The Interplay of Emotional Competence and Team Activities in Work Teams

Insights into team learning behaviours and dealing with emotions
in education, social and health care teams

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Abstract

Teams play an increasingly critical role in today's work environment, particularly in professions where tasks are complex and emotionally demanding. In organisations that provides education, care, and social services for elderly, youth, families, and persons with disabilities, work teams are essential for managing challenges like high workloads, stress, and emotional exhaustion, which are exacerbated by staff shortages and turnover. Teams, viewed as social units, are better equipped to handle these multifaceted demands through effective coordination, learning, and emotional support among members. Consequently, understanding how teams' function and sustain themselves in organisations, where cognitive and emotional labour are deeply intertwined, is vital for improving both team members' and team effectiveness. Using the premise that emotions transmit information and influence interpersonal behaviours (Van Kleef, 2009, 2016), the dissertation explores how team members' competence to perceive, express, and manage emotions shapes team activities and outcomes. Relying on the Input-Mediator-Output-Input framework (Ilgen et al., 2005), this dissertation addresses gaps in understanding how team activities and emotional competence as individual input contribute to outcomes for the team. The aim is to extend research on how emotional competence and team activities interact to influence team members' emotional exhaustion, focusing on emotionally intensive work environments. To achieve this aim, the following research question will be answered: *What is the interplay of emotional competence and team activities within work teams, and how do they both contribute to team members' emotional exhaustion?*

Four studies, which pursued different aims, were conducted to answer the research question. The aim of Study 1 and Study 2 was to provide a short, valid and reliable measure of emotional competence based on a multidimensional perspective to investigate team members efficiently. Data of students (Study 1: $N = 271$; Study 2: $N_1 = 518$, $N_2 = 38$, $N_3 = 777$) were collected and analysed. The aim of Study 3 was to identify relationships between team members' emotional competence and team activities that promote learning within the team. A systematic literature review was conducted, and $N = 32$ studies were included, which consisted of both quantitative and qualitative studies at different levels. The aim of Study 4 was to provide insight into the antecedents of team members' emotional exhaustion by investigating emotional competence, dealing with emotions in the team as emotional team activities and team learning behaviours as cognitive, and work tasked directed team activities. Data of $N = 417$ team members in 78 teams in

organisations that provide education, care, and social services for elderly, youth, families, and persons with disabilities were collected and analysed.

Findings suggest that emotional competence is a critical team members' input. Teams with team members with higher levels of emotional competence demonstrated a high level of engagement in team learning behaviours and dealing with emotions in the team. However, distinct EC dimensions are related to different team activities, providing important insights for fostering and developing teams. Drawing on the Job Demands-Resources model (Bakker & Demerouti, 2007 model (Bakker & Demerouti, 2007, 2017), this dissertation extends research on emotional exhaustion by integrating team activities as key mediators. The findings indicate that emotional competence, team learning behaviours, and dealing with emotions in the team predict emotional exhaustion, with team activities mediating the relationship between demands at work and exhaustion. Furthermore, according to the Conservation of Resources Theory (Hobfoll, 1989), team members with lower emotional competence benefit more from engagement in team activities in mitigating emotional exhaustion, highlighting the moderating role of emotional competence for teams in emotionally demanding environments.

Ultimately, this dissertation highlights the value of integrating personal resources such as emotional competence with team activities in organisational and team research. Applying Job Demands-Resources model and Input-Mediator-Output-Input framework, it calls for a more comprehensive approach that incorporates cognitive, emotional, and motivational components in team research. The findings provide insights for human resources professionals, team leaders, and organizational development practitioners, offering strategies to mitigate emotional exhaustion through the development of emotional competence and the optimization of team activities.

Zusammenfassung

Teams spielen in der heutigen Arbeitswelt eine wichtige Rolle, vor allem in Berufen, in denen die Aufgaben komplex und emotional anspruchsvoll sind. In Organisationen, die Bildungs-, Pflege- und Sozialdienste für ältere Menschen, Jugendliche, Familien und Menschen mit Behinderungen anbieten, sind Arbeitsteams unerlässlich, um Herausforderungen wie hohe Arbeitsbelastung, Stress und emotionale Erschöpfung zu bewältigen, die durch Personalmangel und Fluktuation noch verschärft werden. Teams als soziale Einheiten sind in der Lage, diese vielfältigen Anforderungen durch effektive Koordination, Lernen und emotionale Unterstützung der Mitglieder zu bewältigen. Folglich ist das Verständnis dafür, wie Teams in Organisationen, in denen kognitive und emotionale Arbeit eng miteinander verwoben sind, funktionieren und sich selbst erhalten, von entscheidender Bedeutung für die Verbesserung der Effektivität sowohl der Teammitglieder als auch des Teams. Ausgehend von der Prämisse, dass Emotionen Informationen übertragen und zwischenmenschliche Verhaltensweisen beeinflussen (Van Kleef, 2009, 2016), wird in dieser Dissertation untersucht, wie die Kompetenz der Teammitglieder, Emotionen wahrzunehmen, auszudrücken und zu steuern, die Teamaktivitäten und -ergebnisse beeinflusst. Unter Verwendung des Input-Mediator-Output-Input-Rahmens (Ilgen et al., 2005) befasst sich diese Dissertation mit Lücken im Verständnis, wie Teamaktivitäten und emotionale Kompetenz als individueller Input zu den Ergebnissen des Teams beitragen. Das Ziel ist, die Forschung zu erweitern, wie emotionale Kompetenz und Teamaktivitäten in emotional anspruchsvollen Arbeitsumfeldern die Erschöpfung von Teammitgliedern beeinflussen. Um dieses Ziel zu erreichen, soll die folgende Forschungsfrage beantwortet werden: *Wie ist das Zusammenspiel von emotionaler Kompetenz und Teamaktivitäten in Arbeitsteams und wie tragen beide zur emotionalen Erschöpfung der Teammitglieder bei?*

Zur Beantwortung der Forschungsfrage wurden vier Studien durchgeführt, die unterschiedliche Ziele verfolgten. Das Ziel von Studie 1 und Studie 2 war es, ein kurzes, reliables und valides Messinstrument für die Erfassung von emotionaler Kompetenz auf der Grundlage einer multidimensionalen Perspektive bereitzustellen, um Teammitglieder effizient zu untersuchen. Es wurden Daten von Studenten (Studie 1: N = 271; Studie 2: N1 = 518, N2 = 38, N3 = 777) gesammelt und analysiert. Ziel von Studie 3 war es, Zusammenhänge zwischen der emotionalen Kompetenz von Teammitgliedern und Teamaktivitäten, die das Lernen im Team fördern, zu ermitteln. Es wurde eine systematische Literaturrecherche durchgeführt, und es wurden N = 32 Studien

einbezogen, die sowohl quantitative als auch qualitative Studien auf verschiedenen Ebenen enthielten. Ziel von Studie 4 war es, Einblicke in die Antezedenzien der emotionalen Erschöpfung von Teammitgliedern zu gewinnen, indem die emotionale Kompetenz, der Umgang mit Emotionen im Team als emotionale Teamaktivitäten und das Lernverhalten im Team als kognitive und aufgabenorientierte Teamaktivitäten untersucht wurden. Es wurden Daten von N = 417 Teammitgliedern in 78 Teams in Organisationen gesammelt und analysiert, die Bildungs-, Pflege- und Sozialdienste für ältere Menschen, Jugendliche, Familien und Menschen mit Behinderungen anbieten.

Die Ergebnisse deuten darauf hin, dass emotionale Kompetenz ein entscheidender Input-Faktor auf individueller Ebene ist. Teams mit Teammitgliedern, die über ein höheres Maß an emotionaler Kompetenz verfügen, ein effektiveres Engagement beim Team-Lernverhalten und beim Umgang mit Emotionen im Team zeigen. Allerdings hängen verschiedene Teamaktivitäten mit unterschiedlichen Dimensionen der emotionalen Kompetenz zusammen, was wichtige Erkenntnisse für die Förderung und Entwicklung von Teams liefert. Auf der Grundlage des Job Demands-Resources Modells (Bakker & Demerouti, 2007, 2017) erweitert diese Dissertation die Forschung zur emotionalen Erschöpfung durch die Integration von Teamaktivitäten als Schlüsselmediatoren. Die Ergebnisse zeigen, dass emotionale Kompetenz, Team-Lernverhalten und der Umgang mit Emotionen im Team emotionale Erschöpfung vorhersagen, wobei die Teamaktivitäten die Beziehung zwischen Arbeitsanforderungen und Erschöpfung vermitteln. Darüber hinaus profitieren Teammitglieder mit geringerer emotionaler Kompetenz gemäß der Theorie der Ressourcenerhaltung (Hobfoll, 1989) stärker von der Teilnahme an Teamaktivitäten, um die emotionale Erschöpfung abzumildern, was die moderierende Rolle der emotionalen Kompetenz für Teams in emotional anspruchsvollen Umgebungen unterstreicht.

Letztlich unterstreicht diese Dissertation den Wert der Integration von persönlichen Ressourcen wie emotionaler Kompetenz mit Teamaktivitäten in der Organisations- und Teamforschung. Unter Anwendung des Job Demands-Resources Modells und des Input-Mediator-Output-Input-Rahmens wird ein umfassenderer Ansatz gefordert, der kognitive, emotionale und motivationale Komponenten in die Teamforschung einbezieht. Die Ergebnisse liefern Erkenntnisse für Personalverantwortliche, Teamleiter und Praktiker und bieten Strategien, um emotionale Erschöpfung durch die Entwicklung emotionaler Kompetenz und die Optimierung von Teamaktivitäten zu mildern.

This dissertation is based on the following articles. These articles have either already been published in a peer-reviewed journal or have been submitted in a peer-reviewed journal:

Chapter 4:

Gerbeth, S., Stamouli, E., & Mulder, R. H. (2021). Development of the Short Scale of the Multidimensional Emotional Competence Questionnaire in a German Sample. *Sage Open*, April-June 2021, 1-15. https://doi.org/10.1177/21582440211009220

Author Contributions: S.G., E.S. and R.M. designed the study; S.G. collected and analysed data and wrote the manuscript; E.S. and R.M. helped interpreting data and revising the manuscript.

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Chapter 5:

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Chapter 6:

Gerbeth, S., Stamouli, E., & Mulder, R. H. (submitted). Emotional exhaustion in social and healthcare teams: Unveiling the impact of emotional competence, dealing with emotions in the team and team learning behaviours.

Author Contributions: S.G., E.S. and R.M. designed the study, S.G. collected and analysed data and wrote the manuscript; E.S. and R.M. helped interpreting data and revising the manuscript.

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Section 1. The relevance of emotional competence and team activities in work teams

"The workplace is emotional."

(Elfenbein, 2023, p. 489)

There is a consensus among researchers and practitioners that work teams have become indispensable in contemporary work environments (Hackman, 2011), especially in addressing the increasing challenges of high workload, stress, skilled worker shortages, emotional exhaustion, and turnover (Flaherty & Bartels, 2019; Mistry et al., 2023; Pastores et al., 2019; Zajac et al., 2021). These challenges are particularly pronounced in organisations providing education, care, and social services for the elderly, youth, families, and persons with disabilities (Hollederer, 2022; Özkan, 2022; Schulze et al., 2022; Trauernicht et al., 2023). Within these settings, teamwork is inherently emotional, as team members must frequently manage not only complex tasks but also interpersonal and affective dynamics. Elfenbein's (2023, p. 489) assertion aptly captures this reality, highlighting the central role emotions play in organisations. Furthermore, work teams play a pivotal role in addressing complex work tasks by fostering collective problem-solving, adapting to changes, and promoting continuous learning (Rosen et al., 2018; Shuffler et al., 2011).

Work teams are defined as groups of employees, consisting of at least two members, who (1) engage in social interaction, (2) possess common goals, (3) are brought together to perform organisation-relevant work tasks, (4) rely on each other to complete these tasks, and (5) hold distinct roles and responsibilities (Kozlowski & Ilgen, 2006). This definition emphasizes the interdependence, shared purpose, and structured nature of teamwork, which are crucial for addressing the complexities of organisational tasks. Thereby, work teams play a critical role in managing demands at work by pooling knowledge, facilitating problem-solving, and fostering collaboration (Van den Bossche et al., 2006).

Theoretical frameworks such as the Input-Process-Output (IPO) framework (Hackman & Morris, 1975) and its extension, the Input-Mediator-Output-Input (IMOI) framework (Ilgen et al., 2005), have advanced our understanding of how team processes mediate the relationship between inputs and outcomes of teams. In these frameworks, team activities and interactions play a vital role in enabling teams to adapt and thrive. This is particularly

true in emotionally charged work environments, such as education, care, and social services, where the alignment of individual roles and responsibilities is crucial (Kozlowski & Ilgen, 2006). Furthermore, general systems theory (Boulding, 1956) highlights the nested nature of teams within larger organisational structures, emphasizing the need to study not just individual or team-level factors but also the interplay between them due to various forms of social interactions within the team and among team members.

In light of these frameworks, which provide valuable perspectives for understanding team processes, it is important to focus on team activities. Team activities are carried out by team members and characterised by social interactions between them. Team activities aimed to exchange, discuss and develop knowledge, ideas and structures, and to obtain feedback and reflect on teamwork are referred to as team learning behaviours (Edmondson, 1999; Lehmann-Willenbrock, 2017; Van den Bossche et al., 2022). According to Vygotsky's (1978) sociocultural theory, learning within a team occurs in social interactions, such as those experienced during team activities highlighting the dynamic and multilevel nature of team learning (Kozlowski & Bell, 2008). However, significant strides have been made in understanding cognitive and motivational factors in teamwork; emotional dimensions — especially those relevant to high emotional labour settings — remain rare (Bell, 2007; Mathieu et al., 2019). This gap is particularly pressing for teams in organisations that provide education, care, and social services, where emotions are omnipresent. These teams face emotionally taxing tasks, such as dealing with patients' suffering or difficult family dynamics, which require handling and addressing emotions effectively (Jiménez-Herrera et al., 2020). Emotions influence teamwork and learning processes profoundly (Cahour, 2013; Watzek et al., 2022), making it crucial to understand how teams as well as team members handle and address emotions.

