit als Männer, was auch auf ein stärkeres Ego von Frauen zurückgeführt wurde, das ihnen ermöglichte, Probleme rund um psychologische Sicherheit im Team eher zuzugeben. Zudem wurden keine signifikanten Unterschiede zwischen der Häufigkeit der Remote-Zusammenarbeit, zwischen Mitgliedern der Muttergesellschaft, Tochtergesellschaft und Märkte sowie zwischen Mitgliedern amerikanischer und deutscher Herkunft festgestellt. In Studie 2 wurden 90 Interviews und zahlreiche teilnehmende Beobachtungen durchgeführt, um Einflussfaktoren auf psychologische Sicherheit im Team zu identifizieren. Das bisherige Wissen wird erweitert, indem die folgenden Fähigkeiten und Tugenden abgeleitet wurden, die entscheidend für psychologische Sicherheit sind: Mitarbeiterempathie gegenüber Führungskräften, Eigenverantwortung und Ego-Stärke. Dazu kommen Selbstwahrnehmung, Flexibilität der Denkweise sowie ein genuines Interesse an anderen. Außerdem wurde insbesondere der Führung durch Frauen, einer klaren Mission, Mediatoren in Teams, dynamischen Rollen und der Autonomie bei explorativen Aufgaben ein positiver Einfluss auf psychologische Sicherheit im Team zugeschrieben. Im Gegensatz dazu wurde der Interdependenz zwischen der Muttergesellschaft, Tochtergesellschaft und Märkte ein negativer Einfluss beigemessen. Insgesamt bietet diese Dissertation neue Forschungsimpulse im Bereich der psychologischen Sicherheit, trägt zum aktuellen Stand der Literatur bei und hilft Managern ein psychologisch sicheres Arbeitsumfeld zu entwickeln.

Table of Contents

Acknowledgments	I
Abstract.....	II
Zusammenfassung	III
Table of Contents.....	IV
List of Figures.....	VII
List of Tables	VIII
List of Abbreviations	IX
 1. Introduction.....	 1
1.1. Relevance of Psychological Safety at Work.....	1
1.2. Research Site and Setting	4
1.3. Research Gaps, Questions, and Goals	6
1.4. Dissertation Structure	8
 2. Study 1: Psychological Safety Dimensions and Intergroup Variations	 10
2.1. The Concept of Psychological Safety in Literature	10
2.1.1. Origin and Definition of the Psychological Safety Concept	10
2.1.2. Differentiation of the Psychological Safety Concept	11
2.1.3. Implicit Voice Theories: A Voice–Silence Asymmetry	13
2.1.4. Team-Level Scales to Measure Psychological Safety	14
2.1.5. Intergroup Psychological Safety Variations	16
2.2. Quantitative Methods.....	17
2.3. Empirical Results of Exploratory Factor Analyses.....	21
2.4. Empirical Results of Intergroup Comparisons.....	26
2.4.1. Variations Between Genders	26
2.4.2. Variations by Frequency of Remote Collaboration	28
2.4.3. Variations by Tenure with the Team	30
2.4.4. Variations Across Hierarchy Levels.....	32
2.4.5. Variations Across Teams and Cultures.....	34
2.5. Summary of Empirical Results of Study 1	37

3. Study 2: Factors Influencing Team Psychological Safety	42
3.1. Literature Review of Influencing Factors	42
3.2. Qualitative Methods.....	46
3.3. Empirical Findings of Participant Field Observations.....	49
3.3.1. Vignette 1: Team Climate of Blame and Disrespect	49
3.3.2. Vignette 2: Team Climate of Silence and Denial	52
3.3.3. Vignette 3: Team Climate of Rejection and Disregard	55
3.4. Empirical Findings of Qualitative Interviews.....	57
3.4.1. Mission Clarity	57
3.4.2. Shared, Achievable, Flexible, and Enriching Goals	60
3.4.3. Role Clarity, Interdependence, and Dynamic Roles.....	64
3.4.4. Autonomy for Exploratory Tasks	67
3.4.5. Workplace Proximity.....	71
3.4.6. Competitiveness.....	73
3.4.7. Mediation.....	75
3.4.8. Women's Leadership	76
3.4.9. Leaders' Availability	78
3.4.10. Leaders' Fallibility.....	79
3.4.11. Openness to Others' Input	81
3.4.12. Accountability: Clarity and Implementation	85
3.4.13. Trust in Leaders: Genuine Interest in Employees and Intimacy.....	87
3.5. Summary of Empirical Findings of Study 2	90
4. Discussion of Findings	96
4.1. Theoretical Implications	96
4.1.1. Dimensionality of the Team Psychological Safety Construct	97
4.1.2. Intergroup Variations in Team Psychological Safety	99
4.1.3. Factors Influencing Team Psychological Safety	104
4.2. Managerial Implications	114
4.3. Limitations and Quality Measures.....	118
4.4. Avenues for Future Research.....	122

5. Conclusion.....	130
6. References	131
7. Appendices	145
7.1. Team Psychological Safety Survey	145
7.2. Qualitative Interview Guide.....	148
7.3. Overview of Interviews	150
7.4. Transcripts of Interviews and List of Codes.....	154
7.5. Notes of Participant Field Observations	154
8. Curriculum Vitae	155

List of Figures

Figure 1-1 Mentions of Psychological Safety at Work in the Media	3
Figure 1-2 Research Setting.....	5
Figure 1-3 Research Site and Target Population	6
Figure 1-4 Dissertation Structure.....	9
Figure 2-5 Psychological Safety and Performance Standards at Work.....	13
Figure 2-6 Implicit Voice Theories: A Voice–Silence Calculation.....	14
Figure 2-7 Empirical Results: Path Diagram of Exploratory Factor Analyses	25
Figure 2-8 Empirical Results: Dimensionality of Team Psychological Safety	38
Figure 3-9 Empirical Findings: Factors Influencing Team Psychological Safety....	95
Figure 4-10 Empirical Results and Theoretical Contributions for the Dimensionality of the Team Psychological Safety Construct (RG 1).....	98
Figure 4-11 Empirical Results and Theoretical Contributions for Intergroup Variations in Team Psychological Safety (RG 2).....	104
Figure 4-12 Empirical Findings and Theoretical Contributions for Factors Influencing Team Psychological Safety (RG 3).....	112
Figure 4-13 Summary of Empirical Findings and Theoretical Contributions.....	113

List of Tables

Table 2-1 Scales in Literature to Measure Team Psychological Safety	15
Table 2-2 Quantitative Survey Scale to Measure Team Psychological Safety	18
Table 2-3 Sample Characteristics of Survey Respondents	19
Table 2-4 Empirical Results: Exploratory Factor Analysis with Factor Loadings...	23
Table 2-5 Team Psychological Safety: Comparison Between Genders	26
Table 2-6 Team Psychological Safety: Comparison by Remote Collaboration	29
Table 2-7 Team Psychological Safety: Comparison by Tenure with the Team	31
Table 2-8 Team Psychological Safety: Comparison Across Hierarchy Levels.....	33
Table 2-9 Team Psychological Safety: Comparison Across Teams and Cultures ...	35
Table 2-10 Summary of Empirical Results: Intergroup Comparisons	41
Table 3-11 Literature Review of Factors Influencing Psychological Safety.....	45
Table 3-12 Qualitative Data Collection Methods.....	48
Table 7-13 Overview of Interview Participants.....	150

List of Abbreviations

CFO	Chief financial officer
EFA	Exploratory factor analysis
HR	Human resources
KMO	Kaiser-Meyer-Olkin
KPI	Key performance indicator
MVP	Minimal viable product
OEM	Original equipment manufacturer
PAF	Principal axis factoring
PCA	Principal component analysis
RG	Research goal
RQ	Research question
SAFE	Shared, achievable, flexible, and enriching
STV	Subjects-to-variables ratio
TPS	Team psychological safety

1. Introduction

1.1. Relevance of Psychological Safety at Work

The prosperity of organizations depends crucially on knowledge, ideas, learning, and innovation. An increasing proportion of today's work is knowledge intensive, such as managing complex products and processes and developing sophisticated hardware, software, and other future information technology (Edmondson, 2018). However, for knowledge-intensive work to thrive, it is not sufficient merely that employees are knowledgeable; in addition, employees need to feel safe to contribute their knowledge and share their ideas, questions, and concerns (Edmondson, 2018; Edmondson & Lei, 2014). Organizations function in a world of volatility, uncertainty, complexity, and ambiguity (Stiehm & Townsend, 2002), in which the reluctance of employees to speak up, share an idea, or raise a question can pose a significant organizational risk (Edmondson, 2018). As the modern workplace becomes more complex and interdependent, greater collaboration among employees helps to solve multifaceted problems and create value for customers (Edmondson & Lei, 2014). A recent study revealed that employees spend approximately 50% more time at work collaborating with team members today than they did 2 decades ago (Cross et al., 2016). Another study suggested that due to the COVID-19 pandemic and subsequent severe cost cutting pressure, 74% of chief financial officers (CFOs) will transfer a minimum of 5% of their employees to remote working (Lavelle, 2020). In an era when effective teamwork is becoming more important to delivering customer value, it is critical that employees speak up, contribute knowledge and ideas, and collaborate (Edmondson, 2018; Edmondson & Lei, 2014).

However, employees are often reluctant to engage in interpersonal risk-taking, largely out of a fear that doing so may shed an adverse light on them (Van Dyne & LePine, 1998), damage their prestige (Tedeschi & Rosenfeld, 1981), lower their self-esteem and decrease opportunities for career advancements (Ashford et al., 1998; Milliken et al., 2003) or lead to other negative ramifications (Argyris, 1982; Edmondson, 2003; Nembhard & Edmondson, 2012; Pinder & Harlos, 2001; Withey & Cooper, 1989). Moreover, a recent global study revealed that the negative economic consequences of the COVID-19 pandemic have led to an increased fear among employees of losing their jobs (Ipsos, 2020). Such fears can hinder employees from contributing knowledge and ideas, raising concerns, asking questions, and collaborating, which in turn decreases an organization's ability to flourish. Thus, fear may be a key reason why employees are not able to perform at their highest level (Edmondson, 2018).

Compelling evidence indicates that fear of interpersonal risk-taking can be overcome with psychological safety, especially in work contexts characterized by uncertainty and complexity and in which learning and collaboration are crucial (Edmondson & Lei, 2014). In a psychologically safe team, employees feel more inclined to take interpersonal risks—such as proposing an idea, posing a question, sharing a concern, and revealing a mistake—without fear of blame, embarrassment, or retaliation (Edmondson, 2018). Past research has shown the crucial role of psychological safety in positive work outcomes, including learning (Bstieler & Hemmert, 2010; Edmondson, 1999; Edmondson & Lei, 2014; Tucker et al., 2007; Van den Bossche et al., 2006), employee engagement (Edmondson & Lei, 2014; Kahn, 1992; May et al., 2004; Nembhard & Edmondson, 2006), creativity (Carmeli et al., 2010; Kark & Carmeli, 2009; Madjar & Ortiz-Walters, 2009), innovation (Choo et al., 2007; Gu et al., 2013; Lee et al., 2011; Post, 2012), and performance (Brueller & Carmeli, 2011; Collins & Smith, 2006; Schaubroeck et al., 2011).

Despite these benefits, psychological safety at work is not yet the norm (Detert & Edmondson, 2011; Edmondson, 2018; Edmondson & Lei, 2014; Gallup, 2017; Ipsos, 2012; Milliken et al., 2003; Ryan & Oestreich, 1998). For example, a global study revealed that only less than half of its respondents, 47%, somewhat agreed that their “current workplace is a psychologically safe and healthy environment to work in” (Ipsos, 2012, p. 4). Moreover, a recent Gallup survey revealed that only three out of ten employees felt that their views count at work (Gallup, 2017). The absence of psychological safety at work can lead to many challenges, such as reduced innovation and critical business failures (Edmondson, 2018). For example, the failure of Volkswagen in 2015 concerning its emissions compliance with environmental regulations in the United States may be partially traced back to employees’ fears of speaking up to superiors (Edmondson, 2018). Similarly, the failure of Nokia between 2005 and 2010 may be partly explained by the company’s fearful climate, which likely led to an unwillingness by employees to report adverse news about Nokia’s operating system performance to supervisors (Edmondson, 2018; Huy & Vuori, 2015).

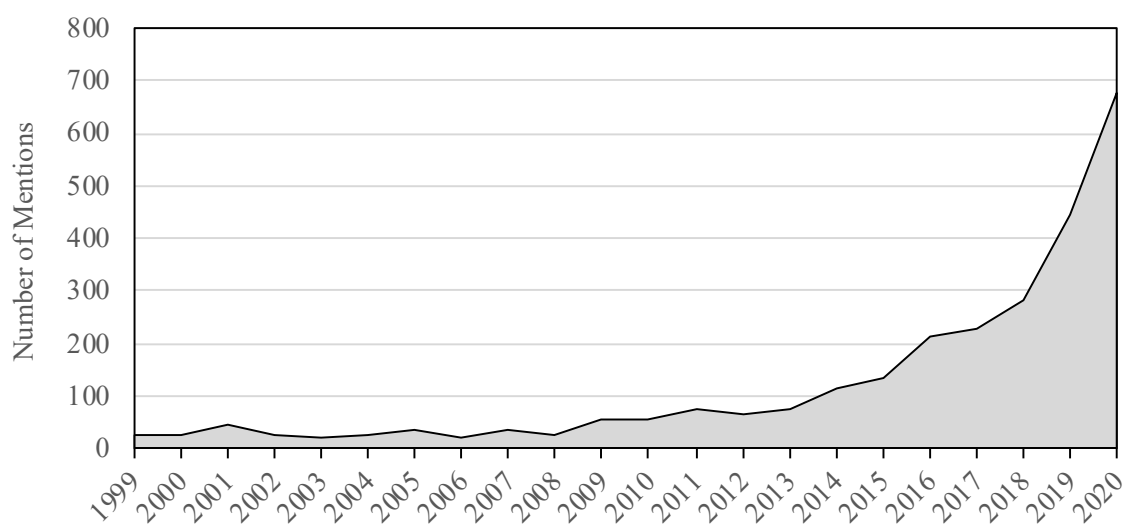
The concept of team psychological safety at work has attracted interest from both managers and scholars (Edmondson, 2018; Edmondson & Lei, 2014). Among managers, the team psychological safety concept gained particular attention after research findings from Google’s Project Aristotle were published in an article in the *New York Times* and aired on CNN in 2016 (Duhigg, 2016; Zakaria, 2016). In this comprehensive Google study, researchers investigated over 180 teams for 5 years to learn what made the best teams. Factors such as personality traits, educational background, skills, and hobbies were considered, but no significant patterns were

identified. However, lead researcher Rozovsky and her colleagues discovered that psychological safety explained the most differences in team performance (Duhigg, 2016; Rozovsky, 2015). These researchers revealed that reliable coworkers, clear goals and structures, personally meaningful work, and a belief that one's work had impact were crucial for team performance, but unless members perceived the workplace as psychologically safe, these other factors could not fully exert their positive effects (Duhigg, 2016).

The salience of the psychological safety at work concept is shown by a Factiva search of over 30,000 sources across the world. This revealed a rapid growth in mentions of psychological safety at work, particularly since 2016: Figure 1-1 depicts the number of mentions of “psychological safety at work” and “psychologically safe at work” in the media since 1999.

Figure 1-1

Mentions of Psychological Safety at Work in the Media



Note. Chart data is from a Factiva database search on June 27, 2020.

Moreover, rising academic interest in psychological safety at work has led to growing numbers of research studies in psychology, organizational behavior, and management across companies, hospitals, schools, and governments. These studies have sought to learn about psychological safety, its measurement, influencing factors, and implications at work (Edmondson, 2018; Edmondson & Lei, 2014). Furthermore, the number of citations of a leading article by prominent scholar Edmondson on team psychological safety (Edmondson, 1999) have increased every year (Edmondson, 2018), indicating the growing academic relevance of this concept.

1.2. Research Site and Setting

My research adopts a single case study approach. Thanks to a research cooperation between my institute and a partnering company, I was provided a rare opportunity to join a listed German automobile manufacturer for 4 years (2015-2019). Saunders et al. (2019) explained that single case studies are particularly suitable when the case represents a rare opportunity to study a phenomenon that has yet to be investigated. A single case study approach allowed an in-depth inquiry into the phenomenon of team psychological safety at work in a real-life work context that has produced deep insights (Dubois & Gadde, 2002; Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Ridder et al., 2014; Yin, 2017).

I was granted unlimited access to observe and participate in all internal events and business meetings at the automobile manufacturing company and was integrated as an equal member in both functional and cross-functional teams. Thus, I embraced the dual role of a researcher and team member at the automobile manufacturer; this enabled me to develop a deep understanding of the context as both an outsider and an insider (Saunders et al., 2019; Spradley, 2016; Van Maanen, 2011). Moreover, I was able to freely enter and exit the research site, moving daily between the university and automobile company site.

The German automobile manufacturer established a new division for the development of future mobility services. In 2016, this new division founded a North American subsidiary to explore and meet changing customer demands for mobility services and autonomous driving. The subsidiary's executives were subordinate to the manager of the division for future mobility services at the parent company.

All employees of both the subsidiary and future mobility services division at the parent company were part of functional teams (e.g., strategy, product, technology, operations, rollout, finance, and marketing), and many were also part of temporary cross-functional project teams. I became part of a cross-functional project team that involved frequent collaboration between the division for future mobility services at the parent company and the newly founded subsidiary. The globally dispersed team members worked together frequently, both on site at the subsidiary and remotely via telephone and virtual meetings. Approximately every 2 to 6 weeks, team members from the parent company joined the subsidiary teams in North America for a period of 1 to 2 weeks to work together on future mobility projects. Through this collaboration, I developed trusting relationships with many colleagues from different teams and gained an in-depth understanding of the work context.

In 2017, I adopted the sole role of an observing researcher and was no longer part of an operative project team. I presented the concept of my research to the management of the future mobility services division and the subsidiary. Management

committed to my research initiative to help identify key factors influencing team psychological safety and thus promote positive work outcomes. During this research initiative, I cooperated with a human resources (HR) partner from the North American national sales company of the automobile manufacturer, who was present at the subsidiary and supported my research initiative, especially during the initiation and data collection phases.

The research was carried out with the entire team of the North American mobility services subsidiary, its two North American city market teams, and the team for future mobility services of the parent company. From 2016 to 2017, the subsidiary and its city market teams grew to over 50 people. In sum, the people within the scope of this case study comprised 80 participants. Of these 80 participants, approximately 30% ($n = 24$) were from the division for future mobility of the parent company, 56% ($n = 45$) from the subsidiary, and 14% ($n = 11$) from the two smaller city market teams of the subsidiary. Figures 1-2 and 1-3 portray the research setting and site within my case study.

Figure 1-2

Research Setting

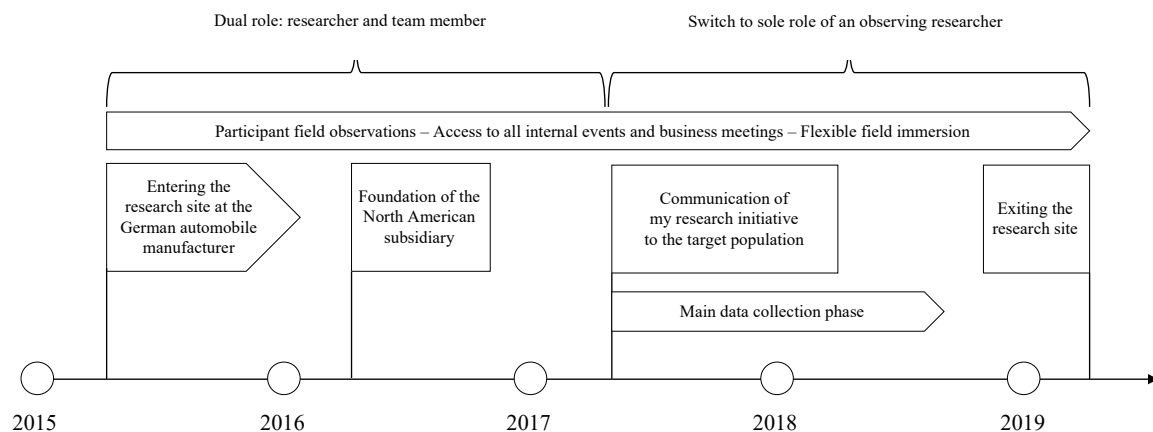
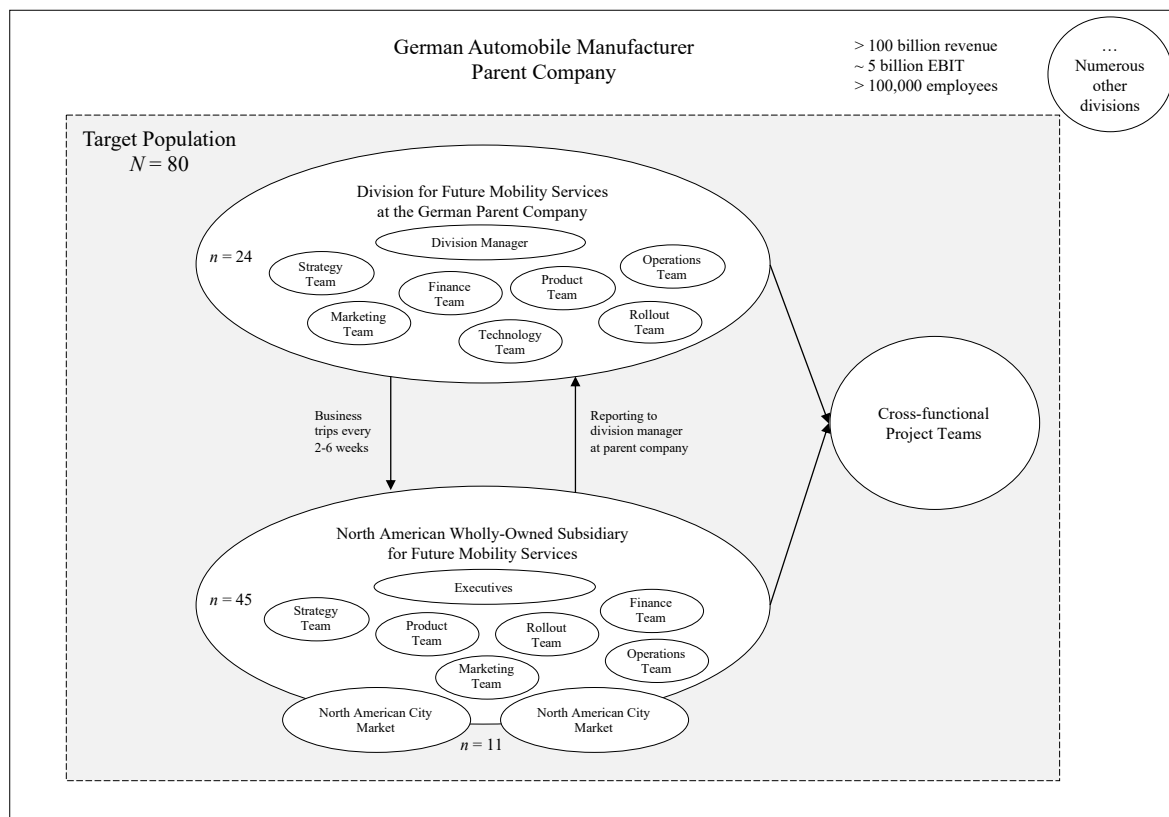


Figure 1-3
Research Site and Target Population



1.3. Research Gaps, Questions, and Goals

Scholars have provided substantial evidence on the relevance of psychological safety in minimizing fear so as to enable conditions for employee engagement, learning, creativity, innovation, and performance (e.g., Edmondson, 1999, 2018; Edmondson & Lei, 2014; Kahn, 1990; Nembhard & Edmondson, 2012). The importance of a psychologically safe team climate to organizational success and the limited knowledge of how to create psychologically safe workplaces has spurred scholars such as Edmondson and Lei (2014), Frazier et al. (2017), and Newman et al. (2017) to call for more research on factors influencing psychological safety at work. In this regard, Frazier et al. (2017) revealed a particular scarcity of research at the team level into factors influencing team psychological safety.

Moreover, Newman et al. (2017) indicated that research on factors that affect the degree of consensus between team members regarding team psychological safety has largely been neglected (Newman et al., 2017; Schneider et al., 2002). Thus, scholars have demanded research into potential variations in psychological safety between team members arising from factors such as geographic team dispersion and diversity (Newman et al., 2017). Furthermore, a few scholars have called for research

into intergroup variations in psychological safety arising from cultural differences (Edmondson & Lei, 2014; Newman et al., 2017).

In addition, scholars have suggested agreement on a common measurement instrument for team psychological safety (Newman et al., 2017) to improve the comparability of results across studies (Hawcroft & Milfont, 2010) and increase knowledge of the psychological safety concept, because thus far scholars have used different measurement instruments (Newman et al., 2017).

Furthermore, Edmondson and Lei (2014) pointed out the lack and proposed more psychological safety research in multinational organizations, in globally dispersed and virtual teams, and over longer time periods. Moreover, several scholars have suggested research using hybrid methods, including qualitative interviews and observational techniques, to promote more thorough insight into psychological safety (Edmondson & Lei, 2014; Newman et al., 2017).

My research sought to help fill these research gaps to advance knowledge on psychological safety at work for both scholars and managers. Accordingly, my research addressed three questions:

Research Question 1:

What is the dimensionality of the team psychological safety at work construct?

The first goal of my research (RG 1) was to empirically examine the dimensionality of the team psychological safety at work construct in order to advance the current knowledge on this construct. To reach the first goal, extant team-level scales in literature were used to design a quantitative survey, which was then conducted to assess how team psychological safety was perceived by respondents at the research site. The results of the quantitative survey were then used to develop exploratory factor analyses in order to investigate the dimensionality of the team psychological safety construct.

Research Question 2:

What are intergroup variations in team psychological safety at work?

The second goal of my research (RG 2) was to develop new insight into intergroup variations in team psychological safety at work. To meet the second goal, the results of the quantitative survey mentioned above were used to conduct intergroup comparisons to analyze variations in team psychological safety between genders, by frequency of remote collaboration, by tenure with the team, across hierarchy levels, and across teams and culture of the German automobile

manufacturing parent company, North American mobility services subsidiary, and the North American city market teams.

Research Question 3:

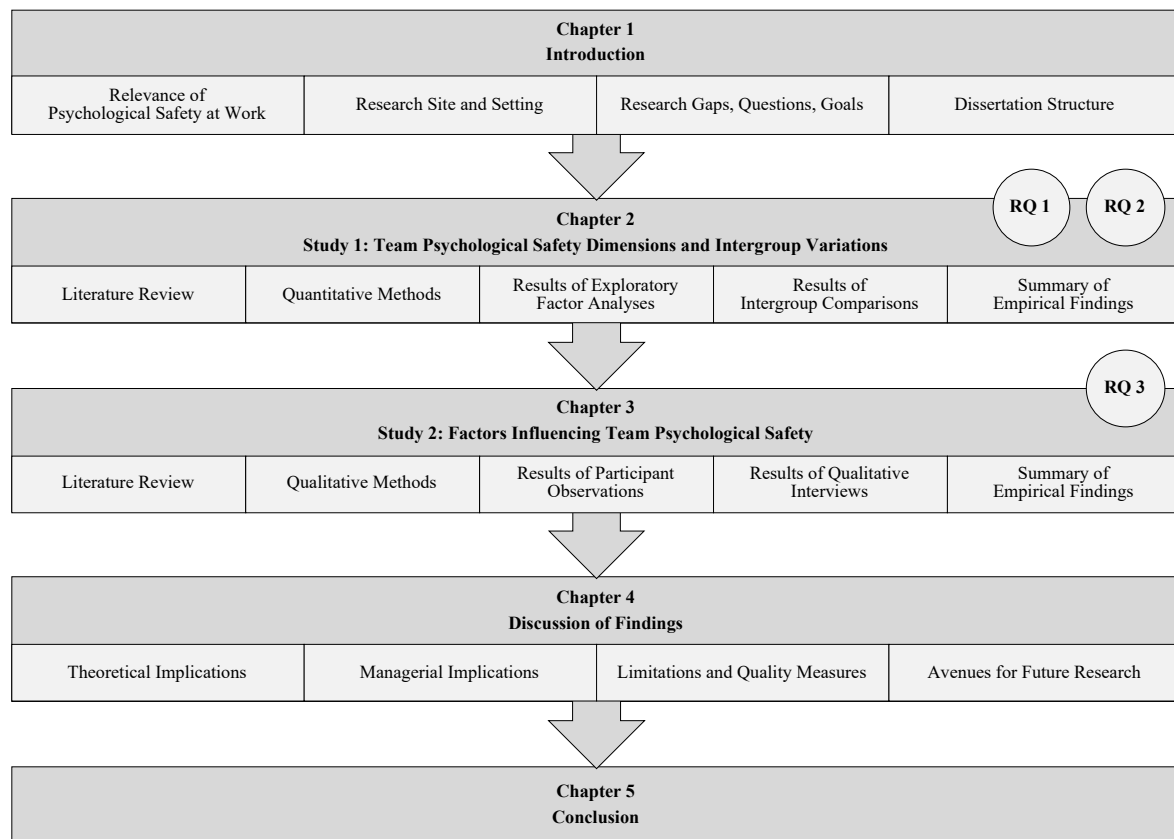
What factors influence team psychological safety at work?

The third goal of my research (RG 3) entailed extending the knowledge of key factors influencing team psychological safety by analyzing the perceptions of the sample at the research site. To approach the third goal, multiple qualitative methods were applied, including focus group interviews, individual interviews, and participant observation. Lastly, my research enabled me to discuss theoretical and managerial implications, acknowledge limitations, and propose avenues for future research.

1.4. Dissertation Structure

This dissertation reports two studies. Chapter 2 describes Study 1 and addresses the first and second questions of my research (RQ 1 and RQ 2). Chapter 2.1. introduces prior research on psychological safety at work. Chapter 2.2. describes the quantitative methods used and the survey respondents. Chapter 2.3. presents the results of my exploratory factor analyses examining the dimensionality of the team psychological safety at work construct. Chapter 2.4. shows the results of intergroup comparisons regarding variations in team psychological safety at work including gender, frequency of remote collaboration, tenure with the team, hierarchy level, and team and culture. Chapter 2.5. outlines the empirical results of Study 1. Chapter 3 outlines Study 2 and addresses the third research question (RQ 3). Study 2 builds off the results of Study 1 regarding the proposed dimensionality of the team psychological safety at work construct. Chapter 3.1. presents a literature review of factors influencing psychological safety at work. Chapter 3.2 explains the sample and multiple qualitative methods used in Study 2. Chapter 3.3. shows the results of my participant observations at the research site through three exemplary vignettes as complementary evidence to identify factors influencing team psychological safety. Chapter 3.4. presents the results of my analysis of the qualitative interviews conducted to address the third research question regarding the identification of factors influencing team psychological safety at work. Chapter 3.5. summarizes my research findings from Study 2. Following these two studies, Chapter 4 discusses the empirical findings of my research and outlines their theoretical and managerial implications. Chapter 4 ends by acknowledging several limitations of my research, and by offering avenues for future research. Lastly, Chapter 5 concludes this dissertation with some final remarks. Figure 1-4 provides an overview of my dissertation.

Figure 1-4
Dissertation Structure



2. Study 1: Psychological Safety Dimensions and Intergroup Variations

Study 1 addresses the first and second questions of my research by analyzing the dimensionality of the team psychological safety construct and intergroup variations in team psychological safety perceptions from the results of a quantitative survey. First, the findings of a review of literature on psychological safety at work are described, followed by an outline of the quantitative data collection and analyses methods applied in Study 1. Next, the results of the exploratory factor analyses and intergroup comparisons are presented, interpreted, and summarized. Finally, the empirical results are discussed together in Chapter Four.

2.1. The Concept of Psychological Safety in Literature

This review of contemporary literature on the psychological safety concept includes its origin, definition, underlying implicit voice theories, and differentiation from other concepts. Moreover, the literature review includes extant constructs to measure team psychological safety and intergroup variations in psychological safety.

2.1.1. Origin and Definition of the Psychological Safety Concept

The notion of psychological safety dates back to the 1960s, when Schein and Bennis (1965) identified its significance for people surmounting fears associated with organizational change. Later, Schein (1993) also explained the crucial function of psychological safety in reducing learning anxiety and self-protective behavior at work and thus enabling people to devote their efforts to reaching organizational goals. Kahn (1990) revealed the relevance of psychological safety for cultivating employee engagement and therefore revitalized interest in the psychological safety concept. He described psychological safety as the perception of an individual “feeling able to show and employ one’s self without fear of negative consequences to self-image, status, or career” (Kahn, 1990, p. 708). Accordingly, several scholars initially conceptualized psychological safety as an individual-level construct (Kahn, 1990; Schein, 1993; Schein & Bennis, 1965). In contrast, Edmondson (1999), one of today’s most prominent psychological safety scholars, portrayed psychological safety as a team-level construct. Despite similar results at individual, team, and organizational levels, she asserted that psychological safety is most meaningful at the team level (Edmondson, 2018; Edmondson & Lei, 2014). She published findings to illustrate that psychological safety perceptions are particularly alike among team members but may vary between teams (Edmondson, 1999, 2018; Edmondson & Lei, 2014). Thus, she portrayed psychological safety as a “shared belief held by members of a team that

the team is safe for interpersonal risk taking” (Edmondson, 1999, p. 350). As the psychological safety concept has more recently been considered to be most useful at the team level (Edmondson, 2018; Edmondson & Lei, 2014; Newman et al., 2017), my research used extant constructs to measure team psychological safety.

2.1.2. Differentiation of the Psychological Safety Concept

The rising theoretical and practical relevance of the psychological safety concept has increased the risk that scholars and practitioners may misunderstand it (Edmondson, 2018). Accordingly, it is crucial to differentiate the concept of psychological safety from four related concepts.

First, Edmondson and Mogelof (2005) explained that psychological safety may be regarded as a team climate that can be developed rather than a personal characteristic. Accordingly, they clarified that a person’s shyness or confidence does not represent that person’s psychological safety perception. These researchers demonstrated that, irrespective of people’s extroversion or introversion, the team climate affects people in a highly similar manner. Therefore, a psychologically safe team climate enables people to share their ideas, offer their perspectives and concerns, and ask questions, independently of whether they gravitate more toward extroversion or introversion (Edmondson & Mogelof, 2005).

Second, scholars have pointed out several substantial distinctions between the notions of psychological safety and trust. Mayer et al. (1995) described trust as an person’s readiness to be vulnerable and exposed to other people’s actions. Accordingly, Edmondson (2004) explained that both concepts involve elements of vulnerability and risk perception. However, Edmondson (2004) differentiated psychological safety and trust with regard to three elements: (a) Level of analysis, (b) temporal immediacy, and (c) the focus on self versus other. The first key distinction between the two concepts is that psychological safety can be understood as a team-level construct, whereas trust generally depends on an individual’s perception and is directed toward a specific person or organization; an individual may trust certain team members or managers but not others. Moreover, an individual may trust one organization to uphold its principles, but this trust may not extend to other organizations. The second major distinction is that psychological safety refers to expectations about instantaneous ramifications of interpersonal risk-taking, whereas trust relates to expectations about whether promises will be kept. The third essential distinction between the two concepts is the focus on self versus other: Trust refers to an individual’s belief whether another individual or organization will act in the best interest of others, which entails “giving others the benefit of the doubt” (Edmondson, 2018, p. 17). Conversely, psychological safety is regarded as the perception “whether

others will give you the benefit of the doubt” (Edmondson, 2018, p. 17) when you engage in risk-taking behaviors (Edmondson, 2004, 2018).

Third, Edmondson (2018) noted that team members in a psychologically safe workplace do not consistently agree with each another and try to prevent conflicts to maintain comfort at work. Instead, psychological safety is about a team climate that enables candor, directness, and constructive dispute among team members. Thus, through psychological safety, people feel they can share ideas, provide candid feedback, admit mistakes, and learn from each other (Edmondson, 2018, 2019).

Fourth, Edmondson (2018) explained that psychological safety is not related to low performance standards at work. Accordingly, a workplace characterized by psychological safety will not condone disregard for deadlines or performance standards; instead, it favors candor, collaboration, accountability, and ambitious goals. Figure 2-5 depicts a model by Edmondson (2018, p.18) illustrating that performance standards and psychological safety are in fact two separate factors that influence performance. This matrix model captures four distinct zones: The “apathy zone,” “anxiety zone,” “comfort zone,” and “learning and high-performance zone.”

The apathy zone (lower left quadrant) is a workplace characterized by low psychological safety and low performance standards. In these workplaces, employees indeed show up to work but are likely to spend much of their work time on harmful activities, adversely affecting colleagues and consistently opting for self-protection over work effort. The comfort zone (lower right quadrant) represents a workplace with low performance standards but high psychological safety. Here, employees feel comfortable, but they neither face nor seek challenges at work, which is likely to induce less employee engagement, limited personal fulfillment, and reduced learning. However, Edmondson (2018) described many workplaces as anxiety zones (upper left quadrant), indicated by high performance standards but low psychological safety, in which employees are anxious to contribute. The combination of high standards and low psychological safety leads to reduced satisfaction, decreased work quality, and substandard performance. Lastly, the learning zone (upper right quadrant) is a workplace with both high psychological safety and high performance standards. Combining increased uncertainty and interdependence at work, this zone is portrayed as a high performance zone in which team members feel capable of accomplishing complex work challenges, collaborate effectively, innovate, and learn (Edmondson, 2018). Thus, Edmondson (2018) highlighted the benefits of workplaces characterized by both high psychological safety and high performance standards.