A valuable concept is emotional competence (EC), that describes a set of competences for handling and addressing one's own emotions and those of others' during interactions. This helps the individual to process emotional information and behave in an adaptive manner (Stamouli, 2014). Research on EC as an antecedent for work outcomes (for performance see Joseph et al., 2015; for work attitudes see Miao et al., 2017a; for burnout and emotional exhaustion see Szczygiel & Mikolajczak, 2018) guided by theoretical models such as Job Demands-Resources model (JD-R; Bakker & Demerouti, 2007;

Demerouti et al., 2001; Xanthopoulou et al., 2013) has increased. However, insights are lacking about the role of EC for work teams in the domain of education, care, and social services and the relationships with team activities (Clarke, 2010; Elfenbein, 2006; Lee & Wong, 2019). However, as teams are social units, the focus is not solely on the individual differences of team members to handle and address emotions (team members' EC) but also on the team itself. The important question is whether teams themselves handle and address emotions collectively through the interaction of their team members (e.g., in team activities such as discussing an emotion that occurs in the team). Elfenbein (2006) differentiates between the resources a team has to handle and address emotions (team members' EC) individually and the team activities that a team commonly uses to actually handle and address the emotion (dealing with emotions in the team, in short: DET). Referring to Vygotsky's (1978) sociocultural theory, it is argued that team activities, such as DET, describe social interactions that may also promote learning within the team. Research on team learning, on the other hand, often fails to take into account the relations between behaviour, emotion and motivation (Mulder, 2022). Regarding the insight gained from research in both areas, the following research gaps could be identified:

1) There is a lack of research examining a multidimensional perspective of EC. This gap inhibits our understanding of the role of separate dimensions of EC for team processes and outcomes. Furthermore, it hampers our ability to derive how EC could be fostered in teams in organisations that provide education, care, and social services. Emotional competence as a multidimensional construct includes a set of competences (Stamouli, 2014), that according to the Emotions As Social Information theory (EASI; Van Kleef, 2009) influence different aspects of emotional interactions (Gabriel et al., 2020; Van Kleef et al., 2009). However, most of the research, especially in the topic of emotional intelligence (see Chapter 2 for discussion about EC and emotional intelligence), often relies on a unidimensional conceptualisation that only represents the different competences and does not differentiate between them (Zeidner et al., 2008).
2) The conceptualization and measurement used to investigate the dealing with emotions in real work teams lack clarity. Emotions occur in teamwork, especially in domains with high emotional labour (Jiménez-Herrera et al., 2020; Lewis & Ashkanasy, 2020). Team members' emotional competence helps the individual to perceive the emotions and to deal with them in an adapted manner based on the norms present in the team or the organisation (Ashkanasy & Dorris, 2017; Van

Kleef, 2016). Given the rising significance of emotions in teams research, new approaches have emerged that investigate the extent to which teams, as a social units, handle and address emotions that arise during teamwork (see Aritzeta et al., 2020; Druskat & Wolff, 2001). Elfenbein (2006) identified two research streams: one conceptualizes the team level as a complex aggregation of team members' EC, and the other focuses on team activities.

3) There is a lack of research providing insight into team activities and processes that incorporates the emotional perspective in combination with the cognitive and task-oriented perspectives of team learning. Team learning describes complex and dynamic team processes and includes various TLBs that lead to change and improvement for team members, teams, and organisations (Decuyper et al., 2010). Research focusing on team learning and TLBs is predominantly guided by a strong cognitive and task-directed perspective (Mulder, 2022). Nevertheless, the relationships found with emotions (Cahour, 2013; Watzek & Mulder, 2019) highlight the importance of emotions for learning processes. Currently, there is a lack of research that not only identifies the influence of emotions but also investigates the role of EC in team processes. Furthermore, tasks in work domains such as education, care and social services for the elderly, youth, families and persons with disabilities are not merely cognitively oriented. They involve a high degree of emotional labour (e.g., working with patients' fates) and trigger emotions.
4) Referring to the Job Demands-Resources model (JD-R; Bakker, 2022; Bakker & Demerouti, 2007, 2017; Xanthopoulou et al., 2013) which describes the emergence of job-related stress and emotional exhaustion, there is limited research providing insight into the interplay of team activities and personal resources such as EC. Social and health care organisations face a shortage of skilled workers, high turnover, and health-related absences, which increase the demands on teams and their members (Schulze et al., 2022). Employees with high EC are more resilient to the occurrence of emotional exhaustion (Szczygiel & Mikolajczak, 2018). Nevertheless, knowledge about the effects of team activities, such as TLBs or DET, on team members' exhaustion as predictor of burnout or turnover intention is limited.

The primary objective of this dissertation is to address these different research gaps and provide an in-depth insight into the interplay of team members' EC and team activities

(TLBs and DET). The research specifically focuses on teams in organisations that provide education, care, and social services to people. Additionally, this dissertation aims to expand research regarding the interaction of both team members' EC and team activities on emotional exhaustion. To achieve these aims, the following research questions will be answered:

RQ) What is the interplay of emotional competence and team activities within work teams, and how do they both contribute to team members' emotional exhaustion?

To answer this research question, a rigorous approach is needed, including a systematic literature review and empirical analyses. These studies aim to (1) measure the handling and addressing of emotions in teams (2) identify relationships between emotional competence and team activities, and (3) explore how these variables affect emotional exhaustion within education, social, and health care teams.

This dissertation builds upon complementary theoretical frameworks: the Input-Mediator-Output-Input (IMOI) framework (Ilgen et al., 2005) and the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007). The IMOI framework provides a dynamic, cyclical approach to understanding how individual inputs (e.g., emotional competence) and team activities (e.g., team learning behaviours and dealing with emotions in the team) contribute to team outcomes. The JD-R model, on the other hand, focuses on the interplay between job demands, job resources, and personal resources, offering a lens through which emotional exhaustion can be understood. Together, these frameworks offer a robust foundation for exploring the cognitive, emotional, and motivational dynamics within teams in emotionally demanding work environments.

In Chapter 2, the theoretical framework as well as the concepts of EC, the dealing with emotions in the team, and team learning behaviours are described. First, the concept of EC in work teams is defined. Second, a conceptualization of dealing with emotions in the team (DET) based on the team-level approaches of EC is introduced. This is followed by a presentation of the conceptualization of TLBs. Finally, team members' emotional exhaustion is described. In Chapter 3, the aim of the thesis and an overview of the four studies are presented. Chapters 4,5, and 6 consist of the four articles, which are either published in or submitted to peer-reviewed journals. In Chapter 7, the findings of the four studies are summarized, discussed and the research question is answered. Finally, implications for future research and practice are derived.

Section 2. Theoretical framework

As outlined in the introduction, teams play a crucial role in addressing organisational challenges and managing increasingly complex tasks that are beyond the capacity of individuals. Work teams, as pools of experiences and knowledge, enable more effective problem solving (Van den Bossche et al., 2006). This necessitates that work team members be independent within the team, possessing different roles and responsibilities that must be aligned during teamwork (Kozlowski & Ilgen, 2006). Team coordination is particularly crucial for teams in organisations providing education, care, and social services, as the alignment of these roles is essential for effective collaboration. Drawing on general system theory (Boulding, 1956), this dissertation argues that a team is fundamentally composed of its team members. Teams consist of individuals (subsystems) and are social units (systems) embedded in departments (larger systems) and in organisations (even larger systems). When studying teams in organisations, it is necessary not only to focus on the team level but also to recognize the nested nature of organisations by including all subordinate levels, such as the individual and the interpersonal levels, and considering the interactions therein (Boulding, 1956). This is because, unlike individuals, teams are capable of carrying out work tasks more efficiently due to various forms of social interactions within the team and among team members. It follows logically that teams produce outcomes through their collective efforts.

Research that focuses on teams and the processes in teams, that lead to desirable outcomes, has a long tradition of building upon the Input-Process-Output (IPO) framework (Hackman & Morris, 1975). The framework outlines how inputs that enable and constrain team members' interactions are transformed into outcomes through specific processes. The processes encompass team activities that describe those interactions directed toward the team's goal. Researchers in the last two decades were particularly interested in the processes and activities of teams and their role in transforming complex antecedents at multiple levels (e.g., individual, interpersonal, team or organisational) into different outcomes at multiple levels (see reviews of Decuyper et al., 2010; Dochy et al., 2014; Mathieu et al., 2008, 2019; Wiese et al., 2022). Ilgen et al. (2005) extended the IPO framework to the Input-Mediator-Output-Input (IMOI) framework to better capture the dynamic, complex, and cyclical nature of team research. The framework also broadens the understanding of "processes" as mediators. The cyclical nature of the IMOI framework helps explain the complexity of work situations and highlights why gained outputs serve as critical antecedents for future work processes and outcomes.

Additionally, the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007) provides a framework for understanding the antecedents of work outcomes. According to the JD-R model, work is shaped by the interaction between job demands and job resources, which together influence work outcomes. It highlights how job demands — such as physical, psychological, social, or organisational aspects of a job require sustained (physical or psychological) effort and can lead to emotional exhaustion (Bakker et al., 2014; Demerouti et al., 2001). In contrast, job and personal resources — factors that support goal achievement, personal growth, and learning — help mitigate job demands and reduce their impact (Bakker & Demerouti, 2007; Xanthopoulou et al., 2007). Therefore, the personal resources of team members serve as individual-level inputs that influence team activities as mediators (processes), which, in turn, influence team members' outcomes such as emotional exhaustion. Acknowledging the complexity and dynamics of team interactions, Figure 1 presents the underlying framework to illustrate how inputs, mediators, and outputs are interconnected.

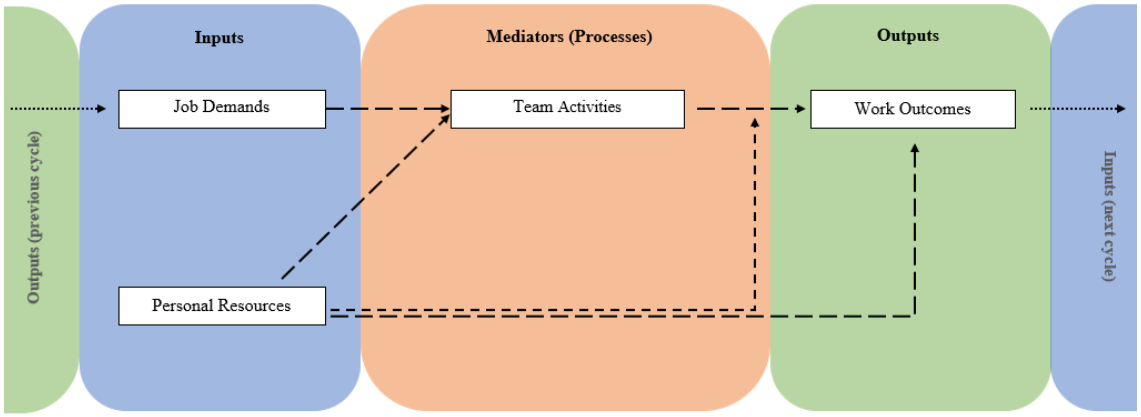

Figure 1: *Overview of the relationships drawing on the Input-Mediator-Output-Input framework (Ilgen et al., 2005) and JD-R model (Bakker & Demerouti, 2007; Xanthopoulou et al., 2007)*

Although research uses the IPO and IMOI frameworks (as well as JD-R model) to understand and emphasize the importance of considering cognitive, motivational, and emotional aspects when examining antecedents, team activities and processes, and outcomes in teams (Bell, 2007; Mathieu et al., 2019), studies that focus on emotional aspects in teams are rare. This scarcity becomes particularly apparent when considering the work teams in the domain of education, care, and social services of the elderly, youth, families, and persons with disabilities. These teams' work activities involve a high degree of emotional labour, such as dealing with patients' fates, and often trigger emotions.

Whether team members respond in a friendly or annoyed manner, plays an essential role in communication. We do not merely experience emotions for ourselves; we unconsciously or consciously transmit our emotional state to other persons or clients (Van Kleef, 2016). According to the Emotions As Social Information theory (EASI; Van Kleef, 2009), observing another person's emotional expression can have interpersonal effects on individuals. Therefore, emotions play an important role in social interactions and relationships, including teamwork and interaction with clients. Additionally, these social interactions can in turn trigger emotions. Research found that emotions have a decisive influence on learning processes in teams (Cahour, 2013; Watzek et al., 2022; Watzek & Mulder, 2019). Furthermore, emotions have an impact on organisations at multiple levels (Ashkanasy, 2003; Ashkanasy & Dorris, 2017): the intraindividual level (e.g., discrete emotions or affective events), the individual level (e.g., EC, affective commitment), the interpersonal level (e.g., emotional exchange or emotional labour), the team level (e.g., emotional contagion or the dealing with emotions in teams), and the organisational level (e.g., emotional climate or organisational well-being). Ashkanasy and Dorris (2017) highlighted that those individual differences, such as EC, are the primary determinant of the interpersonal and team level. According to Van Kleef (2016), EC influences both the expression of emotions (through the sender's EC to express and to regulate emotions) and the observations of emotions (through the observer's EC to perceive emotions). Thus, EC influences the relationships between expressed emotions, emotional reactions, and behavioural changes in work teams.

In this chapter, EC is first described as a personal resource of team members, conceptualized as an individual input factor within the IMOI framework (Ilgen et al., 2005). The different dimensions of EC are examined to illustrate their various influences on the emotional reactions and behaviours of team members, drawing on EASI theory (Van Kleef, 2009, 2016). By examining the role of EC from a multidimensional perspective, we can gain a more detailed understanding of team activities in work domains that involve a high degree of emotional labour. The objective is to present the influence of EC on team activities, which, according to general systems theory (Boulding, 1956), arise from a combination of the team members' behaviour. Subsequently, team activities such as DET and TLBs are taken up as mediator mechanism (processes) within the framework of the Input-Mediator-Output-Input (IMOI) framework (Ilgen et al., 2005). Here, particular attention is paid to the domain of education, care, and social services, as work team activities are not only cognitive and work-task-directed but also

include emotional and social aspects. In turn, DET is described capturing how teams collectively handle and address emotions that arise during their interactions and tasks. DET is explored through team activities and shared behaviours aimed at handing and addressing emotions in a way that supports teamwork and enhances collective functioning. On the other hand, TLBs focuses on those activities in the team that are crucial for the effectiveness and success of a team, since, as mentioned in the introduction, teams must constantly develop, adapt, and learn (Shuffler et al., 2011). Therefore, team learning can be described as dynamic and circular processes within the team that consist of team learning behaviours (TLBs). Team members engage in TLBs to effectively perform work-related tasks, which in turn lead to changes and improvements for the individual team members, the team, and the organisation (Decuyper et al., 2010). Finally, emotional exhaustion is described as an outcome of team members conceptualised within IMOI framework (Ilgen et al., 2005) with assumptions made about the role that team members' EC and team activities have on the emotional exhaustion of team members.

2.1 Emotional competence as personal resource at work

Emotions accompany employees, teams and organisations at work on a daily basis. Thereby, emotions are defined as feeling states (Ashforth & Humphrey, 1995) that consist of experiential, physiological, cognitive, expressive, and motivational components (Scherer, 2005). According to EASI theory (Van Kleef, 2016), emotions have an interpersonal effect on others. Individuals often react differently when experiencing emotions during specific interactions (Siemer et al., 2007). Self-awareness, the understanding and analysis of one's own emotions, and the regulation of emotions are of particular importance in terms of the emotional reactions triggered by such interactions (Gross & Feldman Barrett, 2011). The expression and perception of the emotions of others, in addition to empathic abilities, help one understand their interaction partner and send them unambiguous emotional messages (Van Kleef, 2009).

The concept of emotional competence contributes to understanding individual differences in dealing with emotions in social situations (Stamouli et al., 2009). Considering competences as motivational, volitional, and social skills and capabilities as well as cognitive abilities to successfully solve problems (Weinert, 2002), employees are challenged to use their EC in a responsible manner in variable situations. Therefore, emotional competence is defined as a set of competences for dealing with own and others'

emotions during interactions, thus helping the individual process emotional information and behave in an adaptive manner (Stamouli, 2014). Research points to the multidimensionality of EC by including a heterogeneous set of competences, namely, the perception of emotions, empathy and perspective taking, emotional expressivity and competences in managing emotions such as emotion regulation (Côté, 2014; Saarni, 1999). This is in line with the multiple competences, individuals need to effectively handle emotional situations (Boden & Thompson, 2015; Gross & John, 1998; Joseph & Newman, 2010).

Due to the recognition of the value of emotions in the work and team context (Ashkanasy & Dorris, 2017; Barsade & Knight, 2015; Kelly & Barsade, 2001), there was an increasing interest in EC of employees and team members. EC was found to be related to various work and life outcomes. There is evidence that EC is related to academic performance (MacCann et al., 2020; Petrides et al., 2004; Thomas et al., 2017), job performance (Joseph et al., 2015; Joseph & Newman, 2010; O'Boyle et al., 2011), well-being and satisfaction (Miao et al., 2017b; Sánchez-Álvarez et al., 2016), burnout (Durán et al., 2004; Mérida-López & Extremera, 2017; Szczygiel & Mikolajczak, 2018), organisational commitment and turnover intention (Miao et al., 2017a; Stamouli & Gerbeth, 2021). Research was conducted based on the job demand-resources model (JD-R; Bakker & Demerouti, 2007) and its extension about personal resources (Xanthopoulou et al., 2013) that describe a useful framework for analysing antecedents of employees' health and motivation. In the JD-R model it is argued that health and motivation as work outcomes are influenced by job demands, job resources and personal resources. Due to its relationships with work outcomes EC is considered as a personal resource of employees and team members for the work context. Especially in professions that provide education, care and social services for people (e.g., for children, youth, elderly, families and persons with disabilities) involving a high degree of social interaction, a high level of emotional labour is required (Edward et al., 2017; Eggli et al., 2022; Hochschild, 2012; Scherer et al., 2020). Research from these domains shows that employees with high emotional competencies as personal resources have lower levels of stress and burnout (Mérida-López et al., 2020; Miao et al., 2017b; Newton et al., 2016). Furthermore, a high level of EC leads to a positive to a positive attitude and commitment towards the job and team and improved work behaviour and performance (Joseph et al., 2015; Miao et al., 2017a). It is argued that team members with high levels of EC may better communicate and have social skills important for teamwork, have better coping strategies and resilience

and may be able to influence a team's climate and, therefore, have a higher willingness and ability to engage in team activities (Boyatzis et al., 2015; Rechberg & Essig, 2023; Zeidner et al., 2004). In this dissertation it is argued that EC as personal resource is an individual level input for team activities in the IPO framework. In addition, following JD-R model research findings of EC, their interplay with job resources and their buffering effects on the relationships between job demands and health-related outcomes are lacking clarity as many studies treat EC as unidimensional construct. The reason for this can be found in the origin of the theoretical concept of EC.

The theoretical concept of EC is closely related to the concept of emotional intelligence (EI), while there is an academic discourse about the usage of the term "intelligence" around the perspective that EC (and EI) can be taught and learned (Ikävalko et al., 2020; Stamouli, 2009, Zeidner et al., 2008). Research on EI and EC is grounded in intelligence research and concepts to understand the role of processing non-cognitive (e.g., emotional) information next to cognitive information for an individual's success at work and in life (Salovey & Mayer, 1990). EI and EC are based on concepts such as social intelligence (Thorndike & Stein, 1937), that describes individual differences in the ability to understand and manage social relationships with/to other people. More precisely, social intelligence is understood as the ability to perceive one's own and others' inner states, motives and behaviours and to act efficiently in social relationships using this information. In the same way, Gardner's (1983) intrapersonal and interpersonal intelligence (as part of the concept of multiple intelligences) argues that there is evidence for individual differences in understanding oneself and others. Intrapersonal intelligence is defined as the capacity/ability to understand one's own thoughts and feelings and to use this information for directing and planning, while interpersonal intelligence describes the ability to perceive and understand other people as well as the ability to take different perspectives. In their attempt to describe individual differences in dealing with emotions, Salovey and Mayer (1990) drew on social, intrapersonal and interpersonal intelligence, but specified and focused on problem solving and behaviour regulation through recognition and usage of own and others' emotional states. They defined EI as the "ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions (Salovey & Mayer, 1990, p. 189). Over the last three decades, many publications still rely on this original definition, but research on EI and EC is very diverse (Hughes & Evans, 2018). Conceptual developments of EI and EC are characterized by different approaches (ability, trait and

mixed approach) that all try to explain the same phenomenon, but have different theoretical perspectives (Ashkanasy & Daus, 2005; O'Connor et al., 2019). In addition, the three approaches differ in their operationalisation of EI and EC by their measurement instruments[1].

There is evidence that there are only moderate relationships between ability and trait approach measurement instruments (Jauk et al., 2016; Joseph et al., 2015; Siegling et al., 2012; Van Rooy et al., 2005). The moderate correlations confirm that measurement instruments of the approaches differ and separately assess distinct aspects of the same phenomenon. In consequence, the latest discussion on the two research approaches suggests that the ability and trait approach are pursued as complementary approaches (Hughes & Evans, 2018). In a meta-analysis (Peña-Sarrionandia et al., 2015) it is highlighted that individuals with high levels of EC (both ability and trait) regulate their emotions flexible, early in the emotion trajectory and have many regulation strategies. Thereby, individuals with high levels of ability measurement instruments or high levels of trait measurement instruments regulate their emotions similar but differ in the patterns of emotions regulation strategies used. According to the overlap between the concepts of ability approach, trait approach and emotion regulation it is recognised that the management of emotions in the ability approach refers to what extend individuals are capable to regulate their emotions, while the trait approach than refers to what extend individuals typically regulate their emotions. Both approaches are outcome-oriented and seek to capture individual differences while emotion regulation in its tradition is more process-oriented (Peña-Sarrionandia et al., 2015). Hughes and Evans (2018) posit in their Integrated Model of Affect-related Individual Differences that both the ability approach and the trait approach influence differences in emotion regulation that lead to meaningful intra- and interpersonal outcomes and, therefore, research need to further investigate the interplay of EC (both ability and trait), emotion regulation and employee and organizational relevant outcomes.

For answering the research question of this dissertation, it is necessary to assess EC based on a multidimensional perspective. Therefore, a conceptualisation was needed, which recognises the diversity of the three approaches and consists of competences (e.g.,

[1] A detailed discussion of the three approaches and their measurement instruments can be found in the systematic review in Chapter 5 and specifically for the measurement instruments in Chapter 4.

perceiving emotions of others) that capture what individuals do effectively in dealing with emotions in relation to the situational context and the social norms within it. The conceptualization of multidimensional EC (Stamouli, 2014; Stamouli et al., 2006) combines existing approaches and is based on components of the models of Mayer and Salovey (1997), Saarni (1999), Bar-On (2004), Goleman (1998), Petrides and Furnham (2000) that are not overlapping with personality constructs. The conceptualisation was useful as in relation to the trait approach, it is recognised that personality traits as well as self-efficacy are antecedents of the construct but no core components (Stamouli, 2014). On the other hand, in relation to the ability approach it is recognised that the situational context and socials norms within it, are essential for the dealing with emotions. Therefore, EC includes four dimensions: the *perception of own emotions* (Salovey et al., 1995), the *perception of the emotions of others'* (Davis, 1983), the *expressivity of emotions* (Gross & John, 1998; Roger & Nesshoever, 1987) and *emotional management* (Gross & John, 1998; Roger & Nesshoever, 1987; Salovey et al., 1995).

The four dimensions of EC are important prerequisites in transmitting and using information through emotions in teams based on EASI theory (Van Kleef, 2016). The *perception of own emotions* describes the differentiation and classification of emotions, and the understanding of the source of emotions (clarity of perception of emotions) as well as directing attention to emotions (attention to own emotions). Closely related to the dimension of perceiving own emotions is the *perception of others' emotions* that includes concepts of empathy and perspective-taking (Davis, 1983; Petrides, 2009). Recognising and differentiating between own and others' emotions are requirements for effective communication (Gross, 1998). In the context of negotiating emotional perception is a decisive factor for performance (Elfenbein, Foo, White, Tan, & Aik, 2007). *Emotional expressivity* describes the competences to change behaviour caused by emotions and assesses the extent and intensity with which positive and negative emotions are displayed (Gross & John, 1998). Examining teams Van Kleef et al. (2009) revealed that a team leader's emotional expressions influence both the emotional reactions within work teams and subsequent behaviour, shaping overall team performance. These findings align with the EASI theory, positing that observing expressed emotions provides insight into a person's inner state, influencing conclusions that, in turn, guide the observer's behaviour (Van Kleef, 2009). *Emotional management* involves the competences to which individuals control the timing, manner, and nature of the emotions they experience and convey (Gross, 2014). Notably, there is evidence for the impact of workplace emotion

regulation on employees, revealing that employees who genuinely express expected emotions receive increased support from their colleagues (Gabriel et al., 2020).

2.2 Dealing with emotions in the team

Emotions have a special role in dyads, teams and organisations, as they influence social interactions in different ways (Ashkanasy & Dorris, 2017; Van Kleef, 2016). Thereby, emotions in teams emerge from bottom-up (e.g., emotional convergence) and top-down processes (e.g., emotional culture) and it is highlighted that teams develop an emotional homogeneity by working together (Barsade & Knight, 2015).

Emotional processes in the work context are conceptualised as multi-level phenomena due to the significance of emotions in teams and organisations (Ashkanasy & Dorris, 2017; Kelly & Barsade, 2001; Van Kleef, 2016). Mathieu et al. (2019) examined the complexity and multilevel perspective of team inputs, team activities and outcomes as well as the importance of considering cognitive, motivational, and emotional aspects, that becomes especially evident in work teams in the domain of education, care and social services of the elderly, youth, families and persons with disabilities. Considering the phenomenon from bottom up, the findings of EI and EC (see Chapter 2.1) regarding the handling and addressing of emotions at the individual level are the starting point when discussing the team level. Elfenbein (2006; 2023) highlights that there are two ways of thinking about how emotions are addressed in teams. The first perspective of thinking about the team level is already described in the previous section by considering the EC of a team member as a personal resource that team member may use during teamwork. Team members may react differently to occurring emotions in the team based on their EC. When faced with a negative emotion in the team, an individual team member can use their EC to react empathically and, thus, trigger a coping process. From a team level perspective, the handling and addressing of emotions that arise in the team is a combination of the usage of the team members' individual EC. Kozlowski and Klein (2000) describe this conceptualisation as a team compilation model: a complex combination of diverse individual contributions.

The second perspective of thinking about the team level conceptualizes the handling and addressing of emotions in the team as emerging from the interactions and behaviours of team members in emotional situations (Elfenbein, 2006) – a team composition model (a

team composition model describes the team level as the coalescence of identical lower-level properties; see Kozlowski & Klein, 2000). Interactions of team members within the team over time shape team norms and expectations as the team's emotional structure that influences the experience of addressing emotions within the team (Wolff et al., 2006). Those norms and expected behaviours are observable and describe how teams handle and address emotions. Team members may demonstrate varying levels of emotional competent behaviour depending on the team members interacting with each other or the team situation they are in regardless of their individual EC. Central for this assumptions is cognitive appraisal theory of emotions (Lazarus, 1991) and research to display rules (Ashforth & Humphrey, 1995; Ekman, 2006; Hochschild, 2012) that argues that individuals align which emotions are appropriate in social interactions and how those emotions should be expressed or regulated. Especially, teams in the domain of education, care, and social services of the elderly, youth, families, and persons with disabilities are characterized by display rules and therefore, a high amount of emotional labour is necessary (Bodenheimer & Shuster, 2020; Diefendorff et al., 2011).

For answering the research question of this dissertation, it is necessary to examine team activities and analyse the role of team members' EC for them. Therefore, the second perspective of thinking about how a team handles and addresses emotions (referred to as *dealing with emotions in the team*) is needed to fulfil the research gap of considering cognitive, motivational, and emotional aspects when examining team activities and processes in teams (Bell, 2007; Mathieu et al., 2019).

There were conceptualisation attempts that defined the handling and addressing of emotions in the team as "the ability of a group to generate a shared set of norms that manage the emotional process in a way that builds trust, group identity and group efficacy" (Druskat & Wolff, 2001, p. 138). However, existing conceptualizations often lack clarity in differentiating between individual and team levels of analysis, particularly regarding the emergence of components (e.g., thinking about emotions for gaining a better emotional understanding). To fill this research gap, a conceptualisation is needed that focuses on the emergence at the team level. Elfenbein (2006) posits that the team level is based on observable interactions and behaviours that show how team members use EC when interacting in the team context. Therefore, a conceptualisation is needed that has a clear focus on the behavioural aspects such as team activities. *Dealing with emotions in the team* (DET) is defined as team activities, shared by the team or at least

two team members, to directly handle and address emotions in the team. Building on the conceptualization of EC encompassing individual differences in addressing and handling emotions across four dimensions (perception of own emotions, being sensitive and empathic towards others' emotions, emotional expressivity and emotional management), DET is similarly designed to measure differences of teams in handling and addressing emotions. Therefore, DET encompasses four key components: (1) a team perceives emotions (e.g., a team recognises and understands its emotions by discussing or exchanging); (2) a team is sensitive to the emotions of the team members (e.g., a team responds empathically to the team's emotions or shares different perspectives); (3) a team expresses emotions within the team (e.g., a team's expression of both positive and negative emotions); and (4) a team manages arising emotions (e.g., a team actively influences or copes emotions). By focusing on these team-level activities, DET offers a more nuanced understanding of how teams process and manage emotions, thereby highlighting the dynamics of handling and addressing emotions in the team.

2.3 Team learning behaviours

Since the fifth discipline and the idea of a learning organisation changed business and management views 30 years ago (Bui, 2020), Senge's perspective that "team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations" (Senge, 1994, p. 10) is the reason for researchers and practitioners to focus on learning processes and outcomes of teams and how to foster them due to that teams have become essential in organisations. The consequence of Senge's ideas is that learning at work in an organisation is seen more complex and includes multiple levels (e.g., individual level, team level or organizational level), but also to multiple layers (e.g., economic, social and environmental) and the interconnectedness of people with their environment (Bui, 2020). In addition, learning at work occurs not only at different levels (individual, team, organizational), but also through both formal and informal learning, both of which are equally important for the development of professional expertise (Tynjälä, 2008). Therefore, learning at work is defined as the process of "engagement in formal and informal learning activities both on and off the job, whereby employees and groups of employees acquire and/or improve competences (integrated knowledge, skills and attitudes) that change individuals' present and future professional achievement (and eventually also their career) and organizational performance" (Kyndt & Baert, 2013, p.