Figure 2-5*Psychological Safety and Performance Standards at Work*

	Low Psychological Safety	High Psychological Safety
High Standards	Anxiety Zone	Learning & High Performance Zone
Low Standards	Apathy Zone	Comfort Zone

Note. From *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth* (p. 18), by A. C. Edmondson, 2018, John Wiley & Sons. Copyright 2018 by John Wiley & Sons. Reprinted with permission.

2.1.3. Implicit Voice Theories: A Voice–Silence Asymmetry

Past research has shown a predominant tendency for people to choose silence over speaking up at work despite its perceived usefulness or importance (Milliken et al., 2003; Ryan & Oestreich, 1998). Silence at work can be understood as “the withholding of ideas, suggestions, or concerns about people, products, or processes that might have been communicated verbally to someone inside the organization with the perceived authority to act” (Kish-Gephart et al., 2009, pp. 166–167). Accordingly, when people opt for silence instead of speaking up, they fail not only to report information on mistakes or issues but also to share valuable ideas or communicate essential business aspects (Edmondson, 2018).

Detert and Edmondson (2011) conducted several studies to help explain the widespread lack of speaking up behavior at work. They identified “taken-for-granted beliefs about the risk or inappropriateness of speaking up” (Detert & Edmondson, 2011, p. 462) at work. According to Detert and Edmondson (2011), people go through an implicit decision-making process in which they compare the benefits and costs associated with speaking up. They found people often decide to remain silent as they realize an “asymmetry of voice and silence”; as they observe, “no one was ever fired for silence” (Edmondson, 2018, p. 34). Edmondson (2018) explained that when people choose silence over speaking up at work, their benefits in terms of self-protection are both immediate and certain.

In contrast, benefits related to speaking up are often unclear and might become apparent after some delay or not at all. However, the potential costs are both immediate and specific. Thus, the intuition involved in choosing silence over having

a voice is compelling. Here, psychologists have referred to the tendencies of people to discount the future, particularly by underweighting benefits and overweighting costs (Edmondson, 2018). Accordingly, in a team that lacks psychological safety, members tend to choose silence over speaking up due to voice–silence asymmetry and thus may fail to realize the potential implications of their choice (Edmondson, 2018). Figure 2-6 presents a voice–silence calculation identified by Edmondson (2018), which influences the implicit decision-making process of speaking up.

Figure 2-6

Implicit Voice Theories: A Voice–Silence Calculation

	Voice	Silence
Who benefits	The organization and/or its customers	Oneself
When benefit occurs	After some delay	Immediately
Certainty of benefit	Low	High

Note. Adapted from *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth* (p. 35), by A. C. Edmondson, 2018, John Wiley & Sons. Copyright 2018 by John Wiley & Sons. Adapted with permission.

2.1.4. Team-Level Scales to Measure Psychological Safety

Scholars have noted that the majority of studies that measure psychological safety have applied Edmondson's (1999) robust and validated team-level scale or modified versions of it (Edmondson & Lei, 2014; Newman et al., 2017). Edmondson's (1999, p. 382) team psychological safety scale consists of seven items that measure team members' shared perception of daring to take risks, bring up issues, and ask for help. Moreover, her scale captures the shared belief that others have positive intentions toward each other, that faults are not used against one another, that others are not rejected by the team for diversity, and that team members' competences are respected and used (Edmondson, 1999, 2004). Additionally, some scale items have been formulated negatively (marked with [R] in Table 2-1), meaning that lower ratings on these items suggest more team psychological safety (Edmondson, 2018).

However, several other research studies have developed or used other measurement scales to determine psychological safety perceptions at the team level

(Edmondson & Lei, 2014; Newman et al., 2017). Anderson and West (1998, p. 246) created a team climate inventory scale that has been applied by several scholars in diverse research fields to measure team psychological safety (e.g., Hirak et al., 2012; Kivimäki et al., 1997; Schippers, 2003). More specifically, their 38-item team climate inventory scale includes a subscale capturing team members' perceptions of participation safety related to information sharing, feelings of togetherness, acceptance and inclusion, and influence in the team (Anderson & West, 1998).

Table 2-1 provides an overview of Edmondson's (1999) team psychological safety scale and the participative safety subscale of Anderson and West's (1998) team climate inventory scale, which served as the empirical foundation for assessing team psychological safety in this dissertation.

Table 2-1

Scales in Literature to Measure Team Psychological Safety

Edmondson
• "If you make a mistake on this team, it is often held against you." [R] • "Members of this team are able to bring up problems and tough issues." • "People on this team sometimes reject others for being different." [R] • "It is safe to take a risk on this team." • "It is difficult to ask other members of this team for help." [R] • "No one on this team would deliberately act in a way that undermines my efforts." • "Working with members of this team, my unique skills and talents are valued and utilized."
Anderson and West
• "We share information generally in the team rather than keeping it to ourselves." • "We have a 'we are together' attitude." • "We all influence each other." • "People keep each other informed about work-related issues in the team." • "People feel understood and accepted by each other." • "Everyone's view is listened to, even if it is in a minority." • "There are real attempts to share information throughout the team." • "There is a lot of give and take."

Note. The scale items of the first survey scale presented above are from "Psychological Safety and Learning Behavior in Work Teams," by A. C. Edmondson, 1999, *Administrative Science Quarterly*, 44(2), p. 382 (<https://doi.org/10.2307/2666999>). Copyright 1999 by Cornell University. Reprinted with permission.

The scale items of the second survey scale presented above are from "Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory," by N. R. Anderson & M. A. West, 1998, *Journal of Organizational Behavior*, 19(3), p. 246 (<https://doi.org/fmqp5f>). Copyright 1998 by John Wiley & Sons. Reprinted with permission.

The two team-level scales presented above can also be found in "Psychological Safety, Trust, and Learning in Organizations: A Group-Level Lens," by A. C. Edmondson, in R. M. Kramer & K. S. Cook (Eds.), *Trust and Distrust in Organizations: Dilemmas and Approaches* (Vol. 12, pp. 239–272), 2004, Russell Sage Foundation. Copyright 2004 by Russell Sage Foundation.

2.1.5. Intergroup Psychological Safety Variations

Until now, very few scholars have examined specific intergroup variations in psychological safety perceptions. So far, some scholars have shown that differences in hierarchy relate to variations in psychological safety (Bienefeld & Grote, 2014; Nembhard & Edmondson, 2006, 2012). Accordingly, integrating aspects from status characteristics theory (Berger et al., 1972), scholars have demonstrated that status differences influence psychological safety perceptions, meaning that a person's belief about their status in the team (Bienefeld & Grote, 2014) and the work-related official hierarchical status differences among people (Nembhard & Edmondson, 2006) influence a person's perceived ability to take interpersonal risks at work. More specifically, scholars have revealed that higher-status team members feel psychologically safer than lower-status members (Burris et al., 2008; Edmondson, 1999; Nembhard & Edmondson, 2006, 2012). Moreover, scholars have mixed findings regarding the difference in team tenure and psychological safety. Some scholars have explained that longer team tenures relate positively to team psychological safety perceptions (Edmondson, 1999). Other scholars have suggested no impact of team tenure on psychological safety (Bunderson & Boumgarden, 2010). More recently, scholars have argued that shorter and longer lengths of tenure within a team lead to more team psychological safety than moderate lengths of team tenure (Koopmann et al., 2014). Thus, overall there is scarce knowledge on intergroup variations in team psychological safety.

2.2. Quantitative Methods

To investigate the dimensionality of the team psychological safety construct and specific intergroup variations in team psychological safety, I conducted a quantitative survey measuring team psychological safety at the research site using the validated team-level scales of Edmondson (1999) and Anderson and West (1998); these were outlined in Chapter 2.1.4.

Building on these two scales, I first pretested the quantitative survey, and discussed the fit of the 15 scale items with 10 experts, including scholars from my university team and practitioners including the HR partner and managers from both the German automobile manufacturing parent company and its North American mobility services subsidiary. Feedback from the pretest was incorporated and resulted in the elimination of several items. The scale item “No one in this team would deliberately act in a way that undermines my efforts” (Edmondson, 1999, p. 382) was excluded due to its perceived negative wording. Notably, this scale item was also eliminated from other studies, such as that by Baer and Frese (2003). In addition, the two scale items “We share information generally in the team rather than keeping it to ourselves” and “People keep each other informed about work-related issues in the team” (Anderson & West, 1998, p. 246) were removed due to perceived similarities in their wording with the scale item “There are real attempts to share information throughout the team” (Anderson & West, 1998, p. 246). Moreover, the two scale items “We all influence each other” and “There is a lot of give and take” (Anderson & West, 1998, p. 246) were removed due to a perceived lack of comprehension by participants at the pretest. To ensure adequate fit and consistency, I made minor changes to the wording of the original scale items, such as paraphrasing “this team” to “our team” and “people” to “team members.” Scholars have noted that psychological safety scales are robust regarding changes in wording and number of scale items (Edmondson, 2018; Newman et al., 2017).

The final survey scale to assess team psychological safety incorporated items of Edmondson’s (1999) and Anderson and West’s (1998) scales (see Table 2-2 and Appendix 7.1). Items 1 to 6 were from the team psychological safety scale by Edmondson (1999), and items 7 to 10 were from the subscale capturing participative safety of the team climate inventory scale by Anderson and West (1998). Overall, the composite scale reliability, as measured by Cronbach’s alpha, was .89 for the final survey and thus indicated with a value above .70 acceptable internal consistency (Saunders et al., 2019). Respondents were asked to rate each scale item based on a seven-point Likert scale that comprised the following responses: “1 = strongly disagree”, “2 = disagree”, “3 = somewhat disagree”, “4 = neither disagree nor agree”, “5 = somewhat agree”, “6 = agree”, and “7 = strongly agree”.

Table 2-2*Quantitative Survey Scale to Measure Team Psychological Safety*

1. "If you make a mistake, it is often held against you by the team." [R]
2. "Members of our team are able to bring up problems and tough issues."
3. "It is difficult to ask other members of this team for help." [R]
4. "Members of our team sometimes reject others for being different." [R]
5. "It is safe to take a risk on the team."
6. "When working with members of my team, I feel my unique skills and talents are valued and utilized."
7. "In our team, everyone's view is listened to, even if it is in a minority."
8. "In our team, people feel understood and accepted by each other."
9. "There are real attempts to share information throughout our team."
10. "We have a 'we are together' attitude."

Control Variables

Gender	Man or Woman
Remote Collaboration	Low Frequency or High Frequency
Tenure with the Team	< 6 months or > 6 months
Hierarchy Level	Employee or Manager
Team	German Parent Company; North American Subsidiary; City Market

Note. Three items were articulated negatively (marked with [R]), such that disagreement with these scale items indicated more team psychological safety. The negatively worded scale items were reverse-scored, converting a "1" to a "7," a "7" to a "1," a "2" to a "6," a "6" to a "2," etc. before the data was analyzed.

Scale items 1-6 are adapted from "Psychological Safety and Learning Behavior in Work Teams," by A. C. Edmondson, 1999, *Administrative Science Quarterly*, 44(2), p. 382 (<https://doi.org/10.2307/2666999>). Copyright 1999 by Cornell University. Adapted with permission.

Scale items 7-10 are adapted from "Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory," by N. R. Anderson & M. A. West, 1998, *Journal of Organizational Behavior*, 19(3), p. 246 (<https://doi.org/fmqp5f>). Copyright 1998 by John Wiley & Sons. Adapted with permission.

In order to analyze specific variations in team psychological safety, I included the following control variables in the survey: (a) gender; (b) frequency of remote collaboration with globally dispersed team members; (c) tenure with the team; (d) hierarchy level; and (e) team and culture (i.e., German parent company team, North American subsidiary team, North American subsidiary's city market team). To reduce the chance that participants did not understand an instruction (Cardão-Pito, 2016), respondents were asked in the survey to consider all team members they work with across functional and project teams, hierarchy level, and geographical location as their "team". The qualifier questions on gender and hierarchy level were optional; respondents were able to provide no answer to these questions in order to increase their perceived ability to give honest responses while ensuring anonymity.

The final survey was distributed electronically to the target population, which consisted of 80 individuals. In sum, a total of 61 respondents completed the survey, representing a 76% response rate. Table 2-3 shows measured sample characteristics of respondents, including gender, frequency of remote collaboration with globally dispersed team members, tenure with the team, hierarchy level, and team and culture.

Table 2-3
Sample Characteristics of Survey Respondents

Characteristic	<i>n</i>	%
Gender		
Man	40	66%
Woman	13	21%
n/a	8	13%
Frequency of Remote Collaboration		
Several times a week to daily	46	75%
Never to several times a month	15	25%
Tenure with the Team		
< 6 months	17	28%
> 6 months	44	72%
Hierarchy Level		
Manager	14	23%
Employee	39	64%
n/a	8	13%
Team and Culture		
German Parent Company Team	16	26%
North American Subsidiary Team	34	56%
North American City Market Team	11	18%

Note. *N* = 61. For gender and hierarchy level, 13% of respondents decided not to answer this optional qualifier question, indicated by n/a (not available).

Overall, the analysis of the survey responses comprised two steps: First, to address the first goal of my research, investigating the dimensionality of the team psychological safety construct, I applied exploratory factor analyses (EFAs) to the scale items (Field, 2009). Furthermore, in alignment with guidelines by Anderson and Gerbing (1991), I conducted a face validity test after the EFAs to increase the validity of the EFA results. Accordingly, I ran a face validity test with four scholars, who were asked to sort the 10 survey scale items from Edmondson (1999) and

Anderson and West (1998; see Table 2-2) to the dimensions that were identified from my EFAs. To complete the sorting task, the participants of the face validity test were provided with a definition of the dimensions of team psychological safety.

Second, to address the second goal of my research, examining specific intergroup variations in team psychological safety, I conducted independent samples *t* tests to compare two distinct groups and one-way analysis of variance (ANOVAs) to compare more than two distinct groups (Field, 2009). Moreover, I computed their effect sizes (Cohen's *d* and eta squared (η^2)) in accordance with the thresholds suggested by Cohen (1988), who differentiated between small effects ($d = 0.20$; $\eta^2 = .01$), medium effects ($d = 0.50$; $\eta^2 = .06$), and large effects ($d = 0.80$; $\eta^2 = .14$).

The data analysis captured the effects of different groups on the dimensions of the team psychological safety at work construct and an overall team psychological safety rating combining the dimensions. The analysis included the effect of (a) gender, as men outnumbered women at the research site; (b) frequency of remote collaboration with globally dispersed team members, as the research site included team members who were required to work more frequently with team members from either the parent company team, the subsidiary team, or the subsidiary's city market team compared to other team members; (c) tenure with the team, as teams were growing and new team members were continually joining the teams; (d) hierarchy level to analyze differences between lower-status and higher-status team members; and (e) team and culture to investigate variations between team members belonging to the German parent company team, North American subsidiary team, and the subsidiary's city market team. Thus, the analysis also examined variations in team psychological safety between German and American citizens, as the German parent company team included almost only German citizens, while the North American subsidiary and the North American city market teams comprised almost only American citizens.

In the subsequent chapters, the empirical results of the exploratory factor analyses are first presented, followed by the empirical results of the intergroup comparisons.

2.3. Empirical Results of Exploratory Factor Analyses

To examine the structure of the latent team psychological safety construct, I conducted two EFAs on SPSS using the data from my quantitative survey ($N = 61$). First, as advised by Comrey (1978), the fit of my data for factor analysis was tested. Accordingly, the Bartlett's test of sphericity ($\text{Chi-square}(45) = 281.203, p < .001$) was computed; this demonstrated the appropriateness of my survey data for factor analysis. Moreover, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy ($\text{KMO} = .835$; Kaiser, 1970) was calculated; this indicated that the survey scale items were also suitable for factor analysis (Hutcheson & Sofroniou, 1999; Kaiser, 1974). Furthermore, the ratio of subjects-to-variables (STV) was 61:10 or 6.1:1 and therefore in accordance with a recommended minimum STV ratio of 5:1 (e.g., Gorsuch, 1983; MacCallum et al., 1999).

Therefore, I ran two principal axis factor analyses (PAFs). Although principal component analyses (PCAs) have been more frequently used by the research community than PAFs due to the efficiency and computational advantages ascribed to them (Velicer & Jackson, 1990), the latter may be a more appropriate extraction method (Gorsuch, 1990), especially in behavioral, psychological, and social research investigations in which large error variance may occur (Widaman, 1993). Accordingly, scholars have suggested applying a PAF extraction method when the goal is to extract latent factors or latent constructs rather than manifest factors or constructs (Widaman, 1993). Thus, PAF has been regarded as particularly suitable as a "latent variable technique" (Widaman, 1993, p. 305). This was the case in my inquiry into the latent team psychological safety construct. In addition, PAF seeks to understand the common variance by extracting meaningful latent factors, whereas PCA seeks to disclose total variance (Widaman, 1993). Moreover, direct oblimin was chosen as a rotation method because it allows correlation between factors. It was thus suitable for my analysis, as I assumed that factors concerning team psychological safety involve peoples' perceptions and are likely to be related (Field, 2009).

The first-order PAF that I ran yielded a two-factor model with eigenvalues greater than 1, as recommended by Kaiser (1960). The scree plot analysis applied, based on Cattell (1966), revealed a two-factor model. The loadings of the two factors were higher than the conservative cut-off level of .50 (Hair et al., 1998). Table 2-4 illustrates the results of the first-order PAF with factor loadings on the two factors.

The first factor (eigenvalue = 5.09) is identified by seven scale items with similar high factor loadings ranging from .63 to .86. The first-order factor analysis revealed that the first factor is indicated by seven scale items (see Table 2-4) concerning the perceived ability to show vulnerability in the team and is thus labelled "perceived vulnerability". Accordingly, perceived vulnerability is addressed by seven

indicators capturing team members' perceptions of the extent to which they agree or disagree with the following: (a) "It is safe to take a risk on the team"; (b) "If you make a mistake, it is often held against you by the team"; (c) "It is not difficult to ask other members of this team for help"; (d) "We have a 'we are together' attitude"; (e) "Member of our team are able to bring up problems and tough issues"; (f) "There are real attempts to share information throughout our team"; (g) "Members of our team do not sometimes reject others for being different." Scale items (a), (b), (c), (e), and (g) of the first factor come from Edmondson's (1999, p. 382) team psychological safety scale, and scale items (d) and (f) are from Anderson and West's (1998, p. 246) participative safety scale of their team climate inventory scale.

The second factor (eigenvalue = 1.11) is identified by three scale items with high factor loadings ranging from .59 to .87. The first-order factor analysis indicated that the second factor is addressed by three scale items (see Table 2-4) relating to the perceived appreciation among team members and is thus labelled "perceived appreciation". Therefore, perceived appreciation is addressed by three indicators measuring the team psychological safety perceptions of team members regarding the extent to which they agree or disagree with the following: (h) "In our team, everyone's view is listened to, even if it is a minority; (i) "In our team, people feel understood and accepted by each other"; and (j) "When working with members of my team, I feel my unique skills and talents are valued and utilized." Scale items (h) and (i) come from the subscale participative safety of the team climate inventory scale by Anderson and West (1998, p. 246) and scale item (j) from Edmondson's (1999, p. 382) team psychological safety scale.

Two scale items, "We have a 'we are together' attitude" (Anderson & West, 1998, p. 246) and "Members of our team are able to bring up problems and tough issues" (Edmondson, 1999, p. 382), had cross loadings on both factors (scale item (d) had loadings of .70 and .62; scale item (e) had loadings of .64 and .62). These cross-loaded scale items were not removed from the team psychological safety construct because the general goal of principal-axis factoring is to extract meaningful factors rather than explain total variance (Widaman, 1993). Moreover, a correlation between factors was expected because team psychological safety involves people's psychological perceptions and thus are likely to be related. Several research studies have demonstrated that correlations among factors of equal to .50 and larger commonly occur and need not be regarded as a restriction (e.g., Cattell, 1963, 1971; Thurstone, 1938). Moreover, the unbalanced distribution of scale items or indicators on the factors or dimensions (i.e., in my case, seven scale items on the first factor and three scale items on the second factor) has frequently been found when conducting factor analyses and thus need not be regarded as a limitation (Widaman, 1993).

Overall, the two factors identified from the first-order factor analysis on the team psychological safety construct explained 62.1% of the variance in the scale items. Cronbach's alpha values were .87 for perceived vulnerability and .78 for perceived appreciation. Both Cronbach's alpha values were above .70 and thus indicated acceptable internal consistency of the scale items (Saunders et al., 2019). The criteria by Jarvis et al. (2003) were used to classify the two first-order factors, perceived vulnerability and perceived appreciation. Each has reflective indicators because indicators are assumed to be interchangeable, surround a joint theme, are expected to have identical influencing factors and implications, and because removing an indicator is not expected to change the domains of the construct.

Table 2-4

Empirical Results: Exploratory Factor Analysis with Factor Loadings

Scale Items	Factor Loadings	
	1	2
Factor 1: Perceived Vulnerability		
(a) "It is safe to take a risk on the team."	.86	.52
(b) "If you make a mistake, it is often not held against you by the team."	.72	.44
(c) "It is not difficult to ask other members of this team for help."	.70	.51
(d) "We have a 'we are together' attitude."	.70	.62
(e) "Members of our team are able to bring up problems and tough issues."	.64	.62
(f) "There are real attempts to share information throughout our team."	.64	.44
(g) "Members of our team do not sometimes reject others for being different."	.63	.47
Factor 2: Perceived Appreciation		
(h) "In our team, everyone's view is listened to, even if it is in a minority."	.60	.87
(i) "In our team, people feel understood and accepted by each other."	.54	.82
(j) "When working with members of my team, I feel my unique skills and talents are valued and utilized."	.41	.59
Eigenvalues	5.09	1.12
% of variance	50.92	11.17
Cronbach's alpha	.87	.78

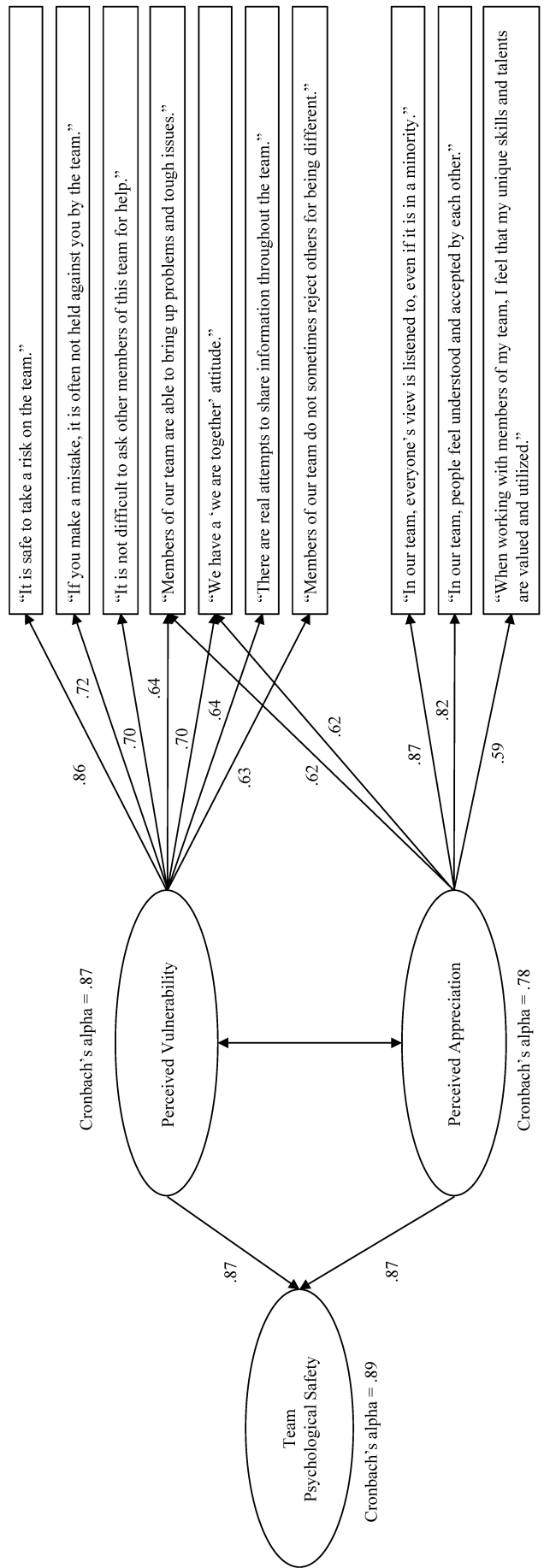
Note. $N = 61$. Extraction method: principal axis factoring. Rotation method: direct oblimin. Composite scale reliability measured by Cronbach's alpha were for Factor 1 = .87 and Factor 2 = .78.

Scale items (a), (b), (c), (e), (g), and (j) are from "Psychological Safety and Learning Behavior in Work Teams," by A. C. Edmondson, 1999, *Administrative Science Quarterly*, 44(2), p. 382 (<https://doi.org/10.2307/2666999>). Copyright 1999 by Cornell University. Adapted with permission.

Scale items (d), (f), (h), and (i) are from "Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory," by N. R. Anderson & M. A. West, 1998, *Journal of Organizational Behavior*, 19(3), p. 246 (<https://doi.org/fmqp5f>). Copyright 1998 by John Wiley & Sons. Adapted with permission.

I used the two factors identified by the first-order factor analysis to conduct another PAF examining the second-order structure of the team psychological safety construct. The second-order factor analysis was undertaken for the intergroup comparisons of variations in team psychological safety both for perceived vulnerability and perceived appreciation and for the overall team psychological safety survey rating, which combines the ratings for the two factors identified. The data suitability was first checked, again based on Comrey (1978). The Bartlett-Test (Chi-square = 48.914, $p < .001$) and the KMO test (KMO = .500; Kaiser, 1970) showed that both perceived vulnerability and perceived appreciation were suitable for factor analysis (Hutcheson & Sofroniou, 1999; Kaiser, 1974). Thus, I ran another PAF with direct oblimin rotation. This analysis produced a one-factor model with an eigenvalue larger than 1 (eigenvalue = 1.75), as suggested by Kaiser (1960). The factor loadings were both .87. The results of the second-order factor analysis indicated a one-factor solution, termed “team psychological safety”, which explained 87.7% of the variance. Considering the criteria to adequately define constructs by Jarvis et al. (2003), the second-order team psychological safety construct was classified as having two formative indicators, perceived vulnerability and perceived appreciation, as the indicators are not assumed to be interchangeable and do not surround the same topic, but are assumed to characterize the construct, to have possibly different influencing factors and implications, and because removing one of the indicators is expected to change the construct domains. Figure 2-7 depicts a path diagram of my empirical results from the two conducted exploratory factor analyses.

Furthermore, in accordance with Anderson and Gerbing’s (1991) guidelines, I conducted a face validity test to increase the validity of the results of the factor analyses. The four scholars I recruited for the face validity test were asked to sort each of the 10 survey scale items to one of the two identified dimensions of the team psychological safety construct after they were given definitions of each: perceived vulnerability as the perceived ability to show vulnerability in the team, and perceived appreciation as the perceived feeling of appreciation in the team. The results of the face validity test agreed to a large extent with the results of the EFAs. However, the scale item “Members of our team do not sometimes reject others for being different” (Edmondson, 1999, p. 382) was found by two respondents to fit better with perceived appreciation than with perceived vulnerability. Overall, the face validity test provided additional evidence of two dimensions of the team psychological safety construct and of each dimension consisting of several indicators.



Note. $N = 61$. The team psychological safety construct was specified as a second-order construct with two first-order factors, perceived vulnerability and perceived appreciation, as formative indicators. These two first-order factors themselves were defined as being captured by reflective indicators. Decision criteria by Jarvis et al. (2003). Error variances are not depicted in the path diagram as uncorrelated errors were assumed. Potential correlations between factors were assumed; thus, correlating scale items were not eliminated from the construct. The scale items come from the scale by Edmondson (1999, p. 382) and from Anderson and West (1998, p. 246) as explained in detail in Table 2-1.

Figure 2-7
Empirical Results: Path Diagram of Exploratory Factor Analyses

2.4. Empirical Results of Intergroup Comparisons

Building on the initial evidence from the exploratory factor analyses conducted in this study, I used the two-dimensional team psychological safety construct in the second part of the analysis of the quantitative survey to investigate specific variations in team psychological safety. This subchapter presents empirical results for variations in perceived vulnerability, perceived appreciation, and team psychological safety by (a) gender; (b) frequency of remote collaboration with globally dispersed team members; (c) tenure with the team; (d) hierarchy level; and (e) teams and culture.

2.4.1. Variations Between Genders

Table 2-5 illustrates the results of independent samples t tests of the effect of gender on team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation. The analysis showed significant variations between women and men in team psychological safety [$t(51) = 2.21, p = .03$], in perceived vulnerability [$t(51) = 2.01, p = .05$], and in perceived appreciation [$t(51) = 2.11, p = .04$]. Medium effect sizes were computed for team psychological safety ($d = 0.61$), perceived vulnerability ($d = 0.56$), and perceived appreciation ($d = 0.59$).

Table 2-5

Team Psychological Safety: Comparison Between Genders

Variable	Gender	M (SD)	$t(51)$	p	d
Team Psychological Safety	Men	.18 (0.85)	2.21	.03	0.61
	Women	-.43 (0.95)			
TPS Dimension 1: Perceived Vulnerability	Men	.18 (0.89)	2.01	.05	0.56
	Women	-.41 (0.97)			
TPS Dimension 2: Perceived Appreciation	Men	.17 (0.85)	2.11	.04	0.59
	Women	-.42 (0.92)			

Note. $N = 53$; Male $n = 40$; Female $n = 13$. Independent samples t tests between different groups of gender. Cohen's d to report calculated effect size.

The results indicate a significant effect of gender on team psychological safety and its two dimensions perceived vulnerability and perceived appreciation. Women rated the team climate as significantly less psychologically safe ($M = -.43$, $SD = 0.95$) than men ($M = .18$, $SD = 0.85$). Women also evaluated the ability to be vulnerable in the team significantly lower ($M = -.41$, $SD = 0.97$) than men ($M = .18$, $SD = 0.89$). Moreover, women disclosed significantly lower levels of perceived appreciation in the team ($M = -.42$, $SD = 0.92$) than men ($M = .17$, $SD = 0.85$).

The significant variations between women and men may indicate that women indeed felt less able to show vulnerability in the team than men and thus had lower perceived vulnerability ratings. Furthermore, the variations between genders may reveal that women felt less valued and respected in the team than men, therefore explaining lower ratings of perceived appreciation. Thus, men may feel more able to be vulnerable and feel more appreciated within the team than women. Men largely outnumbered women at the research site, so women might have felt less able to show vulnerability in front of their male team members and felt less appreciated due to being underrepresented at work and thus felt less valued and respected than men. Moreover, the lower ratings women respondents gave may reflect the fact that the work activities were about developing technology software, which might still be viewed by some as a male topic due to gender stereotypes (Bordalo et al., 2019; Coffman, 2014).

However, the results may also imply that women provided lower team psychological safety, perceived vulnerability, and perceived appreciation ratings than men because they evaluated the degree of team psychological safety more honestly and more critically than men. Furthermore, the higher ratings of men might be explained by their whitewashing of the actual degree of team psychological safety compared to women. This interpretation infers that women were more able to admit issues surrounding a psychologically unsafe team climate than men, meaning that women were able to admit that team members do not feel able to show vulnerability and do not feel appreciated. Likewise, men might have been less willing to acknowledge a reduced ability to show vulnerability and a reduced feeling of appreciation. Potential underlying reasons for these variations between genders might lie in women having stronger egos than men, enabling them to admit problems about the team climate and thus actually indicate higher levels of perceived vulnerability. Men's weaker egos might not have allowed them to admit problems about feeling appreciated and showing vulnerability. Variations in team psychological safety between women and men and potential reasons underlying these variations are further examined in the discussion part in Chapter 4 by integrating the results of my qualitative interviews, participant observation, and literature review.

Another important point is that many more survey respondents were men ($n = 40$) than women ($n = 13$). This unequal gender ratio of approximately 3:1 at the research site was known but could not be altered. The results might differ if the groups of men and women were of more equal size. Future studies may test gender differences in team psychological safety in teams in which women outnumber men to make better sense of the perception differences between women and men and their underlying reasons.

2.4.2. Variations by Frequency of Remote Collaboration

Table 2-6 illustrates the results of independent samples t tests about the effect of frequency of remote collaboration with globally dispersed team members on team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation. The work setting at the research site involved remote collaboration with globally dispersed team members based in Germany and different cities in the United States, so I differentiated in the analysis between two groups: The low frequency group comprised team members who work zero to several times a month with globally dispersed members, and the high frequency group included team members who work several times a week to daily with globally dispersed members.

Overall, the analysis showed no significant variations in team psychological safety [$t(59) = 1.00, p = .32$], perceived vulnerability [$t(59) = 1.02, p = .31$], or perceived appreciation [$t(51) = .85, p = .40$] between low and high frequency of remote collaboration with globally dispersed team members. The results indicate that neither high nor low frequency of remote collaboration yields a significantly lower perceived ability to show vulnerability in the team or a lower feeling of appreciation in the team.

Although the variations were not significant, the results show that on average team members who collaborated more often with remote team members reported less team psychological safety ($M = -.07, SD = 0.91$), perceived vulnerability ($M = -.07, SD = 0.95$), and perceived appreciation ($M = -.06, SD = 0.91$) than team members who worked less often with globally dispersed team members; these reported more team psychological safety ($M = .21, SD = 0.99$), perceived vulnerability ($M = .22, SD = 0.94$), and perceived appreciation ($M = .18, SD = 1.03$). The computed effect sizes suggest a small relationship between frequency of remote collaboration with globally dispersed members and team psychological safety ($d = 0.26$), perceived vulnerability ($d = 0.27$), and perceived appreciation ($d = 0.22$).

Table 2-6*Team Psychological Safety: Comparison by Remote Collaboration*

Variable	Frequency	<i>M</i> (<i>SD</i>)	<i>t</i> (59)	<i>p</i>	<i>d</i>
Team Psychological Safety	Low	.21 (0.99)	1.00	.32	0.26
	High	-.07 (0.91)			
TPS Dimension 1: Perceived Vulnerability	Low	.22 (0.94)	1.02	.31	0.27
	High	-.07 (0.95)			
TPS Dimension 2: Perceived Appreciation	Low	.18 (1.03)	.85	.40	0.22
	High	-.06 (0.91)			

Note. *N* = 61. Low Frequency = Never to several times a month; *n* = 15. High Frequency = Several times a week to daily; *n* = 46. Independent samples *t* test between different groups of frequency of remote collaboration. Cohen's *d* to report calculated effect size.

The nonsignificant variations between low and high frequency of remote collaboration might be explained by a low assessment of team psychological safety and its two dimensions in both groups. Accordingly, both groups may have experienced the team climate to be psychologically unsafe such that team members feel reluctant to show vulnerability and do not feel respected or valued in the team, thus explaining nonsignificant variations by frequency of remote collaboration.

However, the absence of significant variations in team psychological safety and its two dimensions by frequency of remote collaboration might also stem from personal relationships that developed between members before they collaborated remotely. At the research site, several participants were able to work at the same location before they had to collaborate across different locations and were able to develop personal relationships and increase familiarity beforehand. In line with this interpretation, some scholars have explained that a lack of familiarity can lead to less team psychological safety (Nembhard & Edmondson, 2012; Roberto, 2002).

Another explanation for the nonsignificant variations in team psychological safety and its two dimensions may be that periods of remote collaboration were interspersed with regular business trips by team members of the parent company to the subsidiary and its city markets and thus regular personal interactions. Thus, team members who worked more frequently with globally team members than team members who worked more with proximal team members were able to meet every 2

to 6 weeks at the subsidiary location to work together on a joint project for 1 to 2 weeks before collaborating again remotely.

Therefore, the results might differ if there were longer periods of remote collaboration without personal interactions on site, if the amount of time per collaboration in person was shorter, if different modes of communication were used, such as video, telephone, and email, and if personal relationships were not developed before remote collaboration. Future studies may consider examining the impact of a range of conditions of remote collaboration on team psychological safety.

Moreover, it needs to be noted that the two groups of frequency of remote collaboration were unequal in size, meaning that the low frequency group was only a third ($n = 15$) of the high frequency group ($n = 46$). Accordingly, the analysis might have yielded different results if the two groups were of more equal size.

2.4.3. Variations by Tenure with the Team

Table 2-7 portrays the results of independent samples t tests on the effect of tenure with the team on team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation. The analysis differentiated between two groups of tenure with the team: shorter than 6 months and longer than 6 months. These lengths of tenure were chosen for two reasons: First, I conducted the survey approximately 1 year after the subsidiary was founded. Accordingly, considerably longer lengths of tenure were not available at the research site. Second, one goal was to increase perceived anonymity among respondents during the study, on which other lengths of team tenure might have had a negative impact.