275). Thereby, learning takes place in activities at any time or place, that are defined as either cognitive or physical activities (Simons & Ruijters, 2004), that are observable or may be observed through operationalisation (e.g., through discussing with colleagues).

As teams are the main working unit in organisations they are characterized as mental pools of experiences and knowledge. They are used to master challenges and fulfil work tasks more effectively than individual employees (Van den Bossche et al., 2006). Teams must deal with misunderstandings, conflicts, integration and compromises among the individual team members that require an exchange of knowledge, experiences, ideas, views and strategies in interaction with other team members. Those social interactions and activities are essential for work tasks, as well as for learning with and from each other (see sociocultural theory of Vygotsky, 1978). Therefore, it becomes clear why Senge (1994) describes a team as fundamental learning unit. In this dissertation it is argued that learning takes place during teamwork and the activities team members engage in during their work to fulfil their work goals. Thereby, team members learn individually, i.e., by dividing work units and combining partial results for the work task, or by working and learning together by sharing knowledge and ideas to fulfil the work task.

Teams have been recognized as information-processing systems, meaning that information, ideas or cognitive processes are shared among team members and this sharing influences outcomes at both the individual and team level (Hinsz et al., 1997). Researchers such as Edmondson (1999, 2002; 2007) began to define team learning as "as an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions" (Edmondson, 1999, p. 353). In this context, team learning is understood as a process according to the IPO framework. Moreover, in addition to the IMOI framework (Ilgen et al., 2005) Decuyper et al. (2010) recognized that team learning as a process "dynamically translates a complex body of influences from multiple levels into different types of outputs at multiple levels, which in turn influence team learning" (Decuyper et al., 2010, p. 128).

To answer the research question, this dissertation follows the concept of process-oriented definitions of team learning (Arrow & Cook, 2008; Decuyper et al., 2010; Edmondson, 1999, 2002; Kozlowski & Bell, 2008). Team learning is a complex, multi-level phenomenon that goes beyond individual activities in the team. It involves team activities both individually carried out or shared collectively through team member interactions

(Kozlowski & Bell, 2008), that lead to common outcomes for teams, their members and the organisation. Being a multilevel phenomenon, the team activities can be viewed from different perspectives:

- Individual level: Focus on what each member needs to do to fulfil their specific role within the team.
- Interpersonal: Emphasizes the communication and collaboration needed among individuals to complete tasks.
- Team: Focus on how the team as a whole coordinates its efforts to achieve common goals.

Team learning behaviours (TLBs) lead to outcomes (e.g., knowledge, structures and routines) for the team, the team members and their organisation (Dochy et al., 2014). In accordance with the concept of team learning, TLBs are defined as team activities as part of teamwork that teams must engage in to perform their work tasks effectively and that lead to changes and improvements in the team (Decuyper et al., 2010). The positive impact of TLBs on team performance is well-established (Van den Bossche et al., 2011, 2022; Widmann & Mulder, 2020; Wiese et al., 2022). Many researchers even consider TLBs a cornerstone of effective teamwork. Given this significance, research has increasingly focused on understanding the prerequisites and conditions factors that enable successful team learning (Decuyper et al., 2010; Edmondson et al., 2007).

To answer the research question, the focus on TLBs was needed because team members' engagement in TLBs promotes team learning and TLBs as learning activities are observable or can be observed through operationalisation. Through these activities within a team, learning becomes a dynamic, circular and complex process that leads to both individual and team development (Kozlowski & Ilgen, 2006). Given that team learning is presumed to occur within social interactions, teams' willingness to learn is inherently dependent on the social dynamics among their members and their interactions with the surrounding environment (Nellen et al., 2020). Therefore, this thesis strives to addresses TLBs together with a social and emotional perspective to analyse their impacts on the interplay between demands at work and team members' outcomes.

Decuyper et al. (2010) identified seven TLBs aligning with the multilevel conceptualisation of team learning. These behaviours represent joint team activities team members engage in to fulfil both internal work tasks and exchange information with

externals (Van den Bossche et al., 2006). Thereby, team learning in their entirety comprises changing combinations of different TLBs. The conceptualisation categorizes them as basic TLBs (e.g., knowledge sharing, co-construction, and constructive conflict) and facilitating TLBs (e.g., team reflection, team activity, boundary crossing, and knowledge storage and retrieval). While basic TLBs influence the "power of team learning" (Decuyper et al., 2010, p. 117), facilitating TLBs provide context and focus, that lead to both efficiency and effectiveness of the learning process. Notably, storage and retrieval of knowledge play a critical role in maintaining consistency and stability within the team, as learning outcomes can be retained and utilized for future reference or evaluation. A similar conceptualisation can be found in Wiese and Burke (2019), who differentiate between fundamental, intrateam and interteam TLBs based on the research on team processes (see Mathieu et al., 2008, 2019).

Fundamental TLBs represent basic learning processes such as *knowledge sharing* as well as *storage and retrieval of knowledge* in the team (Wiese & Burke, 2019). *Knowledge sharing* refers to behavioural processes that encompass team activities regarding the dissemination and integration of information within a team (Wilson et al., 2007). Thereby, knowledge sharing comprises the exchange of knowledge and structures between team members. Knowledge sharing facilitates teams in reaching a collective understanding. (Staples & Webster, 2008; Widmann & Mulder, 2020). Furthermore, knowledge sharing is the basic framework upon which collective knowledge such as shared mental models is built, serving as a prerequisite for subsequent learning behaviours (Wiese et al., 2022). Storage and retrieval of knowledge describes the archiving of shared knowledge, established strategies, and methodologies (or plans) developed through collaborative team efforts and intended for future utilization (Decuyper et al., 2010).

Intrateam TLBs comprise internal team activities that build shared meaning from existing information, identify and fill in gaps in the team's collective knowledge, as well as challenge, test, and explore assumptions and the team's structure and approaches (Wiese & Burke, 2019). Building upon the shared understanding due to knowledge sharing, the team can engage in *co-construction*, a collaborative effort to create new knowledge, structures, or shared meanings (Van den Bossche et al., 2006). It involves team members refining, building upon, and modifying their individual knowledge, resulting in an entirely new and shared understanding. Furthermore, *constructive conflict* encourages openness to diverse perspectives, active negotiation, and the resolution of disagreements

(Decuyper et al., 2010; Raes et al., 2015). This team activities foster critical thinking and lead to a more comprehensive and well-rounded understanding of the task at hand by allowing team members to address potential issues and find solutions that integrate the strengths of differing opinions. While knowledge sharing and co-construction directly create new knowledge, constructive conflict is needed as building shared mental models requires agreement among all team members. Therefore, Decuyper et al. (2010) describe them as basic TLBs as they result in change and describe what happens when teams learn. Team reflection as facilitating TLB provides crucial scaffolding and enhances the effectiveness of other TLBs. *Team reflection* involves regular discussions and evaluations of the team's performance to allow for valuable learning from past experiences (Schippers et al., 2007, 2017). Through reflection, teams can identify successes and failures, adapt their approaches, and refine their understanding of shared goals and structures.

Interteam TLBs describe team activities to obtain information from the environment outside the team (Wiese & Burke, 2019). Boundary crossing describes team communication and cooperation with its environment (e.g., other teams, experts in the field, organisations, or supervisors). The aim of boundary crossing is multifaceted. Teams can enrich their learning by acquiring new information, valuable resources, and a supportive network due to interactions with externals to provide access to a wealth of knowledge and perspectives beyond the team's own expertise which can spark innovations, new ideas and creative solutions (Widmann & Mulder, 2018).

2.4 The relationships with team members' emotional exhaustion

As aforementioned, teams are used for organisational challenges and fulfil the increasing complex work tasks of organisations, that individuals are not capable to do. Referring to IPO framework, Mathieu et al. (2019) examined the complexity and multilevel perspective of team inputs, team activities and outcomes such as team effectiveness and performance. Outcomes of team processes are not only directed to performance such as quality or the number of errors made but comprise outcomes on different levels such as members' satisfaction, exhaustion and engagement (individual level) or social aspects such as group cohesiveness or sociometric structures (Hackman & Morris, 1975). Furthermore, Ilgen et al. (2005) recognized the effects of loops on the development of teams by extending the IPO framework to the IMOI framework representing the cyclical nature of teamwork and team development. To answer the research questions regarding

the role of EC and team activities this dissertation focuses on outcomes that are likely to influence future teamwork and the team development following the IMOI framework. Considering the research gaps described in the introduction, an outcome was selected that relates to the individual team members, as they will need to participate in future team interactions, and that focuses on the emotional and motivational aspects, as there is little evidence on these aspects of teamwork. Therefore, this dissertation examined emotional exhaustion as a team members' emotional outcome.

Characterized by feelings of emotional and physical depletion as well as being overwhelmed by one's own emotional state (Maslach & Leiter, 2008), emotional exhaustion is a core component of burnout and a significant predictor of further health issues and decreased job performance (Halbesleben & Bowler, 2007). Burnout is as a psychological syndrome consisting of the three components emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Leiter, 2008). Recent research (Hollederer, 2022; Schulze et al., 2022; Trauernicht et al., 2023) shows that employees in the domains of social, child and health care feel more emotional exhausted than other professions, highlighting that emotional exhaustion is a persistent reaction to interpersonal stress (e.g., through interaction with clients or colleagues).

Based on Vroom's (1964) expectancy theory, team members' motivation depends on the demands at work and the belief that the team member will successfully cope with them (expectancy). In addition, the motivation is associated with the belief that coping with the demand will lead to an outcome that is valued or attractive (valence). Building upon this motivational framework, the job-demands-resources model (JD-R; Bakker & Demerouti, 2007) offers a valuable lens through which to analyse the antecedents of emotional exhaustion. The JD-R model posits that the work environment is comprised of two key elements: job demands and job resources. The interaction between these elements exerts a significant influence on emotional exhaustion. Job demands encompass the physical, psychological, social, or organizational aspects of a job that necessitate a team member's physical and/or psychological effort (Demerouti et al., 2001). Research differentiates job demands based on their qualitative and quantitative nature (Van Woerkom et al., 2016). Quantitative demands encompass the sheer volume of workload a team member faces and the work pace, which refers to the time pressure and tempo associated with completing tasks. Qualitative demands, on the other hand, encompass both cognitive and emotional aspects. Cognitive demands involve the underlying complexity of tasks and the extent of

problem-solving and decision-making required to accomplish them (Kubicek et al., 2023). Conversely, emotional demands relate to the necessity of managing emotional distress arising from interactions with clients, team members, or colleagues (Geisler et al., 2019). Job demands are associated with physiological and psychological costs, such as emotional exhaustion (Bakker et al., 2014; Bakker & Demerouti, 2017) that defines the strain path of the JD-R model. Job resources, conversely, represent the physical, psychological, social, or organizational aspects of a job that facilitate employees in achieving their work goals, fostering personal development and learning, and ultimately mitigating the negative effects of job demands (Bakker, 2022; Bakker & Demerouti, 2007). Job resources are predictors of work engagement or organisational commitment (Hakanen et al., 2008) that defines the motivational path of the JD-R model and buffer the effects of job demands on emotional exhaustion (Bakker & Demerouti, 2017). Relying on the IMOI framework (Ilgen et al., 2005), job demands, and job resources are conceptualized as inputs. Furthermore, personal resources of employees and team members are important factors for the strain path in the JD-R model (Xanthopoulou et al., 2007). This dissertation argues, through the lens of the IMOI framework, that personal resources such as EC are considered to buffer the relationships between demands at work as inputs and emotional exhaustion as output.

Drawing upon the transactional theory of stress and coping developed by Lazarus and Folkman (1984), coping strategies mediate the relationship between stressors (e.g., demands at work) and emotional exhaustion. Coping strategies are defined as "thoughts and actions people use to manage distress (emotion-focused coping), manage the problem causing distress (problem-focused coping), and sustain positive well-being (meaning-focused coping)" (Folkman, 2013, p. 1914). In this dissertation it is argued that TLBs and DET are team activities aimed to support the team and, therefore, prevent and mitigate emotional stressors. Consequently, they can be conceptualized as collective coping strategies, encompassing both problem-focused (as TLBs are task-directed) and emotion-focused (as DET as focusing emotional aspects in the team) approaches. It is argued that TLBs and DET mediate the relationships between demands at work (inputs) and emotional exhaustion (output) through the lens of IMOI framework.

Figure 2 shows the assumed relationships based on the theoretical framework with regard to the research question and shows the research model this dissertation is based on.

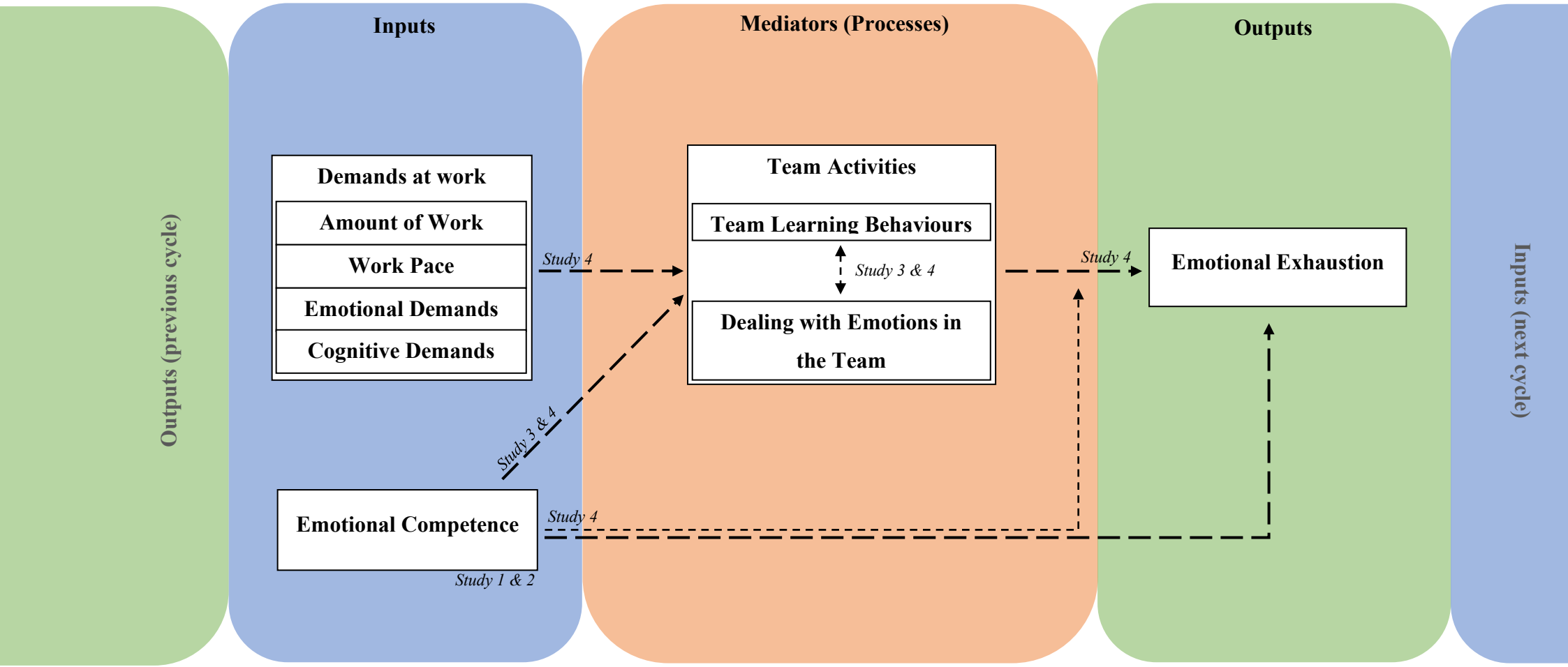

Figure 2: *Research model illustrating the relationships conceptualized guided by the Input-Mediator-Output-Input framework (Ilgen et al., 2005) and JD-R model (Bakker & Demerouti, 2007; Xanthopoulou et al., 2007)*

Section 3. Aim & overview of the thesis

3.1 Aim of the thesis

To answer the research questions about the interplay of team members' emotional competence and team activities in work teams, and how they both contribute to team members' emotional exhaustion, the following aims will be pursued.

Aim 1 – Providing a valid and reliable measure of emotional competence based on a multidimensional perspective and usability

To gain an insight into the role of team members' EC in work teams, a multidimensional perspective of EC is required. This helps to overcome previous shortcomings of using a unidimensional concept of EC. This thesis seeks to extend findings on each EC dimension, acknowledging the role of the four dimensions of EC for transmitting and using information through emotions (Van Kleef, 2016). Moreover, given that the domain of social and health care organisations is characterised by a shortage of skilled workers, health-related absences, and high turnover rates, teams and their members often face significant time constraints in fulfilling their work tasks. It is therefore essential to use data collection methods that are less time-consuming for the participants when researching this domain. To assess a multidimensional conceptualisation of EC, a reliable and valid instrument is needed. This instrument should have a short completion time, as the length of a questionnaire has a strong influence on the participation rate and the quality of participants' answers. Thus, the aim is to develop and validate a short version of a valid and reliable measurement instrument that saves participants' time resources. To achieve this aim, a development study (Study 1) and a validation study (Study 2) are conducted.

Aim 2 – Assess how a team handles and addresses emotions

Given the importance of emotions for teams and organisations (Kelly & Barsade, 2001), researchers are increasingly considering emotional processes as multi-level phenomena (Ashkanasy & Dorris, 2017). Team members, through their interactions and their behaviour in emotional situations, form experiences in the team from which the norms or the expected behaviours emerge (Wolff et al., 2006). Following the discussion of Elfenbein (2006), handling and addressing emotions in teams may be investigated by examining team members' EC, and by what team members actually do when they interact with each other.

Therefore, the aim is to assess team activities that are directed to the handling and addressing of emotions occurring in the team next to team members' EC. This thesis seeks to address the aim by developing items to measure DET and to examine the interplay of team members' EC and DET (described in Study 4).

Furthermore, tasks in work domains such as education, care and social services of the elderly, youth, families and persons with disabilities are not only cognitively oriented. They involve a high degree of emotional labour (e.g., working with patients' fates) and trigger emotions. Consequently, this thesis aims to provide insight into team activities that incorporate the emotional perspective in combination with the cognitive and task-oriented perspectives. This idea is based on Decuyper's view that team learning is a "compilation of team-level processes that circularly generate change or improvement for teams, team members, organisations" (Decuyper et al., 2010, p. 128). To fulfil this aim, DET and TLBs that promote learning within the team are examined and described together in Study 4.

Aim 3 – Identification of relationships between emotional competence and team activities that promote learning within the team

As team learning is essential for team development and a predictor for team effectiveness and performance, it is important to understand what antecedents are influencing team learning. In addition to the team level antecedents, it is also important to identify individual level antecedents. Therefore, the aim was to identify relationships between team members' EC and team activities that promote learning within the team. Because of the broadness of tasks in organisations that provide education, care, and social services and the interdisciplinary relevance, the relationships were investigated in various domains to analyse differences and similarities in relation to the characteristics of domains and teams. To achieve this aim, a systematic literature review (Study 3) and one cross-sectional studies (Study 4) were conducted.

Aim 4 – Insights into the effects of team members' emotional competence, dealing with emotions in the team and team learning behaviours on the relationships between demands and team members' emotional exhaustion

Teams and their members are increasingly facing challenges that lead to stress and high demands at work. Intense work-related stress can lead to emotional exhaustion, with further consequences such as burnout. Organisations have the difficulty of promoting

their teams and members in the best possible way within the framework of occupational health management and human resources development and are often limited in changing the demands at work. Nevertheless, due to the increasing complexity and diversity of work tasks, teams need team members who are dedicated and resilient to emotional exhaustion. The aim is to identify individual and team factors that can help team members reduce their emotional exhaustion and to investigate how these factors interact. Due to the previously described role of EC as a personal resource for team members and the importance of team activities such as TLBs or DET, this thesis focuses strongly on these factors. To achieve the aim of providing insight into antecedents of emotional exhaustion, a cross-sectional study (Study 4) was conducted.

3.2 Overview of the studies

The following chapters of this thesis are based on four closely related articles. Each one contributes independently to fulfilling the aims and answering the research question. As all chapters are based on independent articles published or submitted in peer-reviewed journals some repetition (e.g. in the theoretical framework) is inevitable.

Study 1 - Development of the Short Scale of the Multidimensional Emotional Competence Questionnaire in a German Sample

This study presents the development of a short version of the Multidimensional Emotional Competence Questionnaire to assess EC by a multidimensional perspective. As the original version with 109 items had a long completion time, there was the necessity to develop a version with a shorter completion time that fits the demands of social organisations and teams in terms of usability and time-efficiency. Aim of this study was to: (1) reduce the number of items, (2) to provide a short version of the MECQ with acceptable reliability estimates and a factor structure (construct validity) and (3) to ensure that the short version of the MECQ is comparable with the original measurement instrument. Data was collected from N = 271 respondents and compared to a N = 506 respondents archive sample to reduce items and compare factor structure.

Study 2 - Validating the Short Version of the Multidimensional Emotional Competence Questionnaire

The aim of this multi-study was to validate the developed short version of the Multidimensional Emotional Competence Questionnaire and to extend the findings of

Study 1 in an independent validation study based on the recommendations by Smith et al. (2000). Therefore, three studies were conducted (1) to evaluate construct, convergent, nomological and discriminant validity (N = 518), (2) to analyse retest-reliability (N = 38) and (3) to test for measurement invariance between groups of participants that either filled out the short (N = 518) or the long version (N = 777) of the questionnaire. The findings of this Study 2 in comparison with Study 1 led to a measurement instrument that could be used to assess EC.

Study 3 - The relationships between emotional competence and team learning behaviours

In the systematic review study, existing literature was collected and analysed based on the research question: '*What are the relationships between emotional competence and team learning behaviours?'* Thereby, the aim of this study was not only to provide insight into the relationships between the two constructs, but also to consider the multilevel structure of teams and to distinguish the findings of the different levels of measurement and analysis. The study also analysed the differences and similarities in relation to the characteristics of domains and teams. Research gaps could be identified, which served as the starting point of subsequent research. Based on content-related and technical selection criteria, N = 32 studies were selected, which consisted of both quantitative and qualitative studies at different levels.

Study 4 - Emotional exhaustion in social and healthcare teams: Unveiling the impact of emotional competence, dealing with emotions in the team and team learning behaviours

The aim of this cross-sectional study (N = 417 team members in 78 teams) was to provide insight into antecedents of team members' emotional exhaustion by answering the research questions: *(1) What are the relationships between team members' emotional competence, dealing with emotions in the team and team learning behaviours on team members' emotional exhaustion? (2) What are the relationships between team demands at work and team members' emotional exhaustion and what role do team members' emotional competence, dealing with emotions in the team and team learning behaviours have on these relationships? (3) What are the relationships between team members' emotional competence and dealing with emotions in the team?* The identification of factors to prevent emotional exhaustion and to influence the relationship between

demands at work and emotional exhaustion of team members thus contributes to the understanding of the complex interplay of personal resources such as EC and team activities in work teams in social organisations. Furthermore, by considering both team members' EC and DET the study provided insights into the handling and addressing of emotions within a team.

The following chapters present the studies conducted (Study 1 to Study 4) in accordance with the aims of this thesis.

Section 4. The measurement of emotional competence

4.1 Study 1: Development of the short scale of the multidimensional emotional competence questionnaire in a german sample

Full text available at

https://doi.org/10.1177/21582440211009220

Gerbeth, S., Stamouli, E., & Mulder, R. H. (2021). Development of the Short Scale of the Multidimensional Emotional Competence Questionnaire in a German Sample. *Sage Open*, April-June 2021, 1-15. https://doi.org/10.1177/21582440211009220

4.2 Study 2: Validating the short version of the multidimensional emotional competence questionnaire

Full text available at

https://doi.org/10.1027/2698-1866/a000041

Gerbeth, S., & Stamouli, E. (2023). Validating the Short Version of the Multidimensional Emotional Competence Questionnaire. *Psychological Test Adaption and Development,* 4(1), 128-140. https://doi.org/10.1027/2698-1866/a000041

Section 5. Study 3: The relationships between emotional competence and team learning behaviours

Full text available at

https://doi.org/10.1016/j.edurev.2022.100439

Gerbeth, S., Stamouli, E., & Mulder, R. H. (2022). The relationships between emotional competence and team learning behaviours. Educational Research Review, 36 (6):100439. https://doi.org/10.1016/j.edurev.2022.100439

Section 6. Study 4: Emotional exhaustion in social and health care teams: Unveiling the impact of emotional competence, dealing with emotions in the team and team learning behaviours.

Full text available in the appendix 1

Gerbeth, S., Stamouli, E., & Mulder, R. H. (submitted). Emotional exhaustion in social and health care teams: Unveiling the impact of emotional competence, dealing with emotions in the team and team learning behaviours.

Section 7. Discussion

The purpose of this dissertation was to examine the interplay of team members' emotional competence and team activities within work teams in organisations that provide education, care, and social services to people. Furthermore, this dissertation aims to extend research regarding the interaction of both team members' EC and team activities on emotional exhaustion. To answer the research question – *what is the interplay of emotional competence and team activities within work teams and how do they both contribute to team members' emotional exhaustion* – four studies were conducted.

To investigate the research question, this dissertation uses the Input-Mediator-Output-Input (IMOI) framework (Ilgen et al., 2005), and builds upon the general system theory (Boulding, 1956). Therefore, a team is understood to comprise individual members, with team members' EC serving as individual-level input. This input influences team activities, specifically TLBs and DET, which act as mediators (processes) that, in turn, affect team members' emotional exhaustion as an output.

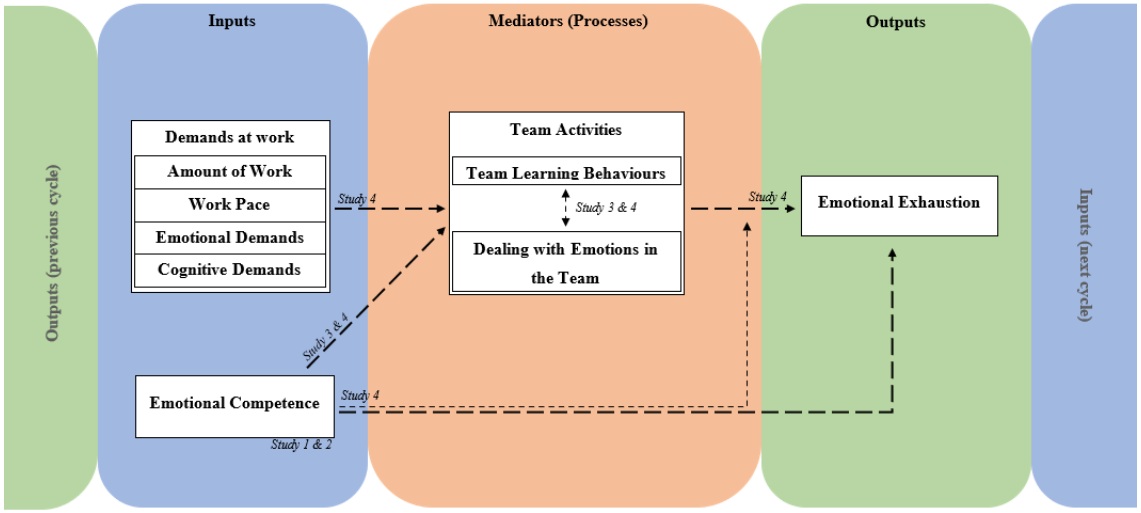

Figure 2: Research model illustrating the relationships conceptualized guided by the Input-Mediator-Output-Input framework (Ilgen et al., 2005) and JD-R model (Bakker & Demerouti, 2007; Xanthopoulou et al., 2007)

Figure 2 presents the research model guided by the theoretical framework. Four aims were derived to answer the research question: Aim 1 – Providing a valid and reliable measure of emotional competence based on a multidimensional perspective and usability; Aim 2 – Assess how a team handles and addresses emotions; Aim 3 – Identification of relationships between emotional competence and team activities that promote learning within the team; Aim 4 – Insights into the effects of team members' emotional

competence, dealing with emotions in the team and team learning behaviours on the relationships between demands at work and team members' emotional exhaustion.

In this chapter, the key findings will be discussed in relation to the aims and limitations. Then, a conclusion will be drawn to answer the research question. Subsequently, implications for future research and practice will be derived.

7.1 Key findings

7.1.1 Provide a valid and reliable measurement instrument of emotional competence based on usability

To gain insight into the role of team members' EC in work teams, a multidimensional perspective of EC is required to overcome previous shortcomings of using a unidimensional concept of EC. Recognising the role of the four dimensions of EC for transmitting and using information through emotions (Van Kleef, 2016), this thesis aims to extend findings on each EC dimension. Consequently, a consistent measurement instrument was needed that (1) recognises the different approaches and their consequences, (2) is based on a similar conceptualisation by taking a competence perspective and (3) acknowledges the multidimensionality of EC by including a heterogeneous set of competences. With the Multidimensional Emotional Competence Questionnaire (Stamouli et al., 2006) a reliable and valid questionnaire was available. However, it was not tailored to the specific requirements of the planned sample of teams in social, child and health care organizations. To address these requirements Study 1 and 2 were conducted to meet the criteria of usability and economy while still retaining measurement quality and comparability.