Overall, team members with a tenure with the team of less than 6 months reported lower team psychological safety ($M = -.10$, $SD = 0.93$) than team members with a tenure of more than 6 months ($M = .04$, $SD = 0.93$). However, the effect was nonsignificant [$t(59) = -.50$, $p = .62$] and the computed effect size was trivial ($d = -0.13$). Moreover, the analysis showed that perceived vulnerability was lower for team members with a tenure of shorter than 6 months ($M = -.09$, $SD = 0.97$) than a tenure of longer than 6 months ($M = .04$, $SD = 0.94$), perhaps indicating that a shorter tenure with the team meant they felt slightly less able to show vulnerability in the team than team members who had been with the team comparatively longer. The variations in perceived vulnerability were not significant either [$t(59) = -.48$, $p = .63$], and the effect size indicated a trivial relationship between tenure with the team and perceived vulnerability ($d = -0.10$). Furthermore, team members who had been with the team for less than 6 months disclosed feeling less appreciation in the team ($M = -.09$, $SD = 0.95$) than team members who had part of the team for longer than 6 months ($M =$

.03, $SD = 0.94$). Yet, the analysis uncovered no significant variations in perceived appreciation [$t(59) = -.45$, $p = .66$] between team members with a tenure with team shorter than 6 months and those with a tenure with the team of longer than 6 months, and a trivial effect size ($d = -0.12$).

Table 2-7

Team Psychological Safety: Comparison by Tenure with the Team

Variable	Tenure	<i>M</i> (<i>SD</i>)	<i>t</i> (59)	<i>p</i>	<i>d</i>
Team Psychological Safety	< 6 months	-.10 (0.93)	-.50	.62	-0.13
	> 6 months	.04 (0.93)			
TPS Dimension 1: Perceived Vulnerability	< 6 months	-.09 (0.97)	-.48	.63	-0.10
	> 6 months	.04 (0.94)			
TPS Dimension 2: Perceived Appreciation	< 6 months	-.09 (0.95)	-.45	.66	-0.12
	> 6 months	.03 (0.94)			

Note. $N = 61$. Tenure with the team < 6 months $n = 17$; > 6 months $n = 44$. Independent samples t tests between different groups of tenure with the organization. Cohen's d to report calculated effect size.

The nonsignificant variations may be explained through immediate recognition by respondents of the psychological safety level within the team. Consequently, the results may indicate that the degree the team climate is perceived as psychologically unsafe or safe becomes immediately apparent to each team member. Thus, team members who have been with the team for less than 6 months might have experienced similarly low team psychological safety as team members who have been with the team longer than 6 months and who might have had negative incidents at work that decreased their ability to show vulnerability in the team and reduced their feeling of appreciation in the team.

However, the absence of significant variations in team psychological safety, perceived vulnerability, and perceived appreciation between team members with a tenure shorter than 6 months and longer than 6 months may also come from a lack of familiarity among team members. Accordingly, the newcomers may not yet be willing to show vulnerability in front of team members because they are unaware of possible negative ramifications of demonstrating vulnerability. Also, newcomers may feel less appreciated due to unfamiliarity and subsequent lack of awareness among

team members about the competences of new team members. The long-tenure group might have experienced that showing vulnerability in the team led to negative personal consequences and that there was little appreciation in the team, thus resulting in nonsignificant variations in team psychological safety, perceived vulnerability and perceived appreciation by both groups of tenure.

However, it needs to be noted that the ratings might have differed if larger variations in tenure with the team had been included, such as from several weeks to months and ranges from one to several years instead of the simple dichotomy included here. Lastly, the analysis might have also yielded different results if the two groups had been of more equal size; the group of team members with a tenure shorter than 6 months was smaller ($n = 17$) than the group of team members with a tenure longer than 6 months ($n = 44$).

2.4.4. Variations Across Hierarchy Levels

Table 2-8 depicts the results of independent samples t tests to test the effect of hierarchy level on team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation. The analysis differentiated between two hierarchy levels: lower-status team members, employees, and higher-status team members such as team managers, department managers, and executives.

Overall, the results revealed lower ratings in team psychological safety for employees ($M = .02$, $SD = 0.88$) than managers ($M = .49$, $SD = 0.73$), less perceived vulnerability for employees ($M = .02$, $SD = 0.85$) than managers ($M = .47$, $SD = 0.94$), and less perceived appreciation by employees ($M = .02$, $SD = 0.92$) than managers ($M = .45$, $SD = 0.57$). The results indicate that employees felt less able to be vulnerable in front of their team members than their managers and also felt less respected and valued than managers. However, the analysis yielded no significant variations between employees and managers in team psychological safety [$t(51) = 1.77$, $p = .08$], in perceived vulnerability [$t(51) = 1.64$, $p = .11$], or in perceived appreciation [$t(51) = 1.65$, $p = .11$]. Therefore, the results indicate that the degree to which employees felt able to be vulnerable in front of their team and felt appreciated by team members did not significantly differ from that of managers. The lack of significant variations in team psychological safety and its two dimensions may indicate generally low levels of perceived vulnerability and perceived appreciation at the research site, meaning that neither employees nor managers regarded the workplace as an environment in which they believed that team members felt able to show vulnerability and feel appreciation.

Although the analysis disclosed nonsignificant variations between employees and managers, the effect sizes show that hierarchy level has a medium-size effect on team psychological safety ($d = 0.50$) and small-size effects on perceived vulnerability ($d = 0.46$) and perceived appreciation ($d = 0.46$).

Table 2-8

Team Psychological Safety: Comparison Across Hierarchy Levels

Variable	Hierarchy Level	<i>M</i> (<i>SD</i>)	<i>t</i> (51)	<i>p</i>	<i>d</i>
Team Psychological Safety	Employees	.02 (0.88)	1.77	.08	0.50
	Managers	.49 (0.73)			
PS-Dimension 1: Perceived Vulnerability	Employees	.02 (0.85)	1.64	.11	0.46
	Managers	.47 (0.94)			
PS-Dimension 2: Perceived Appreciation	Employees	.02 (0.92)	1.65	.11	0.46
	Managers	.45 (0.57)			

Note. $N = 53$; Hierarchy Level: Employees $n = 39$; Managers $n = 14$. Independent samples t tests across different groups of hierarchy level. Cohen's d to report calculated effect size.

The analysis of the effect of hierarchy level on team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, may be distorted due to the composition of the manager group in the analysis. The majority of managers were lower-status team managers, whereas only a few managers of the group managers were of a higher status, such as department managers and executives. Therefore, the nonsignificant variations between employees and managers might be explained by a team climate perceived by both employees and lower-status team managers as psychologically unsafe. The hierarchy level of managers was not divided further to ensure anonymity for department managers and executives and to balance the sizes of the employee and manager groups. However, the two groups were still of unequal size; the manager group was far smaller ($n = 14$) than the employee group ($n = 39$). Thus, the results might have yielded variations in team psychological safety and its two dimensions perceived vulnerability and perceived appreciation according to differences in hierarchy level if the groups had been of more equal size, if the sample had been larger, and if the analysis had included more hierarchy levels.

2.4.5. Variations Across Teams and Cultures

Table 2-9 depicts the results of one-way ANOVAs to test the effect of team and culture on the evaluation of team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation. The analysis differentiated between three distinct groups: the team for mobility services from the German automobile manufacturing parent company, the North American mobility services subsidiary team, and the North American subsidiary's city market team.

Overall, the analysis showed that on average the city market teams of the North American mobility services subsidiary had the highest ratings on team psychological safety ($M = .28$, $SD = 0.93$), perceived vulnerability ($M = .19$, $SD = 0.85$), and perceived appreciation ($M = .34$, $SD = 0.98$). They were followed by the team for mobility services at the German automobile manufacturing parent company with marginally lower ratings for team psychological safety ($M = .12$, $SD = 0.61$), perceived vulnerability ($M = .19$, $SD = 0.70$), and perceived appreciation ($M = .05$, $SD = 0.59$). The last group was the North American mobility services subsidiary team with slightly lower ratings for team psychological safety ($M = -.15$, $SD = 1.04$), perceived vulnerability ($M = -.15$, $SD = 1.06$), and perceived appreciation ($M = -.13$, $SD = 1.04$). The results indicate that on average team members from the North American subsidiary team felt somewhat less able to show vulnerability in the team and felt less appreciated than team members belonging to the German automobile manufacturing parent company team. Moreover, the results indicate that on average team members belonging to the city market teams felt more able to show vulnerability and felt more appreciated by their team than team members belonging to the parent company or subsidiary team.

However, the analysis showed no significant effect of team belonging on team psychological safety or its two dimensions. More specifically, one-way ANOVAs produced nonsignificant variations in team psychological safety [$F(2, 58) = 1.07$, $p = .35$], in perceived vulnerability [$F(2, 58) = .95$, $p = .39$], or in perceived appreciation [$F(2, 58) = 1.08$, $p = .35$]. Therefore, the results imply no significant variations between members belonging to the parent company team, subsidiary team, and city market team in team psychological safety or its two dimensions. However, the computed effect sizes reveal a medium effect of team on team psychological safety ($\eta^2 = .10$), perceived vulnerability ($\eta^2 = .09$), and perceived appreciation ($\eta^2 = .11$), indicating that 9-11% of the total variance in psychological safety and its two dimensions is explained by team.

Table 2-9*Team Psychological Safety: Comparison Across Teams and Cultures*

Variable	Team and Cultures	<i>M</i> (<i>SD</i>)	<i>F</i> (2, 58)	<i>p</i>	η^2
Team Psychological Safety	German Parent Company Team	.12 (0.61)	1.07	.35	.10
	North American Subsidiary Team	-.15 (1.04)			
	City Market Team of North American Subsidiary	.28 (0.93)			
TPS-Dimension 1: Perceived Vulnerability	German Parent Company Team	.19 (0.70)	.95	.39	.09
	North American Subsidiary Team	-.15 (1.06)			
	City Market Team of North American Subsidiary	.19 (0.85)			
TPS-Dimension 2: Perceived Appreciation	German Parent Company Team	.05 (0.59)	1.08	.35	.11
	North American Subsidiary Team	-.13 (1.04)			
	City Market Team of North American Subsidiary	.34 (0.98)			

Note. $N = 61$; German Parent Company Team $n = 16$; North American Subsidiary Team $n = 34$; City Market Team of North American Subsidiary $n = 11$. One-way ANOVA across teams and respectively culture. Eta squared (η^2) to report calculated effect size.

Furthermore, nearly all of the team members belonging to the parent company team were German citizens, and team members belonging to the subsidiary and its city markets were almost only American citizens. Therefore, the results imply that there are no significant variations in team psychological safety or its two dimensions between German and American citizens. Accordingly, all participants, whether originating from the German or American culture, may have experienced a psychologically unsafe team climate, meaning that both German and American members felt reluctant to show vulnerability and felt little respected and valued.

The nonsignificant effect of team and culture on ratings of team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, might derive from the mixed team setup at the research site. Most team members were part of temporary cross-functional project teams that included members from the German automobile manufacturing parent company team, the North American

mobility services subsidiary team, and the North American subsidiary's city market team. It may be for this reason that similar perspectives emerged on the ability to show vulnerability in the team and the feeling of appreciation within the team.

However, the group of team members belonging to the subsidiary team ($n = 34$) were of two to three times the size of the group of team members from the parent company ($n = 16$) and the city market team ($n = 11$). The analysis might have yielded different results if the groups had been of more equal size and if a larger sample had been used to examine variations in team psychological safety and its two dimensions according to team and culture.

2.5. Summary of Empirical Results of Study 1

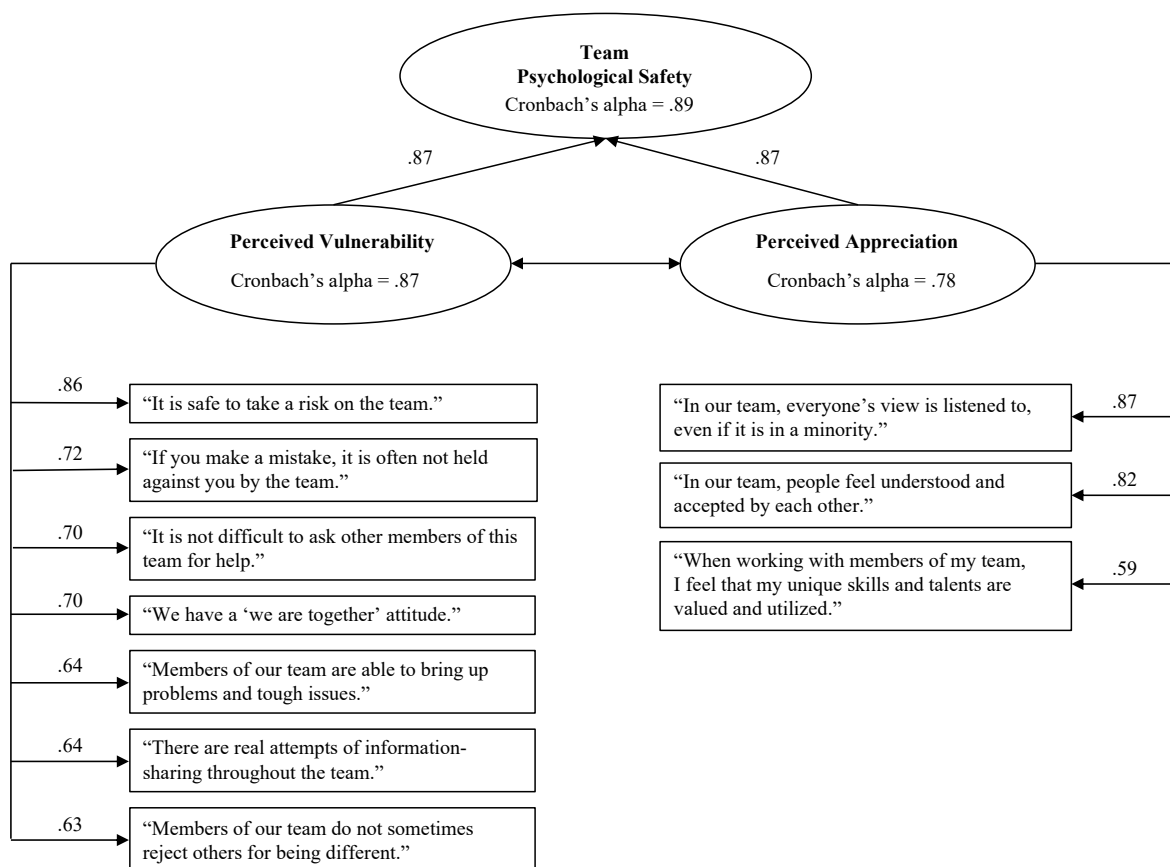
Study 1 addressed the first and second questions of my research by exploring the dimensionality of the team psychological safety construct and by examining specific intergroup variations in team psychological safety. Extant and validated scales by Edmondson (1999) and Anderson and West (1998) were used to design a quantitative survey, which was then used to measure team psychological safety perceptions at the research site. In sum, 61 respondents participated in the quantitative survey, representing 76% of the target population at the research site.

To address the first research question, I ran two exploratory factor analyses on the scale items of the quantitative survey responses. The principal-axis factoring analyses with direct oblimin rotation provided empirical evidence of two first-order dimensions of the second-order team psychological safety construct: perceived vulnerability and perceived appreciation.

In sum, perceived vulnerability is identified by seven reflective indicators measuring team member's perceptions on feeling able to show vulnerability in the team. More specifically, perceived vulnerability is captured by reflective indicators of the extent team members believe they can take risks, ask for help and discuss problems. Perceived vulnerability is also indicated by scale items related to team members' sense of togetherness, information-sharing, and the extent team members cherish diversity and do not use mistakes against one another. The dimension of perceived vulnerability is captured by scale items from the two team-level scales by Edmondson (1999) and Anderson and West (1998).

The second dimension, perceived appreciation, is captured by three reflective indicators of team members' perceptions of the extent to which differing opinions are heard even if these perspectives represent minority opinions, the degree they sense that team members are accepted and understood by one another and the extent they feel that individual skills are respected and used. This second dimension, perceived appreciation, is also captured by scale items of the two team-level scales by Edmondson (1999) and Anderson and West (1998).

The results of the second EFA suggests that the two first-order dimensions, perceived vulnerability and perceived appreciation, are formative indicators of the underlying second-order team psychological safety construct. In summary, the team psychological safety construct was specified as a reflective first-order and formative second-order construct based on the criteria to specify measurement models by Jarvis et al. (2003). Figure 2-8 summarizes my empirical results on the dimensionality of the team psychological safety construct.

Figure 2-8*Empirical Results: Dimensionality of Team Psychological Safety*

Note. The scale items are from Edmondson (1999, p. 382) and from Anderson and West (1998, p. 246) as explained in Table 2-1.

To address the second research question, I used the quantitative survey results to conduct several intergroup comparisons through independent samples *t* tests and one-way ANOVAs to investigate variations in team psychological safety. Effect sizes were calculated using Cohen's *d* and eta squared (η^2 ; Cohen, 1988). Several control variables were measured in the survey for the intergroup comparisons including distinct groups for gender; frequency of remote collaboration; tenure with the team; hierarchy level; and team and culture. The two dimensions of the team psychological safety construct—perceived vulnerability and perceived appreciation—were used in the analysis in addition to the overall team psychological safety rating, which combines the two dimensions.

Table 2-10 summarizes my results on specific variations in team psychological safety and its dimensions according to gender, frequency of remote collaboration with globally dispersed team members, tenure with the team, hierarchy level, and team and culture.

In sum, Study 1 revealed significant variations in team psychological safety between women and men. Women had significant lower ratings than men in team psychological safety and its two dimensions, and the computed effect size was medium. However, the reasons underlying the variations have yet to be explored. One explanation is that women indeed felt less psychologically safe than men. It may be argued that women either felt less able to show vulnerability and felt less appreciated by the team because they were outnumbered by men at the research site or that women in general feel less psychologically safe than men. Conversely, women might have evaluated the team climate more truthfully and thus as less psychologically safe than men. Here, women might have been more able to admit issues of psychological safety than men, who might have whitewashed the extent of team psychological safety. Therefore, women may have demonstrated more perceived vulnerability than men by admitting team psychological safety issues.

Moreover, the results indicated that participants who worked several times a week to daily with globally dispersed team members assessed team psychological safety and its two dimensions perceived vulnerability and perceived appreciation slightly lower than participants who worked less frequently, never to several times a month, with globally dispersed team members. However, the analysis revealed no significant variations in psychological safety perceptions or its two dimensions by frequency of remote collaboration, and the computed effect size was small. Thus, Study 1 indicated that a higher frequency of remote collaboration with globally dispersed team members does not yield less team psychological safety or perceived vulnerability and perceived appreciation than does working less frequently with remote colleagues. One reason for this may be that the workplace is regarded by both groups as psychologically unsafe. However, the absence of significant variations might also be explained by personal relationships formed prior to remote collaboration and subsequent familiarity among team members. Some team members were able to develop personal relationships and work with each another for several months from the same location before they were required to collaborate remotely. Moreover, short periods of remote collaboration because of business trips every 2 to 6 weeks between team locations might explain the absence of significant variations in team psychological safety, perceived vulnerability and perceived appreciation.

Study 1 has also shown only marginal and nonsignificant variations in team psychological safety, perceived vulnerability, and perceived appreciation by a tenure with the team of less than 6 months and a tenure with the team of more than 6 months; and the calculated effect size was trivial. Recently joined members with a tenure shorter than 6 months might have immediately understood the team climate during their first team interactions and thus reported similarly low team psychological safety

as members with a tenure longer than 6 months, who might have had negative incidents which decreased their perceived ability to show vulnerability and lessened their feeling of appreciation. Newer team members who had been with the team less than 6 months might have also not have felt able to be vulnerable in the team due to unclear consequences for showing vulnerability and not felt appreciated due to a lack of awareness of team members' strengths and skills. Their team psychological safety ratings might then be as low as team members who had been with the team for longer than 6 months, whose negative work experiences might have reduced their ratings of perceived vulnerability and perceived appreciation.

Furthermore, Study 1 implied that employees reported less team psychological safety and lower perceived vulnerability and perceived appreciation than managers. However, the analysis indicated no significant variations in team psychological safety and its two dimensions between employees and managers, and the computed effect sizes were medium. However, significant variations were displayed at the 90% confidence level. One important point that needs to be considered is that the manager group comprised both lower-status managers such as team managers and higher-status managers such as department managers and executives to maintain the anonymity of higher-status managers and to help balance the group sizes. Thus, the absence of significant variations in team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, between employees and managers may be explained through similarly low ratings by both employees and lower-status managers.

In addition, Study 1 indicated that members belonging to the city market team had slightly higher ratings in team psychological safety and in its two dimensions, perceived vulnerability and perceived appreciation, followed by team members from the mobility services team of the German automobile manufacturing parent company and lastly by team members from the North American mobility services subsidiary. Yet, the analysis revealed no significant variations between teams; however, the computed effect size has suggested 9-11% of variations in team psychological safety and its two dimensions may be explained through team and culture. Moreover, Study 1 indicated no significant variations in team psychological safety or its two dimensions, perceived vulnerability and perceived appreciation, between American and German citizens as the parent company team comprised almost only German citizens, while the subsidiary and city market team consisted mostly of North American citizens. Accordingly, the empirical results suggest that both German and American citizens had similar perceptions of the ability to show vulnerability in the team and of the feeling of appreciation in the team.

Lastly, it needs to be noted that the results might differ if larger samples had been used, if the groups were of more equal size and had been composed differently regarding specific aspects such as lengths of tenure with the team, frequency of remote collaboration with globally dispersed team members, and hierarchy level.

Table 2-10

Summary of Empirical Results: Intergroup Comparisons

Team Psychological Safety Intergroup Comparisons	Sig.	Effect Size
Gender → Team Psychological Safety		
Women < Men → Team Psychological Safety	.03*	$d = 0.61$
Women < Men → TPS-Dimension 1: Perceived Vulnerability	.05*	$d = 0.56$
Women < Men → TPS-Dimension 2: Perceived Appreciation	.04*	$d = 0.59$
Frequency of Remote Collaboration → Team Psychological Safety		
LF = HF → Team Psychological Safety	.32	$d = 0.26$
LF = HF → TPS-Dimension 1: Perceived Vulnerability	.31	$d = 0.27$
LF = HF → TPS-Dimension 2: Perceived Appreciation	.40	$d = 0.22$
Tenure with the Team → Team Psychological Safety		
T < 6 m. = T > 6 m. → Team Psychological Safety	.62	$d = -0.13$
T < 6 m. = T > 6 m. → TPS-Dimension 1: Perceived Vulnerability	.63	$d = -0.10$
T < 6 m. = T > 6 m. → TPS-Dimension 2: Perceived Appreciation	.66	$d = -0.12$
Hierarchy Level → Team Psychological Safety		
Employee = Manager → Team Psychological Safety	.08	$d = 0.50$
Employee = Manager → TPS-Dimension 1: Perceived Vulnerability	.11	$d = 0.46$
Employee = Manager → TPS-Dimension 2: Perceived Appreciation	.11	$d = 0.46$
Team and Culture → Team Psychological Safety		
GPC = NAS = NASCM → Team Psychological Safety	.35	$\eta^2 = .10$
GPC = NAS = NASCM → TPS-Dimension 1: Perceived Vulnerability	.39	$\eta^2 = .09$
GPC = NAS = NASCM → TPS-Dimension 2: Perceived Appreciation	.35	$\eta^2 = .11$

Note. $N = 61$; Independent samples t test for intergroup comparisons of gender; frequency of remote collaboration; tenure with the team; and hierarchy level. The effect sizes were calculated using Cohen's d . One-way ANOVA for intergroup comparison of team and culture. Here, the effect sizes were calculated using eta squared (η^2). Guidelines for effect sizes (Cohen's d and eta squared) according to Cohen (1988). LF = Low frequency (never to several times a month); HF = High frequency (several times a week to daily); T = Tenure; m. = months; GPC = German parent company; NAS = North American subsidiary; NASCM = North American subsidiary's city markets. * $p \leq .05$.

3. Study 2: Factors Influencing Team Psychological Safety

Study 2 addresses the third question of my research by investigating the factors influencing team psychological safety. Study 2 focuses on analyzing factors influencing the two dimensions of team psychological safety, perceived vulnerability and perceived appreciation. First, contemporary literature on the factors influencing psychological safety at work is reviewed and the qualitative methods of Study 2 outlined. Next, the empirical findings of my participant field observations and interviews are illustrated, interpreted, and summarized. Lastly, the empirical findings are discussed in Chapter Four.

3.1. Literature Review of Influencing Factors

Prior research had postulated an influence of personal characteristics on psychological safety (Kahn, 1990). Accordingly, Frazier et al. (2017) examined the role of a person's a) proactive personality, b) openness to experience, c) emotional stability, and d) learning orientation. However, the scholars discovered a significant positive relationship only between a person's learning orientation and team psychological safety. Wilkens and London (2006) also suggested that a person's learning orientation positively influences team psychological safety.

Other scholars found that performance-oriented goals can result in higher performance pressure and lower psychological safety (Nembhard & Edmondson, 2012). Accordingly, signals conveying an organization's performance orientation, such as financial rewards for limiting mistakes and financial sanctions for missing goals, form employees' perception of what is prioritized and valued in the organization. Thus, a dominant performance orientation leads to a reduced willingness to take risks to avoid jeopardizing the achievement of performance-oriented goals (Nembhard & Edmondson, 2012).

Frazier et al. (2017) also examined the role of role clarity, autonomy, and interdependence for team psychological safety. The scholars found that all three job design characteristics had a significantly positive relation with psychological safety: Role clarity had the strongest relationship with psychological safety, followed by interdependence, and then autonomy (Frazier et al., 2017). Edmondson (1999) had previously argued that interdependence positively influences psychological safety, as interdependent tasks are associated with greater mutual dependency among peers in completing these tasks. Chandrasekaran and Mishra (2012) suggested that autonomy only had a positive effect on team psychological safety when the teams' goals and processes were in alignment with the broader organizational goals, and when the team

focused on exploitative tasks that optimized existing processes, products, and services rather than on exploratory tasks that developed new ones.

Other researchers have shown that formal team structures positively correlate with psychological safety (Bresman & Zellmer-Bruhn, 2013; Bunderson & Boumgarden, 2010). O'Neill (2009) identified a positive impact of collective responsibility on psychological safety, as team members were more willing to admit mistakes when they were collectively responsible than when they only had individual responsibilities. Furthermore, shared team rewards have been shown to help build psychological safety (Chen & Tjosvold, 2012).

In addition, scholars have found that challenging job designs that involve operating in virtual teams across different geographical locations and depend mainly on electronic communication can lead to a lack of familiarity among team members and an ensuing lack of psychological safety (Nembhard & Edmondson, 2012). In this regard, Faraj and Yan (2009) indicated that emphasizing team boundaries were positively correlated with psychological safety. Researchers also indicated that team members feel safer among familiar people with whom they have had longer personal relationships. Thus, a lack of familiarity in temporary project teams can reduce team psychological safety (Nembhard & Edmondson, 2012).

Furthermore, research has shown that steeper hierarchy increases fear and decreases psychological safety (Edmondson, 1999; Nembhard & Edmondson, 2012). It has been suggested that team members continually assess their relative status in the team, which results in particular stress for lower-status team members in the presence of higher-status team members (Zink et al., 2008). Other research has indicated that those lower in the hierarchy speak up less in the presence of superiors due to fear of the negative consequences of interpersonal risk-taking (Burris et al., 2008; Nembhard & Edmondson, 2006, 2012).

Scholars have also identified a significant positive relation of organizational support with team psychological safety (Frazier et al., 2017; Tucker, 2007). In addition, trust in the organization has been positively linked with psychological safety (Carmeli & Zisu, 2009). Moreover, Senge (1990) found that psychological safety can be cultivated by providing opportunities to practice, through which employees can experience and learn about interrelationships with others without encountering "real" risks, akin to flight simulators for pilots and training matches for sport athletes. These opportunities for practice are regarded as an effective organizational strategy for promoting team psychological safety (Nembhard & Edmondson, 2012; Senge, 1990).

Moreover, several researchers have demonstrated that psychological safety positively relates to supportive peer relationships (Edmondson, 1999; Frazier et al., 2017; Kahn, 1990; May et al., 2004; Nembhard & Edmondson, 2012; Newman et al.,

2017). Scholars have shown that employees look for and receive signals from peers about group norms (Van Maanen & Schein, 1977; Wiesenfeld et al., 2001). Several scholars have positively linked specific aspects of peer relationships with higher psychological safety, including team member support (Schepers et al., 2008), collective thinking and network ties (Gu et al., 2013; Huang & Jiang, 2012; Schulte et al., 2012), team caring (Bstieler & Hemmert, 2010), previous interactions and familiarity between team members (Roberto, 2002), trust (Kahn, 1990; Zhang et al., 2010), and respect (Edmondson & Moingeon, 1998; Kahn, 1990).

Substantial research has also shown that leadership plays a crucial role in shaping psychological safety (Detert & Burris, 2007; Edmondson, 1999, 2004; Edmondson & Lei, 2014; Frazier et al., 2017; Kahn, 1990; Nembhard & Edmondson, 2012). Scholars have suggested a positive relation of psychological safety with several leadership constructs, including transformational leadership (e.g., Detert & Burris, 2007; Nemanich & Vera, 2009), servant leadership (e.g., Schaubroeck et al., 2011), shared leadership (e.g., Liu et al., 2014), ethical leadership (e.g., Walumbwa & Schaubroeck, 2009), change-oriented leadership (e.g., Ortega et al., 2014), improvement-oriented management style (e.g., Halbesleben & Rathert, 2008), and dyadic discovery methods (e.g., Roussin & Webber, 2012; Wong et al., 2010).

Frazier et al. (2017) only identified a significant positive relation of transformational leadership with team psychological safety. However, other scholars have demonstrated that leadership inclusiveness, characterized by being available and accessible as a leader to the team, by acknowledging fallibility to others, and by proactively seeking employee input, also leads to higher psychological safety, subsequently resulting in, for instance, more learning and better performance at work (e.g., Detert & Burris, 2007; Detert & Treviño, 2010; Edmondson, 2004; Hirak et al., 2012; May et al., 2004; Nembhard & Edmondson, 2006, 2012).

In addition, scholars have provided evidence that greater teams' trust in their leaders leads to enhanced psychological safety and subsequently increased employee engagement and performance (Chughtai & Buckley, 2013; Frazier et al., 2017; Li & Tan, 2013; Madjar & Ortiz-Walters, 2009; Schaubroeck et al., 2011). Lastly, researchers have noted that the behavioral integrity of leaders (Leroy et al., 2012) and leader support and coaching (Edmondson, 1999; Roberto, 2002) positively influence team psychological safety. Table 3-11 outlines the literature review of factors influencing psychological safety at work.

Table 3-11*Literature Review of Factors Influencing Psychological Safety*

Influencing Factor	Research Studies
Personality trait: Learning orientation	Frazier et al. (2017); Wilkens and London (2006)
Performance-oriented goals	Nembhard and Edmondson (2012)
Hierarchy	Burris et al. (2008); Nembhard and Edmondson (2006, 2012); Zink et al. (2008); Edmondson (1999)
Temporariness of project teams	Nembhard and Edmondson (2012)
Virtuality: Lack of team boundaries	Faraj and Yan (2009); Nembhard and Edmondson (2012)
Interdependence	Edmondson (1999); Frazier et al. (2017)
Autonomy	Frazier et al. (2017); Chandrasekaran and Mishra (2012)*
Role clarity	Frazier et al. (2017)
Collective responsibility	O'Neill (2009)
Shared team rewards	G. Chen and Tjosvold (2012)
Formal team structures	Bresman and Zellmer-Bruhn (2013); Bunderson and Boumgarden (2010)
Organizational support	Frazier et al. (2017); Kahn (1990); Tucker (2007)
Opportunities to practice	Senge (1990); Nembhard and Edmondson (2012)
Trust in the organization	Carmeli and Zisu (2009)
Peer support	Edmondson (1999); Frazier et al. (2017); Kahn (1990); May et al. (2004); Nembhard and Edmondson (2012); Schepers et al. (2008)
Trust among team members	Kahn (1990); Zhang et al. (2010)
Collective thinking and network ties	Gu et al. (2013); Huang and Jiang (2012); Schulte et al. (2012)
Familiarity	Roberto (2002); Nembhard and Edmondson (2012)
Respect	Edmondson and Moingeon (1998); Kahn (1990)
Team caring	Bstieler and Hemmert (2010)
Supportive leadership	Detert and Burris (2007); Edmondson (1999, 2004); Edmondson and Lei (2014); Frazier et al. (2017); Kahn (1990); Nembhard and Edmondson (2012)
Transformational Leadership	Detert and Burris (2007); Frazier et al. (2017); Nemanich and Vera (2009)
Servant Leadership	Schaubroeck et al. (2011)
Shared Leadership	Liu et al. (2014)
Ethical Leadership	Walumbwa and Schaubroeck (2009)
Change-oriented Leadership	Ortega et al. (2014)
Improvement-oriented management style	Halbesleben and Rathert (2008)
Dyadic discovery methods	Roussin and Webber (2012); Wong et al. (2010)
Leadership inclusiveness	Detert and Burris (2007); Detert and Treviño (2010); Edmondson (2004); Edmondson and Lei (2014); Hirak et al. (2012); May et al. (2004); Nembhard and Edmondson (2006, 2012)
Leader support and coaching	Edmondson (1999); Roberto (2002)
Trust in leader	Chughtai and Buckley (2013); Frazier et al. (2017); Li and Tan (2013); Madjar and Ortiz-Walters (2009); Schaubroeck et al. (2011)
Behavioral integrity	Leroy et al. (2012)

Note. * only if team goals align with organizational goals and only for exploitative work tasks.

3.2. Qualitative Methods

In Study 2, I was able to gather data from the entire target population ($N = 80$). Therefore, the sample comprised all employees and managers from the German automobile manufacturing parent company, the North American mobility services subsidiary, and the subsidiary's city market teams. To identify the key factors influencing team psychological safety, I employed three qualitative methods: participant observation, focus group interviews, and individual interviews.

Over the course of my research, I carried out many participant observations at the research site (a) to investigate the key factors influencing the two dimensions of team psychological safety, perceived vulnerability and perceived appreciation, and (b) to supplement the survey results on specific intergroup variations in team psychological safety. Participant observation was possible thanks to my deep immersion in the real-life work context of my research inquiry (Saunders et al., 2019; Spradley, 2016; Van Maanen, 2011). Accordingly, during the 4-year long research cooperation project between my institute at the university and the automobile manufacturer, I participated and observed in numerous events at the mobility services team of the German automobile manufacturing parent company, the North American mobility services subsidiary, and its North American city market teams. Many observations were documented as interim summaries, capturing the setting, participants, statements, body language, and atmosphere. Particularly notable observations were rewritten as vignettes to provide rich and vivid descriptions of specific incidents about the research phenomenon observed at the research site (Saunders et al., 2019; Spradley, 2016).

Moreover, I conducted 18 focus group interviews with the target population over a period of 2 months to analyze the key factors influencing team psychological safety. Each focus group comprised three to six participants selected from different functional teams to avoid groupthink. If possible, they were separated by hierarchy levels and by belonging to the team of the parent company, subsidiary or city markets to help reduce individuals' reluctance to contribute to the discussions (Saunders et al., 2019). The focus groups were held in English as face-to-face conversations and facilitated by two interviewers, the HR partner at the subsidiary and me. Participants were assured of confidentiality and anonymity to encourage candid discussion of issues, and permission was obtained to audio-record and transcribe each interview. During each focus group interview, interviewees were asked to share personal impressions of and experiences with the team climate and elaborate on potential barriers and enablers of team psychological safety. After each focus group, the HR partner and I held a detailed debriefing session to reflect on the discussions, which were then documented as interim summaries. Focus group discussions were audio-

recorded and transcribed word for word by a paid touch-typist, resulting in over 1,200 minutes of audio-recordings and over 350 pages of transcripts and interim summaries. The transcribed data was analyzed qualitatively by coding through thematic analysis (Braun & Clarke, 2006) to identify the factors influencing team psychological safety. The insights from the focus group interviews were then used to develop the interview guide for the semi-structured individual interviews.

Next, I held 72 individual interviews with more than 90% of the target population over a period of 9 months to generate an in-depth understanding of the key factors influencing team psychological safety. 72% of the interviews were conducted personally through face-to-face interviews, while 28% were administered by telephone or video link. Approximately 70% of the individual interviews were held in English and 30% of the interviews were conducted in German. Before each interview, confidentiality and anonymity were assured, and permission to audio-record and transcribe the interview was obtained. During the individual interviews, participants were first asked an open-ended question about their personal perceptions of the team climate at work, followed by open-ended questions about their personal perceptions of indicators of team psychological safety. Only then were interviewees asked about barriers and enablers of team psychological safety. The interview flow was flexible depending on what each interviewee perceived as a barrier or enabler of team psychological safety. Open-ended questions were included as the interview's course allowed about the occurrence at the research site of several influencing factors identified in literature. Appendix 7.2 contains my semi-structured interview guide. The individual interviews were also audio-recorded and transcribed word for word by a paid touch-typist, producing over 4,600 minutes audio-recordings and over 1,500 pages of transcripts.

In sum, the interviews produced nearly 100 hours of interview data and over 1,850 pages of transcripts, which were coded through systematic thematic analysis (Braun & Clarke, 2006) in ATLAS.ti. The coding procedure resulted in over 2,600 in vivo codes, based on which similar codes were grouped and thus key factors influencing the two dimensions of team psychological safety, perceived vulnerability and perceived appreciation, derived inductively. Appendix 7.3. outlines information on the conducted focus group and individual interviews, including the interview participants, interview type, interview mode, language, and duration. Table 3-12 summarizes my qualitative data collection efforts within Study 2.