Based on statistical and content criteria, the original 109-item version was shortened to 32 items in Study 1. The short version of Multidimensional Emotional Competence Questionnaire (MECQ-s) meets the criteria of reliability and validity. Factor analysis of 271 respondents yielded eleven factors that provided support for the theoretical robustness of the MECQ-s, along with its comparability to the original version. Additionally due to the reduction, four factors emerged that corroborated the presence of the four commonly recognized dimensions of EC within the research domain (Hughes & Evans, 2018; Mayer et al., 2016; O'Connor et al., 2019) as mentioned in Chapter 2.1. The

completion time of the questionnaire was reduced to 10-15 minutes. This reduction is essential when investigating teams in social, child and health care organisations where time is limited.

A multi-study (Study 2) was conducted, building upon the recommendations of Smith et al. (2000), to investigate the developed short version of Study 1 by a series of validation studies in independent samples. In Study 2 three sub-studies were conducted to evaluate reliability, construct, convergent, nomological and discriminant validity (Sub-Study 2a); test-retest reliability (Sub-Study 2b); and measurement invariance analysis (Sub-Study 2c). The MECQ-s demonstrated robust reliability estimates and strong similarities to the original version, as shown in the factor analyses. There is evidence that the four dimensions and the eleven-factor model found in Study 2 had acceptable model-fits supporting the hypothesised four content dimensions of EC. These repeated findings confirm the multidimensionality of EC described in Chapter 2.1. Consequently, the MECQ-s was suitable for assessing the influence of different EC dimensions on different aspects of emotional interactions according to the EASI theory (Van Kleef, 2009). For the nomological network, Study 2 extended research on the relationships of EC with constructs such as Big Five personality, self-efficacy, decision-making and experiencing emotions. The findings suggest that EC is context-bound and therefore related to the personality constructs mentioned in Chapter 2.1. In addition, the results of the measurement invariance analysis showed that the original version and the MECQ-s are highly comparable. This also emphasizes the importance to evaluate item reduction by using measurement invariance analyses between groups that answered the short version and groups that answered the long version of the measurement instrument.

Study 2 also expanded the research on exploratory structural equation modelling (ESEM) for complex multidimensional constructs such as EC. The model-fits of models analysed in ESEM provided better model-fits than the models in confirmatory factor analysis (CFA). The advantages of ESEM models become apparent as items are allowed to cross-load on every factor of EC dimensions instead of conditions of CFA which assumes zero cross-loadings (Marsh et al., 2014). The findings of the factor structure contribute to the discussion about EI and EC in Chapter 2.1. For EC, it is assumed that EC dimensions and items are interrelated (see Hughes & Evans, 2018; Mayer et al., 2016), and therefore, ESEM could be a better approach to accurately reflect the true population factor structure. For complex constructs the zero cross-loadings of items in CFA are too restrictive to

provide acceptable goodness of fit and lead to rejection of the models (Marsh et al., 2010, 2020). The findings of Study 2 also underscore the need for an ongoing discussion about ESEM's lack of parsimony when the number of items is large and sample size is small. Finally, the findings on the factor structure provided a solid foundation for further investigation of EC dimensions as inputs in the ongoing studies and their relationships with team activities and emotional exhaustion.

7.1.2 Assess how the team handles and addresses emotions

Considering the aim to provide insight into the handling and addressing emotions in the team, research highlighted two levels of emergence. At the individual level, by examining the team members' EC, and at the team level, by investigating what a team does to deal with the emotions (DET) present in the team. The findings of Study 4 indicate that members of teams of organisations providing education, care and social services have a high level of personal resources in the form of EC, enabling them to deal with the stressful and demanding situations at work that evoke emotions.

Research focusing on the team level, as discussed in Chapter 2.2 and in the systematic review (Study 3) is limited. Studies on teams in social, child and health care organisations characterized by high emotional demands and emotional labour are crucial for the investigation of the team level of emergence. Study 4 provided insight into the DET. Based on the definition that DET consist of team activities, shared by the team or at least two team members, that directly handle and address emotions in the team, are series of teams were items were developed. These items cover different aspects: to perceive emotions (example item: *we discuss the prevailing emotional situation of our team with each other for clarity*), to be sensitive to the emotions of the team members (example item: *in our team, we share different perspectives on an emotional event*), to express emotions (example item: *in our team, we praise each other for good performance*) and to manage emotions (example item: *in our team, we strive to overcome negative emotions by expressing positive emotions*).

The analysis of the factor structure indicated a one-dimensional structure for DET instead of a four-factorial structure, which might have been assumed from the development of the items. An analysis of the factor loadings shows that items describing the exchange, discussion and talking about emotions and emotional events have higher factor loadings

than items describing a common regulation or control of emotions. The specificity to teams that have a high level of emotional labour could provide a possible explanation for this finding, as the exchange and discussion of emotional events makes up a high proportion of daily work, rather than directly managing emotions. The high proportion of team members with a high level of EC could also have influenced the result. Although the emotions or emotional situation is analysed in the team, each team member is good at managing their own emotions.

Finally, the analyses of the items, the factor structure and psychometric properties provided satisfactory results. Therefore, the developed scale provided a sound basis for the assessment of DET by giving insight into the actual activities of teams when they handle and address emotions. Furthermore, the developed scale provides deeper insights into the differences in handling and addressing emotions in work teams: either by examining the resources a team has to handle and address emotions (team members' EC) or by investigating the team activities used to deal with the emotions (DET).

7.1.3 Identification of relationships between emotional competence and team activities that promote learning within the team

Successful work teams depend on constantly adapting, changing, and learning to stay effective and fulfil their work goals. In this dissertation it is argued that TLBs are key factors in how well a team develops. They serve as are mediators that turn team inputs into team outcomes that elicit change and improvement (see IMOI; Ilgen et al., 2005). To understand what drives these behaviours, researchers have explored two main areas of influence: factors related to the team itself (team-level antecedents) and the personal resources that the individual members offer (individual-level antecedents). This thesis provides insight into the relationships between team members' EC, DET, and TLBs.

The systematic literature review (Study 3) revealed that TLBs are positively related with EC and its dimensions. While only a few of the included studies examined EC and TLBs in their entirety, this review highlights a growing trend in team research. Researchers are increasingly focusing on the smaller parts (subdimensions or team activities) of both EC and TLBs, especially when these subdimensions relate to how a team performs or the challenges they face (e.g., team conflict).

Most of the evidence was found for constructive conflict and team reflection, both being positively related to the dimensions of EC (e.g. emotional management). Teams with members who are good at understanding their own and others' emotions, and who can manage their own emotional responses, tend to discuss, and communicate about work-related issues more effectively. Additionally, teams with highly emotionally competent members seem to reflect more on their processes and performance. It could be assumed that TLBs that involve a high amount of social interaction and communication, such as constructive conflict and team reflection, are more strongly related to team members' EC. For the other TLBs (knowledge sharing, co-construction, team activity and boundary crossing) the selected studies revealed a less clear picture. Some evidence suggested positive relationships, but there were also inconsistent findings. One reason for the inconsistent findings could be related to the different levels of inquiry, measurement, and analysis. When measuring at the individual level, the selected studies indicated positive relationships between EC dimensions and knowledge sharing. However, when measuring the team's dealing with emotions at team level those findings were non-significant. These results do not diminish the contribution of the team level of dealing with emotions to knowledge sharing, but rather call for a discussion of the interplay of the individual level and the team level when investigating teams. Therefore, it is essential to assess both the dealing with emotions at the individual level, through team members' EC, and at the team level through DET (see Study 4).

However, not only the multilevel nature, but also the different measurement instruments used at each level can lead to inconsistent results. It was found that weaker correlations were reported in studies using instruments based on the ability model of EC (e.g. the Mayer Salovey Caruso Emotional Intelligence Test – MSCEIT; Mayer et al., 2003) than in studies using instruments based on the trait model (e.g. the Wong and Law Emotional Intelligence Scale – WLEIS; Wong & Law, 2002). Meta-analyses have found similar effects between the measurement instruments of the EC approaches in terms of their predictive power on job performance (see Joseph et al., 2015; Joseph & Newman, 2010; O'Boyle et al., 2011). Another reason for the inconsistent results could be that, while the systematic review (Study 3) was able to categorize the variables identified as TLBs in the selected studies, different measurement instruments were used for TLBs. Additionally, in some cases different terms or operationalisations were used to describe and assess similar or equivalent TLBs. For boundary crossing and retrieval and storage findings were limited. The findings for retrieval and storage and EC are not surprising as storage and

retrieval is mainly work-task and team structure oriented and is not focused on direct team interaction. Interteam TLB boundary crossing describes team communication and cooperation with its environment. Therefore, it was surprising that no relationships were found with team members' EC as positive relationships were expected. Nevertheless, an explanation could be that when negative emotions occur in interpersonal connections to externals during boundary crossing, those connections can be dropped more easily than within the team due to the dependency of the team members.

Because of the broadness of tasks in social and healthcare organisations and the interdisciplinary relevance, the relationships in Study 3 were investigated in various domains. This was done to analyse differences and similarities in relation to the characteristics of domains and teams. The findings of the systematic review (Study 3) were used to select relevant TLBs and EC dimensions for further studies and identify research gaps that could be addressed. In Study 4 it was possible to investigate those research gaps by providing insight into (1) teams of social, child, and health care organisations (as high emotional labour teams neglected in research), (2) the relationships with team members' EC and DET with the same sample (to combine both levels of emergence of the dealing with emotions) and (3) examining different TLBs simultaneously (as studies investigated mainly examined separate TLBs) based on a common theoretical understanding.

The results of Study 4 confirmed the positive relationships between team members' EC and TLBs found in the systematic review (Study 3) but extended the findings by examining all four EC dimensions together with the intra-team TLBs (co-construction, constructive conflict and team reflection) and knowledge sharing as fundamental TLBs. The different relationships between EC dimensions and TLBs examined in Study 4 can help to identify specific starting points for fostering TLBs in the team. While the relationships between constructive conflict and team members' emotional management were stronger, the relationship between team reflection was more pronounced with team members' emotional expressivity. It may be reasonable that team members engage in negotiations, are more open to different perspectives and attempt to reach compromises in the case of disagreements if they are able to better control and manage their emotions. On the other side it can be assumed that for reflection activities in the team it is more relevant that team members are capable in expressing their emotions related to the present work situations.

Study 4 also examined the DET (team level of emergence based on the findings of the Study 3) to address the research gaps arising from the debate concerning the impact of different levels of emotions on organisations (Ashkanasy & Daus, 2005; Ashkanasy & Dorris, 2017; Elfenbein, 2023; Van Kleef, 2016). Additionally, studying emotional processes only at the individual level may lead to an incomplete understanding of how different variables may affect the team (Ashkanasy, 2003; Elfenbein, 2006; Lewis & Ashkanasy, 2020). Our findings revealed a moderately positive correlation between DET and team members' EC. The findings support the detachedness of DET as a team composition model (see Kozlowski & Klein, 2000) from team members' EC as a team compilation model (the team level represents a complex combination of individual resources). Building upon the work of Druskat and Wolf (2001), the findings shed light on the actual emotional behaviours and activities that occur within teams. This contributes to a deeper understanding of how teams and their members handle and address emotions during teamwork and how they cooperate to compensate weaknesses of single team members (Elfenbein, 2023).

7.1.4 Gain insights into the effects of team members' emotional competence, dealing with emotions in the team and team learning behaviours on the relationships between demands and team members' outcomes

The results from the systematic review in Study 3 highlight the relationships between EC and team activities, specifically TLBs. Nevertheless, Study 3 also reveals further research gaps, as there is a lack of studies investigating the interplay of EC and team activities such as TLBs or DET on outcomes. Team research focused primarily on team outcomes such as team performance and less on team members' outcomes such as emotional exhaustion. This is surprising because, at the same time, the complexity and multi-level nature of team research with the nested data structure of members in teams in organizations is always emphasized (Kozlowski & Bell, 2020; Kozlowski & Klein, 2000). It is, therefore, also necessary to investigate the extent to which the team, its activities, and their team members influence individual team members. Study 4 was conducted to address this research gap.

Findings of Study 4 highlight that EC is a personal resource that predicts lower levels of emotional exhaustion, aligning with past research (Scherer et al., 2020; Szczygiel & Mikolajczak, 2018). However, Study 4 extended this research by examining four specific

dimensions of EC, as opposed to a single score. Interestingly, not all dimensions were equally important in predicting emotional exhaustion. It is hypothesized that the focus on one's own emotions is a decisive factor for emotional exhaustion. Furthermore, the findings suggest that the perception of one's own emotions, emotional expressivity, and emotional management (as personal resources) can moderate the relationships between demands at work and emotional exhaustion. This supports the strain pathway in the JD-R model (Bakker & Demerouti, 2017; Demerouti et al., 2001; Xanthopoulou et al., 2007).

Study 4 examined the role of team activities as a buffer against the negative effect of demands at work on emotional exhaustion. It was found that regardless of a team's specific tasks or field (disability care, elder care, childcare etc.), teams that engaged in TLBs and DET reported lower levels of team members' emotional exhaustion. In addition, there is evidence that TLBs and DETs mediate the relationship between demands at work and emotional exhaustion. In teams engaging in TLBs and DETs team members experience less emotional exhaustion even when demands at work were high. These findings align with stress and coping theories (Hobfoll, 1989; Lazarus & Folkman, 1984), suggesting that teams that actively engage in TLBs and DET experience less emotional exhaustion which emphasizes research on collective coping strategies involving the whole team or parts of the team (Rodríguez et al., 2019). Study 4, therefore, extends prior findings for relationships between TLBs and emotional exhaustion (Myers et al., 2018) by including team activities directed on emotional aspects (DET).

Finally, Study 4 examined the interplay between team members' EC and team activities and how they contribute to team members' emotional exhaustion. All three - EC, TLBs, and DETs - independently contributed to explaining variance of team members' emotional exhaustion. While DET and TLBs mediated the relationships between high demands at work and emotional exhaustion, the perception of own emotions and emotional management moderated the relationships between DET, TLBs and emotional exhaustion. Team members with a low level of perception of own emotions and emotional management benefit more than team members with a high level from team activities such as DET and TLBs, as they mitigate the negative effects of demands on emotional exhaustion. This aligns with the Conservation of Resources (COR) theory (Hobfoll, 1989), which proposes that individuals with fewer resources are more susceptible to stress.

The findings in Study 4 revealed strong relationships between DET and TLBs for teams from organisations that provide education, care, and social services. It may be suggested that cognitive and emotional aspects are closely related in the actual behaviour in teams. A reason for the findings could have been that teams of organisations that provide education, care and social services for the elderly, youth, families, and persons with disabilities are characterized by a high amount of emotional labour. Therefore, their work tasks often evolve around emotional situations, for example, in client interaction, so that TLBs relate more strongly to the emotional aspects. Considering the current research on team learning as a complex, dynamic and multi-level process (Kozlowski & Bell, 2020; Mathieu et al., 2019; Mulder, 2022; Van den Bossche et al., 2022) and the view that teams are social units that not only exist for work tasks but also experience and are influenced by emotions (Ashkanasy & Dorris, 2017; Barsade, 2002; Kelly & Barsade, 2001), it becomes apparent that motivational, cognitive and emotional aspects should be considered when investigating team activities. Consequently, the research underscores the necessity for a more comprehensive and complex framework of team learning that incorporates cognitive, emotional, and motivational components (Mathieu et al., 2019; Mulder, 2022). Referring to the definition of team learning described in Chapter 2.3, it is quite feasible that if work tasks contain emotional aspects, DET is also an aspect that the team must master and learn collectively. This also supports the initial research on DET (see: Druskat & Wolff, 2001; Wolff et al., 2006), which assumes that teams form team norms and expected behaviours over time as the emotional structure of the team, making it necessary for team members to learn these norms and behaviours when they join the team. The findings of this thesis should encourage researchers and practitioners to further extend research regarding the emotional (and motivational) aspects associated with team learning.