Table 3-12*Qualitative Data Collection Methods*

Method	Scope	Details	Data Records
Participant observation	Entire target population (<i>N</i> = 80)	April 2015-April 2019	Interim summaries and vignettes
Focus group interviews	18 two-to-many interviews Entire target population (<i>N</i> = 80)	May-July 2017 Average duration: 60 min. Groups of three to six	> 1,200 minutes audio-recordings (~ 20 hours) > 350 pages transcripts and interim summaries
Individual interviews	72 semi-structured interviews > 90% of the target population	September 2017-May 2018 Average duration: 60 min. 52 face-to-face interviews 20 video and telephone interviews	> 4,600 minutes audio-recordings (~ 78 hours) >1,500 pages transcripts

Chapter 3.3. first presents the empirical findings of my participant field observations followed by the empirical findings of my interviews.

3.3. Empirical Findings of Participant Field Observations

Based on my participant field observations, three exemplary vignettes are presented here to illustrate the observed team climate at the research site, help to identify key factors influencing team psychological safety, and offer supplementary insights on specific variations in team psychological safety.

3.3.1. Vignette 1: Team Climate of Blame and Disrespect

Vignette 1 describes a weekly reporting meeting of key performance indicators (KPIs) at the North American mobility services subsidiary and subsequent communication of this research initiative to the teams during an organized team lunch. All team members of the subsidiary attended in person, while the subsidiary's city market team members dialed in via telephone. During the KPI meeting, the entire team of the subsidiary gathers in the main office area and two team members from the subsidiary's finance team present the weekly statistics about the mobility services business. My observations of this meeting are reported below:

Five minutes after the KPI meeting had begun, not everyone had yet gathered where the KPI meeting was held; some were still getting something to drink from the kitchen, while others were still talking to each other. All of a sudden, one of the leading managers of the subsidiary raised his voice, yelling loudly that "it is expected that everyone is at the meeting on time" and that "it is disrespectful towards the ones who prepare and hold this meeting". After that, the room was filled with complete silence. One could have heard a pin drop. A group of roughly 50 people did not say a single word. I looked around the room and saw several shocked and intimidated facial expressions and many team members who were rolling their eyes about what had just happened. The presenter of the meeting then took over and told the manager that he appreciated his intervention and started the meeting. The KPI meeting ended a few minutes early. Then the same manager jumped on a phone call just before the team lunch meeting was supposed to begin.

It had been planned to announce the research initiative together with the subsidiary's managers during the team lunch. Everyone at the office stayed at the main office area as they expected the announcement to start any minute. Five to ten minutes passed, and the manager had not yet returned from the phone call. Fifty people were waiting and wondering why the team lunch had not started. A few people started to complain that they were hungry and suggested grabbing something to eat while they were waiting. The HR partner

and I talked to the team and informed them that the manager was still on a call. At that time, no one knew how much longer the call would take. The others of the management team were also waiting but demanded that the team should wait and not get something to eat before the announcement. Everyone was waiting for the manager to return.

After another 15 minutes, there was still no sign of his return. About 25 minutes after the planned start of the meeting, the manager returned to the main office area, excused himself quickly, expressed that it was an urgent call and immediately started to communicate the initiative to the team while still walking back to the main office area. By then, the team members from the globally dispersed city markets had left the telephone conference because they had not known how long they would have to wait for the manager to return. The other managers, the HR partner, and I quickly stood beside the manager, who had just returned in order to communicate the research initiative together.

After the initiative was announced to the team, several employees came up to talk to the HR partner and me to express gratitude for this initiative as they admitted that there was a lot to be worked on. Moreover, after the announcement, the manager immediately came up to the HR partner and questioned a few statements she had made during the announcement. The HR partner asked if the manager wanted to know the reasoning behind her statements, but the manager denied this and said harshly: "What's done is done". The HR partner walked away from the team lunch dejectedly. I went up to the HR partner and asked whether she wanted to talk about what had just happened. The HR partner replied that the manager's behavior was rude, and that people should not be treated with such little respect. Then, we returned to the team lunch meeting together. Later, the manager came up to the HR partner again and blamed her in front of the team that there was not enough to eat for everyone, which intensified the already stressed situation (Vignette produced from my field notes from participant observation).

Vignette 1 provides initial empirical evidence of some of the key factors influencing the two dimensions of team psychological safety: It shows the influence of a manager's reaction to the mistakes by others on the perceived ability to show vulnerability in the team. The manager's response to the team's misconduct of unpunctuality at the KPI meeting seems to have led to intimidation and silence; the only apparent employee response was low-risk eye-rolling to signify disapproval of the manager's outburst reaction, thus indicating low perceived vulnerability in the

team. Moreover, the manager's reactions toward the HR partner in offensively questioning her statements after the communication of the research initiative, in rejecting her attempts to explain herself, and in blaming her in front of the team for the scarcity of food at the team lunch may be expected to reduce perceived vulnerability further. Mistakes seem to be used against individuals and the HR partner was stopped from bringing up and discussing issues.

Vignette 1 also reveals respect as a factor influencing perceived appreciation. Team members' unpunctuality at the KPI meeting demonstrated a lack of respect among team peers and thus may have decreased the perceived appreciation in the team. In addition, the rejection by the manager of the attempts of the HR partner to explain her statements during the announcement might have increased the perceived lack of respect for the opinions of others, thus leading to less perceived appreciation.

Furthermore, Vignette 1 suggests self-awareness to be a factor influencing both perceived vulnerability and perceived appreciation. The manager's potential lack of self-awareness in not realizing the similarity between his late arrival at the second meeting and the team members' late arrival at the first may diminish the perceived vulnerability and perceived appreciation in the team. The manager's lack of self-awareness of his different handling of similar misconduct may cause employees to feel unsafe in bringing up issues surrounding misconduct and perhaps to feel misunderstood.

Moreover, variations in team psychological safety across hierarchy levels and between genders are demonstrated in Vignette 1, supplementing the survey results of Study 1. In contrast to the survey results, Vignette 1 clearly shows variations in team psychological safety across hierarchy levels and identifies hierarchy as an influencing factor. Although the manager held employees accountable for their late arrival at the KPI meeting, employees were reluctant to hold the manager responsible for his tardiness, which shows less perceived vulnerability by lower-status team members than higher-status team members. However, Vignette 1 also shows that the manager did not admit his unpunctuality to the team, which may imply low perceived vulnerability by higher-status team members.

In addition, a few incidents in Vignette 1 between the male manager and the female HR partner may have led to variations in team psychological safety between genders, in accordance with the survey results. These include the behavior of the male manager through the offensive questioning of the female HR partner's statements during the communication of the research initiative, through his lack of attention to her explanations of the statements and through his blaming her in front of the team for the scant food at the team lunch; all of these may negatively influence women's perceived vulnerability and perceived appreciation.

3.3.2. Vignette 2: Team Climate of Silence and Denial

Vignette 2 presents one of the focus group interviews conducted with members of the future mobility services division from the German parent company, who were on a business trip to the North American mobility services subsidiary. During this focus group interview, the participants were presented with and asked to discuss the survey results on the team's psychological safety perceptions at the research site:

When the group interview started, the atmosphere between the participants in the room felt tense right from the beginning. It seemed as if everyone felt the friction. One participant was smiling mockingly, attempting to meet the eyes of one of his team members to indicate that he did not take the meeting seriously. That same participant expressed his desire for the conversation not to be recorded without giving any further details. After this request, there was complete silence in the room.

After some time, a participating male team manager looked at the survey results and argued that the results were not surprising and seemed absolutely normal and not particularly worrisome. It took a while until a female participant spoke up and disagreed with that statement, admitting that there were several serious team problems in terms of a lacking sense of togetherness, a lack of information sharing and a lack of inclusion of all relevant members in business meetings. The participating male team manager immediately opposed her statements. After that, the tense atmosphere intensified. Then, the interview continued, however only with some restrained discussions.

After the meeting, two female participants came up to the HR partner and me to discuss the incident at the focus group interview. The HR partner asked if such behavior as witnessed during the focus group interview was normal. One of the two participants expressed that she was shocked that the participating team manager did not do anything to facilitate the discussions between the members. Here, the other participant explained that "you choose your battles here" and admitted that she was sad and concerned about how this meeting had gone. She also said that when her colleague spoke up to the team manager, he immediately shut her down. Based on that, she concluded that one should not bring up any issues and problems. Moreover, both acknowledged that they were put off by the request of their colleague to not record the group discussion as he did not say a single word during the entire group interview.

One participant explained that there have been trust issues among the participants and said that they could not be transparent in front of each other as what they said might be held against them. At the end of the debriefing of the focus group interview, the two female participants apologized for the negative example of a group interview in comparison to the other constructive focus group discussions they had heard of from their team peers and expressed a desire to attend another focus group interview in the following days (Vignette produced from my field notes from participant observation).

Vignette 2 indicates some of the factors influencing team psychological safety: First, this vignette reveals that a lack of trust among team peers leads to less perceived vulnerability. The two female participants noted trust issues between the focus group participants as a reason for the restrained group discussions. Moreover, the request of a participant not to record the discussion but who still remained silent during the entire focus group interview signals a lack of trust among peers.

Moreover, Vignette 2 shows that competition between team members negatively influences the perceived vulnerability in the team. The participants of this focus group interview were from two competing functional teams at the future mobility services division at the German parent company, who were team members in cross-functional project teams. As these two functional teams had revealed tensions between each other over several months, possibly due to competition between them, this may have decreased the perceived ability to show vulnerability in front of the other participants during the focus group discussion.

Next, the personal skill and virtue that influences the perceived vulnerability and perceived appreciation in a team is its members' ego strength. Vignette 2 implies that a strong ego enabled the female participant to openly admit team climate issues during the focus group interview, which indicates high perceived vulnerability. In contrast, the manager's denial of team climate issues and dismissal of a participant's attempt to speak up indicates a lack of willingness to admit and discuss problems, possibly out of self-protection due to a fear of being held responsible for the team climate, and thus signifies a weak ego. Moreover, the manager's dismissive behavior signaled low perceived vulnerability through his reluctance to bring up issues and low perceived appreciation by choosing not to hear everyone's opinion: This is likely to influence team psychological safety negatively.

In addition, Vignette 2 provides initial evidence of the positive influence of ego strength and taking ownership on team psychological safety. The apology of the two female participants for the negative example of a focus group interview and the request to attend another focus group discussion signal (a) ego strength by admitting

issues openly and (b) a genuine attempt and willingness to help foster team psychological safety. Thus, a stronger ego may help to reduce self-protective behavior and consequently increase the willingness to take ownership for the development of a psychologically safe team climate.

Furthermore, Vignette 2 provides support for variations in team psychological safety between genders. This vignette indicates that the two female participants evaluated the team climate as less psychologically safe than the male participants and thus supports the lower team psychological safety ratings by women than men in the survey results. However, Vignette 2 also shows that women were more able than men to admit issues surrounding the team climate as only female participants admitted psychological safety issues, while male participants even remained silent after the request not to record the discussion, indicating more perceived vulnerability among women than men.

Lastly, Vignette 2 supports the survey results by suggesting no variations in psychological safety between employees and managers. Only one employee openly admitted problems with perceived vulnerability and perceived appreciation during the focus group interview, while all the other employees remained mostly silent and the participating manager denied and disagreed with the statements of that lone employee, indicating low psychological safety among both the participating employees and the manager at this focus group discussion.

3.3.3. Vignette 3: Team Climate of Rejection and Disregard

Vignette 3 illustrates my observations of a company-wide weekly KPI meeting at the North American mobility services subsidiary and is displayed in the following:

The company-wide weekly KPI meeting was held at the main office area at the North American mobility services subsidiary. All team members gathered there, and the meeting began. First, team members from the subsidiary's finance team came to the front and presented updates on KPIs of the business. After that, a HR employee of the subsidiary asked a manager in front of the entire team that she would like to introduce three new team members, who joined the subsidiary today, as everyone was gathered together at that meeting.

The manager denied this request and said determinedly, "No, we are not doing that now". I looked around the room and saw many irritated, confused, and shocked faces. Then the meeting continued without the introduction of the new team members. At the end of the meeting, the team manager of the three new team members tried another time and said that he would like to introduce them to the team. The same manager, as earlier, shut him down too and said: "No, not now". After that, there was a prolonged silence in the room. As the attempt to introduce the new team members was dismissed for the second time, it felt as if the atmosphere in the room shifted to a sense of embarrassment not only for the team members who were denied but also to the new team members.

The manager explained that the management team postpones the introduction of the new team members to the next day when a senior manager of the parent company comes to visit the subsidiary. Some employees looked at each other, expressing disbelief about what the manager had just said.

After the meeting, several team members went for lunch together, and I joined and listened to how they reflected on this meeting. One said that he thought that it was wrong not to introduce the new team members and that the managers had no empathy for the new team members, being at their new workplace on their first day at work, not knowing anyone and not being introduced. Another team member added that he was ashamed and did not want to know how it must have felt for the new team members.

Moreover, another employee expressed disagreement about the idea of postponing the introduction of the new team members only to do that in front of a senior manager from the parent company. Instead, several employees

stressed that the managers should have just introduced the new team members twice, first in the previous meeting in front of the entire team and a second time in front of the senior manager of the future mobility division of the parent company with the entire team present. Later, another employee explained to me that people would not dare to speak up as they do not want their heads “chopped off” in front of everyone and thus rather choose to remain silent (Vignette produced from my field notes from participant observation).

Vignette 3 indicates some factors influencing team psychological safety. First, this vignette suggests that a manager’s dismissive reaction to speaking up from employees negatively influences the perceived vulnerability in a team. An employee explained after the meeting that people would not dare to speak up as they do not want their heads “chopped off” in front of everyone, as witnessed in the two speaking-up attempts by their colleagues, and thus would remain silent. Second, Vignette 3 demonstrates the role of empathy on perceived appreciation in a team. The manager’s lack of empathy implies that he did not grasp the negative consequences of his behavior on the team when choosing not to introduce the new colleagues during the company-wide meeting.

In contrast to the survey results, but in alignment with Vignette 1, Vignette 3 indicates variations in team psychological safety across hierarchy levels. Vignette 3 shows that while lower-status team members strongly disagreed after the meeting with the manager’s decision not to introduce the new team members, they did not dare risk speaking up about this issue to higher-status team members during the meeting. Of 50 participants, only one HR employee and one team manager attempted to introduce the new team members, while the rest of the employees and managers all remained silent. In contrast, the higher-status manager immediately dismissed the two speaking-up attempts, and the lower-status HR employee and team manager did not openly disagree with this rejection; these observations indicate that higher-status team members feel more perceived vulnerability than lower-status team members.

3.4. Empirical Findings of Qualitative Interviews

The findings of my thematic analysis of the 90 conducted interviews are presented in the following through exemplary interview quotes that are subsequently interpreted to inductively derive key factors influencing team psychological safety.

3.4.1. Mission Clarity

Most interviewees pointed out the lack of a clear mission for the subsidiary. As one interviewee put it, “one of my biggest pieces of feedback is that there’s no North Star. There’s no ‘this is what we are here for’” (D-75:09). Similarly, one participant admitted that “I don’t know that we’ve ever had a clear direction ... what the purpose of this subsidiary is” (D-69:12). Another respondent asserted concern about uncertainty due to an unclear mission: “Where is our company going? ... No one talks about that. We’re so in the dark” (D-14:48).

A common opinion among respondents was that “there is a huge amount of confusion” (D-86:18) about the intent of the subsidiary and “very different answers on what the subsidiary is supposed to achieve” (D-75:09). Nearly all participants agreed on a lack of alignment among managers of the subsidiary. Most admitted that they feel “managers are on totally different pages” (D-61:11). As one respondent revealed, “the leaders will tell you they are on the same page. I’m not even sure they’re in the same book” (D-54:24). A few participants implied that a clear mission leads to greater alignment among managers. One interviewee stated that “ultimately, it’s a function of leadership not being clear what the North Star is ... I guarantee you, if you were having an individual conversation with them, you’d get very different answers” (D-75:56).

Thus, several respondents asserted that the lack of a clear mission fosters an attitude among employees of not daring to take risks. In particular, one participant stressed the lack of consistent communication by managers about risk-taking: “One person says one thing; the other person says the other thing and you’re not really sure: are we supposed to be taking risks?” (D-61:07). Additionally, participants admitted their concern about negative repercussions from risk-taking. As one interviewee revealed, “I don’t know who to believe! ... Who do I follow? I have to meet with all of them and have the same conversation to try to meld together what they’re saying into something that makes sense” (D-61:12). Due to this conflicting understanding of the mission of the subsidiary, managers of the automobile manufacturing parent company send different signals about risk-taking to the managers of the mobility services subsidiary. A participant explained this: “My instinct is it’s because different people at the parent company have different ideas why the subsidiary is here and

managers in the subsidiary have different communication with the parent company ... the messaging is coming via different channels” (D-75:12). Without a clear “big picture” (D-17:30), participants expressed an aversion to taking risks. If people were aware of the subsidiary’s mission, they may be more motivated to take a risk in reaching that mission, as one interviewee explained: “When you are part of something that is bigger than yourself, then you have a reason to take risks” (D-49:12).

Moreover, many participants stressed that the lack of a clear mission leads to a reduced sense of togetherness. The majority of participants agreed on the need for a common goal. One interviewee argued that “I don’t feel a ‘we are together’ attitude at the subsidiary. It is there, if everyone is striving towards one goal. The principle of we are conquering the U.S. We are climbing the Mount Everest. We are attacking the Chinese. It is always a common goal” (D-45:31). Several respondents pointed out that the lack of leadership alignment toward a common mission leads to a weaker sense of togetherness. Specifically, another respondent observed that managers have “different goals and understanding of how the company should be run” (D-61:10), creating an environment in which managers ignore peer decisions. Thus, the need for leadership alignment to foster the feeling of togetherness was stressed: “They have to align because what all of us have seen is that one of them makes a statement or a decision and then we leave and then the other say: oh, we’ll just do it this way. And that creates an environment where people think that’s ok” (D-75:16). Thus, the desire was expressed that the managers of the subsidiary unite and work toward a common goal to promote a stronger sense of togetherness: “I’d love to see better collaboration among the gentleman, like a united front ... to drop the competitiveness and work towards the greater good together” (D-51:19). Many respondents noted the need to clarify and communicate the subsidiary’s mission: “They need to clearly communicate the intent of the subsidiary. Do we have the subsidiary to earn money or to learn for autonomous driving?” (D-39:28). Here, participants stressed the responsibility of managers “to set the North Star within the subsidiary and align the expectations with the parent company” (D-75:14).

Overall, the findings reveal how the lack of a clear mission for the subsidiary negatively influences perceived vulnerability. They indicate that the lack of a clear mission leads to a reluctance in risk-taking and a reduced sense of team togetherness. With greater clarity of the subsidiary’s mission, employees could explain how their actions help to achieve the mission, which would in turn encourage risk-taking. The findings also indicate that a clear mission cultivates unity and collaboration in reaching the mission and thus fosters perceived vulnerability. One clearly identified problem lies in the lack of alignment among managers of the subsidiary and parent

company about the subsidiary's mission. In particular, based on the insights gained from my daily observation at the research site, the subsidiary was regarded by some participants as a strategic initiative to help the parent company learn about mobility-as-a-service and autonomous driving, whereas others viewed the subsidiary as an entity with the predominant aim of achieving break-even and generating revenue within a short period of time; the discrepancy between these views highlights the lack of mission clarity for the subsidiary.

Moreover, the findings reveal employees' blaming managers for the lack of the subsidiary's mission clarity and their withdrawal from any responsibility. A few participants accused managers of not providing coherent communication about risk-taking as a way of explaining their low levels of perceived vulnerability. Thus, the findings illustrate the employees' helplessness about whose directives to follow due to the lack of alignment among managers. Furthermore, the findings display cynicism about the lack of alignment among managers on a common mission for the subsidiary, including statements expressing how the outcomes of conversations about risk-taking would differ depending on the manager. Here, an interviewee used the metaphor of a book to express cynicism about the lack of alignment among managers. Some statements also express a certain degree of presumptuousness by explaining that one has to meet with each manager to develop some understanding on how to go about a project and by calling managers "gentlemen" to express desire for better collaboration among the managers.

Therefore, the blame from several employees suggests a lack of bottom-up empathy toward managers, which has a negative influence on the perceived vulnerability in a team. The findings show a lack of empathy toward managers of the subsidiary, who receive conflicting directions from their superiors in distinct functional departments at the parent company for the newly found subsidiary about earning money or learning for autonomous driving. Thus, managers of the subsidiary in turn find it difficult to communicate a clear mission. Greater bottom-up empathy from employees toward managers would stop employees blaming managers and help employees take ownership and support their managers in clarifying conflicting messages about the subsidiary's mission; this might help to strengthen the sense of togetherness, and in turn develop more perceived vulnerability in the team.

3.4.2. Shared, Achievable, Flexible, and Enriching Goals

Many respondents agreed on the lack of inclusion of subsidiary employees by the parent company in the development of the subsidiary's goals. As one interviewee stated, "the goals that were set ... weren't necessarily developed by the team that is responsible for carrying it out" (D-52:18). Another participant asserted that "the employees of the parent company created a business case that none of them will be responsible for ... employees of the subsidiary are then responsible for executing on the things the employees of the parent company put together and guess what—it is not aligned." (D-03:05). Due to the lack of shared goals, many lack a feeling of togetherness. One participant noted, "a disconnect between those building the expectations and those that are responsible for meeting them" (D-52:10). Another respondent also admitted that "I feel like they are defining success for us and I don't think that's fair" (D-78:09) and thus stressed the need for a "collaborative process of creating goals and success metrics" (D-78:10). Here, many interviewees expressed the need "to involve the colleagues of the subsidiary in the goal setting process" (D-37:41) and "to work together on key results" (D-49:62).

A common perception among most interviewees was that unachievable goals were set for the subsidiary. Most interviewees referred to "unrealistic expectations towards the subsidiary" (D-03:31), "outlandishly high and ridiculous goals" (D-78:09), and an "extreme pressure to achieve unrealistic goals" (D-39:29). Another participant admitted that "we had goals set for us that are so unreachable that everybody constantly feels like they're failing" (D-61:30). The unattainable goals fuel the feeling that mistakes are used against people. A respondent revealed that the lofty goals led to a culture of blaming: "Leadership is always stressed out and trying to figure out who to blame, so that we're all pointing fingers. It's become this culture of finger pointing, which is really unfortunate" (D-61:30). Several participants also mentioned that unachievable goals hinder risk-taking. In particular, one respondent noted pressure to prevent mistakes and delay the timeline: "Goals are too aggressive ... unrealistic goals have a very strong effect on the pressure not to make any mistakes, not to delay the process" (D-37:04). The unachievable goals seem to hinder risk-taking by raising concerns about plans. As one respondent admitted, "everyone is completely aware of the unrealistic milestones ... still everyone aligns the project plans to them" (D-37:03). With more realistic goals, a participant explained, "the enormous pressure would be reduced to enable consciousness for being able to raise concerns, make another loop, and delay the process" (D-37:07).

Moreover, nearly all participants stressed the lack of flexibility in goals resulting from the parent company's distinctly short-term performance expectations. Many interviewees noted considerable pressure from the parent company to create a

positive net result and specific rate of return within a short period. Due to the short-term bottom-line focus, many said that they did not dare to take risks as they believed they only had a “limited amount of time” (D-35:09) to justify their performance to the managers of the parent company. There was a fear of losing their jobs if they did not succeed and a widespread view that “success is the only option” (D-49:23). Furthermore, many respondents revealed a fear of mistakes due to short-term performance pressure. One interviewee expressed it like this: “People are trying to spin every little number they can possibly spin to tell a good story on the steering committees [at the parent company]. ... To put lipstick on a pig” (D-03:22). Another respondent admitted to “extreme ‘melon reporting’: Outside green, inside red” (D-45:20), revealing a fear of communicating problems.

In addition, participants criticized a predominant bottom-line focus for the subsidiary as it is “little different than most early-stage startups” (D-99:05). An interviewee assessed the performance expectations as unsuitable for a “completely new business model” (D-94:17). Here, some explained that, in contrast to building a vehicle, when developing a service the “expectations cannot be to get it right every time” (D-03:09) because in software development “you have to learn the market” (D-03:21) using a “MVP [minimal viable product] approach” (D-35:18) and “trying different ways” (D-94:06) to “identify customer needs” (D-35:21). A respondent argued that “you have to be able to iterate and to fail” (D-03:09). Another participant concurred: “You fail over and over until you get it right. ... No one should fear not hitting it out the park the first time” (D-86:07). Here, one participant noticed that “experimentation and faults thrive at high-growth technology companies” and pleaded for “more leeway at the stage of the subsidiary to find serendipity” (D-47:01). As another interviewee declared, “we have to make sure that what we rightly do at the parent company is not necessarily affecting what we do here in a different environment” (D-04:36). Many argued for the company “not to focus on short-term profitability” (D-97:20) and to accept that they are “competing with companies that lose a billion dollar a quarter” (D-99:01). Similarly, a respondent noted that “we need a balance with the focus on experimentation. ... not immediately on short-term profitability, rather long-term profitability” (D-94:24).

Additionally, several respondents noted the need for less specific goals. A few interviewees expressed the lack of risk-taking due to overly specific set goals from the parent company. A closely specified directive on the development of products leaves less room for risk-taking and experimentation. As one interviewee admitted, “we definitely set quite clear targets, which doesn’t really allow to do things differently ... no room for taking risks” (D-17:13). Thus, broader goals would provide subsidiary members more flexibility to experiment. One participant asserted

that “what would have been a better goal might have been: ‘Bring a second service to the market’. ... So, you can still measure it, but it can be achieved in a less specific way” (D-81:31).

The majority of participants criticized an excessive focus on financial metrics to assess the subsidiary’s success, noting that “the subsidiary is too heavily weighted towards hitting financial goals” (D-99:05). One interviewee revealed that “people are too focused on numbers. Financial KPIs seem to be the most important thing” (D-49:07). Due to the focus on financial performance indicators, many participants stated that they felt less inclined to risk-taking. A participant admitted that “the revenue-driven way of steering is eating up resources. It is difficult to draw someone off from running after one of these KPIs and let them focus on creating something new” (D-39:38). Several respondents suggested the subsidiary’s success should be measured differently than the success of the parent company, as the “subsidiary is trying something new in a new market” (D-52:24).

Accordingly, some expressed the need to convince the parent company to adopt a more learning-oriented logic than financial-oriented steering, as the business model is “running with completely different criteria” (D-96:17). Many respondents pointed out that instead of a sole focus on financial performance, the emphasis should be on answering strategic questions for the parent company. One interviewee reasoned thus: “For a project with high strategic value for the parent company, but still measuring the overall profit and loss makes less sense than let’s say for a new engine type” (D-52:25). Here, a respondent noted the importance of considering the context and information gained: “It cannot always be about numbers ... the numbers have to be looked at in the context of what they say about the situation. What are you gaining from them? It might be a loss relative to a number, but what value am I getting for the money that I am spending?” (D-49:16). Similarly, one interviewee argued that “it is not just access to customers, but knowledge about how to interact with customers, which means the data behind all of that, to me that is how I want to measure success ... metrics that go with those kind of aspects of a successful autonomous future” (D-52:28). Also, an interviewee explained, “I would ask them: “When does the autonomous customer drive? Where is he going? How big will the demand for autonomous driving be? ... How do customers react to in-car technology” (D-39:35). Thus, many participants suggested the need for “trial and learning goals” instead of “performance goals” (D-35:22), to free up resources and motivate colleagues at the subsidiary to more risk-taking in meeting the parent company’s strategic demands.

Overall, the findings show that a lack of collective goal development and shared goals between subsidiary and parent company team members led to reduced togetherness, indicating lower perceived vulnerability. The lack of inclusion in the goal development process and resulting power imbalance between parent company and subsidiary led to feelings of inequality and cynicism through statements such as “I don’t think that’s fair” (D-78:09) and “guess what—it is not aligned” (D-03:05). This may reduce the sense of togetherness, which in turn implies that collective goal development and shared goals positively influence perceived vulnerability.

The findings also demonstrate a negative influence of unachievable goals on perceived vulnerability in risk-taking, discussing issues, and an increased fear of mistakes. However, the findings also show that employees blamed managers for a culture of blame, therefore failing to realize the negative impact of the employees’ own blaming behavior on the perceived vulnerability in the team. Thus, the lack of self-awareness among employees negatively influences perceived vulnerability.

Furthermore, the findings suggest that a lack of flexible goals due to short-term performance expectations and the overly specific goals of the parent company negatively influenced perceived vulnerability in risk-taking and discussing problems. The findings indicate that more long-term profitability expectations from the parent company toward the subsidiary would yield more perceived vulnerability because a longer time horizon leads to greater freedom to experiment and learn the market and thus reduces risk aversion. Additionally, the findings signify the need for a flexible mindset to differentiate between the distinct predominant goals of the parent company to optimize manufacturing and sell vehicles and the predominant goals of the subsidiary to explore new business models and develop software for mobility services. The subsidiary’s mission is to answer strategic questions, and a flexible mindset at both parent company and subsidiary can lead to more flexible learning goals and more long-term profitability expectations, fostering perceived vulnerability.

The findings also imply a lack of bottom-up empathy among subsidiary employees toward the managers of the parent company; they failed to understand the subsidiary’s role as part of a listed automobile manufacturer and its potential challenges in abandoning short-term profitability expectations for the subsidiary’s mission. Here, cynical statements were made such as that a short-term performance focus is “little different than most early-stage startups” (D-99:05). Criticism was voiced that the parent company would need to accept that it is competing with companies that lose billions of dollars a year. Moreover, statements were made conveying ridicule about the pursuit of financial performance indicators to assess the subsidiary’s success instead of focusing on learning about the market and customers.

Greater bottom-up empathy could strengthen a sense of togetherness between members of the parent company and subsidiary and enable more risk-taking in the team and therefore increase perceived vulnerability.

3.4.3. Role Clarity, Interdependence, and Dynamic Roles

Many respondents stressed a lack of clear roles and responsibilities. According to several participants, there are “really unclear responsibilities and roles” (D-10:24) and it is “unclear who does what at the subsidiary” (D-05:12). An interviewee went as far as to state that “we’re all playing ping-pong with the responsibilities every day and no one is really in charge or feels responsible” (D-10:22). Similarly, another respondent revealed that “at the subsidiary, everybody is responsible for everything and nobody for anything” (D-16:21), leading to inefficient teamwork where decisions are “manually aligned with everybody ... not every role, but every individual (D-16:21). Moreover, participants pointed out a lack of clarity as to “who can decide what” (D-29:14) and “who is responsible for which task” (D-54:36).

Due to the lack of role clarity, participants expressed anxiety and a reluctance to take risks. One interviewee complained that “my scope of work is absolutely unclear ... I don’t know that I am not stepping into areas that somebody else either should be or feels responsible for” (D-54:37). Another participant agreed: “You’re digging in the yard of a lot of people and you might be annoying people while not even knowing why or how, because nobody ever clearly told you or made a clear picture of who’s doing what and why” (D-09:06). Thus, “not much progress has been made to be safe for risk-taking on the team level” (D-84:02).

These unclear roles led many participants to express the feeling that they were unable to share information in the team. As one respondent stated, “people really want to share information, they just don’t know to whom or how ... that is irritating to many people and causes conflict.” (D-12:13). Another interviewee explained that due to poor role clarity, relevant team members are not included in meetings: “Right now, everything is more by coincidence that you find out about a meeting” (D-12:05).

The lack of role clarity between teams meant that some participants found it difficult to ask for help, as one interviewee explained: “Because of a lack of clarity between the different teams as to who’s responsible for what processes and tasks ... I don’t know who to ask for what” (D-84:08). Moreover, since “no one ever took the time to communicate” (D-84:08) roles and responsibilities, people “end up asking the wrong person” (D-69:06) when asking for help.

Thus, several participants agreed on the responsibility of managers to clarify roles. As an interviewee affirmed, “the leadership needs to communicate which team is responsible for what” (D-84:09). Another participant stressed that there “needs to

be a clear separation between the roles of the parent company and subsidiary” (D-35:26) to distinguish between tasks at the local and global levels. Accordingly, some participants revealed a further lack of clarity about interdependence across the teams of the subsidiary and parent company. Several participants admitted that when they joined the subsidiary, they were told they would “work in a startup” (D-17:29) and “have more distance from the parent company” (D-17:41), but over time “they don’t feel that they are really independent” (D-17:29).

Due to the lack of clarity and positive emphasis on the interdependence across the teams between the parent company and subsidiary, the feeling of togetherness is low. As one respondent admitted, “they were like mercenaries to me. But not like colleagues. And we did not introduce them like colleagues” (D-45:30). Here, one participant spoke of the lack of role-modeling behavior to set a positive example for collaboration between the teams of the parent company and subsidiary: “There are these silos ... people have adopted the personalities of their parents” (D-49:55). Thus, respondents agreed that the managers from the parent company and subsidiary need to foster a stronger “we-culture” (D-04:40). Similarly, an interviewee added that “internal messaging about the people of the parent company should be much more positive, setting a collaborative tone and how we treat each other and why they are there” (D-81:40). Thus, one interviewee stressed the importance of managers promoting collaboration between the parent company and subsidiary: “That’s a topic for management ... tell them how important it is that they synchronize with the people from the parent company” (D-12:35).

In contrast, a few participants justified the lack of clear roles because it allowed them to make use of their diverse skills, as one participant explained: “We are very much defining our tasks ourselves ... that gives us the opportunity to use our unique skills ... allowing us to do something we’re good at” (D-04:02). Similarly, another interviewee expressed how “I am quite happy if I don’t have a precise job description, because it gives me the freedom to pick what to do.” (D-44:26). Moreover, some argued that dynamic roles fit the business dynamics, allowing one to try out different activities within their role: “We are in such a dynamic business that roles cannot be separated accurately. That is for me an advantage, because you have the opportunity to try out other activities” (D-40:13). Correspondingly, a participant expressed the idea of a large pool of projects and resources, offering people the ability to choose a project for several months as opposed to a rigid job, as the latter “can limit a person’s capacity and can be frustrating” (D-44:26).

Overall, the findings indicate that the lack of clear roles and responsibilities negatively influence perceived vulnerability by discouraging daring to take risks, asking others for help, and in information-sharing within the team. The findings suggest that greater clarity on roles and responsibilities would encourage people at the subsidiary to feel enabled to take risks by reducing fear of overstepping their responsibilities, increasing awareness of whom to include in meetings, and increasing the perceived ability to share information with others and ask for help. The findings also show that interdependence between subsidiary and parent company negatively influences perceived vulnerability indicated here through a low sense of togetherness.

However, the findings also imply that a lack of role clarity positively influences perceived appreciation in making use of individual skills. The findings indicate that the lack of clearly defined roles allows people to try out various work tasks. The findings suggest that dynamic roles increase perceived appreciation because people can make use of their individual skills. Moreover, the findings indicate that dynamic roles are more suitable than rigid roles for the business dynamics of the subsidiary, which develops new mobility services in a new market.

Furthermore, the findings exhibit cynicism from some interviewees regarding the lack of clear roles and responsibilities. For example, statements lamented that “everybody is responsible for everything and nobody for anything” (D-16:21). Moreover, some criticized how decisions need to be aligned with every individual person. The metaphor of playing “ping-pong” (D-10:22) with responsibilities because of unclear roles also clearly expressed cynicism. Additionally, participants expressed a sense of victimization by pointing out their inability to share information because they did not know who the relevant stakeholders were and thus often learned about business meetings by coincidence. Moreover, the use of the parent–child metaphor to signify the manager–employee relationship reveals how employees blamed managers for a low sense of togetherness between the teams of the parent company and subsidiary. Employees blamed managers for a lack of role modeling in setting a positive, collaborative tone and feeling of unity among teams of the subsidiary and parent company. Accordingly, employees treated their remote colleagues like “mercenaries” (D-45:30) as they adopted the behavior of their managers. Thus, the findings reveal several interviewees attributing the responsibility of clear roles solely toward managers, relieving themselves from any responsibility by adopting the roles of victims. In particular, the findings show that managers were blamed for the lack of clear roles; participants complained about not being provided with a clear understanding of roles and responsibilities, accused managers of not taking time to clarify roles, and thus reproached managers for not developing more perceived vulnerability in the team.

This blaming for the lack of role clarity and interdependence signifies a lack of bottom-up empathy among employees for managers. Accordingly, instead of bearing empathically with managers by taking into account the subsidiary's recently formation, its challenging setting as part of a large automobile manufacturer, and its rapid growth, most respondents blamed the subsidiary's management team for the lack of role clarity and interdependence. Thus, the findings imply that more bottom-up empathy would enable employees to show more understanding for their managers' situation, which would foster a sense of togetherness, and in turn the perceived vulnerability in the teams. Moreover, greater bottom-up empathy may also lead to employees' taking more ownership of clarifying roles and responsibilities, asking for help, and sharing information, and thus positively influence perceived vulnerability.

3.4.4. Autonomy for Exploratory Tasks

Many participants criticized the lack of autonomy of the subsidiary teams from the parent company. As one interviewee explained, "there are very strict regimen rules we have to follow" (D-07:51). Moreover, a participant expressed the strong influence of the parent company and opined that the "subsidiary is too much driven by the parent company" (D-17:13), while another respondent stated that "everything seems to be dictated by the parent company" (D-61:18). Several respondents admitted that they feel directed by their "big brother" (D-17:29) and that the subsidiary "is not empowered to try out initiatives" as they "need to get permission from the parent company ... at too low a level" (D-75:23). Accordingly, most respondents agreed that the subsidiary's lack of autonomy stemmed from a lack of financial resources and the demand to adhere to corporate approval processes. Several interviewees stated that the parent company seems to be micromanaging the subsidiary through "very tight economic management" (D-97:04) and that "every penny is scrutinized" (D-86:10). Similarly, a respondent assessed that the subsidiary is "permanently led on a short leash, getting money always only for a short period (D-94:05). The lack of sufficient financial resources limited decision-making at the subsidiary, as one interviewee explained: "Getting the money in ... small tranches ... is quasi-completely limiting" (D-97:09) because it puts the subsidiary in a position of "endless justifying when it wants to spend money" (D-97:08).

The subsidiary's lack of financial autonomy and its adherence to the approval processes demanded by the parent company led many participants to express a reluctance to take risks. One interviewee noted that "experimenting is kind of hard ... we need to go through a process to get it financially approved as opposed to say this is what we're going to do." (D-69:04). Similarly, an interviewee believed that because of the "culture [of the parent company] and ... the lack of being self-

sufficient” from a financial perspective, it is “not an environment allowing people to say, ‘let’s go try this and see if it works’” (D-75:04). This respondent noted further that “we want to take this risk, but we need to get somebody else to fund it. And then you start to run into: Ask for permission, ask for permission” (D-75:02). Additionally, given the subsidiary’s limited financial resources, many participants reported feeling that mistakes were not feasible and thus did not dare to take risks. One interviewee explained that “we have so limited resources, so you’ve got to spend your money so wisely, it’s not affordable to make mistakes” (D-14:60). In this regard, another respondent revealed how “in regard to ... the team level being in a safe environment for risk-taking, I think that’s something that’s talked about frequently, but not ever really put into practice or given the resources to be truly done. So, it feels a bit insincere” (D-84:02). Thus, some accentuated the restricted setting of the subsidiary as a reason for their reluctance to take risks. As one participant asserted, “in another surrounding, I would take more risks, definitely” (D-04:37). Another interviewee affirmed this: “In terms of taking risks, there is some level of being part of an OEM [original equipment manufacturer] that stifles that” (D-71:04). Similarly, the fear of failure and lack of willingness to take risks stems from being part of a large company. One respondent said, “we are so afraid to fail because of the parent company, which builds and executes everything always with perfection ... we are thus not as willing to take risks” (D-37:32). Several participants stressed that for agile software development “there needs to be a focus on failing fast, being reactive and to move things forward” (D-86:15).

Moreover, due to the subsidiary’s lack of autonomy from the parent company, many employees from the subsidiary expressed the feeling that their skills were not respected or utilized. One interviewee stated that “many people come to the subsidiary being told that this is a startup ... and that they can make the future become reality ... that they can do what they want. But, they can’t. Processes and policies of the parent company cannot be easily changed ... employees get burnt out, lose all motivation and feel like they are useless ... a waste of space and a waste of a job card” (D-84:22). Similarly, the longwinded financial approval processes of the parent company induce the feeling that ideas are not encouraged or welcomed, as one participant noted: “The necessity to get through long processes of the parent company and the documentation effort to acquire the resources for an idea” (D-39:21), “discourages discussions as soon as the necessary data is not available” (D-39:19). Another participant described a perceived lack of appreciation of subsidiary employees’ ideas: “I have a hundred ideas, but I have to exclude 99, because they will be mown down anyway, and with one idea I will fight for weeks” (D-39:22). Thus, considering that the subsidiary lacked autonomy, a few participants admitted

little willingness to even pursue any of their ideas. One respondent described the situation: “Not allowing people to have responsibility and ownership ... leads to people not even trying because they think that the parent company will get in their way” (D-75:28).

Thus, several interviewees argued that the subsidiary would need to “fall far out of the global and its bureaucracy” (D-54:44) with the freedom to operate outside of the corporate systems of the parent company rather than be held to the “corset regarding resources and processes” (D-97:07). Accordingly, the parent company would need to overcome its “control compulsion” (D-97:19) and grant the subsidiary “more flexibility ... making decisions without monthly discussions” (D-75:27) and to “let the baby walk on its own” (D-87:15). A few respondents stressed the relevance of the parent company trusting the experts at the subsidiary who were focused on new business areas. One interviewee explained that “employees at the subsidiary have the most practical knowledge ... if we do not trust them but trust someone here at the parent company to theoretically model something ... we are lost” (D-39:41). Thus, some stressed that for new business areas, which are “running with completely different criteria than in the past” (D-96:17), it seems crucial to trust local experts.

Overall, the findings reveal that the subsidiary’s lack of autonomy from the parent company negatively influences both perceived vulnerability in daring to take risks and perceived appreciation in the feeling that employee’s individual skills are respected and made use of.

The findings show that the limited financial resources granted by the parent company and the adherence it required to its budget approval processes led the subsidiary’s employees to feel less able to take risks, experiment, or make mistakes, thus indicating a negative effect of restricted autonomy on perceived vulnerability. Conversely, the findings imply that greater autonomy with sufficient financial resources and the ability to make decisions without extensive approval processes would lead employees from the subsidiary to feel safer to engage in risk-taking when trying out ideas and in making mistakes. Thus, the findings indicate the importance of autonomy for exploratory tasks to foster perceived vulnerability in a team.

Moreover, the findings show that the demand to adhere to the parent company’s long budget approval processes for the implementation of ideas results in employees of the subsidiary feeling that their individual skills are not respected or made use of, thus indicating a negative effect of the restricted autonomy on perceived appreciation in a team. Furthermore, the findings suggest that the strict financial documentation requirements for the approval of ideas lead to hardly any of the employees’ ideas being considered by the parent company.

In addition, several statements reveal criticism of the management at the parent company for employees' reluctance to take risks and their feeling unappreciated. The findings show that managers of the parent company were accused of insincerity about strengthening perceived vulnerability because the financial resources that would allow more risk-taking seemed only to be talked about but not provided. Here, exaggeration was displayed about the lack of financial autonomy through statements that "every penny is scrutinized" (D-86:10). Some statements also imply the victimization of employees, such as that "endless justifying" (D-97:08) is needed to implement ideas, hindering employees from risk-taking. Moreover, the findings imply that the subsidiary's employees blamed managers for false promises about autonomy from the parent company and explained the resulting lack of perceived appreciation through their feeling that their individual skills are not respected or made use of. Some statements reveal conflict between the parent company and subsidiary in the lack of perceived appreciation; ideas are "mown down" (D-39:22), and the parent company will "get in their way" (D-75:28).

Several metaphors with negative connotations were used to criticize the lack of the subsidiary's autonomy from the parent company, including references to "dictation" (D-61:18), "strict regime rules" (D-07:51), being led by a "big brother" (D-17:29), led by a short "leash" (D-94:05) and held in a "corset" (D-97:07). These expressions all imply a lack of autonomy that results in reduced perceived vulnerability in risk-taking and perceived appreciation in feeling that individual skills are valued. The parent-child metaphor was used to indicate the need of the parent company to provide the subsidiary with more autonomy by stating that the parent company needs to overcome its "control compulsion" (D-97:19) and let the subsidiary, the "baby" (D-87:15), make its own decisions. These metaphors reveal resentment rather than employees' understanding of the subsidiary's limited autonomy from its parent company.

Accordingly, the findings do not illustrate that employees empathized with the subsidiary's challenging setting as part of a large, listed, risk-averse automobile manufacturer and its difficulties in providing financial autonomy for the recently founded subsidiary to experiment in a new business area. With greater bottom-up empathy, employees would consider the challenging situation of the subsidiary and its recent foundation when evaluating perceived vulnerability and perceived appreciation, which in turn might lead to more understanding of the subsidiary's restricted autonomy and thus a more balanced interpretation of the degree of team psychological safety. In addition, with more bottom-up empathy, employees of the subsidiary might have seen that with time, they would build up relationships and trust with managers and thus be provided with more autonomy, which in turn could have

led to a better evaluation of the current levels of perceived vulnerability and perceived appreciation. Thus, the findings imply bottom-up empathy to be a positive factor influencing the perceived vulnerability and perceived appreciation in a team.

Additionally, the findings imply mindset flexibility to be a factor influencing perceived vulnerability and perceived appreciation. Because the subsidiary pursues exploratory tasks in software development for innovative mobility solutions and because the parent company focuses on rather exploitative tasks in optimizing its current automobile manufacturing business, the findings suggest the need for managers to hold a flexible mindset to apply approaches suitable to both the parent company and the subsidiary in the degree of financial autonomy and adherence to corporate approval processes. Accordingly, the findings imply that managers with a flexible mindset will be able to adopt a stronger knowledge-oriented mindset and trust local experts at the subsidiary. Such managers may grant the subsidiary more financial autonomy and abandon adherence to the parent company's standardized processes to enhance local decision-making, risk-taking, and the perceived utilization of employees' skills in the new business field. Therefore, the findings suggest that managers with flexible mindsets positively influences perceived vulnerability and perceived appreciation.

3.4.5. Workplace Proximity

Several respondents pointed out difficulties of information-sharing due to the lack of workplace proximity between the parent company and the subsidiary. As one participant explained, "we have the ocean in between ... the challenge is to secure top-down information and the same of course bottom-up" (D-16:16). Similarly, another interviewee stated that "we have challenges to work remotely ... it's a lot more difficult to collaborate and get and share all the information. We are also seeing this when our direct colleagues are in the U.S., it is always difficult to share information at the same quality" (D-12:20). Due to workplace distance, colleagues from other locations are not informed about pertinent matters. As another respondent asserted, "it's just not on your mind and you forget ... even if you know the role, it's hard across different countries" (D-10:05). Also, the different geographical locations of teams make discussing problems more difficult. One respondent observed that "we have different teams at different locations. Problems are communicated to the people who are close to you. ... It takes longer until the problem reaches the responsible person" (D-10:17). Another interviewee admitted that "for sure it is better to see each other and have the chance to talk to each other between meetings and clarify impressions from previous meetings instead of talking to each other on the phone from the other side of the pond." (D-35:24).

In addition, the lack of workplace proximity reduced the sense of togetherness between the teams of the parent company and subsidiary. Here, a participant acknowledged that the globally dispersed teams are “not working as closely together as they should” (D-10:11). Moreover, a participant revealed that “when colleagues from the parent company come to the subsidiary, they tend to isolate” (D-49:64). Accordingly, some respondents indicated a lack of intimacy between colleagues from the subsidiary and parent company, inducing a lower feeling of togetherness, as one participant explained: “The feeling that ‘we’re together’ depends on how well people know each other on a personal level. And given that a lot of new people are coming in and they are globally dispersed ... that has a huge impact” (D-12:36). Some responses underlined the recent foundation of the subsidiary and its rapid growth: “The average of working together there is less than a year” (D-17:07) and there are “so many people on board that you barely know” (D-05:23). To develop a stronger feeling of togetherness, many participants expressed the need to establish more personal exchanges between globally dispersed teams, as a respondent emphasized: “We don’t really have a feeling we are together. ... You need to show your face and spend time with the people, so you’re not some virtual person or voice over Skype” (D-44:16). Similarly, another participant stressed that “you have to integrate ... they are your colleagues, you should get to know them, it’s important” (D-49:64). Some participants pointed out that “travelling between the parent company and subsidiary would help to establish better exchanges” (D-39:06). Also, digital tools such as “Slack and video chat” (D-35:25) and “BlueJeans and Zoom” (D-49:43) were mentioned as ways to improve collaboration. As one participant said, “the use of these tools would go a long way toward improving closeness and a sense of connectedness between colleagues” (D-49:43).

However, a few participants from the subsidiary’s city market teams stated that their distance from the subsidiary’s headquarter team inclined them more to taking risks. One participant explained this: “The fact that we’re separated from the headquarters really just kind of has given us some ability to do things on our own ... to develop a process as opposed to spend twenty emails back and forth trying to find something” (D-69:02) at the parent company. In addition, the workplace proximity of city market team members makes it easier for them to ask each other for help. One interviewee explained that “we’re so close together here ... it’s really easy for me to ask my team members a quick question” (D-69:01).

Overall, the findings show a negative influence of workplace distance between team members on perceived vulnerability. The findings indicate that geographical team dispersion between team members of the parent company and subsidiary led to

difficulties in information-sharing and in discussing problems and to a reduced sense of togetherness, thus resulting in less perceived vulnerability. The findings also show challenges in information-sharing for colleagues from the same location when team members were required to collaborate virtually during business trips. Furthermore, the findings indicate that workplace proximity among city market team members led them to report more perceived vulnerability in feeling able to ask for help. To enhance perceived vulnerability, the findings suggest the importance of promoting intimacy between team members, both virtually through digital conference tools and in person through business trips, by spending time with others to develop closer relationships.

Conversely, the findings also show a positive effect of workplace distance on perceived vulnerability. The findings suggest that city market team members' distance from team members at the subsidiary headquarters led them to perceive higher degrees of autonomy in defining and applying their own processes, thus strengthening risk-taking on the team.

Moreover, the findings suggest a relationship between team members' blaming behavior and perceived vulnerability. In this regard, less perceived vulnerability was explained and attributed to lower effort by team members from the parent company to invest in the development of personal relationships with team members at the subsidiary. Thus, the findings disclose individuals' expectation toward others in contributing to the development of more perceived vulnerability rather than seeing themselves as responsible in this matter. Conversely, an individual's willingness to take ownership instead of blaming others can positively influence perceived vulnerability.

3.4.6. Competitiveness

Many interviewees observed that competitiveness among different functional teams and among peers working on the same project team may be "hindering cooperation" (D-04:59). Respondents stressed that siloed workgroups led to a reduced feeling of togetherness, as one participant explained: "We have siloed working groups for each product ... this doesn't really help to get a 'we are together' attitude" (D-17:07). Siloed workgroups create a hypercompetitive environment, a "kind of battle situation" (D-17:07) between project teams. Due to these competitive workgroups, "everybody has to go in a survival mode" (D-51:34). Thus, participants spoke of silo behavior and indicated a lack of information-sharing, mutual support, and collaboration. One respondent admitted that "people are very territorial, very secretive and very silo. Not supportive." (D-51:13). Similarly, another interviewee asserted that "people want to keep others in the dark about their projects" (D-37:22). Also, one participant noted with mocking understatement that "this is not the first

time that I or others have been left out of important meetings” (D-51:49). Thus, a participant admitted that “people are really not great at having camaraderie, true collaboration, and being trustworthy” (D-51:14). However, a participant also pointed out the responsibility of an individual to be proactive and seek information rather than expecting others to deliver it. As one interviewee said, “it’s being responsible for your own awareness of what’s going on, as opposed to cry like a baby” (D-49:76).

Moreover, some participants reported that when mistakes happen, there seems to be blame between functional roles instead of peer support, as one participant explained: “Finance is like, ‘why is this so late, why can’t you deliver?’ ... then Operations says: ‘Why is my stuff not coming on time?’” (D-12:31). Similarly, another interviewee revealed that “if something isn’t going well, I think there’s a lot of trying to make sure my department doesn’t catch a lot of that flak” (D-78:07). In this regard, one respondent acknowledged that “I don’t feel that we have this ‘we’re in this together’ attitude. We’re not sitting together ... to find a solution together” (D-12:31). In addition, a few interviewees revealed that competitiveness among peers led to an environment in which people did not dare to take risks. One participant reasoned thus: “We need to have less inter-team sort of competition ... teams are on their own, which I think is why the larger environment doesn’t feel comfortable taking risks” (D-78:07). Some pointed out the perceived importance of rank and titles to competitiveness; one participant described an “everyone for themselves” mentality where “everyone is always trying to move up” (D-40:06). Likewise, the belief was expressed that “focusing on one’s own silo, empire building, and ego seems to be rewarded” (D-51:48). Some participants explained that the perceived predominance of status and power within the organization seems to lead to lower perceived vulnerability.

Overall, the findings indicate a negative influence of competitiveness on the perceived vulnerability in a team. More specifically, the findings suggest that competitiveness among peers cultivates silo behavior, in turn leading to less perceived vulnerability through a lower feeling of togetherness, lower willingness to solve problems together, a lack of information-sharing in the team through not including others in meetings, the feeling that mistakes are used against others, and not daring to take risks. Competitiveness among peers may stem from siloed workgroups and the predominant aims of status and power, especially at the parent company, promoting silo behavior and negatively affecting perceived vulnerability.

Moreover, the findings indicate that some participants blamed their team peers for intentionally not sharing information and not including others in business meetings, therefore indicating their withdrawal from any responsibility. Here, some

statements illustrate mocking understatement, which may reveal employees' perceptions of themselves as victims such as "This is not the first time I or others have been left out of important meetings" (D-51:49) and "This doesn't really help to get a 'we are together' attitude" (D-17:07). However, one participant opposed the complaints and pointed out the responsibility of an individual to seek information rather than to expect to have it delivered by others. Thus, the findings imply that when individuals take ownership of sharing information and including and supporting others, this can positively influence the perceived vulnerability in the team.

3.4.7. Mediation

Some participants stressed the need for mediators between team members of the parent company and subsidiary. One participant revealed friction between managers from the parent company "who have been at the parent company for a very long time ... and the first line of the subsidiary who are much younger and of whom no one has worked at the parent company before" (D-39:09). Moreover, participants expressed a "lack of understanding of what it's like to work for an OEM with high complexity" (D-16:15), resulting in a "constant battle of new hires against the corporateness" (D-07:53). Thus, a respondent explained the need to bridge the different business cultures: "You need to bridge cultures. An OEM engineer thinks differently than a U.S. West Coast Techie. We need to understand the different perspectives." (D-98:22).

Some argued that mediators between the parent company and subsidiary would cultivate mutual understanding and improve the sense of being understood and feeling accepted. As one interviewee explained, "it needs extremely competent translators, both at the parent company and the subsidiary to promote mutual understanding for the need of different approaches of the subsidiary and the parent company" (D-39:06). Here, some ascribed an important role to middle and upper managers as "brokers for mutual understanding" (D-39:07) who take on a translator role to help "answer questions solution-oriented about happenings at the subsidiary and parent company" (D-39:13). Participants proposed holding interorganizational training to introduce subsidiary colleagues to the structure, processes, and culture of the parent company, "explaining how the parent company works" (D-12:18) to increase mutual understanding. As one respondent admitted, "I underestimated the importance of intercultural trainings for both sides ... we completely forgot to introduce the Americans to the business culture of the parent company and also to understand in which context the subsidiary works" (D-45:30).

Moreover, several participants explained that mediation between the parent company and subsidiary team members is needed to help understand, value, and use

each other's individual skills. A participant explained the following regarding the need to bridge the different business cultures: "We need to understand and identify the strengths of the people" (D-98:22). To "get the most out of it" (D-39:14), people need to leverage the individual skills and strengths of each team member. For example, regarding "how to best present to get funding [from the parent company] for the subsidiary" (D-39:14), colleagues at the subsidiary would be wise to ask for "support [from team members of the parent company] to prepare for the financial committee of the parent company" (D-94:02), thus using team members' skills.

Overall, the findings reveal tension and reduced perceived appreciation between team members of the parent company and subsidiary due to a lack of mutual understanding and a lack of valuing and making use of each other's skills. The findings suggest the value of mediators between team members of the German parent company and its North American subsidiary to bridge the two distinct business cultures. In this regard, the findings signify that mediators serve as empathic translators who explain the different work contexts, business activities, and consequently different approaches of the subsidiary and parent company business to increase the perceived appreciation in a team through mutual understanding. Moreover, the findings imply the importance of empathy as the ability to take different perspectives and mediate between team members of distinct business cultures. The findings also show the value of mediators in helping to foster perceived appreciation by enhancing the use of team member's individual skills. Thus, the findings indicate that mediators positively influence the perceived appreciation in a team by increasing team members' feelings of acceptance and mutual understanding and ensuring that individual skills are respected and used.

3.4.8. Women's Leadership

Several respondents mentioned the lack of women in leadership positions at the parent company and subsidiary. In particular, one interviewee stated that "there's a lack of diversity. With one exception, all of the leadership are straight white men ... what I see is a collection of older men" (D-49:66). Some observed that the ratio of men to women was unequal; an interviewee evaluated the ratio as "really skewed" (D-51:43). Moreover, one respondent stated that leadership by more women "would help to have a stronger female presence at the leadership level" (D-37:35). Another participant asserted that "the female perspectives are missing completely. I think that is a huge lever how to bring in more calmness ... for others to see that there are different approaches of leading and solving problems" (D-37:34). Similarly, other participants argued for women in leadership positions to "offer another perspective"

(D-89:14) and “wrangle the guys ... holding leaders accountable for treating employees with respect” (D-51:41), because women may be more “willing to make compromises” (D-37:34) for the sake of implementation. Here, it was also explained that “female coworkers seem to have less of this confrontation mentality, more of a team approach, not this silo thinking” (D-37:16). In addition, due to a lack of women leaders, a participant argued that “some female colleagues don’t feel free to speak up ... they demure and listen. There isn’t another woman reinforcing that opinion to prevent men talking over them” (D-49:68).

Overall, the findings imply that women in leadership positively influence the perceived vulnerability in a team. Consequently, the perceived unequal gender ratio seemed to be a cause for aversion and regret for respondents across genders, as a stronger representation of women in leadership positions was argued to be beneficial for the development of team psychological safety. The actual ratio of men to women in leadership positions within the company of approximately 8:1 supports the perception of underrepresentation of women in leadership in this work context. Moreover, the findings indicate that the lack of women in leadership causes female coworkers in particular to feel reluctant to take risks in speaking up and prevailing against the larger group of male colleagues, thus resulting in lower levels of perceived vulnerability. Furthermore, women’s leadership strengthens perceived vulnerability in a team due to perceived differences in the behavior of women and men. The findings suggest that women’s leadership is perceived as more team oriented due to their willingness to find beneficial solutions for the team over individual benefits. In addition, the findings show that women leaders are believed to hold co-leaders accountable for misconduct, thus fostering team cooperation. Therefore, the findings suggest that women’s leadership leads to more calmness in teams, strengthens team togetherness, enables risk-taking and thus promotes the perceived vulnerability.

3.4.9. Leaders' Availability

Many participants from the subsidiary pointed out a lack of availability of their managers. Accordingly, a few respondents observed that “leaders are rarely here” (D-61:28) and that “the leadership team is not present” (D-12:53). Moreover, one participant described how managers are not accessible due to business travelling and business meetings: “When they’re here, they are in a meeting for 8 hours a day and when they’re not here, which is probably at least 50% of the time ... they are not easy to reach” (D-84:42). While most employees agreed on the absence of managers, one manager admitted that the subsidiary’s leadership team “has not been available” (D-02:40), while another manager noted that they are “present and available” (D-02:37). In this regard, respondents pointed out managers’ denial of issues. As a participant revealed: “There is a lack of willingness to accept that there is an issue ... leaders are completely in denial: ‘Oh, it’s not that bad’” (D-84:43). Another interviewee asserted that “they see what they want to see” (D-61:29).

Leaders’ unavailability led many participants to note feeling less inclined to bring up issues. As one participant explained, “we feel insignificant bringing little disputes to the leaders because they’re barely here” (D-84:09). The same participant revealed, that “you would think that we all feel comfortable approaching the leadership with issues, but that’s definitely not the case” (D-84:12). Although managers contend with challenging tasks, the necessity for more availability was stressed, as one participant explained: “I don’t want to bother him, because I know he has bigger things to worry about. ... But I wish he would consciously make himself more available and say: ‘Sorry, I’ve been travelling for 20 days this month, I’m back, let’s take an hour and talk about what’s going on’” (D-84:12).

Overall, the findings indicate that lack of a leader’s availability negatively affects perceived vulnerability by limiting the ability to discuss problems. The findings also show that several participants criticized managers for denying and downplaying issues with their lack of availability. The findings imply that some managers have weak egos by not wanting to admit mistakes about their availability. Furthermore, these findings provide another instance of employees’ blaming managers for their lack of availability. Thus, the findings imply that greater bottom-up empathy would enable employees to take more ownership instead of blaming their managers to helping solve managers’ challenges with their availability and thus positively influence the perceived vulnerability in a team by bringing up issues with managers.

3.4.10. Leaders' Fallibility

Many interviewees described the lack of managers' admissions of fallibility, particularly in accepting their ignorance and mistakes. One respondent observed that "I've never heard the leaders admit that they don't know something. Never ever" (D-49:78). Moreover, managers seemed to be "unwilling to take help" (D-49:77). Another respondent described humility as a quality relevant to leadership: "It's humility, it's admitting that you don't know something" (D-49:78). Furthermore, an interviewee criticized managers' lack of self-awareness and willingness to learn from others: "We need people who are self-aware of their expertise and who, in other areas, are willing to learn. And we don't have that" (D-89:10). However, another respondent noted the positive spirit of a female manager, who was described as "wanting to learn about things she does not know yet" (D-80:01). Nevertheless, due to their inability to accept their ignorance, some managers do not feel safe in admitting that they do not have all the answers. One participant stated that "they do not feel safe in not having answers" (D-49:78). A manager admitted: "I'll be honest, I feel like, in some cases I end up keeping my team in the dark, only because I don't have the answer" (D-03:13).

Also, a few respondents stated that some managers refuse to admit mistakes. As one interviewee said, "I have not heard once heard from him: 'It was my mistake'. In his world, he does not do any mistakes" (D-89:06). Here, one participant noted a personal fear of failure by some managers: "It's a personal fear of failure: 'Oh no, this could not be something I did, this is you, it isn't me'" (D-86:08). An interviewee acknowledged that "egos get in the way" (D-86:19) and admitted that "we spent months looking away from how to help the business ... letting egos win" (D-86:03).

Moreover, several respondents stressed the perceived lack of failure tolerance at the parent company. Participants highlighted that "admitting mistakes is such a big No-Go here" (D-37:02) and agreed that it is "not a culture that is failure tolerant" (D-12:32). This intolerance of failure leads many employees at both the parent company and subsidiary to fear making mistakes. One respondent admitted that there seems to be "this feeling that if you do a mistake, you get kicked out" (D-98:06), indicating their fear of severe negative consequences for making mistakes. Accordingly, employees avoid decision-making due to the fear of negative ramifications. As one interviewee admitted, "there is a lot: we'll go ask this person because I'm not willing to make that decision because I don't want it to come back on me" (D-75:01).

Thus, several participants stressed the need to reframe failure to increase the perceived ability to take risks. An interviewee emphasized that "people need to know that they can experiment and if results aren't what we hoped for, it's o.k. because it's about experimenting" (D-51:15). Many respondents stated that managers would need to demonstrate the absence of negative repercussions of "making a mistake" (D-

14:56). Managers need to act as “positive examples” (D-44:10) to encourage risk-taking. As one interviewee put it, the “ability to admit mistakes needs to come from the top” (D-37:08). One manager affirmed this view: “As a leader, you need to acknowledge a mistake and say: I screwed up” (D-45:18). The same manager stated that managers need to share personal stories of failure to help team members realize that they can take risks: “Telling a personal story about when I have done mistakes ... to build up the trust from examples” (D-45:36). Also, this interviewee illustrated the value of role models: “Children will touch the fence if they know that their father has done it before them, and nothing bad happened” (D-45:06).

Overall, the findings show that the inability of some managers to admit fallibility negatively influences perceived vulnerability by discouraging risk-taking and strengthening fear of mistakes.

Moreover, the findings imply the influence of one’s ego strength on the ability to admit one’s own ignorance and mistakes. A weak ego seems to hinder managers from admitting ignorance and mistakes, while a strong ego helps managers them to do so and thus fosters the perceived vulnerability in a team. The findings suggest that female managers had more ego strength than male managers, enabling them to admit fallibility and thus increasing the perceived vulnerability in their team.

Furthermore, the findings reveal a fear of mistakes by employees arising from the lack of failure tolerance at the parent company. Thus, the findings imply that managers need to act as role models and admit mistakes to demonstrate failure tolerance for employees to dare to take risks and reduce their fear of mistakes. Accordingly, reframing failure by role-modelling fallibility influences the perceived vulnerability in a team positively. Here, the parent–child metaphor was used to explain that “parents,” meaning managers, need to demonstrate that touching a potentially electrified fence, meaning risk-taking, does not lead to severe negative consequences so that “children,” meaning employees, feel safer in taking risks.

Additionally, the findings demonstrate a lack of bottom-up empathy among employees toward managers by blaming managers for not admitting fallibility. Employees did not show empathy for the difficulties of managers in admitting mistakes because they did not consider the risk-averse organizational culture of the parent company. Greater bottom-up empathy would enable employees to show more understanding of managers experiencing difficulties in role-modeling fallibility in a risk-averse work context and thus could strengthen a sense of togetherness, in turn leading to higher levels of perceived vulnerability in the team.

3.4.11. Openness to Others' Input

Leaders' Openness to Employee Input.

A common perception among interviewees was that subsidiary managers were not open to employee input. As one respondent revealed, "they do not listen to what other people have to say ... and they do not ask them" (D-96:04). Moreover, another participant affirmed this: "They are completely shutting down towards the view of others ... they are not open, and they are not listening" (D-89:07).

Many employees did not feel that their opinions were heard. One participant revealed that "I feel there's not a lot of openness to other people's ideas ... some voices are heard and a lot of voices are muted, and it seems to be the ones that are muted tend to be the people who aren't at the leadership level" (D-51:24). Thus, some respondents criticized how managers disregard opinions that are not from their hierarchy level. An employee admitted feeling invisible: "When I give my opinion, oftentimes I almost felt invisible. It's almost like I didn't say anything. Whereas 5 minutes later, someone with a higher title says the exact same thing I did, and everyone jumps right at it" (D-51:01). Another participant noted how "the things I talk about fall on deaf ears so many times that it's like: Do I even bring it up?" (D-14:89). Another respondent explained that "if you have a different opinion and provide good arguments, you get stopped in the discussion: I'm your supervisor and I tell you that you're wrong" (D-15:15). Accordingly, managers' opinions are "worth more than other opinions" (D-89:08). Thus, some agreed on the need to witness concrete examples of managers' "openness and respect for people's different perspectives and willingness to listen to people independent of hierarchy" (D-96:12) in order to foster employees' feeling that their opinions are heard. As one participant said, "seeing is believing, so if people start seeing that if even someone of the minority spoke up and was listened to and that is then acted upon, then that might help for others to actually feel that way" (D-12:04).

Moreover, because some managers do not demonstrate openness for employee input, participants pointed out the lack of appreciation of team members' individual skills. As one respondent admitted, "they don't really value you and the traits that you have" (D-51:50). Another interviewee said that "smart people are hired but not listened to" (D-14:62). Some managers perceive themselves as the only individuals capable of solving problems, thus inducing the feeling that their employees' skills are not appreciated, as one interviewee explained: "Somebody asks a question or says: 'I have a problem'. He [a manager] is the first person to speak, because he's like: I know what the answer is ... I'm the only one, I'm the White Knight" (D-49:25).

Due to managers' lack of openness to employee input, several respondents said that they did not dare to take risks. For example, when managers do not ask for others' input, employees are less open to sharing ideas. A participant argued that "they're so used to be the person that gets to answer that they sometimes don't stop talking. ... It breaks down the openness of other people to share ideas" (D-81:34). Also, some noted that nonappreciative responses by managers discouraged employees from suggesting ideas. One interviewee revealed that "if you actually bring concrete solutions, it's one step short of being yelled at ... kind of 'I don't want to hear it'" (D-03:35). Thus, an interviewee explained the reluctance to share ideas if "you have somebody who will yell and berate you and tell you why it's not a good idea" (D-14:66). Similarly, others spoke of "bashing" (D-37:19) employees' ideas, leading to "people not wanting to expose themselves" (D-100:01).

In addition, many participants stated that they felt hesitant to ask questions due to the perceived nonappreciative response and potential negative ramifications, as one interviewee recounted: "Every single time somebody asked a question ... he [manager] would jump down their throat. After a while people stopped asking questions" (D-61:04). Similarly, one respondent said, "if you ask a question you will be reprimanded" (D-89:12). Thus, managers need to be open to employee input to encourage sharing ideas and asking questions. Another participant explained that "people need to feel safe in asking questions, in volunteering ideas and not having them shot down" (D-49:05).

Accordingly, some explained having implemented team meeting structures in which managers ask for employees' ideas to solve certain challenges together. This team meeting structure has helped employees over time to dare to take risks, as one participant explained: "The first time was really rocky, the second time was a little bit better ... it's getting a little bit more comfortable for people to share ideas" (D-81:22). Another manager described setting aside time in team meetings to discuss a particular topic together: "In my team meetings, there is always a creative pause session. ... Hey, I need to discuss something with you" (D-45:40). Another respondent demonstrated offering support through open brainstorming sessions, in which "no ideas are bad ideas" (D-78:03) to encourage employees to take risks.

The importance of asking employees for input was substantiated, as "group decisions are almost always of higher quality than an individual decision" (D-96:05). Thus, a respondent reflected that this realization has led him "to always listen to the opinion of others and actively ask: What do you think of that?" (D-96:05). However, a participant admitted that "many leaders do not do that. Many think they have all the wisdom" (D-96:05). Relatedly, respondents revealed that some managers have "an

extremely big need for self-exaltation” (D-89:11) and that “there is so much puffed ego around here” (D-51:26).

Overall, the findings show that the lack of openness by managers to employee input negatively influences the perceived appreciation in the team; team members do not feel that their opinions are heard or that their individual skills are respected or used. Moreover, the findings reveal that managers’ nonappreciative responses to employee input has a negative effect on perceived vulnerability by discouraging risk-taking. These findings indicate that a weak ego hinders some managers from asking employees for their input due to those managers’ perceived need for self-exaltation and omniscience. Thus, the findings imply that managers with a stronger ego are more open to asking for, listening to, and appreciating employee input due to an awareness and capability of admitting the greater benefits of team decisions as opposed to individual decisions. Therefore, the findings suggest that managers’ openness to employees’ opinions, ideas, and questions independent of hierarchy level positively influences the perceived appreciation and perceived vulnerability in a team.

Openness and Respect Among Peers.

A lack of openness and respect was also noted among managers at the same hierarchy level. Accordingly, some managers are not regarded or treated as equal, as one interviewee confirmed: “They do not treat me like a peer” (D-81:34). A participant stressed that her perspectives were not taken into account by peers: “If you’re going to say something, no one is going to listen or take it very seriously” (D-81:34). Moreover, this interviewee reflected, “if I start to talk and ... they talk over me, I shouldn’t stop talking, I should keep talking” (D-81:08), indicating that not every team member’s opinion is heard nor feeling recognized by the team. This respondent noted a lack of respect among peers and admitted not feeling accepted: “It’s disrespect or creating a world where I feel less than others” (D-81:35). Also, this interviewee noted about a peer: “He is condescending at times how he speaks to me about topics that he thinks I don’t understand” (D-81:16). Due to the lack of openness and respect among peers and subsequent induced perception of not feeling accepted, a participant explained not daring to take risks. For example, a respondent admitted not feeling safe to share ideas and ask for the opinion of peers: “I don’t feel like I can go to some of my peers to say: What do you think about this?” (D-81:07). Managers’ lack of openness to and respect for the input of peers and the consequent feeling of not being accepted was explained by reference to poor listening skills and ego. As one interviewee observed, “I think we have some people that are bad at listening ... frankly, I think it’s a matter of ego, I think it’s feeling they have all the answers” (D-

81:34). Moreover, regarding the lack of modeling openness and respect among peers, one participant reflected, “I’m not kind of in the boys club ... and I haven’t been around long” (D-81:07).

Overall the findings reveal that the lack of openness and respect among managers at the same hierarchy level negatively influences the perceived appreciation in the team about feeling accepted and that every opinion is heard. In addition, the low feeling of acceptance discourages team peers from daring to take risks, share ideas, and ask for help, in turn exerting a negative effect on the perceived vulnerability in the team.

The findings also suggest that weak egos and a lack of intimacy between team peers are potential reasons for the lack of openness and respect among managers at the same hierarchy level. With stronger egos, managers could demonstrate more openness and respect toward their peers’ opinions, a more positive regard toward peer input, and a lower need for self-exaltation and omniscience, which in turn would strengthen the perceived appreciation and perceived vulnerability in a team. In addition, the findings indicate less openness and respect of male managers toward female managers than toward other male managers. One female manager admitted not feeling part of the “boys club” (D-81:07) and described how male peers speak to her condescendingly, which may signify a weak ego by some male managers.

Furthermore, the findings indicate that the lack of openness and respect among peers may stem from the scant intimacy among them. Accordingly, greater intimacy may lead to greater respect for one another and result in more openness to team peers’ input; team peers would be more aware of individuals’ skills and thus might value their opinions more. Therefore, the findings suggest that intimacy among peers and ego strength positively influence openness and respect among peers, and in turn positively influence the perceived appreciation and perceived vulnerability in a team.

Openness Between the Parent Company and Subsidiary.

Many participants from the subsidiary pointed out a lack of openness between the parent company and the subsidiary. Several participants stressed a lack of opportunities for the subsidiary teams to provide input for decision-making. A respondent stated that “people don’t know at what point they can give their input so that it’s heard” (D-04:12). Due to the perceived lack of opportunities for providing input on decision-making, a few participants indicated that they did not feel that their opinions were heard. One interviewee explained how “you develop the feeling that they don’t want your opinion” (D-12:05). Some respondents observed that the teams at the subsidiary are required to report to the parent company but seem not to be

regarded as important enough to be listened to, as a participant commented: “The whole concept of reporting all the way over there and then not being as important ... people don’t think they are listened to” (D-03:03).