7.2 Conclusion

This dissertation's focus was on teams and their members, examining individual inputs such as EC and team activities such as TLBs and DET and investigating their contribution to team members' emotional exhaustion. Following the IMOI framework (Ilgen et al., 2005), Vygotsky's (1978) sociocultural theory and Boulding's (1956) general systems theory, current research falls short in examining social interactions as team activities to promote learning within the team by not considering multiple levels (individual and team)

and by not examining the role of team members' inputs and outputs. Relationships between team learning and emotions (Cahour, 2013; Watzek & Mulder, 2019) underscore the significance of emotions in learning processes. Moreover, in organisations providing education, care and social services for the elderly, youth, families and persons with disabilities, tasks entail not only cognitive demands but also require significant emotional labour. This dissertations' main goal was to fill the research gap that delves into the effect of team activities from an integrated perspective on team members' outcomes. Thereby, both the emotional alongside the task-oriented perspectives on team activities were encompassed and the influence of team members' EC as individual input was recognised. In order to achieve this main aim, the following research question was formulated:

RQ) What is the interplay of emotional competence and team activities within work teams and how do they both contribute to team members' emotional exhaustion?

To answer the research question studies were conducted based on the assumption that emotions are capable of transmitting information and have an interpersonal effect on the behaviours of observing persons (see Van Kleef, 2009, 2016). Thereby, EC that describes how individuals perceive, express and manage emotions (Stamouli, 2014) has an influence in this transmission mechanism. The findings of this dissertation suggest that EC is an individual level input, that can influence various team activities that promote learning in work teams as mediator mechanism in the IMOI framework. Nevertheless, differences found in the relationships between dimensions of EC, TLBs (e.g., constructive conflict or team reflection) and DET indicate that different team activities require different EC dimensions of team members. These are crucial findings for targeted training and support in team development.

Cognitive and affective components of teamwork in organisations that provide education, care social services are highly developed and strongly interrelated. Teams within these organisations engage in TLBs and DET in the same way and are characterised by team members with a higher level of EC. The relationships between TLBs and DET encourage deeper reflection on team activities. Team learning is defined as a process that consists of a changing combination of different team activities and can lead to change and improvement of the team, team members or the organization, whereby various inputs are transformed into outputs at multiple levels (Decuyper et al., 2010). DET that describes emotional activities a team carries out, could also fall under this definition, e.g. negative

emotions are transformed into a positive outcome through joint reflection and the joint management of emotions. Thereby, the emotional team activity can lead to a better emotional climate in the team or less emotional exhaustion of the team members, which in turn is beneficial for teamwork and can be seen as an improvement. The development of emotional norms and behavioural patterns in the team, as outlined by Wolf (2006), supports this approach. Expanding on Elfenbein's (2006) research question regarding the criteria for labelling a team as 'emotionally competent,' it can be posited that a team may be considered as such if it is able to sustainably handle and address emotions and emotional events together through the development and use of team activities, thereby generating beneficial output for the team. Alongside the definition of the term “emotional competence” at the individual level, which focuses on the learnability of skills, the interplay of emotions, dealing with these emotions and learning in a team is more closely interwoven than the different origins of the constructs would suggest. The results of this dissertation offer a starting point to further explore this exciting and complex topic.

In order to answer the research question of this dissertation, it is insufficient to solely focus only on EC as individual input and the team activities (TLBs and DET) that promote learning in the team. We also must consider the extent to which they interact to influence outcomes in the team, following the IMOI framework (Ilgen et al., 2005). Emotional exhaustion was chosen as an outcome, because emotional exhaustion is an important starting point for health, burnout and turnover intention of employees in organisations providing education, care and social services for people. Therefore, the antecedents of emotional exhaustion are of particular interest in the context of organizational health management. According to the JD-R model (Bakker & Demerouti, 2007, 2017; Demerouti et al., 2001), there are strong relationships between demands at work and team members' emotional exhaustion. These relationships are influenced by personal and job resources (Xanthopoulou et al., 2007, 2013). By including team activities as another influencing factor in the research model, this dissertation seeks to extend the research to the team to support the expansion claims of the JD-R model (Bakker & Demerouti, 2017).

Consistent with the Conservation of Resources Theory (Hobfoll, 1989), which states that individuals with fewer resources are more susceptible to stress, and thus to the occurrence of emotional exhaustion, this dissertation shows that team members with low levels of EC benefit more than team members with high levels of EC from team activities such as DET and TLBs in reducing emotional exhaustion. This supports Elfenbein's (2016)

theory of emotional division of labour, which assumes that individuals have different levels of EC and that effective teamwork relies on the collective availability and application of EC in the team, rather than each team member having high levels of EC. The results show that EC, TLBs and DETs can independently predict emotional exhaustion of team members. DET and TLBs mediated the relationships between high demands at work and emotional exhaustion. In teams with high engagement in TLBs and DET, team members reported lower emotional exhaustion than in other teams. Based on these findings, it can be emphasized that it is valuable for team research to investigate team activities together with team members' EC, and to include cognitive and emotional aspects in team activities. Consequently, the findings of this dissertation call for a more comprehensive and complex framework in team research that incorporates cognitive, emotional, and motivational components (Mathieu et al., 2019; Mulder, 2022).

Understanding the interplay of personal resources such as team members' EC and team activities such as TLBs and DET on emotional exhaustion of team members can provide researchers with insights into the complex and nested structure of teams within organisations. This understanding can also provide organisations, leaders, and human resources professionals with the knowledge to train and support their teams effectively. Ultimately, the findings of this dissertation can contribute to the advancement of the integration of affective, motivational, and cognitive aspects into team research. They also demonstrate the added value of the interplay of personal resources such as EC and team activities when researching relevant individual, team, and organisational factors.

7.3 Limitations and implications for future research

While the current findings of this dissertation are encouraging and indicate that team members' EC and team activities such as TLBs and DET have an influence on the relationships between demands at work and team members' emotional exhaustion, important areas for future research still remain.

The first limitation of this dissertation pertains to the sample chosen for investigation and the sample size. For the investigation of EC and TLBs, it was necessary to base the criterion for the selection of the sample on the frequency of social interactions happening as emotions occur in and shape social interactions (Van Kleef, 2016). Occupations in the field of health, social child, and disability care are characterized by a high degree of social

interaction and emotional labour. Therefore, the results could be considered domain-specific, as the amount of interaction and emotional labour may also be related to the frequency of team activities, which could explain the strong correlation between TLBs and DET. A high number of team interactions leads to more empathy in the team, as team members spend more time with their emotions in the team (Akgün et al., 2015). Replication studies in other domains with less social interaction and emotional labour in the work tasks could help to cross-validate the findings and identify which results are specific to the domains. Moreover, future studies involving teams from various domains could help to investigate domain-specific differences and extend findings for EC, TLBs and DET. On the other hand, due to the combination of teams from social organisations in the fields of health, social, child and disability care, the results of this dissertation could not capture the specifics of each field. Although 78 teams with 417 team members were recruited in Study 4, the sample size was not sufficient to distinguish between the fields of work. Building on the results of Studies 3 and 4, future research should examine the nature of the work task. The nature of the task, which addresses team-level characteristics, influences the need for cooperative and collaborative behaviours in the team (Hackman, 1969). Only few studies report on the nature of the task such as the amount of autonomy or complexity, which allows to differentiate between the different fields of work investigated. Sung et al. (2019) found that task type and task interdependence were significant covariates in explaining the feedback behaviour of team members in industrial teams alongside EC and team reflexivity. Therefore, future studies are needed that investigate teams used for the same work tasks in the same fields of work and then compare them with teams of different domains.

The second limitation refers to the cross-sectional design of the studies part of this thesis. The decision as to whether the variables examined in the studies were analysed as dependent or independent variables was based on theoretical considerations about the causal relationships between them. Based on research showing that processes in teams are dynamic and complex (Decuyper et al., 2010; Kozlowski & Bell, 2020), and models like the IPO framework (Hackman & Morris, 1975) being replaced by frameworks such as the IMOI (Ilgen et al., 2005), longitudinal studies are necessary to examine the causal relationships between demands at work, team members' EC, TLBs, DET, and team members' emotional exhaustion. The results of this dissertation suggest the need for studies that measure more temporally stable variables like team members' EC at lower frequencies (for example quarterly), demands at work, emotional exhaustion at higher

frequencies (for example, monthly), and team activities such as TLBs and DET on a daily or weekly basis. This would enable researchers to more accurately capture the dynamics in teams. Additionally, based on research insights into team emotions (Barsade & Knight, 2015; Kelly & Barsade, 2001; Watzek et al., 2022), investigating emotions occurring within the team, as well as the stress of team members, can provide a deeper insight into the effects found in this dissertation regarding the relationships of EC, TLBs, and DET on emotional exhaustion.

It should be noted that another limitation in this dissertation was the usage of self-report instruments in the various studies investigated. This methodological approach differs from direct observations, as it relies on the subjective reports of team members about their experiences within the team. This reliance on self-reports becomes particularly challenging in the context of new teams, where team members may not yet have engaged in common team activities. In Study 4, although the teams had existed for a significant duration, they continually underwent changes. Thus, the use of self-report measures may have influenced the findings due to potential variations in team member perceptions over time. Nevertheless, when investigating emotional aspects within teams, it is essential to rely on team members experiences with their team's activities and the emotions they encounter. For external observers it is challenging to access the nuanced emotional dynamics within teams, making self-reports essential for capturing these internal processes. Future studies are needed to develop measurement instruments capturing observable behaviours through, for example, videos and coding schemata to cross-validate the findings of this dissertation. Especially, for the instrument of dealing with emotions (DET). While it effectively covered team activities related to expressing, reacting to, discussing, and reflecting on emotions, its validity requires further validation and there is potential to extend the instrument to a multi-methods instrument combining self-reports with observations. Additionally, these insights could help to investigate the high correlations between DET and TLBs and help expand research regarding the emotional (and motivational) aspects associated with team learning.

Finally, an important implication for future research lies in the theoretical foundation of team activities and team learning. Study 4 emphasized team activities, focusing on what teams actually do. The findings from Study 4 showed that although team members reported similar levels of engagement in TLBs within the team, there was a small amount of variance that confirmed that team learning is a multilevel phenomenon (Kozlowski &

Bell, 2008, 2020). Team members engage in activities that may be based on different perspectives, including the individual perspective (e.g., what do I need to do to fulfil my task in the team), the interpersonal perspective (e.g., with whom do I need to interact to fulfil my task) and the team perspective (e.g., how do we coordinate as a team to fulfil our work tasks). Future research could provide insight into these different levels (individual, interpersonal and team level) by employing instruments that focus on each level of measurement and by conducting multilevel analyses instead of aggregation of measures, a process which leads to loss of information. Consequently, findings from multilevel analyses may be useful for organisations, leaders and human resources professionals by determining whether all team members need to engage in TLBs (and also DET) or if only few members need to engage in TLBs (or DET) for the same effects. Additionally, examining TLBs at multiple levels with DET and EC (based on the results of this dissertation) could address the research gaps on whether leaders or few highly engaged team members could initiate team activities that are helpful for the whole team and influence team members' outcomes. In this respect, as mentioned in Chapter 7.2, a deeper reflection on team learning is needed. Future research must continue to conceptualise team learning as a multilevel phenomenon, recognising different levels (e.g., individual, interpersonal, team, organisation) as well as the cognitive, emotional, and motivational components. It should investigate teams by describing what inputs at multiple levels are needed for team activities that promote learning in the team, and how these team activities impact various outputs at multiple levels leading to sustainable change and improvements for team, its members and organisations. This insight could be valuable for training programs, team composition, and employee onboarding processes as well as part of the occupational health management, offering insights into how teams can be fostered and supported for future challenges.

7.4 Practical implications

The findings of this dissertation have important practical implications for organisations, particularly those organisations that provide education, care, and social services to people. In such organisations, EC and team activities that promote learning within the team play a critical role in team members' emotional exhaustion. By understanding the interplay between team members' EC, TLBs, and dealing with emotions in teams (DET), organizations can better support the health, well-being, and productivity of their

employees. Addressing both cognitive and emotional dimensions of teamwork provides a holistic approach to fostering a more adaptive, emotionally resilient, and collaborative team environment. In this chapter, the focus will be on how organizations, team leaders, and human resources professionals can implement targeted strategies and interventions to enhance team performance, reduce emotional exhaustion, and create a sustainable, emotionally competent workforce. These implications extend beyond individuals, offering insights into how organizations can improve team dynamics, promote learning, and emotional labour effectively.

Enhancing Emotional Competence for Sustainable Team Functioning

Emotions permeate multiple organisational levels, influencing individual employees, interactions within teams, and teams, and ultimately, shaping the broader organizational environment (Ashkanasy & Daus, 2005; Ashkanasy & Dorris, 2017). Effectively handling and addressing emotions is critical, as they significantly affect team members' behaviour (see Van Kleef, 2009, 2016). For instance, employees in customer-facing roles must maintain positive emotional displays, regardless of their internal feelings. However, negative emotions within teams can undermine collaboration, exacerbate conflicts, and hinder team cohesion.

Team members with high EC are better equipped to manage their emotions, thus making them less prone to emotional exhaustion. They are also more likely to participate in team activities that enhance collective outcomes. Fostering EC is essential for building individual and team resilience, which can, in turn, improve overall performance and well-being.

Developing EC involves a multi-faceted approach. First, both teams and individuals must cultivate emotional awareness by recognizing their own emotions and how these emotions influence their work. Additionally, teams need to be equipped with strategies to manage emotions in various situations. Techniques such as cognitive reappraisal, where individuals reassess their emotional responses, can help both individuals and teams regulate their emotions more effectively (Gross, 2014). Leaders play a crucial role in modelling healthy emotional expression and regulation. They can encourage team members to engage with emotions within the team. By fostering emotional awareness and expression, leaders help create a culture of openness and mutual support, essential for team success. Training programs that emphasize EC can enhance this capability, ensuring

that both leaders and team members are prepared to handle emotional challenges at work. Furthermore, human resources professionals should support this development by offering targeted training on EC and more specifically, emotion regulation, ultimately equipping teams with the tools to maintain mental health and resilience.