Moreover, several respondents acknowledged not feeling that their individual skills are respected or used. A few respondents expressed that they were not consulted by managers from the parent company on topics in which they are competent. As one interviewee reported, “I feel like I could’ve added value to that, but I wasn’t consulted. I assume that they hired me because I have experiences in these areas, I assume that they think that I’m an expert in these areas and that would be the value that I can add to this company, but I’m not consulted. I can see this happen with a lot of other people too” (D-84:48). Thus, a participant demanded that the teams at the parent company need “not only to provide guidelines to the subsidiary but ask for feedback and their opinion” (D-84:44).

Overall, the findings reveal the parent company’s lack of openness toward the employees of the subsidiary in decision-making, which negatively influences perceived appreciation and the feeling that every team member’s opinion is heard, and individual skills are respected and used. Moreover, some statements criticize the fact that people were hired at the subsidiary but not consulted and that they assumed they were hired to contribute to the new business of future mobility services, in which subsidiary employees have particular competences. Thus, these mocking statements underline the negative influence of the lack of openness by team members of the parent company to the subsidiary’s employees on the perceived appreciation.

3.4.12. Accountability: Clarity and Implementation

The majority of participants stressed a lack of clarity on accountability as a significant issue, as one interviewee commented: “The things that I take the most issue with is never taking the time to clearly speak about accountability” (D-84:30). Another participant asserted that “we need to know what we’re accountable for, what would get us fired.” (D-54:12). Due to the lack of clarity on accountability, some acknowledged a fear of mistakes, as a respondent explained: “Some of the fear comes out of: Am I personally accountable for it, will my team be accountable for it, will leadership be accountable for it, it’s just unclear accountability” (D-01:32). Similarly, a participant reflected, “I think everybody lives in fear of that. ... What if I screw up, what’s going to happen to me, is my job on the line?” (D-69:17). People opted to blame each other instead of taking ownership. As one respondent admitted, “we are sort of playing the blame game ... no one is taking responsibility” (D-84:30). Thus, several participants stressed the need to internalize problems, take ownership, and

offer solutions. One respondent said that “people need to take more of a sense of ownership and not blame each other” (D-86:02).

Moreover, several participants complained that others were not held accountable for misconduct. As one respondent admitted, “we do not hold people accountable” (D-99:23). Many interviewees pointed out that managers accept excuses and “sit problems out” (D-35:23) rather than hold people accountable. Another interviewee noted how “they are not addressing issues; they are ignoring them until it’s a big problem” (D-75:38). The lack of holding others to account for misbehavior was also acknowledged by a manager: “We should have been more proactive in shutting some of that behavior down” (D-99:26). Another manager admitted “that was a big mistake to just let problems be” (D-98:24). The lack of calling others to account for misconduct led some to feel less inclined to bring up issues, as one participant explained: “If you experience that nothing happens, you stop expressing issues” (D-29:24). Another interviewee agreed that due to the “lack of leadership ... the lack of taking action” (D-86:25), issues are not brought to the table. Another respondent added that the lack of demonstrable accountability “leads to people not providing throughput” (D-03:32), thus hindering people from bringing up issues. Here, some stressed the importance of managers’ behavioral integrity. A participant noted that “they are only talking about it, but not living it” (D-98:16). A respondent admitted a loss of trust in managers: “After a certain time you figured out that those were just words and not behavior” (D-13:19). When people witness consistent behavioral integrity, they feel more able to discuss issues. Thus, an interviewee explained the need to “walk the talk ... consistently doing what you say” (D-98:23) to increase the trust so that people feel able to bring issues to the table.

In addition, one participant noted that managers are not held accountable for misbehavior either. For example, a respondent explained that as managers are not held accountable for “rage attacks ... in front of the entire team for a potential, not yet happened mistake” (D-35:02), many fear mistakes. Moreover, this participant revealed an ensuing negative impact on the entire team: “So everyone realizes: If I make a mistake and someone notices, then there is trouble” (D-35:02).

Thus, several participants agreed on the need of clarity and implementation on accountability, stressing the responsibility of managers to address rising issues and demonstrate consequences for misconduct. As one interviewee noted, “you need to say: Listen, these values and behaviors are important, and I will measure you based on that” (D-96:13). Moreover, the same respondent asserted, “I am convinced that you need to sanction misbehavior as it will otherwise shape the culture” (D-96:14), indicating that if managers do not condone misbehavior, others will act similarly. To address issues and hold others accountable, some participants suggested mechanisms

such as group reflections at the end of meetings to assess the extent to which “values were respected in the meeting” (D-45:19) and whether peers acted as “emotion consultants” (D-35:03) to call out misbehavior.

Overall, the findings indicate that a lack of clarity on and execution of accountability negatively influence the perceived vulnerability by increasing the fear of mistakes and leading team members to feel less safe in bringing up issues. Moreover, the findings imply that many participants attributed the responsibility of clarifying and demonstrating accountability to managers. Accordingly, a few participants blamed their managers for not explaining accountability and for not holding others accountable for misconduct. In this regard, several interviewees pointed out a lack of behavioral integrity by managers, as accountability is indeed spoken about but neither clearly defined nor implemented. Furthermore, some demanded that managers should act as “emotional consultants” (D-35:03) to call out other managers to account for misconduct. Thus, the findings reveal little ownership by some employees who blame managers and victimize themselves. This is illustrated by responses showing a lack of awareness of which actions would lead to a person’s job dismissal. Therefore, the findings imply that taking more ownership for clarifying and implementing accountability could help employees reduce the fear of mistakes and show that problems can be addressed by holding others accountable for misconduct, which can lead to more perceived vulnerability in a team.

3.4.13. Trust in Leaders: Genuine Interest in Employees and Intimacy

Several participants noted a lack of trust between managers at the subsidiary and their teams. As one participant stated, “I don’t think that there is trust” (D-75:49). Another interviewee emphasized the importance of trust between managers and their team members: “Where I have been most successful and felt that I can accomplish the most, is where I have had that very solid relationship with my boss, where I know that my boss has my back” (D-74:47).

In this regard, few respondents analyzed a lack of intimacy between managers and their teams. One participant recounted having overheard a conversation in which a person asked a manager point blank: “Have you established any relationships here?” (D-54:19), which the manager negated. Also, one respondent noted a lack of personal conversations between managers and employees: “I feel like they come to us when they need reporting for slides and it’s not just like: How was your weekend?” (D-84:46). Some respondents identified the short amount of time employees and managers have worked together. As one interviewee explained, “the entire team was

just created ... so, trust is not the easiest part” (D-12:38). Similarly, an interviewee stated, “I cannot immediately have a 100% level of trust to my manager” (D-17:16).

Due to the lack of trust arising from issues of intimacy, some participants indicated that they do not dare to bring up issues. As several people recently joined the team, they do not know each other well and thus do not feel comfortable talking to their managers yet. As a manager admitted, “I don't know if he [team member] would feel comfortable talking to me as a manager, because he doesn't know me very well” (D-02:29). Moreover, with new people constantly joining the team, managers are not aware of the individual skills of their team members. As a manager admitted, “we're not aware of everybody's unique skills and talents” (D-09:01).

Other participants explained that intimacy was absent because managers took no interest in their teams. As one participant commented, “I know that he has no idea what I do because he's never taken the time to ask. So, I think he doesn't care” (D-84:46). Accordingly, some managers are not aware of the tasks and projects of their employees, which led to the feeling that employees' individual skills are not fully valued or used. One participant stated that “I have been asked to do things, but you know, that's not my job. ... I'm down to do whatever to help but it's clear that you don't even know what I do, do you? And that's not a great feeling” (D-01:38).

Some managers' lack of interest in their employees also resulted in employees not seeing the value of bringing up issues. As one respondent observed, “you feel like they don't have any idea what you're really doing, so there wouldn't be any point of me going to him and be like, ‘hey, here is an issue’” (D-01:38). Another respondent criticized the lack of personal exchanges with managers: “He ignores one-on-ones without ever even canceling them, and then we let them fall off the calendar and he says, ‘let them fall off the calendar’” (D-54:22); this observation indicates the lack of feeling appreciated and reluctance to bring up issues.

Thus, some managers seem to not care for their team members and look out primarily for themselves. As one participant explained, “I think some of this is cluelessness, but I think at the root of cluelessness is: you don't care. I think he doesn't care. He doesn't care because I think his main objective is to like look good for himself as he sees his future at the parent company, so he cares less about a functioning team here” (D-51:39). The same participant asserted that “I think that is a big part of why there is a lack of trust and camaraderie” (D-51:39). Therefore, managers need to show they care for team members and are not solely looking out for themselves. Another participant stated that “he's got to demonstrate that he is absolutely here with us” (D-54:20). The same participant noted further, “I want to see him not always seem like he's only out for himself” (D-54:27). Thus, managers need

to show interest in their employees. As a respondent put it, “you need to check in on your people and check if they’re doing ok” (D-07:26).

Overall, the findings show that little trust in managers negatively influences perceived vulnerability, feeling safe to discuss problems, and perceived appreciation, feeling that employees’ individual skills are acknowledged and made use of.

Moreover, the findings suggest two potential underlying reasons for the lack of intimacy and trust in leaders. First, the lack of intimacy is explained by the recent formation of the subsidiary team with many new employees joining. Some showed understanding for the lack of trust and intimacy between managers and employees. However, the findings also suggest a lack of genuine interest by managers in their employees contributes to the lack of intimacy and trust in leaders. The findings imply that as managers seem to not care for employees and to look out for primarily themselves, they do not take time for personal conversations with employees and thus are unaware of employees’ tasks and projects. Thus, managers’ lack of genuine interest negatively influences perceived vulnerability and perceived appreciation.

Additionally, the findings reveal employees’ hurt feelings about managers’ perceived lack of interest in their employees and subsequent unawareness of employees’ tasks and projects. Accordingly, the findings imply that employees lack bottom-up empathy toward managers. Greater bottom-up empathy would enable more employees to understand the current lack of trust in managers by considering the recent foundation of the subsidiary team and many new team members instead of imputing managers’ lack of interest in employees as the reason for the scarce intimacy between them, which could lead to a more benevolent evaluation of perceived appreciation and perceived vulnerability.

3.5. Summary of Empirical Findings of Study 2

Study 2 addressed the third research question by investigating the key factors influencing team psychological safety. Three qualitative methods were applied: participant observation, focus group interviews, and individual interviews. In sum, I conducted 90 interviews and participated in numerous events and meetings at the research site during the 4-year long research cooperation between the institute at my university and the partnering automobile manufacturing company. The key factors influencing team psychological safety were derived inductively from the transcribed, coded, and categorized qualitative data using a thematic analysis. All in all, Study 2 identified the following factors:

The lack of a clear mission for the subsidiary leads to a lower inclination to take risks and reduced sense of togetherness, resulting in less perceived vulnerability in the team. Accordingly, mission clarification among managers from the parent company and subsidiary is of great importance in fostering team psychological safety. Such clarification of the subsidiary's mission may involve the parent company deciding either to let the subsidiary focus on learning about future mobility services and autonomous driving to answer strategic questions or to prioritize reaching break-even and a specific return on investment within a short period.

Next, the absence of shared goals between the parent company and subsidiary and a collective goal development process decreased team togetherness. Performance pressure to reach financial goals perceived as unattainable hindered subsidiary team members from risk-taking and bringing up issues. Moreover, unachievable goals led to a fear that mistakes would be used against peers when goals were not reached. Inflexible and overly specific goals from the parent company due to short-term expectations of profitability resulted in less freedom to take risks and discuss issues. Consequently, a flexible mindset is needed to differentiate between the parent company's mission to optimize the manufacturing and selling of vehicles and its subsidiary's mission to develop software for innovative mobility services and learn for autonomous driving to be able to set different goals for each. Thus, this flexible mindset must be able to adapt from a predominantly financial-oriented steering logic with expectations of short-term profitability to a more learning-oriented steering logic with expectations of long-term profitability to enable risk-taking and discussion of problems, thus fostering perceived vulnerability. Thus, shared, achievable, flexible, and enriching (SAFE) learning goals positively influence the perceived vulnerability in a team.

A lack of role clarity led people to take fewer risks as they were afraid to overstep their responsibility and to annoy peers. This lack of role clarity also produced a low perceived ability to ask for help and share information because team

members were unaware of whom to ask and whom to share information with. Accordingly, a lack of role clarity negatively influenced perceived vulnerability. Moreover, interdependence between the team members of the parent company and subsidiary resulted in a negative attitude toward each other due to ambiguity about each team member's scope of responsibilities and power; this produced a low sense of togetherness and thus lower perceived vulnerability. Conversely, the dynamic rather than clear role descriptions meant that team members felt free to perform diverse activities within their jobs, which strengthened the feeling that individual skills are respected and made use of, thus indicating greater perceived appreciation.

Lack of autonomy from the parent company made subsidiary team members feel less safe about risk-taking, experimenting, and making mistakes due to a lack of financial resources and the demand to adhere to the long approval processes of the parent company, leading to less perceived vulnerability. The same lack of autonomy led team members of the subsidiary to feel that their individual skills were not respected or used, leading to low perceived appreciation. The importance of autonomy for exploratory tasks was recognized to enhance perceived vulnerability and perceived appreciation among team members because the subsidiary pursued exploratory work activities by developing software for innovative mobility services. Here, a flexible mindset is needed among managers to grant subsidiary employees more autonomy by abandoning the adherence to standardized approval processes and by providing more financial autonomy. These steps may foster local decision-making, risk-taking, and better utilization of skills in mobility services. Thus, a flexible mindset positively influences the development of perceived vulnerability and perceived appreciation in a team.

Lack of workplace proximity due to global team dispersion between the team members of the parent company, subsidiary, and city markets revealed both a negative and positive effect on perceived vulnerability. On the one hand, the lack of workplace proximity caused team members to feel a lower sense of togetherness and to report difficulties in information-sharing and bringing up problems; these findings signify less perceived vulnerability. Conversely, the workplace proximity between team members of the city market team led to more perceived safety in asking members for help, thus indicating more perceived vulnerability. On the other hand, workplace distance from the subsidiary led city market members to feel safer in risk-taking in applying their own processes, thus producing high perceived vulnerability.

Competition among team members due to siloed project teams, competing functional teams, and a predominant aim of acquiring status and power within the organization promoted a lack of trust and silo behavior among team members. In turn, silo behavior and a lack of trust due to competitiveness led to a reduced sense of

togetherness, lowered willingness to try collective problem-solving, fostered the feeling that faults are used against one another, decreased risk-taking, and diminished information-sharing. All these effects negatively influence perceived vulnerability.

The scarcity of women in leadership reduced the perceived capacity for risk-taking, especially for female managers and employees, who did not feel safe in prevailing against the larger group of male colleagues; this scarcity thus lowered perceived vulnerability. Moreover, women's leadership was perceived as less silo-oriented, more team-oriented, less confrontational, and calmer. Female managers were also seen as more willing to make compromises and find beneficial solutions for the team over individual benefits, which strengthens a sense of togetherness, thus fostering perceived vulnerability.

Mediators in teams help to bridge business cultures by explaining their diverging perspectives and approaches: for example, of the subsidiary in developing new innovative software for mobility services, and of the parent company in manufacturing and selling automobiles. Accordingly, mediators in teams strengthen mutual understanding and acceptance and the feeling that individual competences are valued and used, thus increasing the perceived appreciation in teams.

Leaders' limited availability produced low employees' perceived ability to discuss issues, thus indicating low perceived vulnerability. Because some managers failed to admit their own ignorance, and mistakes, and due to the perceived lack of failure tolerance in the parent company, employees felt reluctant to take risks and feared mistakes, thus indicating low perceived vulnerability. Correspondingly, when managers demonstrate their own fallibility by admitting mistakes and by tolerating those of others, the perceived vulnerability in the team can be fostered.

A lack of openness among managers in not asking for employee input resulted in employees' perception that their perspectives are not heard and that their individual skills are not fully respected and used, signifying low levels of perceived appreciation. Furthermore, disrespectful and dismissive responses from managers to employees' opinions, ideas, and questions caused employees to feel less accepted and less inclined to take risks, indicating low levels of perceived vulnerability and perceived appreciation. A lack of openness and respect was also found among people at the same hierarchy level, thus leading to the feeling that not everyone is accepted and heard, which in turn shows low levels of perceived appreciation. Moreover, a lack of feeling accepted among peers caused people to be disinclined to take risks by sharing ideas or asking for help, thus leading to low perceived vulnerability. Furthermore, a lack of openness in the parent company toward input from subsidiary employees in decision-making made employees from the subsidiary feel that their

views are neglected and that their individual skills are not valued or used, therefore leading to low perceived appreciation.

Due to a lack of clear accountability, people were afraid that errors would be held against them. Moreover, a lack of holding others accountable for misconduct produced a low perceived ability of people to bring up issues, thus signifying low perceived vulnerability. When managers held employees accountable for misconduct in an offensive instead of constructive way, their approach further reduced perceived vulnerability. Also, employees felt less safe in holding managers accountable for misconduct, thus indicating less perceived vulnerability among lower-status team members than higher-status team members. Moreover, empathy from managers helps to assert the potential consequences of one's behavior on the team and thus positively influences the development of more perceived appreciation.

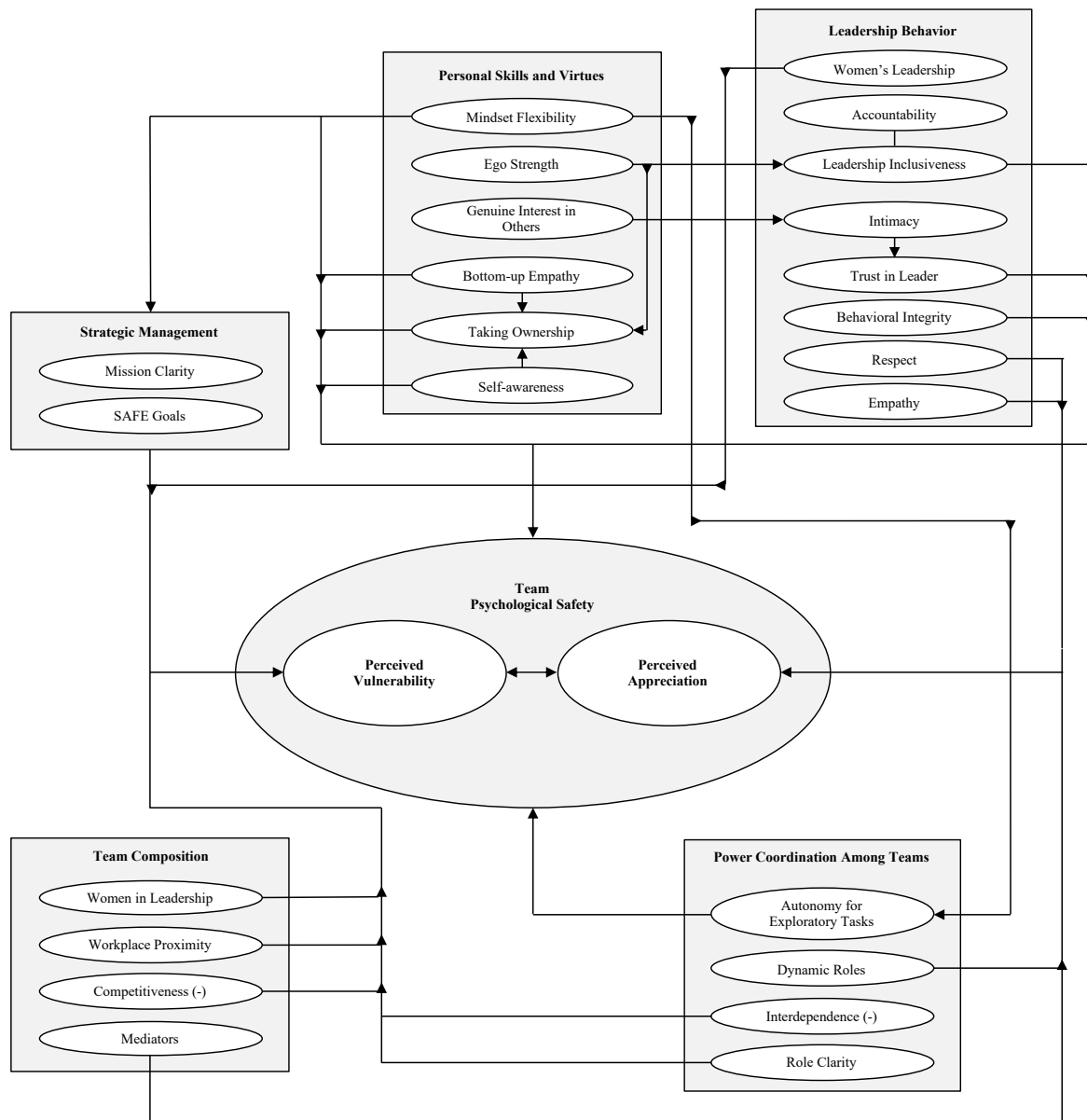
Low trust in managers due to scarce intimacy between managers and employees led to a low perceived ability of employees to discuss problems, indicating low perceived vulnerability. Moreover, low trust due to scarce intimacy resulted in employees feeling that their skills are not fully valued and used, thus signifying less perceived appreciation. A lack of intimacy between managers and employees was explained by the subsidiary's recent foundation paired with the entry of many new members to the subsidiary's team. However, scarce intimacy and resulting trust issues were also explained through managers' lack of interest in employees; managers seemed primarily to care for their personal careers, which led to few personal conversations and manager's unawareness of employees' skills and tasks.

Ego strength was identified as relevant to the willingness to admit fallibility, ignorance, and mistakes, to openness and respect for the input of others, and to taking ownership. A weak ego seems to hinder managers from admitting mistakes and issues surrounding the team climate, possibly from a fear of being held responsible for these issues. Moreover, a weak ego prevents managers from asking for or appreciating employees' or team peers' input, potentially due to a perceived need for self-exaltation and omniscience. Conversely, a strong ego helps managers to admit fallibility and mistakes, take ownership for the team climate, and to show openness and appreciation for the input of others. Thus, ego strength positively influences perceived vulnerability and perceived appreciation in a team. Women showed more ego strength than men by admitting their own fallibility, by acknowledging team climate issues, and by asking for and appreciating the input of others. Conversely, the weak ego exhibited by some male managers resulted in lower willingness to admit mistakes and less openness and respect toward the input of others. Furthermore, a lack of openness and respect was noted of male managers toward female managers and employees, which may lead to less perceived vulnerability and appreciation for

women than men. Finally, a lack of intimacy may also partially explain the lack of openness and respect for other people's input; more intimacy may lead to more respect and openness for others' input because people may become more aware of each other's individual competences and thus increase perceived appreciation.

Many participants blamed managers for several factors leading to low perceived vulnerability and perceived appreciation: The lack of a clear mission for the subsidiary; unclear roles and responsibilities; interdependence between the parent company and subsidiary; scarce autonomy for the subsidiary from its parent company; competitiveness between teams and team members; the lack of leaders' availability, ability to admit fallibility, or openness to the input of others; a lack of clarity about and implementation of accountability; a lack of behavioral integrity; scarce intimacy between managers and employees; and for a lack of leader's genuine interest in employees. Employees' blaming of managers revealed victimization and scant ownership by attributing the responsibility for low perceived vulnerability and perceived appreciation to managers, thus relieving themselves from any responsibility in these matters. For example, hardly any employees recognized the negative impact of their own blaming behavior on team psychological safety.

Moreover, employees' blaming of managers indicated a lack of bottom-up empathy and its negative influence on perceived vulnerability. Employees seemed not to take into account the subsidiary's recent formation, its rapid growth over a short time, and its setting as part of a listed, risk-adverse automobile manufacturer and subsequent challenges such as abandoning short-term profitability expectations and providing the subsidiary with high degrees of autonomy to experiment in the new business field, resulting in challenges for managers to cultivate a psychologically safe team climate. Instead, most employees blamed managers for the low levels of perceived vulnerability and perceived appreciation. Greater bottom-up empathy would enable employees to take ownership of challenges and show more understanding for their managers' difficulties in cultivating a team climate in which people feel they able to show vulnerability and feel appreciated. Figure 3-9 summarizes my empirical findings in Study 2 on the key factors identified influencing team psychological safety.

Figure 3-9*Empirical Findings: Factors Influencing Team Psychological Safety*

4. Discussion of Findings

Based on the two research studies presented in this dissertation, the empirical findings are now discussed, and theoretical implications derived and visualized for all three goals of my research. This effort enables an overview at one glance of the empirical evidence my research offers and the theoretical contributions it makes. At the end of Chapter 4.1, I present a visual summary of the findings and theoretical contributions of my research to show the achievement of all three goals. Moreover, in Chapter 4.2, I make several suggestions to managers on how to assess and foster team psychological safety. In Chapter 4.3, I acknowledge the limitations of my research, and in Chapter 4.4, I suggest new avenues for future research.

4.1. Theoretical Implications

Research into psychological safety at work may help promote positive work outcomes such as learning, creativity, innovation, employee engagement and performance (e.g., Choo et al., 2007; Edmondson, 1999; Edmondson & Lei, 2014; Kark & Carmeli, 2009; Post, 2012; Schaubroeck et al., 2011). Consequently, my research had three goals: (a) to advance current knowledge on the dimensionality of the team psychological safety construct, (b) to generate new insight into intergroup variations in team psychological safety, and (c) to extend the understanding of factors influencing team psychological safety.

My research produced several valuable and novel theoretical contributions based on my 4-year long immersion at a German automobile manufacturer and its North American mobility services subsidiary with globally dispersed teams, in which collaboration across different locations was required. Accordingly, my research addresses the call of several psychological safety scholars (Edmondson & Lei, 2014; Newman et al., 2017) and contributes to research (a) by conducting a case study at a multinational organization with globally dispersed teams; (b) by using a unique research setting involving deep immersion at the research site over 4 years; and (c) by using hybrid and alternative methods to study psychological safety through qualitative interviews, participant observation, and a quantitative survey. These characteristics allowed an in-depth investigation of the research phenomenon, thus presenting a promising methodology for future research studies.

4.1.1. Dimensionality of the Team Psychological Safety Construct

Based on my two exploratory factor analyses on the survey measuring team psychological safety and the conducted face validity tests, Study 1 posits team psychological safety as a second-order construct. This second-order construct team psychological safety has two first-order dimensions, perceived vulnerability and perceived appreciation, as formative indicators, and these first-order dimensions are each captured by several reflective indicators.

The perceived vulnerability dimension is addressed by reflective indicators or scale items from team-level scales by both Edmondson (1999) and Anderson and West (1998). These measure team members' perceived ability to show vulnerability in front of others, particularly in daring to take risks, discuss problems, and ask others for help. Moreover, these measure team members' sense of togetherness and information-sharing in the team, and the extent team members do not reject diversity and do not use errors against one another. A positive rating of these indicators or scale items reveals that team members have a greater perceived ability to show vulnerability. The perceived appreciation dimension is also addressed by indicators or scale items from both the Edmondson (1999) scale and that of Anderson and West (1998). These measure team members' perceptions of the extent different perspectives are listened to in the team, team members feel accepted and understood, and individual skills are valued and made use of in the team. The specific origin of the indicators or scale items from the team-level scales by Edmondson (1999) and that of Anderson and West (1998) is explained in the notes of Figure 4-10.

This proposed two-dimensional team psychological safety construct is a novel and meaningful contribution to literature: Scholars have so far defined team psychological safety either as a construct with several indicators or with scale items but no higher-order dimensions (Anderson & West, 1998; Edmondson, 1999). Moreover, the results of Study 1 offer a new perspective on measuring psychological safety at the team level by incorporating indicators or scale items from two frequently but thus far separately used team-level scales into one measurement scale. The new scale treats team psychological safety as a second-order construct with two first-order dimensions, perceived vulnerability and perceived appreciation, as formative indicators, each of which is captured by several reflective scale items or indicators. Thus, the team psychological safety construct offered here may provide support for a reflective first-order and formative second-order construct, thus indicating a Type II measurement model according to Jarvis et al. (2003).

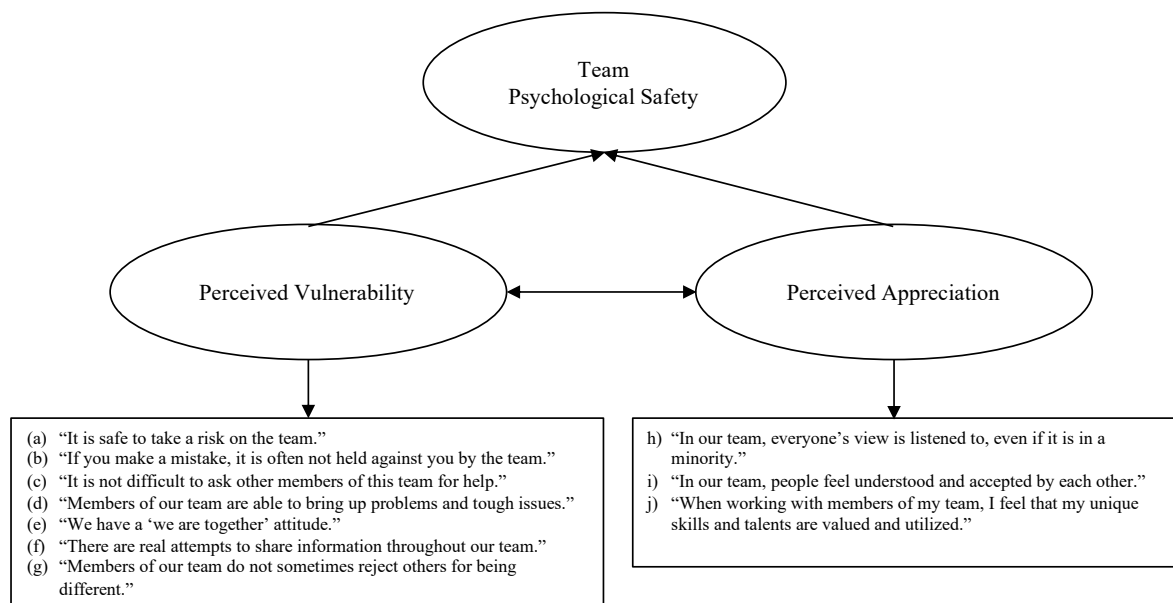
Thus, my research contributes a two-dimensional team psychological safety scale and thus addresses the demand to find consensus on a measurement instrument to assess team psychological safety (Newman et al., 2017) in order to enhance

comparability across research studies (Hawcroft & Milfont, 2010) and extend knowledge of team psychological safety. Future research may validate and further test the proposed dimensionality of this construct.

Figure 4-10 summarizes my empirical results and theoretical contributions of Study 1 for the dimensionality of the team psychological safety construct and thus demonstrates the achievement of the first goal of my research. This two-dimensional team psychological safety construct was applied in the subsequent parts of Studies 1 and 2 to examine intergroup variations and to identify key factors influencing team psychological safety.

Figure 4-10

Empirical Results and Theoretical Contributions for the Dimensionality of the Team Psychological Safety Construct (RG 1)



Note. Scale items (a), (b), (c), (d), (g), and (j) are from "Psychological Safety and Learning Behavior in Work Teams," by A. C. Edmondson, 1999, *Administrative Science Quarterly*, 44(2), p. 382 (<https://doi.org/10.2307/2666999>). Copyright 1999 by Cornell University. Adapted with permission.

Scale items (e), (f), (h), and (i) are from "Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory," by N. R. Anderson & M. A. West, 1998, *Journal of Organizational Behavior*, 19(3), p. 246 (<https://doi.org/fmqp5f>). Copyright 1998 by John Wiley & Sons. Adapted with permission.

4.1.2. Intergroup Variations in Team Psychological Safety

In sum, Study 1 revealed a significant effect of gender but no significant effect of frequency of remote collaboration with globally dispersed teams, tenure with the team, hierarchy level, team and culture on perceptions of team psychological safety or its two dimensions, perceived vulnerability and perceived appreciation. Thus, my research contributes to theory by answering the call for research into intergroup variations in team psychological safety (Edmondson & Lei, 2014; Newman et al., 2017; Schneider et al., 2002).

Variations in Team Psychological Safety Between Genders.

First, my survey analysis showed significant variations in team psychological safety between women and men. More specifically, women had significantly lower ratings than men in perceived vulnerability, perceived appreciation, and in the combined team psychological safety rating of the two dimensions. The gender variations in team psychological safety identified here represent a novel contribution to literature and address the demand for research into how psychological safety varies between diverse team members (Newman et al., 2017). I suggest three potential explanations for variations in team psychological safety between women and men: (a) Women indeed felt less psychologically safe than men; (b) women evaluated their perceptions of team psychological safety more truthfully and thus more negatively than men; or (c) men intentionally whitewashed their perceptions of team psychological safety, thus leading to higher scores for team psychological safety, perceived vulnerability, and perceived appreciation from men than women.

The vignettes comprising my participant field observations in Study 2 also imply variations in team psychological safety between women and men, thus supplementing the survey results. However, my observations provided mixed results regarding the reasons underlying these variations. On the one hand, Vignette 1 signifies lack of listening to a female employee, explaining why lower levels of appreciation were perceived by women. Vignette 1 also implies lower levels of vulnerability perceived by women due to being blamed for mistakes. Thus, Vignette 1 provides support for the first explanation: that women indeed felt less psychologically safe than men. On the other hand, Vignette 2 suggests greater vulnerability is perceived by women than by men because women spoke up and admitted team climate issues openly, while men denied any issues with the team climate or remained silent and did not speak up. Thus, the findings of Vignette 2 lend support to the second explanation: that women evaluated the team climate more honestly and thus more negatively.

The interview findings of Study 2 provide support for both explanations of variations in team psychological safety between women and men. Accordingly, women demonstrated and were attributed more ego strength than men in their ability to admit mistakes and problems, thus suggesting higher levels of perceived vulnerability among women than men. In turn, women's greater ego strength offers support for lower psychological safety ratings by women than men because a stronger ego seems to have allowed women a more honest and thus more negative evaluation of the team climate. Furthermore, the interviews revealed less ego strength among male managers than women due to their reluctance to admit problems and mistakes. This implies that men perceive less vulnerability, and in turn may explain higher ratings of team psychological safety among men than among women. Conversely, women might also indeed have felt less psychologically safe than men due to the strong male dominance at the research site. Due to women's underrepresentation, women might have felt less safe taking risks on their male-dominated teams and thus felt less able to show vulnerability, and they may have felt that their opinions were less listened to and less valued and thus felt less appreciated. Also, it may be possible that women generally feel less psychologically safe than men. In sum, my research represents a novel contribution to literature by showing that women had lower ratings of team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, than men. Moreover, my research implies that either the ego strength of women enabled their admittance of team climate issues and thus led to lower ratings of team psychological safety by women than men or that women indeed felt less psychologically safe than men. If women indeed felt less psychologically safe than men due to the male-dominated teams, my research indicates that the factors influencing team psychological safety become of particular importance in male-dominated teams, organizations, and industries to cultivate team psychological safety among the underrepresented group of women. In relation to that, Singh et al. (2013) generally found the particular importance of psychological safety for minorities. If women generally feel less psychologically safe than men, the concept of team psychological safety also becomes of crucial importance in female-dominated teams, organizations, and industries.

Some scholars have shown that women have lower self-confidence, lower willingness to express ideas, and received less appreciation for their ideas when these concerned a "male domain" such as technology and engineering, particularly in male-dominated teams due to beliefs about gender stereotypes (Bordalo et al., 2019; Coffman, 2014; Coffman et al., 2019). These insights might relate to lower perceptions of team psychological safety among women than men because the research site was both male dominated and concerned what might be regarded by

some as a male domain: developing technological software for mobility services. I call for more research on variations in team psychological safety between genders and investigations on the underlying reasons for the variations.

Variations in Team Psychological Safety Across Hierarchy Levels.

My survey analysis did not reveal significant variations between managers and employees in the overall team psychological safety rating or in either of its two dimensions, perceived vulnerability or perceived appreciation. Thus, the survey results do not corroborate the findings in literature, according to which lower-status team members feel less psychologically safe than their higher-status counterparts (e.g., Burris et al., 2008; Edmondson, 1999; Nembhard & Edmondson, 2012). Reasons for the lack of variations in team psychological safety found in my research between managers and employees may be, first, that the survey only included two hierarchy levels, employees and managers, and second, that the sample size was relatively small ($N = 61$).

However, I did find variations in team psychological safety across hierarchy levels; two out of three vignettes from my participant field observations in Study 2 indicate that managers negatively influenced employees' team psychological safety perceptions through both their presence and their behavior, in turn leading to less psychological safety by employees than managers. Furthermore, the interviews in Study 2 reveal a prominent negative influence of hierarchy on employees' psychological safety. Thus, the empirical findings of Study 2 support the literature findings cited above. My findings show the importance of managers' awareness of their positions and their influence on the degree of team psychological safety. My research also implies how fragile team psychological safety may be and thus indicate how gently managers have to deal with their employees in this matter. Future research may consider studying the fragility of team psychological safety.

Variations in Team Psychological Safety by Frequency of Remote Collaboration.

My survey results displayed no significant variations in the overall team psychological safety rating nor in either of its two dimensions, perceived vulnerability and perceived appreciation, with team members' frequency of remote collaboration. The results of Study 1 indicate that employees who were required to collaborate more frequently with globally dispersed team members did not feel significantly less psychologically safe than those who worked more with team members nearby. The interviews of Study 2 reveal mixed results regarding the

influence of workplace distance on perceived vulnerability: On the one hand, a negative influence of workplace distance was found in a lower ability to discuss problems and share information with globally dispersed members. The results also showed a positive influence of workplace proximity in a greater ability to ask others for help. On the other hand, employees showed a positive influence of workplace distance in a higher perceived ability to take risks by applying their own processes.

These ambivalent effects of workplace distance on team psychological safety and the absence of variations in team psychological safety by frequency of remote collaboration contribute to literature and address the demand for research into intergroup variations in team psychological safety (Newman et al., 2017). This finding is especially important as remote collaboration has increased massively during the COVID-19 pandemic (Clutch.co, 2020; Lavelle, 2020).

So far, scholars have shown that remote collaboration with globally dispersed team members can lead to lower team psychological safety due to a lack of familiarity among members (Nembhard & Edmondson, 2012; Roberto, 2002) and a lack of team boundaries (Faraj & Yan, 2009). Familiarity among team members might be one explanation for the absence of variations in psychological safety when collaborating remotely; some participants at the research site had had the possibility to develop relationships with team members and work from the same location before they had to collaborate remotely. Thus, my findings support the importance of developing relationships among team members before collaborating remotely to mitigate its potential negative effects on team psychological safety. Future research may examine the conditions under which team psychological safety does not vary with frequency of remote collaboration to identify methods of enhancing remote collaboration.

Variations in Team Psychological Safety with Tenure with the Team.

My analysis found no significant variations in team psychological safety with tenure with the team. Specifically, the results showed no significant variations in the overall team psychological safety rating or in either of its two dimensions, perceived vulnerability and perceived appreciation, between team members with a tenure of more than 6 months and a tenure of less than 6 months with the team. One explanation for this result may be that members with a shorter tenure with the team may feel less able to show vulnerability and feel less appreciated due to lack of familiarity with other team members and consequent low awareness of team members' competences, whereas members with more than 6 months of tenure with the team may have had past negative incidents leading to similarly low levels of perceived vulnerability and perceived appreciation. However, the results also imply that whether a team climate is psychologically safe or not becomes immediately apparent to new team members.

While my results support Bunderson and Boumgarden's (2010) findings of no effect of tenure with the team on team psychological safety, my results do not corroborate those of Edmondson (1999), who demonstrated a positive influence of tenure on team psychological safety. My research might have found variations in team psychological safety if the length of tenure with the team had varied more, for instance comparing weeks, months, and years. Koopmann et al. (2014) found that teams of members with shorter and teams of members with longer team tenures had more team psychological safety than teams of members with a more moderate tenure. Thus, I call for research to include a variety of tenure lengths to examine the influence of tenure on team psychological safety.

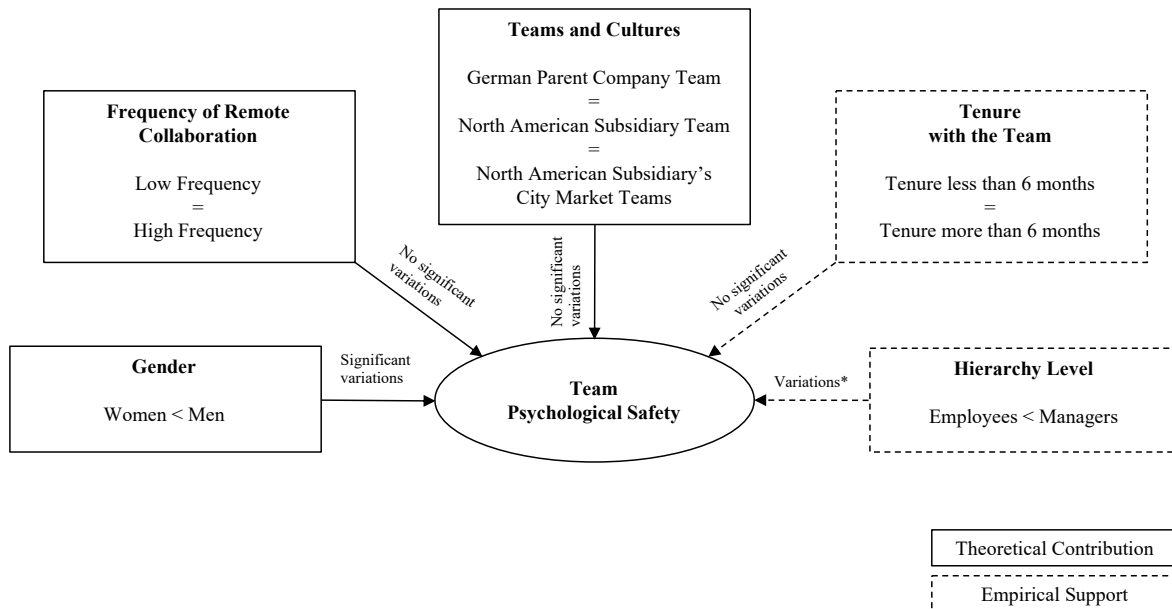
Variations in Team Psychological Safety Across Teams and Cultures.

Lastly, my results showed no significant variations in team psychological safety or its two dimensions, perceived vulnerability and perceived appreciation, between the team of the parent company, the subsidiary team, and the subsidiary's city market teams. The survey results also imply no significant variations between German and North American citizens, as the parent company team consisted of almost only German citizens, while the subsidiary and its city market teams comprised almost only North American citizens. This absence of variations in team psychological safety or its two dimensions, perceived vulnerability and perceived appreciation, advances current knowledge and answers the call for research on how team psychological safety varies between different cultures (Edmondson & Lei, 2014; Newman et al., 2017). Future research may conduct more studies in similar settings with a parent company and subsidiary and including a wider variety of both western and eastern cultures.

Figure 4-11 summarizes the empirical results and theoretical contributions of Study 1 regarding intergroup variations in team psychological safety and thus shows the achievement of the second goal of my research.

Figure 4-11

Empirical Results and Theoretical Contributions for Intergroup Variations in Team Psychological Safety (RG 2)



Note. *The survey analysis in Study 1 showed no significant variations in team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, across hierarchy levels. However, two out of three vignettes from my participant observation in Study 2 indicate lower perceptions of team psychological safety and its two dimensions among team members than managers.

4.1.3. Factors Influencing Team Psychological Safety

My research advances current knowledge on factors influencing team psychological safety and thus addresses the demand for research made by several scholars (Edmondson & Lei, 2014; Frazier et al., 2017; Newman et al., 2017). Findings from the 90 interviews conducted in Study 2 provide novel insight into the factors influencing the dimensions of team psychological safety.

Strategic Management.

The empirical findings of Study 2 contribute to literature by showing that mission clarity and mindset flexibility promote perceived vulnerability in a team; the findings also support current research by corroborating that shared, achievable, flexible, and enriching learning goals positively influence perceived vulnerability.

First, I suggest that a clear mission can lead to a stronger sense of team togetherness and increase willingness to take risks, leading to higher perceived vulnerability. My findings highlight the importance of alignment of managers from a parent company and its subsidiary in deciding on that subsidiary's mission. For

instance, it may either answer the parent company's strategic questions by learning for example about future mobility and autonomous driving or achieve a specific rate of return on investment. To my best knowledge no research study has yet identified the positive influence of mission clarity on perceived vulnerability, so this represents a novel finding in the psychological safety literature on which I call for more research.

Moreover, my findings suggest that shared, achievable, flexible, and enriching (SAFE) learning goals foster perceived vulnerability in teams. The positive influence of shared goals and collective goal development on perceived vulnerability relates to research by O'Neill (2009), who indicated that collective responsibility enhances psychological safety. My empirical findings also indicate a positive relationship between achievable goals and perceived vulnerability; obtainable goals reduce fear of mistakes and increase risk-taking and discussion of problems, and thus relate to Nembhard and Edmondson's (2012) research, which suggests that pressure through ambitious performance goals lowers psychological safety. My findings also suggest that flexible goals enable more risk-taking and the ability to bring up issues, thus enhancing the perceived vulnerability in a team. This finding is in accordance with research by Edmondson and Verdin (2018), who noted that an agile strategy approach can enable learning and promote speaking up. Additionally, my research proposes that flexible and less specific goals and a more long-term performance orientation foster employees' perceptions of vulnerability. My finding that enriching learning-oriented fosters psychological safety more effectively than solely financial-oriented goals aligns with research by Nembhard and Edmondson (2012), who showed that a dominant performance orientation decreased psychological safety. In sum, by integrating my empirical findings with extant research, I corroborate that SAFE goals positively influence the perceived vulnerability in a team.

Furthermore, my research adds to current literature by identifying the need for mindset flexibility to foster perceived vulnerability, particularly in organizations that need to tackle both exploratory and exploitative work tasks, as was the case at the research site. The parent company's mission was to optimize the current main business area of manufacturing and selling vehicles, whereas the subsidiary aimed to explore and develop software for future mobility services and learn for an era of autonomous driving. Thus, I propose that a flexible mindset enables managers to differentiate between the distinct missions of different teams and to allow for changing goals and approaches. Moreover, my research suggests the need for managers, especially at the parent company, to have a flexible mindset that can adapt from a dominant financial-oriented steering logic with short-term profitability expectations, as is frequently applied at established companies, to a more learning-oriented approach with long-term profitability expectations and less specific goals for

a newly founded subsidiary. Such a mindset can foster perceived vulnerability in teams in new business areas. Future studies may further investigate the role of mindset flexibility for team psychological safety.

Power Coordination Among Teams.

Study 2 adds to literature on the role of autonomy, interdependence, and dynamic roles for team psychological safety and confirms the positive influence of role clarity on team psychological safety. More specifically, my research extends insights in literature by providing empirical evidence of the positive effect of autonomy over financial resources and decision-making power for exploratory work tasks and promoting the perceived vulnerability and perceived appreciation in a team. Thus, my empirical findings advance previous research by Chandrasekaran and Mishra (2012), who noted that autonomy only had a positive influence on psychological safety when a team's focal point was on exploitative work tasks such as advancing existing products and processes rather than on exploratory tasks such as developing new products and processes. Moreover, my findings also indicate that autonomy for exploratory tasks has a positive effect on team psychological safety and thus advance research by Frazier et al. (2017), who generally identified a positive relationship between team psychological safety and autonomy without further specifying the different kinds of autonomy. More research is required to clarify the influence of autonomy over different work tasks on team psychological safety. Furthermore, my research suggests that mindset flexibility of managers who work at a parent company enables them to grant its subsidiary more autonomy over financial resources and local decision-making. This in turn increases the perceived ability for risk-taking on the team and strengthens the perceived utilization and appreciation of individual skills in new business areas. Thus, my research proposes that mindset flexibility can lead to more autonomy for teams in new business areas pursuing exploratory work tasks, which in turn can foster the perceived vulnerability and perceived appreciation in these teams.

Moreover, the findings of Study 2 show that role clarity positively influences perceived vulnerability in teams. It lowers the fear of not overstepping one's own responsibility and increases risk taking on the team and awareness of who is responsible for what. It thus strengthens the perceived ability to ask for help and to share information. My finding supports research by Frazier et al. (2017), who noted a significant positive relation of role clarity with team psychological safety.

Additionally, my findings reveal a negative influence of interdependence on perceived vulnerability; this is in contrast to those of Edmondson (1999) and Frazier et al. (2017), who found it had a positive influence on psychological safety.

Consequently, my research adds to literature by suggesting that interdependence between team members of the parent company and subsidiary can negatively influence team members' attitudes toward each other and thus reduce perceived vulnerability. Future research may clarify the effects of interdependence on team psychological safety and include different types of interdependence.

In addition, my research adds to knowledge in literature by proposing a positive influence of dynamic roles on perceived appreciation because to my best knowledge no other research study has found this. My empirical findings show that dynamic roles at work empower people to perform a variety of activities and may thus increase the feeling that their individual skills are respected and made use of, thus leading to more perceived appreciation in a team. Future studies may examine the influence of dynamic roles as opposed to fixed roles on team psychological safety.

Team Composition.

Study 2 contributes to literature by indicating the positive influence of mediators in teams and women in leadership positions and the negative influence of competitiveness on team psychological safety. Future research may further investigate these three propositions regarding team composition.

First, my empirical findings propose a positive influence of team members who act as mediators on the perceived appreciation in a team. My finding implies that mediators can moderate differing perspectives and approaches, for example of the German parent company in manufacturing vehicles and of its North American subsidiary in developing software for future mobility services. Such mediators can foster mutual acceptance and understanding and the feeling that team members' skills are respected and made use of and thus positively influence perceived appreciation. My research highlights the importance of mediators who have experience interfacing with both a listed parent company and a subsidiary in helping facilitate collaboration among team members with less experience in working with members of a different business culture and thus foster the perceived appreciation in teams. This proposed positive relationship between mediators in teams and perceived appreciation contributes to knowledge on how to cultivate a psychologically safe team climate.

Second, my findings provide empirical evidence for a positive influence of women in leadership positions on perceived vulnerability in a team. Accordingly, my findings indicate that more women in leadership positions may lead other female managers to feel safer in taking risks on a team and contributing, especially in workplaces with mainly male managers. In other words, women in leadership can enhance the perceived vulnerability in teams. The proposed positive relationship between women in leadership and perceived vulnerability extends current knowledge

in psychological safety literature and stresses how putting women in leadership positions can help cultivate more perceived vulnerability in teams.

Third, Study 2 identified a negative relationship between competitiveness arising from siloed and competing project and functional teams and predominant aim of status and power and perceived vulnerability in a team. This competitiveness may have promoted silo behavior and a lack of trust, led to a reduced sense of togetherness, fewer attempts of information-sharing, less risk-taking, and an increased fear that errors would be used against one another. It thus had a negative influence on perceived vulnerability. My finding adds to current knowledge in literature; so far scholars have only found that peer support (Edmondson, 1999; Frazier et al., 2017; Kahn, 1990; May et al., 2004; Nembhard & Edmondson, 2012; Schepers et al., 2008) and trust among peers (Kahn, 1990; Zhang et al., 2010) cultivate psychological safety. Thus, my research notes the importance of forming noncompetitive teams to positively influence their perceived vulnerability. This finding may be specifically important for traditional organizations with a predominant focus on status and power, in which team members compete against one another to reach higher positions within an organization.

Leadership Behavior.

My research extends knowledge on factors influencing team psychological safety by supporting the relevance of women's leadership and leaders' genuine interest in others to team psychological safety and by suggesting accountability as an aspect of leadership inclusiveness. Moreover, my findings corroborate extant insights by confirming the positive influence of leadership inclusiveness, respect, empathy, intimacy, trust in a leader, and behavioral integrity on team psychological safety.

More specifically, my research adds to the psychological safety literature by revealing that women's leadership leads to more perceived vulnerability in teams. Study 2 showed that women's leadership was perceived as calmer and more team-oriented with a stronger willingness to prioritize team benefits over personal benefits than men's leadership, which was perceived as more confrontational and more silo- and individual-oriented. My research argues that women's leadership strengthens the feeling of team togetherness, and thus promotes perceived vulnerability. Women's leadership may be especially important in men-dominated leadership teams, organizations, and industries to foster team psychological safety. Women's leadership as a positive factor influencing team psychological safety represents a novel contribution to psychological safety research. Thus, I call for research inquiries on the effects of women's leadership on team psychological safety.

Moreover, my empirical findings confirm research by several scholars who found that leadership inclusiveness, comprising leaders' (a) availability, (b) acknowledgement of fallibility to others, and (c) openness to the input of others, positively influences psychological safety (Edmondson, 2004; Hirak et al., 2012; Nembhard & Edmondson, 2006, 2012; Tucker et al., 2007). In particular, Study 2 showed a positive relationship between leadership inclusiveness and higher levels of perceived vulnerability. Employees felt safer taking risks and feared less that errors would be used against them. Study 2 also indicated the positive influence of leaders' openness to the input of employees and team peers on perceived appreciation in feeling accepted and heard, and that individual skills are respected and made use of.

In addition, Study 2 noted a positive influence of respect for others on the perceived appreciation in a team, thus underscoring Kahn's (1990) finding of a positive relationship between respect and psychological safety. My research also shows the influence of leaders' showing respect for and openness to the input of others on perceived appreciation in feeling accepted and its subsequent influence on perceived vulnerability in risk-taking and asking for help. The influence of levels of perceived appreciation on perceived vulnerability in a team contribute to current psychological safety research. Leaders' respect and openness for the input of others may be of specific relevance for traditional organizations, in which a strong focus is generally put on the input of higher-status team members than that of lower-status team members. My findings also suggest the particular relevance of leaders from a parent company demonstrating respect and openness for the input of the subsidiary's employees in positively influencing team psychological safety. Future research may examine these proposed insights.

Furthermore, my research extends leadership inclusiveness by adding accountability as a fourth aspect. Study 2 suggests that clarity on and implementation of accountability positively influence the perceived vulnerability in a team by reducing employees' fear that errors will be used against them, increasing their willingness to discuss problems when team members know what they are accountable for, and witnessing team members being held accountable for misconduct. This finding adds to the inquiry demanded by Edmondson et al. (2016) on the relation of accountability with team psychological safety, and it offers empirical evidence of a positive influence of clear boundaries and sanctioning of violations on psychological safety (Edmondson, 2018). In this regard, the empirical findings of Study 2 also confirm the positive influence of leader behavioral integrity on psychological safety perceptions in a team found by Leroy et al. (2012).

Study 2 also suggests that empathy increases awareness of the impact of one's own behavior on others and thus positively influences perceived appreciation in a

team. This finding aligns with research by Carmeli et al. (2010), who noted with regard to transformational leadership that showing empathy as a leader positively influences psychological safety at work.

In addition, the findings of Study 2 support findings by several scholars that trust in a leader promotes psychological safety (Chughtai & Buckley, 2013; Frazier et al., 2017; Li & Tan, 2013; Madjar & Ortiz-Walters, 2009; Schaubroeck et al., 2011). However, my research adds to current insights on factors influencing the trust in a leader. Accordingly, my research reveals the importance of leaders' genuine interest in employees in increasing intimacy between leaders and their teams, in turn enhancing trust in leaders. This may then positively influence perceived vulnerability through team members' feeling safe to discuss problems and perceived appreciation through team members' feeling that skills are respected and used. The importance of genuine interest in others, as opposed to self-interest, for more intimacy between leaders and their teams and in turn for more perceived vulnerability and perceived appreciation represents a new contribution to psychological safety research.

Additionally, Study 2 suggests a positive influence of intimacy (between leaders and their team members) on leaders' openness and respect for the input of others. This in turn may positively influence perceived appreciation through team members' feeling that their skills are respected and used. My findings suggest that it is particularly critical to develop intimacy in recently created teams to promote team psychological safety. So far, scholars have shown a positive relation between familiarity among team members and psychological safety in feeling able to discuss difficult matters (Roberto, 2002).

Personal Skills and Virtues.

In addition to the personal skills and virtues of mindset flexibility and genuine interest in others, my research extends current knowledge on factors influencing team psychological safety by proposing that ego strength, bottom-up empathy, self-awareness, and taking ownership positively influence team psychological safety.

The findings of Study 2 imply a crucial role of ego strength in leadership inclusiveness. My empirical findings suggest that a strong ego may help individuals in overcoming self-protective behavior and mitigate the need for self-exaltation and omniscience, in turn enabling people to admit their own fallibility and mistakes in front of others and to show openness and respect for the input of others, whereas a weak ego seems to hinder people from engaging in these kinds of behavior. Thus, ego strength helps team climate issues by cultivating perceived vulnerability and perceived appreciation. The positive influence of ego strength on leadership inclusiveness and on perceived vulnerability and perceived appreciation is a new

insight in psychological safety research. Furthermore, my research adds to psychological safety literature by indicating women show more ego strength than men; women admitted their own fallibility and modeled openness for the input of others more than men. Thus, I call for research on the relationship of ego strength and team psychological safety and on variations in ego strength between genders.

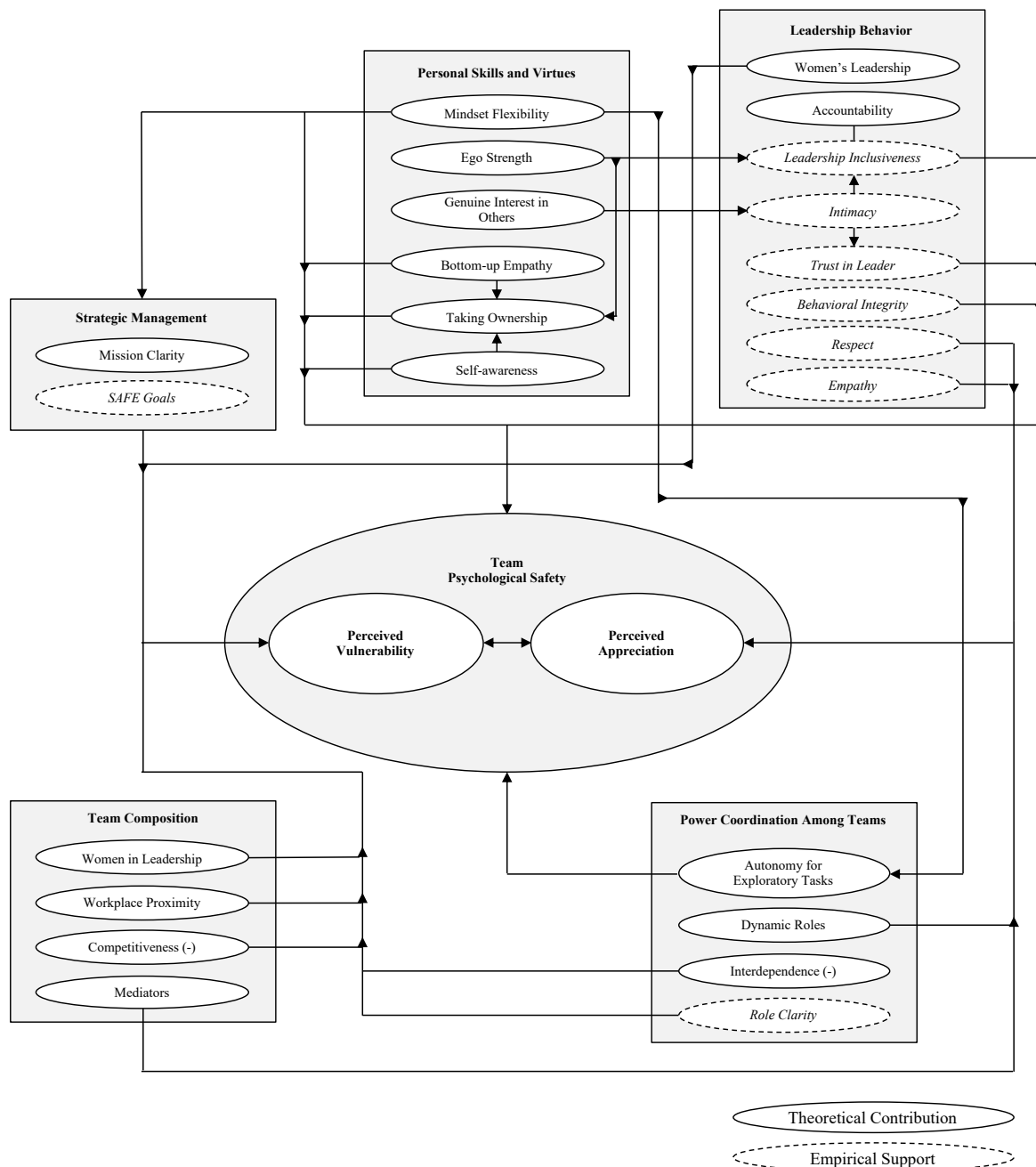
Moreover, my research contributes to literature by identifying bottom-up empathy and taking ownership as factors influencing team psychological safety. The findings of Study 2 indicate that the majority of participants blamed managers for a psychologically unsafe team climate. The attribution of responsibility to managers indicates employees' victimization and lack of ownership of the development of team psychological safety. Employees' blaming of managers implies a lack of bottom-up empathy; most interviewees did not show much understanding of the challenges faced by their managers in developing team psychological safety. For example, most employees did not consider the subsidiary's recent establishment, its fast growth over a short period, its unique setting as part of a listed, established German automobile manufacturer, or the ensuing challenges to relinquish short-term profitability expectations and grant high degrees of autonomy for the subsidiary to explore and learn about new businesses for mobility services and autonomous driving. Therefore, I propose that greater bottom-up empathy may have enabled employees to show more understanding for their managers' challenges in creating team psychological safety and have led to employees' taking more ownership in helping to overcome obstacles to team psychological safety. I suggest that greater bottom-up empathy from employees toward their managers can lead to more ownership, strengthen team togetherness, and enable a better evaluation of team psychological safety, which can ultimately positively influence perceived vulnerability and perceived appreciation. As bottom-up empathy and taking ownership represent novel identified factors influencing team psychological safety, I call for more research to investigate the proposed relationships.

Study 2 also suggests the relevance of self-awareness to team psychological safety. My empirical findings demonstrate that most employees who blamed their managers for low levels of perceived vulnerability and perceived appreciation were unaware of the negative influence of their blaming behavior on team psychological safety. Thus, I suggest that with higher levels of self-awareness, individuals may stop blaming, take ownership, and thus increase the perceived vulnerability and perceived appreciation in a team. As this finding contributes to literature, I propose more research to investigate the influence of self-awareness and taking ownership on team psychological safety.

In sum, Figure 4-12 depicts the empirical findings and theoretical contributions of my research regarding the identified factors influencing team psychological safety and thus shows the achievement of the third goal of my research.

Figure 4-12

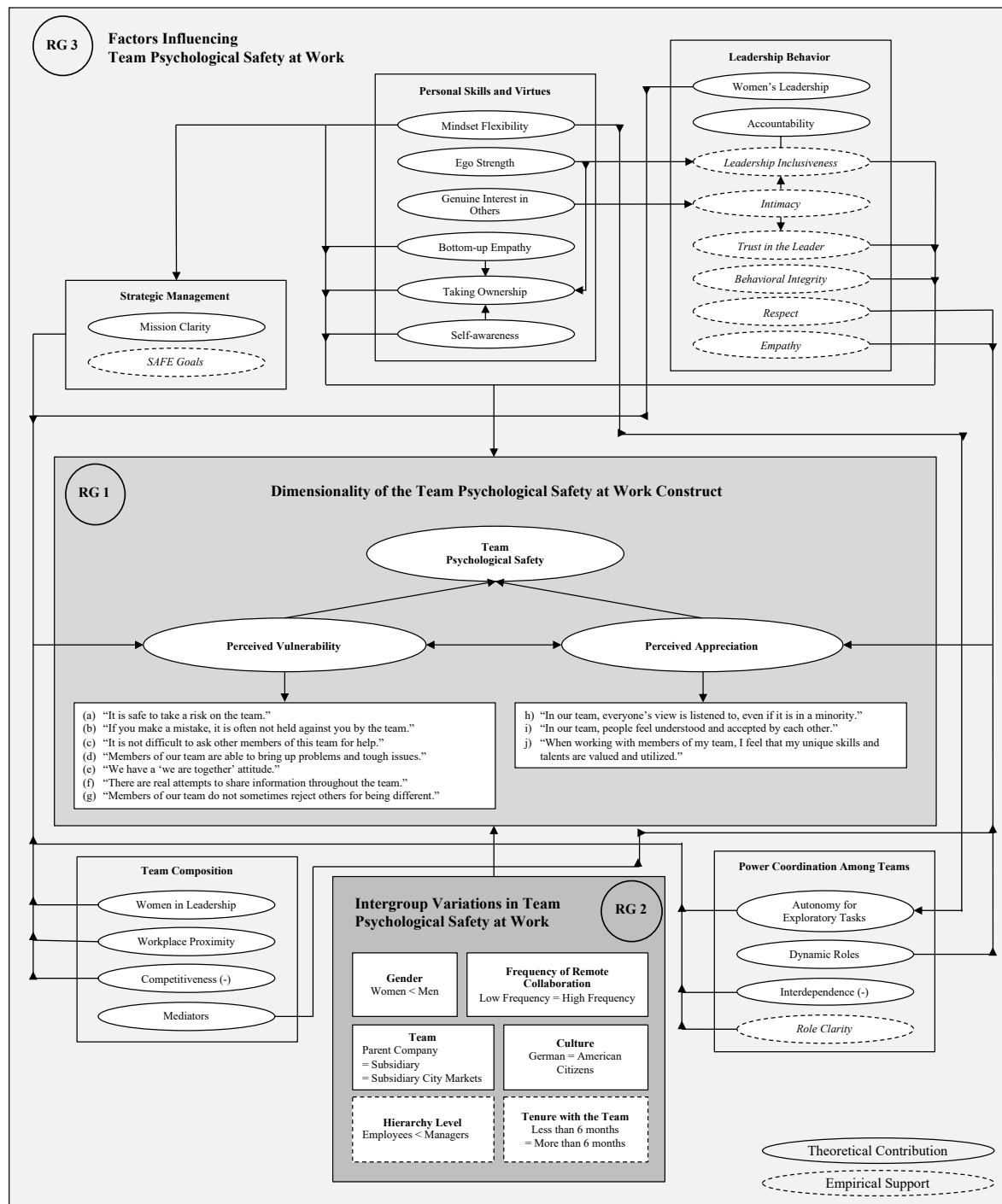
Empirical Findings and Theoretical Contributions for Factors Influencing Team Psychological Safety (RG 3)



Overall, Figure 4-13 outlines all the theoretical contributions of my research regarding the dimensionality of the team psychological safety construct (RG 1), intergroup variations in team psychological safety (RG 2) and the factors influencing team psychological safety (RG 3), showing the achievement of all three goals.

Figure 4-13

Summary of Empirical Findings and Theoretical Contributions



Note. The indicators or scale items (a), (b), (c), (d), (g) and (j) are from the team psychological safety scale of Edmondson (1999, p. 382) and the indicators or scale items (e), (f), (h) and (i) are from Anderson and West (1998, p. 246) participative safety scale of their team climate inventory scale as explained in Table 2-1.

4.2. Managerial Implications

So how can managers foster psychological safety in teams? Based on the empirical findings of my research, I provide several suggestions to help managers cultivate team psychological safety. More specifically, my research offers advice related to (a) strategic management, (b) power coordination among teams, (c) team composition, (d) recruiting and development, and (e) leadership behavior to help managers in developing higher levels of perceived vulnerability and perceived appreciation in their teams.

First, strategic managers may increase the perceived vulnerability in their team by developing and communicating a clear mission that clarifies the reason for the existence of an entity. Managers are advised to pay particular attention to ensuring and conveying alignment among management teams toward one shared mission. The clarification of the mission may be of greatest relevance for managers who work in innovative business areas or at a subsidiary of a traditional established company, as their missions are likely to differ from the mission of the parent company or of traditional business areas of the company and thus may hold major conflict potential.

Next, managers may establish shared, achievable, flexible, and enriching learning (SAFE) goals to foster perceived vulnerability in teams. Managers may increase perceived vulnerability through a number of steps. The first of these is by establishing collective goal development procedures that include team members across hierarchy levels, team, and entity and by defining shared goals between the teams of a parent company and its subsidiary. Moreover, managers may consider defining ambitious yet achievable and flexible goals by providing less detailed and more long-term goals, thus offering teams more flexibility for deciding on specific goals and timelines. Furthermore, managers may focus on setting learning-oriented goals that fit the team's mission, especially for teams pursuing exploratory tasks in new business areas, rather than on primarily financial-oriented goals, which may be more suitable for established organizations.

Second, power coordination among teams may be improved by ensuring the financial autonomy and decision-making power of a subsidiary from its parent company; this may strengthen both perceived vulnerability and perceived appreciation in local subsidiary teams. Autonomy may also be important for teams pursuing exploratory work tasks in developing new products and services to foster their perceived vulnerability and perceived appreciation. Workplaces that require collaboration among team members of a parent company and its subsidiary particularly need the anticipated influence of the parent company at the subsidiary to be clarified and communicated from the beginning to help develop psychological safety in the subsidiary teams. Furthermore, managers may clarify roles and

interdependence between different teams and team members to cultivate higher levels of perceived vulnerability. Managers may also pay attention to defining dynamic rather than fixed roles, enabling team members to try different work activities and thus apply individual skills, which in turn may increase the perceived appreciation.

Third, team composition can be improved by designing cross-functional and cross-project teams rather than siloed teams to decrease competition among peers and thus help to develop more perceived vulnerability. Moreover, particularly in work contexts that require remote collaboration with globally dispersed team members, managers are recommended to invest in the development of personal relationships among team members before they begin working remotely with one another. Managers are also advised to offer regular opportunities for proximity between team members through social gatherings and personal exchanges during remote collaboration to strengthen perceived vulnerability.

Furthermore, when designing teams, managers may allocate the specific and sole role of mediators to particular team members to develop higher levels of perceived appreciation in teams. Team members who act as mediators can moderate differing perspectives and approaches between team members from distinct business cultures with different missions, and therefore enhance perceived appreciation. Managers may integrate team members who have work experiences in different business cultures as mediators to facilitate collaboration among other team members to increase perceived appreciation in a team.

Additionally, managers may pay attention to including more women when composing teams, to ensuring a balanced ratio of men to women, especially in traditionally male-dominated teams, organizations, and industries to develop a higher perceived vulnerability. In gender-diverse teams, previously underrepresented women may then feel safer to show vulnerability. Managers may also put more women in leadership positions; they were regarded as calmer, less confrontational, and more team-oriented with a greater willingness to make compromises for the sake of team benefits over personal benefits than men in leadership. In contrast, men in leadership were regarded as more aggressive and silo-oriented.

Fourth, individuals who are recruited and promoted may first be tested for specific personal skills and virtues that will help develop team psychological safety. A person's ego strength seems to be a crucial personal skill and virtue for creating team psychological safety and thus should be assessed in recruitment and promotion processes. A person with a strong ego seems to be better able to admit their own fallibility by acknowledging mistakes and ignorance, to show openness for the input of others, and to learn from others; people with a weaker ego may be less willing to admit their own fallibility and have a stronger need for self-exaltation and

omniscience and thus a reduced openness to asking others for input. Thus, managers are advised to learn about a person's ego strength in the recruiting and promotion process to help the development of team psychological safety.

Another important personal skill and virtue for the cultivation of team psychological safety is bottom-up empathy. More bottom-up empathy from employees toward managers helps them demonstrate more understanding for managers' challenges in creating team psychological safety. This may lead to employees' taking more ownership instead of blaming their managers for issues with team psychological safety and therefore positively influence its development. Thus, managers may consider testing bottom-up empathy when recruiting people and designing teams to enhance team psychological safety.

Moreover, self-awareness seems to be important for team psychological safety. People with greater self-awareness may be better equipped to reflect on and evaluate the positive and negative impacts of their own behavior on the team climate and in turn take appropriate measures to improve their behavior. Thus, managers may consider integrating the assessment of employees' self-awareness into recruitment and promotion processes to enable the development of team psychological safety.

Furthermore, a flexible mindset seems to be a crucial personal skill and virtue that managers may consider in recruitment and promotion procedures. A flexible mindset may allow people to distinguish between the distinct missions of different units such as the parent company and its subsidiary and subsequently to apply alternative approaches, goals, and degrees of autonomy depending on the mission.

Fifth, leadership inclusiveness, may also be fostered to positively influence team psychological safety. Managers may consider increasing their availability to team members by offering opportunities for personal or digital exchanges with employees. In global teams with geographically dispersed team members, managers may also deputize a trusted and empowered team member who is on the same hierarchy level as the other team members but who serves as a virtual channel to the manager. This can help team members to address issues when the manager is not available. Moreover, to increase perceived vulnerability, managers are encouraged to admit their fallibility by admitting their own mistakes and ignorance in front of others. When managers model fallibility in front of the team, team members may be reassured that showing vulnerability by bringing up problems or admitting mistakes is tolerated and thus may reduce their fear of negative ramifications of risk-taking. Furthermore, managers may foster both perceived vulnerability and perceived appreciation in their teams by cultivating participation through opportunities for input. For example, managers are recommended to pay particular attention to demonstrating respect and equality of opinions independent of hierarchy level, age,

and gender and to ensuring a balanced division of speaking time for team members. To further increase the perceived appreciation in a team, managers may proactively ask employees and team colleagues for their input, show empathy, and genuinely listen to different perspectives. In male-dominated teams, managers may in particular encourage women to contribute their ideas and perspectives to foster psychological safety among the underrepresented group of female team members. In addition, managers are advised to invest time in clarifying accountability and explaining to their teams which behaviors are valued and which will lead to negative ramifications. In this regard, managers are recommended to pay attention to acting with behavioral integrity and holding others accountable for misconduct to positively influence perceived vulnerability. Additionally, managers may consider offering executive coaching to help managers reflect on and deal with challenges regarding their leadership behavior and issues with team psychological safety.

Furthermore, managers may foster both perceived vulnerability and perceived appreciation by establishing intimacy with their team members, which in turn can increase levels of mutual trust. To increase intimacy between themselves and their team member, managers need to show genuine interest in their team members' well-being and take time to get to know and learn more about team members personally.

Overall, my research offers a variety of measures managers can take to cultivate psychological safety. But what may be the first step suggested to managers in fostering team psychological safety? First, managers are advised to measure psychological safety perceptions within their teams. Managers may consider using the 10-item scale used in my research to assess the overall psychological safety perceptions and specific levels of perceived vulnerability and perceived appreciation in their teams. Moreover, managers can identify intergroup variations in team psychological safety by including control variables in a survey (gender, frequency of remote collaboration, hierarchy level, and team and culture) and ensuring anonymity among participants. Measuring team psychological safety allows managers to identify areas that are already going well and those that can still be improved. In addition to conducting a survey to measure psychological safety perceptions in teams, managers are advised to proactively ask employees to note areas for improvement. To encourage employees to openly discuss issues surrounding psychological safety, managers are recommended to first reflect on and openly admit challenges regarding psychological safety in front of their teams. Next, managers can use my research insights to implement measures to develop team psychological safety. As my research suggests the fragility of team members' psychological safety perceptions, managers may consider investing thorough effort and collaborating with psychological safety experts to tackle the delicate and crucial matter of fostering psychological safety.

4.3. Limitations and Quality Measures

Despite the theoretical contributions and implications for management my research provides, it is important to critically reflect on and acknowledge limitations of my research, some of which may present avenues for future research.

First, the extent to which my findings may be generalized and transferred to other work contexts may be limited, as I conducted a single case study in the specific work context of a listed German automobile manufacturer and its North American mobility services subsidiary. Although I believe that my findings can offer insights to scholars and managers in other work contexts, I call for more research to validate and further develop my findings. Moreover, the transferability of my findings is uncertain because the sample in my research was relatively small. However, I included in my research everybody from the target population: all relevant team members of the division for future mobility from the parent company, the entire team from the subsidiary, and the subsidiary's city markets. Thus, future research may include larger samples and conduct multiple case studies in other organizations.

Second, I had the unique opportunity of flexible and deep immersion in a multinational organization and its subsidiary over a period of 4 years. Accordingly, I adopted the dual roles of both researcher and team member as part of a functional and a cross-functional project team at the research site. Although this research setting allowed a unique and in-depth investigation of the research phenomenon in a real-life context, I also acknowledge that I was part of what was studied and recognize that my own values and perspectives may have influenced my research. Consequently, my subjective interpretations of the data may have decreased the credibility of my findings. Yet, my long field immersion may also have enabled a more contextualized understanding of team psychological safety at the research site and the development of rapport and trusting relationships with participants, which in turn may strengthen the credibility and confirmability of my research findings.

Third, the dependability of my findings may be reduced by my conduct of this research in a specific time and context. Circumstances change over time, which limits the opportunities of other scholars to develop the same insights.

Limitations also arise from the two studies I conducted. Study 1 used a quantitative survey to assess team psychological safety perceptions that comprised two validated team-level scales of Edmondson (1999) and Anderson and West (1998). After a pretest in which the fit of each scale item of these two scales was discussed with 10 experts, including scholars and practitioners from the research site, several scale items had to be eliminated from the survey. In particular, the scale item "No one in this team would deliberately act in a way that undermines my efforts" (Edmondson, 1999, p. 382) was perceived as negatively worded and thus was

eliminated. This scale item has also been excluded by scholars such as Baer and Frese (2003). Moreover, a total of four scale items of the Anderson and West (1998, p. 246) scale were removed from the survey after the pretest: Two scale items “We share information generally in the team rather than keeping it to ourselves” and “People keep each other informed about work-related issues in the team” were excluded because their wording was perceived to be too similar to that of the scale item “There are real attempts to share information throughout our team”, which was part of the survey scale. Two other scale items “We influence each other” and “There is a lot of give and take” were discarded from the survey because they were not understood by the pretest participants. As a result, an adapted version of the team-level scales that included 10 items instead of 15 items was used in Study 1 to assess psychological safety perceptions at the team-level. Furthermore, survey participants might have experienced difficulties in rating three scale items from the Edmondson (1999, p. 382) scale that are formulated negatively (“If you make a mistake, it is often held against you by the team”, “It is difficult to ask other members of this team for help” and “Members of our team sometimes reject others for being different” because disagreeing with these scale items signified more team psychological safety.

Second, in the first part of the data analysis of Study 1, I ran two exploratory factor analyses on the 10 scale items of my survey measure to examine the dimensionality of the team psychological safety construct. The analysis revealed two dimensions of the team psychological safety construct, perceived vulnerability and perceived appreciation. Because to the best of my knowledge this is the first research study to propose two higher-order dimensions of the team psychological safety construct, I readily acknowledge the need for further research to validate, revise, and extend the dimensionality of this construct with distinct samples in similar and other contexts. Furthermore, the results showed cross-loadings between two scale items, indicating a correlation between the two dimensions. However, I expected scale items to correlate due to the involvement of people’s psychological perceptions. Moreover, as the goal of the principal-axis factoring was to extract meaningful dimensions rather than to explain total variance (Widaman, 1993), the cross-loaded scale items were not eliminated from the analysis. In this regard, future research my investigate the relationship of the proposed dimensions of the team psychological safety construct. To ensure internal consistency, Cronbach’s alpha values were computed for the team psychological safety construct (Cronbach’s alpha = .89) and its two dimensions, perceived vulnerability (Cronbach’s alpha = .87) and perceived appreciation (Cronbach’s alpha = .78). All Cronbach’s alpha values were larger than 0.7, thus indicating acceptable reliability (Saunders et al., 2019).

Third, in the second part of the data analysis of Study 1, I compared groups' survey results to investigate intergroup variations in team psychological safety. Significant variations in team psychological safety perceptions were only found for the comparison between genders, while no significant variations were revealed between distinct groups of frequency of remote collaboration, tenure with the team, hierarchy level, and team and culture. The relatively small number of survey participants ($N = 61$) may decrease the ability to generalize and transfer my research findings to other work contexts and may be one reason for the absence of significant variations in team psychological safety between groups. Future research may explore possible intergroup variations in team psychological safety using larger samples. Another limitation of Study 1 is that the group sizes were unequal: There were more men ($n = 40$) than women ($n = 13$); more participants who collaborated more frequently with globally dispersed team members ($n = 46$) than those with less remote collaboration ($n = 15$); more participants with a tenure of more than 6 months ($n = 44$) than less than 6 months ($n = 17$); more team members from the North American subsidiary team ($n = 34$) than from the North American subsidiary's city markets teams ($n = 11$) and from the German parent company team ($n = 16$); and more employees ($n = 39$) than managers ($n = 14$). Moreover, the group labelled "manager" comprised two hierarchy levels (team managers and department managers or executives) due to the limited number of managers, which may dilute possible variations across hierarchy levels.

Study 2 also had some limitations. First, according to Saunders et al. (2019), the method of participant observation may induce significant observer bias due to proximity to the observational situation; I also faced a potential role conflict as both a colleague and a researcher. This bias may reduce the credibility of my findings. Consequently, it is important to consider that the vignettes in Study 2 of specifically notable observations may be exaggerated or flawed due to my subjective interpretation of the field observations, which may further decrease the credibility of my findings. However, as noted in Study 2, participant observations were intended to be a supplementary qualitative data source for the focus group and individual interviews, which represent the focal data sources in my research. Accordingly, a range of qualitative data methods were applied to enrich the understanding of the factors influencing team psychological safety, which may enhance the credibility of my findings. Next, the confirmability of my findings from the interviews may be weakened through my influence on interviewees or the response bias of participants. However, I implemented measures to foster the trustworthiness of the qualitative data suggested by several scholars (Denzin, 2012; Denzin & Lincoln, 2018; Guba & Lincoln, 1989; Lincoln & Guba, 1985; Lincoln et al., 2011; Saunders et al., 2019).

To increase the confirmability of my findings, the focus group interviews and several individual interviews were held by two interviewers, and the great majority of interviews were conducted face-to-face. Temporary travel restrictions obliged me to conduct 28% of the interviews by video link or telephone until I resolved travel issues. However, Saunders et al. (2019) explained that in-depth data may also be collected through telephone interviews if rapport and trust have already been developed between the interviewer and interviewees. This condition was likely fulfilled as I was able to build trusting relationships with participants from the research site before conducting the interviews by telephone and video link. Moreover, the interviewees were asked open-ended questions, and the interviews were audio recorded and transcribed to increase the confirmability of my findings. To enhance the credibility of my findings, I checked the meaning of responses with participants during the interviews and held debriefing sessions with the HR partner at the subsidiary, who supported me during the data collection at the research site, to reflect on the discussions of the interviews. I also developed a qualitative interview guide with several key questions to improve the dependability of my research findings (see Appendix 7.2.). Lastly, I provided a detailed description of my findings to increase the extent to which my findings may be transferred to similar or other contexts.

4.4. Avenues for Future Research

Although my research extends the current knowledge on team psychological safety regarding its dimensionality, intergroup variations and influencing factors, several unanswered questions remain to be explored in future studies. Based on my empirical research findings, I propose several avenues for future research.

Dimensionality of the Team Psychological Safety Construct.

One avenue for research may be the further investigation of dimensionality of team psychological safety. First, more research is required to support the combination of the two team-level scales by Edmondson (1999) and Anderson and West (1998) used here to measure team psychological safety. These two scales are both validated and frequently used, and their combination could resolve problems created by the use of different measurement instruments for team psychological safety (Newman et al., 2017) and thus enhance the comparability of future research studies (Hawcroft & Milfont, 2010). Next, I call for more research to validate the two dimensions of the team psychological safety construct proposed in my dissertation: perceived vulnerability and perceived appreciation. Moreover, future research could investigate whether a potential third dimension, such as “perceived togetherness” could be identified comprising items of both the Anderson and West (1998, p. 246) scale, such as “We have a ‘we are together’ attitude” and “There are real attempts to share information throughout the team”, and the Edmondson (1999, p. 382) scale: “If you make a mistakes, it is often held against you by the team”. Three higher-order dimensions of the team psychological safety construct would lead to a more balanced distribution of indicators or scale items. Future research may also examine the relationship between the dimensions of the team psychological safety construct: how perceived vulnerability and perceived appreciation influence each another.

Intergroup Variations in Team Psychological Safety.

Other avenues for future research may be the so-far-neglected research into intergroup variations in team psychological safety (Newman et al., 2017). Future research may further examine how team psychological safety perceptions vary regarding gender, frequency of remote collaboration, tenure with the team, hierarchy level, belonging to a parent company or subsidiary team, and different cultures in order to corroborate, further specify, and extend my research. Scholars are advised to use larger samples and ensure equal group sizes to investigate potential variations in team psychological safety between distinct groups.

Gender Differences.

First, future research may further explore variations in team psychological safety at work between women and men and validate the lower team psychological safety ratings by women than men identified in my research. Future research could undertake research on variations in team psychological safety between genders both in other men-dominated teams, organizations, and industries and in women-dominated ones. Moreover, little is yet known about the reasons that underlie variations in team psychological safety between genders. Accordingly, I call for research to analyze the reasons for lower team psychological safety ratings by women than men. My research indicates that women may either indeed feel less psychologically safe than men or that women are more able to acknowledge issues surrounding team psychological safety than men and thus had lower ratings of team psychological safety. The latter could mean that women actually perceive higher vulnerability as they may be more able to show vulnerability by acknowledging issues surrounding the team climate. If women can better acknowledge lower team psychological safety levels than men, future research may concentrate on examining the reasons behind a lower willingness by men to acknowledge team climate issues. Future research may consider using multiple and alternative research methods that do not rely on self-reported survey or interview data but methods such as participant observation or simulation experiments in which scholars can observe behavior and analyze participants' facial expressions, body language, and other reactions. The use of such methods may shed more light on the potential variations between genders in team psychological safety. Conversely, if women generally feel less psychologically safe than men, then the development of a psychologically safe team climate might be of especially high importance in women-dominated teams, organizations, and industries. Additionally, if the reason for lower levels of psychological safety among women than men is the male domination and underrepresentation of women at work, then scholars may examine the relative higher importance of the factors that cultivate team psychological safety for women than men. In sum, my research offers intriguing opportunities for scholars to advance knowledge on variations in team psychological safety between genders.

Remote Collaboration.

Research may further examine my findings about the absence of significant variations in team psychological safety between members who work less frequently with globally dispersed team members and those who do so more frequently. Here, future research may investigate conditions for enabling team psychological safety in

effective remote collaboration, such as the role of previous personal relationships, lengths of remote collaboration without personal interactions on site, types of communication styles, and the amount of time per collaboration in person.

With an increasing proportion of collaboration in today's organizations being held remotely, especially since the start of the COVID-19 pandemic (Clutch.co, 2020; Lavelle, 2020), my findings of nonsignificant variations in team psychological safety with frequency of remote collaboration represent a promising avenue for future research. Accordingly, scholars may explore ways to form personal relationships among team members who are required to collaborate remotely. For example, future research may investigate the role and effectiveness of virtual team building activities, online social gatherings, virtual reality formats, and virtual conferences in building rapport in teams for team psychological safety. Studies on team psychological safety may also be conducted in multi-player online strategy games such as *Forge of Empires* and *World of Warcraft*, in which players can form guilds with others. These may provide interesting contexts in which to examine both personal relationships among virtual team players and team psychological safety and then potentially transfer insights for today's workplaces.

Furthermore, I encourage scholars to shed more light on my mixed findings regarding the influence of workplace distance on perceived vulnerability and perceived appreciation. Future research studies may clarify the effects of workplace distance and investigate the conditions under which these effects ensue and ways to mitigate any negative effects of remote collaboration.

Team and Cultural Differences.

Third, as my research found no significant variations in team psychological safety between team members of the parent company, its subsidiary, and the subsidiary's city markets, more research may be conducted in similar work contexts to support or oppose my research finding. Moreover, I encourage future research to further explore variations in team psychological safety across cultures. My research has provided initial empirical evidence of an absence of significant variations in team psychological safety between German and American citizens; almost all team members of the German parent company were German citizens, and nearly all of the team members of the subsidiary and its city markets were American citizens. Future research may consider examining team psychological safety variations between several cultures and by including both western and eastern cultures.

Team Tenure, Speed, and Dynamic of Psychological Safety Development.

Another avenue for future research may be the effect of length of tenure with the team on team psychological safety. Current literature provides mixed support for my findings on this topic. More specifically, in alignment with my findings some scholars found no relationship (Bunderson & Boumgarden, 2010), while others showed a positive influence of longer tenures on team psychological safety (Edmondson, 1999), and yet others noted that teams of members with shorter and longer team tenures led to more team psychological safety than teams comprising members with a more moderate tenure (Koopmann et al., 2014). Accordingly, as my research only analyzed variations between a tenure with the team of less than 6 months and a tenure of more than 6 months, future research may consider including larger time spans such as weeks, months, years, and decades to gain more precise knowledge on which lengths of team tenure lead to variations in team psychological safety. These findings may lead to considerable implications for effective team compositions regarding team tenure and team psychological safety.

Moreover, as my results showed no significant variations in team psychological safety between a tenure with the team of less and of more than 6 months, it would be interesting to understand the speed at which psychological safety perceptions develop and change over time. Based on my results, it may be that team psychological safety is immediately recognized by new team members. Future research could also examine how fast psychological safety perceptions can be altered for the better and worse as my research indicates the possible fragility of psychological safety perceptions. These findings highlight the importance of avoiding negative incidents at work, which may lead to lower perceptions of team psychological safety, and of investing in creating positive team experiences.

Relative Importance and Interaction Effect of Intergroup Variations.

Fifth, future research may investigate the relative influence of intergroup differences in explaining variations in team psychological safety by developing a ranking of differences such as gender, frequency of remote collaboration, hierarchy level, tenure with the team, team belonging, and culture. Moreover, I propose that future research test interaction effects between multiple intergroup differences on psychological safety perceptions and measure the combined effect of differences.

Factors Influencing Team Psychological Safety.

Despite my extensive effort to develop a more thorough understanding of factors influencing team psychological safety and its two dimensions, perceived vulnerability and perceived appreciation, further research is required to empirically investigate the influencing factors proposed here and their relation to the team psychological safety construct. These insights will support the development of a psychologically safe team climate in organizations.

Personal Skills and Virtues.

Little empirical evidence has yet been published showing that personality traits positively influence psychological safety at the team level (Frazier et al., 2017). So far, only Wilkens and London (2006) and Frazier et al. (2017) have suggested a positive relation of peoples' learning orientation with team psychological safety. I argue that instead of personality or character traits, people can develop personal skills and practice specific virtues that can positively influence team psychological safety. This perspective is related to that of influential mindset scholar Dweck, who has argued for a learning-oriented growth mindset that positively influences performance rather than a fixed mindset (Dweck, 2008). Based on my empirical findings, I suggest further research on the influence of personal skills and virtues on team psychological safety. These future research studies will offer valuable insights both for scholars on the relevance of personal skills and virtues to team psychological safety and for managers on who they should recruit, include, and promote in a team.

One promising avenue for future research is the relationship between the personal skill or virtue of bottom-up empathy and team psychological safety. While most research has focused on empathy as a leadership skill crucial to several positive work outcomes (e.g., Carmeli et al., 2010; Choi, 2006; Kellett et al., 2002; Mahsud et al., 2010), I propose the importance of bottom-up empathy by employees toward their managers for team psychological safety. I suggest that greater bottom-up empathy from employees toward their managers may enable employees to take more ownership for developing a psychologically safe team climate instead of attributing responsibility solely to their managers, which in turn may help the cultivation of team psychological safety. Thus, I call for more research to study the proposed influence of bottom-up empathy on taking ownership and on team psychological safety.

Another intriguing avenue for future research is how ego strength relates to team psychological safety. My research proposes that ego strength may lead to leadership inclusiveness and in turn enhance team psychological safety. In particular, future research may consider further examining my empirical findings on the

influence of ego strength on team psychological safety. These findings suggested that a strong ego enables people to acknowledge issues, show openness and appreciation for the input of others, and thus increase the perceived vulnerability and perceived appreciation in a team. Future research studies may also investigate variations in ego strength between women and men as my findings indicated that women had more ego strength than men. Men were less able to acknowledge issues and own mistakes and were less open and appreciative of the input of others than women. Furthermore, future research may seek to develop a scale to measure various facets of ego strength and their effect on team psychological safety.

Moreover, an interesting avenue for further research is the investigation of the relationship between leaders' genuine interest in others and team psychological safety. To corroborate my empirical findings, future research may further examine the proposed positive influence of leaders' genuine interest in employees, leading to more intimacy between leaders and their employees and in turn increasing the trust in leaders, which then cultivates team psychological safety. In this regard, future research studies may also investigate the influence of genuine interest in others on team psychological safety.

Furthermore, future research may study the importance of self-awareness for team psychological safety. Accordingly, scholars may investigate the effect of self-awareness in becoming aware of the negative impacts of one's own misbehaviors, such as blaming, on team psychological safety. Thus, research may consider assessing the positive influence of self-awareness on less blaming behavior and in turn on more team psychological safety.

In addition, future studies may examine the role of a flexible mindset and its positive influence on team psychological safety. Future research may follow my proposal that a flexible mindset allows people to abandon standardized ways of doing business and apply alternative approaches. In particular in subsidiaries or new business areas, managers from the parent company who develop and practice a flexible mindset may be able to grant the subsidiary more autonomy and set goals distinct from those of the parent company such as learning-oriented goals with more long-term profitability expectations that fit the organizational mission of the subsidiary, which may enhance team psychological safety.

In sum, my research contributes to theory in proposing several personal skills and virtues that may positively influence team psychological safety. Thus, I call for research to validate my novel findings and extend current knowledge on personal skills and virtues that may positively influence team psychological safety.

Team Composition and Leadership Behavior.

I also propose three new avenues for psychological safety research regarding team composition and leadership behavior: First, future research may examine the proposed positive influence of women's leadership on team psychological safety. Future research may investigate how women in leadership positions positively influence psychological safety perceptions in teams and what specific positive leadership behaviors can be attributed to women. It would also be interesting to investigate variations in team psychological safety and in women's leadership in men-dominated and women-dominated teams. Future research may also assess the relative importance of women's leadership in men-dominated and women-dominated leadership teams, organizations, and industries.

Second, future research may investigate the proposed positive effect of team members who act as mediators on team psychological safety. In particular, scholars may consider conducting research on the positive influence of mediators in work contexts that require collaboration between team members from different business cultures, backgrounds and nationalities such as that of my research, in which team members from a German automobile manufacturer collaborated with members from its North American mobility services subsidiary and North American city markets.

Third, future research may explore the proposed extension of the leadership inclusiveness concept regarding accountability as a leadership practice. Scholars may use my empirical insights regarding the positive influence of clarity of and implementation of accountability on team psychological safety and in doing so follow the demand to extend the knowledge of the leadership inclusiveness concept (Nembhard & Edmondson, 2012).

Strategic Management and Power Coordination Among Teams.

I call for research to validate my findings that a clear mission positively influences team psychological safety. In particular, future research may conduct research in similar work contexts comprising collaborating teams from different entities, such as a parent company and its subsidiary, which pursue distinct missions but are required to collaborate.

Further, I suggest future research to clarify the mixed findings on the role of autonomy in team psychological safety. Although my empirical findings indicate a positive influence of autonomy in exploratory work tasks on team psychological safety, research by Chandrasekaran and Mishra (2012) suggested a positive influence of autonomy on psychological safety solely in exploitative work tasks, whereas Frazier et al. (2017) reported a general positive influence of autonomy on team

psychological safety with no further specifics on which kinds of autonomy. Accordingly, future research may clarify the work tasks in which autonomy positively influences team members' perception of psychological safety. I also propose that future research investigate the extent to which subsidiaries have to be set up as fully autonomous entities instead of as parts of a parent company to avoid newly founded subsidiaries in new business areas having to compete for financial resources with the parent company's more established and profitable areas and thus help create a psychologically safe team climate.

Furthermore, future research may examine my findings regarding role clarity and dynamic roles. In particular, future research may investigate the proposed positive effect of dynamic work roles rather than fixed roles on team psychological safety. These insights may help managers to balance clear and dynamic roles for employees. Future studies may also clarify the role of interdependence in team psychological safety; my findings suggest a negative effect of interdependence between team members from the parent company and subsidiary, but Edmondson (1999) and Frazier et al. (2017) noted a positive influence of interdependence on team psychological safety.

Relative Importance, Interaction Effects, and Qualitative Case Studies.

Additional avenues for research are the relative importance of the factors influencing team psychological safety and potential interaction effects between these factors. Lastly, I call for scholars to conduct more case studies in similar and other work contexts and to apply qualitative methods to generate new insight into factors influencing team psychological safety. Accordingly, these future studies may help to increase the transferability of my empirical findings to other work contexts.

5. Conclusion

Research on team psychological safety is a fascinating endeavor, as it raises intriguing research opportunities for scholars and offers promising implications for managers. Despite compelling evidence from scholars on the importance of psychological safety for numerous positive work outcomes, many questions about this concept remain unanswered.

My research contributes in advancing theoretical and practical knowledge on team psychological safety in several ways: by offering initial evidence for two dimensions of the team psychological safety construct, by illustrating the ways in which team psychological safety varies between groups, and by extending insights on its influencing factors. I hope that my work will spur scholars to continue shedding light on the concept of team psychological safety, including its dimensionality, intergroup variations, and influencing factors. These research efforts will further support managers in building a psychologically safe team climate in which employees share the belief that it is safe to speak up, contribute their ideas, learn, innovate, and collaborate—even at the risk of failing.

The investment in promoting team psychological safety will pay off; indeed, it is no longer a choice as ideas, learning, innovation, and collaboration are of utmost importance for organizations in prospering and enduring in an increasingly complex and rapidly changing world. Fostering team psychological safety is especially urgent considering many of today's workplaces lack a psychologically safe team climate (Edmondson, 2018). Given the recent and severe sexual workplace harassment claims and the #MeToo movement, the distressing racial inequalities and discrimination of minorities (Edmondson, 2018, 2020), and the increasing fear among people worldwide of losing their jobs in the aftermath of the COVID-19 pandemic, these circumstances immensely reduce the willingness of people to take interpersonal risks and thus unmistakably accelerate the relevance and urgency to create psychologically safe workplaces.

Therefore, team psychological safety represents an enormous opportunity for both scholars and managers to realize untapped potential in organizations and ensure their survival, and thus will be an essential responsibility now and in the coming decades. In conclusion, I propose that today's scholarly and organizational leaders internalize the following motto: "Better psychologically safe than sorry."

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7. Appendices

7.1. Team Psychological Safety Survey

Introduction page

Welcome!

Thank you for your time in participating in the survey.

Your honest feedback is highly appreciated. The feedback you provide us will help shape our culture and team collaboration.

Please know that all of your answers will be strictly confidential.

The survey will take approximately 5 minutes.

Thank you very much for your contribution!

Term definitions

The following term definition is provided to help you answer the survey questions:

- Team – please think of this as the people you personally work with within your tasks and projects (can be from the subsidiary team, the city market teams of the subsidiary and the parent company team) and can include people from different hierarchy levels as well as different functional teams.

Throughout the survey, please reflect and indicate to what extent you disagree or agree with the following ten statements.

1. If you make a mistake, it is often held against you by the team.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. Members of our team are able to bring up problems and tough issues.

[illegible]

10. We have a ‘we are together’ attitude.

	1	2	3	4	5	6	7	
Strongly disagree	☐	☐	☐	☐	☐	☐	☐	Strongly agree

Control Variables

At which team do you work?

- ☐ Subsidiary
- ☐ City markets of the subsidiary
- ☐ Parent company

What is your level in the organization? (Optional)

- ☐ Management level
- ☐ Employee level

What is your gender? (Optional)

- ☐ Male
- ☐ Female

How long have you been with the team?

- ☐ < 6 months
- ☐ > 6 months

How frequently do you work with globally dispersed team members (can be from the subsidiary team, the city market teams and the parent company team)?

- ☐ Never to several times a month
- ☐ Several times a week to daily

Note. Survey questions 1-6 are from “Psychological Safety and Learning Behavior in Work Teams,” by A. C. Edmondson, 1999, *Administrative Science Quarterly*, 44(2), p. 382 (<https://doi.org/10.2307/2666999>). Copyright 1999 by Cornell University. Adapted with permission.

Survey questions 7-10 are from “Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory,” by N. R. Anderson & M. A. West, 1998, *Journal of Organizational Behavior*, 19(3), p. 246 (<https://doi.org/fmqp5f>). Copyright 1998 by John Wiley & Sons. Adapted with permission.

7.2. Qualitative Interview Guide

Focus Group Interviews
1. What are topics throughout the survey that you find important to talk about? 2. To what extent do you agree/disagree with the results? What are your personal experiences? 3. What are potential barriers and enablers of team psychological safety?
Individual Interviews
1. How would you describe the team climate? 2. How comfortable do you feel e.g., to take risks and to admit mistakes? 3. How would you describe the effort of information sharing throughout your team/across teams? 4. To what extent do you think there is a 'we are together' attitude in your team/across teams? 5. To what extent do you feel appreciation within your team (e.g., feeling accepted; feeling understood; feeling that skills are respected and used; feeling that team members' opinions are heard)? 6. What do you think are barriers/enablers of feeling psychologically safe at work? 7. To what extent do you feel that your team manager/department manager/executives are in tune with the employees' perception of the team climate? 8. What reasons do you see for perception differences? 9. From your perspective, what do you think would need to happen to reduce perception differences? 10. How would you describe and evaluate the leadership behavior of your managers? 11. If you put yourself in the shoes of your leaders: What do you think are reasons for their behavior? (barriers/enablers)? What do you think would need to happen to improve the situation? 12. How would you describe the characteristics of your work and workgroups? 13. To what extent does this work and workgroup design cause challenges? 14. What are barriers/enablers to overcome these challenges? 15. How would you describe the relationships within your team (across peers; with the managers)? 16. How would you describe the current identity of your organization? 17. To what extent are there challenges for your team because of the identity you just described? 18. What do you think are barriers/enablers that might help to overcome these challenges? 19. What are your team's and organization's major goals? 20. What impact do these goals have on you? 21. To what extent do you believe that these goals are achievable? 22. What is considered success in this organization and how is it celebrated? 23. What is considered failure in this organization and how is it sanctioned? 24. What are in your opinion adequate performance metrics?

Briefing at the beginning of an interview

- Thank the participant for agreeing to meet
- Purpose of the research: Fostering team psychological safety
- Inform about progress to date
- Ensure confidentiality and anonymity to participants
- Explain intent for audio-recording and obtain permission to record interview
- Offer the opportunity to stop the recording anytime
- Explain what happens to the data collection during and after the project
- Offer transparency of research findings at the end of the research project
- Confirm the amount of available time for this interview and offer opportunity for more exchanges if the participant is interested

7.3. Overview of Interviews

Table 7-13

Overview of Interview Participants

No.	Code	Sub-unit	Type of Interview	Interview Mode	Language	Duration
01	D-01	Subsidiary	Group interview	Face-to-face	English	83 min.
02	D-02	Subsidiary	Group interview	Face-to-face	English	71 min.
03	D-03	Subsidiary	Group interview	Face-to-face	English	56 min.
04	D-04	Parent company	Group interview	Face-to-face	English	70 min.
05	D-05	Subsidiary	Group interview	Face-to-face	English	59 min.
06	D-06	Subsidiary	Group interview	Face-to-face	English	67 min.
07	D-07	Subsidiary	Group interview	Face-to-face	English	89 min.
08	D-08	Subsidiary	Group interview	Face-to-face	English	85 min.
09	D-09	Subsidiary	Group interview	Face-to-face	English	79 min.
10	D-10	Parent company	Group interview	Telephone	English	52 min.
11	D-11	Subsidiary's city market	Group interview	Telephone	English	62 min.
12	D-12	Parent company	Group interview	Face-to-face	English	65 min.
13	D-13	Parent company	Individual interview	Face-to-face	English	45 min.
14	D-14	Subsidiary	Group interview	Face-to-face	English	108 min.
15	D-15	Subsidiary	Group interview	Face-to-face	English	56 min.
16	D-16	Subsidiary	Group interview	Face-to-face	English	53 min.
17	D-17	Parent company	Group interview	Face-to-face	English	59 min.
18	D-101	Parent company	Group interview	Face-to-face	English	45 min.
19	D-29	Parent company	Group interview	Face-to-face	English	60 min.
20	D-30	Parent company	Individual interview	Face-to-face	German	56 min.

No.	Code	Sub-unit	Type of Interview	Interview Mode	Language	Duration
21	D-31	Parent company	Individual interview	Face-to-face	German	86 min.
22	D-32	Parent company	Individual interview	Face-to-face	German	53 min.
23	D-33	Parent company	Individual interview	Face-to-face	German	71 min.
24	D-34	Parent company	Individual interview	Face-to-face	German	86 min.
25	D-35	Parent company	Individual interview	Face-to-face	German	57 min.
26	D-36	Parent company	Individual interview	Face-to-face	German	62 min.
27	D-37	Parent company	Individual interview	Face-to-face	German	63 min.
28	D-38	Parent company	Individual interview	Face-to-face	German	79 min.
29	D-39	Parent company	Individual interview	Face-to-face	German	41 min.
30	D-40	Parent company	Individual interview	Face-to-face	German	66 min.
31	D-41	Parent company	Individual interview	Face-to-face	German	52 min.
32	D-42	Parent company	Individual interview	Face-to-face	German	50 min.
33	D-43	Parent company	Individual interview	Face-to-face	German	49 min.
34	D-44	Parent company	Individual interview	Face-to-face	English	69 min.
35	D-45	Parent company	Individual interview	Face-to-face	German	76 min.
36	D-46	Subsidiary	Individual interview	Video	English	62 min.
37	D-47	Subsidiary	Individual interview	Face-to-face	English	55 min.
38	D-48	Subsidiary	Individual interview	Video	English	54 min.
39	D-49	Subsidiary	Individual interview	Face-to-face	English	172 min.
40	D-50	Subsidiary	Individual interview	Video	English	64 min.
41	D-51	Subsidiary	Individual interview	Video	English	122 min.
42	D-52	Subsidiary	Individual interview	Video	English	76 min.
43	D-53	Subsidiary	Individual interview	Video	English	38 min.
44	D-54	Subsidiary	Individual interview	Video	English	127 min.

No.	Code	Sub-unit	Type of Interview	Interview Mode	Language	Duration
45	D-55	Subsidiary	Individual interview	Face-to-face	English	64 min.
46	D-56	Subsidiary	Individual interview	Face-to-face	English	55 min.
47	D-57	Subsidiary	Individual interview	Face-to-face	English	50 min.
48	D-58	Subsidiary	Individual interview	Face-to-face	English	67 min.
49	D-59	Subsidiary	Individual interview	Face-to-face	English	76 min.
50	D-60	Subsidiary	Individual interview	Face-to-face	English	50 min.
51	D-61	Subsidiary's city market	Individual interview	Face-to-face	English	98 min.
52	D-62	Subsidiary's city market	Individual interview	Face-to-face	English	67 min.
53	D-63	Subsidiary's city market	Individual interview	Face-to-face	English	59 min.
54	D-64	Subsidiary's city market	Individual interview	Face-to-face	English	67 min.
55	D-65	Subsidiary's city market	Individual interview	Face-to-face	English	53 min.
56	D-66	Subsidiary's city market	Individual interview	Face-to-face	English	60 min.
57	D-67	Subsidiary's city market	Individual interview	Face-to-face	English	65 min.
58	D-68	Subsidiary's city market	Individual interview	Face-to-face	English	48 min.
59	D-69	Subsidiary's city market	Individual interview	Face-to-face	English	61 min.
60	D-70	Subsidiary's city market	Individual interview	Face-to-face	English	55 min.
61	D-71	Subsidiary's city market	Individual interview	Face-to-face	English	71 min.
62	D-72	Subsidiary's city market	Individual interview	Face-to-face	English	50 min.
63	D-73	Subsidiary	Individual interview	Video	English	117 min.
64	D-74	Subsidiary	Individual interview	Telephone	English	37 min.
65	D-75	Subsidiary	Individual interview	Video	English	65 min.
66	D-76	Subsidiary	Individual interview	Video	English	47 min.
67	D-77	Subsidiary	Individual interview	Video	English	49 min.
68	D-78	Subsidiary	Individual interview	Video	English	96 min.

No.	Code	Sub-unit	Type of Interview	Interview Mode	Language	Duration
69	D-79	Subsidiary	Individual interview	Video	English	81 min.
70	D-80	Subsidiary	Individual interview	Face-to-face	German	62 min.
71	D-81	Subsidiary	Individual interview	Face-to-face	English	61 min.
72	D-82	Subsidiary	Individual interview	Face-to-face	English	40 min.
73	D-83	Subsidiary	Individual interview	Telephone	English	42 min.
74	D-84	Subsidiary	Individual interview	Face-to-face	English	80 min.
75	D-85	Subsidiary	Individual interview	Telephone	English	32 min.
76	D-86	Subsidiary	Individual interview	Face-to-face	English	61 min.
77	D-87	Subsidiary	Individual interview	Video	English	45 min.
78	D-88	Subsidiary	Individual interview	Video	German	52 min.
79	D-89	Subsidiary	Individual interview	Face-to-face	German	127 min.
80	D-90	Subsidiary	Individual interview	Video	German	57 min.
81	D-91	Subsidiary	Individual interview	Video	German	40 min.
82	D-92	Subsidiary	Individual interview	Face-to-face	German	51 min.
83	D-93	Parent company	Individual interview	Face-to-face	German	52 min.
84	D-94	Parent company	Individual interview	Face-to-face	German	68 min.
85	D-95	Parent company	Individual interview	Face-to-face	German	60 min.
86	D-96	Parent company	Individual interview	Face-to-face	German	66 min.
87	D-97	Parent company	Individual interview	Face-to-face	German	49 min.
88	D-98	Subsidiary	Individual interview	Face-to-face	German	81 min.
89	D-99	Subsidiary	Individual interview	Face-to-face	English	62 min.
90	D-100	Subsidiary	Individual interview	Face-to-face	German	46 min.

7.4. Transcripts of Interviews and List of Codes

For reasons of confidentiality and reasonability, the over 1,850 pages of transcripts of my 90 conducted qualitative interviews and list of over 2,600 in-vivo codes were not attached in this document.

7.5. Notes of Participant Field Observations

For reasons of confidentiality and reasonability, my field notes of the participant observations at the research site were not attached in this document.

8. Curriculum Vitae

Personal Information

Name	Anna-Christina Leisin-Strecker
Date of Birth	October 6, 1988
Place of Birth	Sindelfingen, Germany

Education

2015 – 2021	University of St.Gallen Doctor of Philosophy in Management Supervisor: Prof. Wolfgang Jenewein
2012 – 2015	Zeppelin University, Friedrichshafen MA in Corporate Management & Economics Supervisors: Prof. Bruno S. Frey and Dr. Jana Gallus
2013 – 2014	Sun Yat-Sen University, Lignan University, Guangzhou, China Politics and Public Management in China
2008 – 2011	University of Hohenheim, Stuttgart BSc in Business Administration and Economics Supervisor: Prof. Alexander Gerybadze

Work Experience

2019 – Present	Managing Director, syspilot Consulting GmbH
2015 – 2020	Research Associate, University of St.Gallen
2015 – 2020	Project Leader, Research Cooperation with an Automobile Manufacturer, Germany and the United States
2013 – 2014	Internship at Capgemini Invent
2011 – 2012	Internship at the World Trade Center San Diego, United States
2008 – 2010	Six Sigma Black Belt Training, syspilot Consulting GmbH

Publications and Awards

2021	Das Phänomen der Wassermelone (with Wolfgang Jenewein and Maximilian Strecker). <i>wirtschaft + weiterbildung</i> 07/08.
2021	Zu schön, um wahr zu sein (with Wolfgang Jenewein and Maximilian Strecker). <i>Personalmagazin</i> 05.
2021	Raum für Sinn (with Wolfgang Jenewein and Maximilian Strecker). <i>Harvard Business Manager</i> 01.
2016	BestMasters book series of Springer Gabler, Wiesbaden
2015	Master Thesis Award
2012	Scholarship for Master studies at the Zeppelin University