Optimizing Team Activities to Promote Learning and Reduce Emotional Exhaustion

Team activities, particularly TLBs and DET play a crucial role in mitigating emotional exhaustion while promoting continuous learning and development within teams. These activities are especially valuable in high-demand work environments, where the emotional burden can lead to burnout. Teams that actively engage in TLBs and DET not only reduce emotional exhaustion but also strengthen other critical work-related aspects, such as team cohesion and work engagement (Gerbeth & Mulder, 2023).

The first step in optimizing team activities is fostering emotional awareness within the team. Teams and their members should be encouraged to recognize the presence of emotions and consider their impact on team dynamics. Such awareness enables early identification of negative emotions that could hinder knowledge sharing or collaboration. Leaders can facilitate this process by creating spaces for reflection, where teams can discuss not only their performance but also the emotional and motivational dimensions of teamwork.

Supervisors and team leaders also play a pivotal role in promoting TLBs and DET. By allocating dedicated time during team meetings to address emotional and non-task-related issues, leaders ensure that teams have the opportunity to reflect on their emotional states. Furthermore, leaders can trigger team reflection by openly expressing their emotions, which can stimulate emotional awareness and facilitate joint regulation within the team.

The management of emotions is equally crucial when teams face conflicting viewpoints or high-stakes decisions. In such situations, diverse emotions may emerge, but they must be managed appropriately within the team context. Team members should be trained in emotion regulation strategies, such as reappraisal, to navigate these challenging situations. Leaders can initiate joint emotion regulation by addressing emotions consciously during meetings, encouraging team reflection and promoting constructive emotional exchanges.

Human resources professionals have a significant role to play in ensuring that team activities like TLBs and DET are integrated into team dynamics from the outset.

Recruitment processes can prioritize candidates with strong EC and experience in TLBs and DET, as these characteristics contribute to reducing emotional exhaustion and improving team effectiveness. Onboarding programs should emphasize active participation in TLBs and DET, promoting emotional and social cohesion within the team from the very beginning. By fostering these activities, organisations can enhance team cohesion and create a more resilient and less emotional exhausted, emotionally competent workforce.

In conclusion, supporting the development of EC and encouraging engagement in DET and TLBs organisations can effectively manage the interplay between inputs (team members' EC), mediators (team activities such as TLBs and DET), and outputs (emotional exhaustion) to cultivate healthier, more effective teams capable of sustaining high performance in emotionally demanding environments, especially in organisations providing education, care and social services to children, youth, families, elderly and persons with disabilities.

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This reflection leads me to conclude that such a supportive ***"team"*** was truly outstanding.

Appendix 1

Emotional exhaustion in social and health care teams:
Unveiling the impact of emotional competence,
dealing with emotions in the team and team learning behaviours

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Empirical Paper

Emotional exhaustion in social and health care teams:
Unveiling the impact of emotional competence, dealing with emotions in the team and team learning behaviours

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Abstract

Teams in social organizations are facing increasing challenges in supporting and providing care, education, and social services to the elderly, youth, families or persons with disabilities. These challenges may lead to emotional exhaustion of the team members. The present study provides insights into the role of team members' emotional competence, dealing with emotions in the team and team learning behaviours for the relationships between work demands and emotional exhaustion. Data from 417 team members of 78 teams in social work, education and care were analysed with structural equation modelling. Findings show that team members' emotional competence, dealing with emotions in the team and team learning behaviours are negatively related to emotional exhaustion. Team members with low levels of emotional competence benefit more from team activities such as dealing with emotions in the team or team learning behaviours to mitigate the negative effects of work demands on emotional exhaustion. Understanding the role of emotional competence and team activities for the relationships between demands at work and emotional exhaustion may enable social organisations to provide support to teams and their members as part of the occupational health management.

Keywords

emotional exhaustion; team learning behaviours; dealing with emotions in the team; emotional competence; work teams; social and health care

Section 1. Introduction

Teams in social and health care organisations are facing increasing challenges due to the shortage of skilled workers, high turnover and health-related absences of team members (Schulze et al., 2022). All of these increase the demands teams are facing in their daily work. Additionally, recent research has repeatedly pointed to relationships between high demands at work and high work-related stress and its consequences (Gonzalez-Mulé et al., 2021). High work-related stress leads to emotional exhaustion, a core component of the burnout syndrome (Demerouti et al., 2001; Halbesleben & Bowler, 2007). Emotional exhaustion (EE) is characterised by feelings of being overwhelmed and exhausted regarding one's own emotional as well as physical resources (Maslach & Leiter, 2008). There is evidence that EE predicts further health problems and low job performance (Halbesleben & Bowler, 2007). Therefore, it is decisive for organisations, teams, and supervisors to identify indicators of emotional exhaustion of team members. Individuals with high emotional competence (EC), defined as a set of competences to deal with emotions in social situations (Stamouli, 2014), are more resilient to the occurrence of emotional exhaustion (Szczygiel & Mikolajczak, 2018). The first aim of this paper is to provide insight into the role of team members' emotional competence on the relationships between team demands at work and emotional exhaustion.

While research has investigated factors influencing emotional exhaustion at the individual level (such as EC), there is still a lack of studies focusing on teams and their resources as well as the role of activities in those teams for the occurrence of team members' EE. As teams are often used for complex and multifaceted tasks in organisations, they often have to deal with ambiguous and overwhelming demands and have to constantly adapt and learn (Shuffler et al., 2011). Team learning behaviours (TLBs) are defined as team activities that lead to an improvement for the team and its members and consist of team activities such as constructive conflict that improves teams to deal with complex tasks (Decuyper et al., 2010). In addition to fulfilling work tasks and achieving goals, for which high TLBs are beneficial, teams as social units also have to deal with emotional and social situations that often trigger emotions (Ashkanasy, 2017). In this context, a new strand of research has emerged that views teams as resourceful entities for handling emotions in the team, in addition to the influence of emotional competence of individual team members (Elfenbein, 2006). We define dealing with emotions in the team (DET) as team activities carried out by at least two team members to perceive, exchange about, express, and manage emotions. Both TLBs and DET consist of activities in teams that may help

teams to cope with various team demands at work (e.g. the amount of work), that may be stressors for the team and their members, and, thereby, minder the associated physiological and psychological costs (e.g. EE) based on stress and coping theory (Lazarus & Folkman, 1984). Therefore, the second aim of this paper is to provide insights into the role of TLBs and DET for the relationships between demands at work and EE.

To address these aims, our research questions are:

What are the relationships between team members' emotional competence, dealing with emotions in the team and team learning behaviours on team members' emotional exhaustion?

What are the relationships between team demands at work and team members' emotional exhaustion and what role do team members' emotional competence, dealing with emotions in the team and team learning behaviours have on these relationships?

What are the relationships between team members' emotional competence and dealing with emotions in the team?

In Figure 1 the research model is presented.

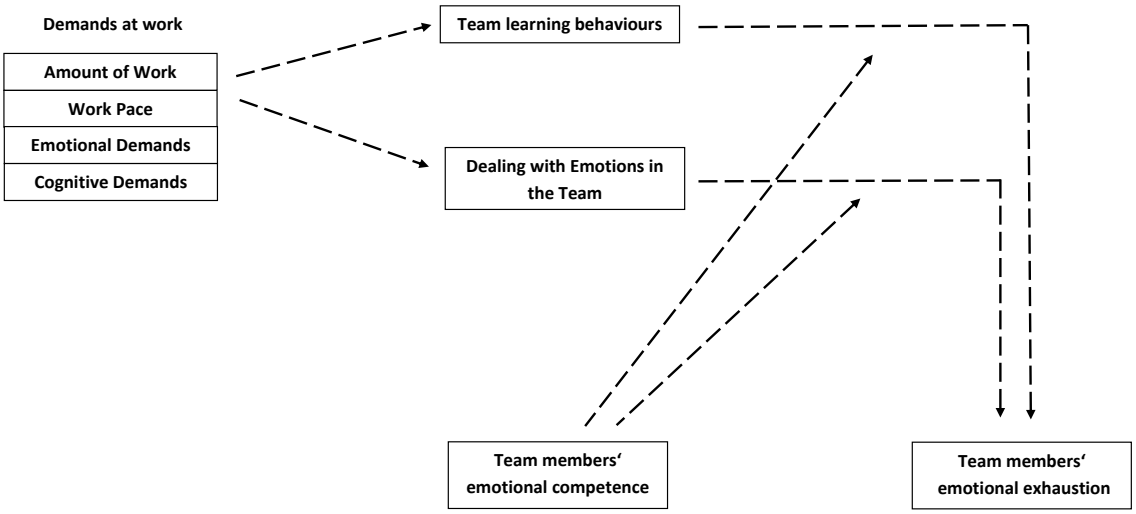

Figure 2: Research model

Section 2. Theoretical Framework

2.1 Team members' emotional exhaustion

Work of employees of organisations in the field of social work, child and health care is characterised by maintaining and improving health and wellbeing of individuals with complex social, physical and mental needs (e.g., vulnerable children, persons with

disabilities, older people). Professionals must deal with various vulnerable and emotional situations such as strokes of fate, loss and abuse or lifelong trauma that additionally have lasting effects on themselves. Research highlights that employees have higher levels of stress and burnout than other human service occupations (Schulze et al., 2022). In this context, burnout is a persistent reaction to interpersonal stress (e.g., through interaction with clients or colleagues) and is defined as a psychological syndrome consisting of the three components emotional exhaustion (EE), depersonalisation and reduced personal accomplishment (Maslach & Leiter, 2008). EE as core component of burnout is characterised by feelings of being overwhelmed and exhausted regarding one's own emotional as well as physical resources leads to further health problems, low job performance and turnover (Maslach & Leiter, 2008). A recent study by Hollederer (2022) showed that 41% of the participating social workers felt emotional exhausted in the past 12 months (in contrast to other professions with 26%) associated with a lack of recovery among social workers.

A useful framework for analysing the antecedents of EE is the job demand-resources model (JD-R; Bakker & Demerouti, 2007). JD-R argues that work is characterised by job demands and job resources those interaction has an impact on work outcomes. Job demands are physical, psychological, social or organisational aspects of the job that require a team member's physical or psychological effort (Demerouti et al., 2001). Job demands are related with physiological and psychological costs such as EE (Bakker & Demerouti, 2017). In contrast, job resources are physical, psychological, social or organisational aspects of the job that help employees in achieving work goals, fostering personal development and learning, and reducing job demands (Bakker & Demerouti, 2007).

2.2 Team members' Emotional Competence as Personal Resource

Emotions accompany employees and team members every day, whereby individuals perceive, experience and react to emotions differently (Siemer et al., 2007). The concept of EC describes how individuals handle and address emotions by using a set of competences including the perception of own and others' emotions, emotional expressivity and emotional management (Stamouli, 2014). Due to the relationships with job performance (O'Boyle et al., 2011), well-being (Sánchez-Álvarez et al., 2016), job satisfaction and organisational commitment (Stamouli & Gerbeth, 2021), EC is a well-researched construct at individual level in the work context and could be seen as a

personal resource of team members for their daily work. Personal resources are considered to buffer the relationships between job demands and EE and contribute to the motivational process of JD-R model. EC as personal resource helps team members to deal with the emotions emerging at work and thus reducing negative or stressful situations, which can trigger emotional exhaustion (Szczygiel & Mikolajczak, 2018). Therefore, we hypothesised in our study:

Hypothesis 1: Team members' emotional competence is negatively related to emotional exhaustion.

2.3 Demands at Work

Teams of organisations providing care, education, and social services are engaged in tasks that involve a high degree of complexity an abundance of diverse tasks in general, and a high degree of emotional work (Rosen et al., 2018). In this context, teams and their members need to deal with various job demands in fulfilling their work tasks. Research differs job demands based on their nature being quantitative or qualitative (Van Woerkom et al., 2016). Quantitative demands include the actual amount of work in the team and work pace that refers to the time pressure and tempo of tasks to be fulfilled. Qualitative demands refer to cognitive demands but also include emotional demands. Cognitive demands relate to the complexity of the work tasks and the amount of problem solving and decision making involved in completing the work tasks (Kubicek et al., 2023). Emotional demands refer to the dealing with emotional distress from clients and team-members or colleagues (Geisler et al., 2019). Recent research highlights the predicting effects of quantitative demands such as the amount of work and qualitative demands such as cognitive and emotional demands on burnout (Petersen et al., 2023). Therefore, regarding the JD-R model and the research findings aforementioned, we hypothesise for our study:

Hypothesis 2: Demands at work (quantitative demands, work pace, cognitive demands and emotional demands) are positively related to emotional exhaustion.

2.4 Dealing with Emotions in the Team

Based on the importance of emotions for teams and organisations (Kelly & Barsade, 2001), researchers are increasingly considering emotional processes as multi-level phenomena (Ashkanasy & Dorris, 2017). Referring to Elfenbein (2006), how teams handle and address emotions can be either conceptualised as a team compilation model

using team members' EC. Based on the multi-level theory of Kozlowski and Klein (2000), the team level than is considered a complex combination of diverse individual level contributions. Or it can be conceptualised as a team composition model, where the team level is the coalescence of identical lower-level contributions. Therefore, in the sense of composition models constructs at different levels have the same content and share the same meaning across those levels (for a further disucssion see: Kozlowski & Klein, 2000). Referring to the team composition model the team members themselves form experiences in the team, through their interactions and their behaviour in emotional situations, from which the norms or the expected behaviours emerge (Wolff et al., 2006). Those expected behaviours are observable and describe how teams handle and address emotions.

Conceptualisations attempts that defined the handling and addressing of emotions in the team "as the ability of a group to generate a shared set of norms that manage the emotional process in a way that builds trust, group identity and group efficacy" (Druskat & Wolff, 2001, p. 138) lack clarity and mix levels of inquiry. A conceptualisation is needed that focuses on the emergence at the team level and, therefore, the concept needs a clear focus on the behavioural aspects such as team activities. Dealing with emotions in the team are defined as team activities, shared by the team or at least two team members, to directly handle and address emotions in the team. DET consists of team activities perceiving emotions (e.g., a team recognises and understands its emotions by discussing or exchanging), being sensitive to the emotions of the team members (e.g., a team responds empathically to the team's emotions or shares different perspectives), expressing emotions (e.g., a team's expression of both positive and negative emotions) and managing emotions (e.g., a team actively influences or copes emotions).

Referring to the transactional theory of stress and coping by Lazarus and Folkman (1984) the relationships between stressors such as demands at work and stress (and its physiological and psychological costs such as EE) are mediated by coping strategies, that are defined as "thoughts and actions people use to manage distress (emotion-focused coping), manage the problem causing distress (problem-focused coping), and sustain positive well-being (meaning-focused coping)" (Folkman, 2013, p. 1914). Increasingly complex and diverse work tasks in organisations, that can only be accomplished by teams, thereby, create collective team or organisational demands that challenge or threaten each team member (Rodríguez et al., 2019). From this point of view, not only individual coping strategies are needed, but collective coping strategies that involve the whole team or parts

of the team. Nevertheless, research on coping at different levels is lacking (Rodríguez et al., 2019). In our study we argue that DET refers to activities carried out by the team members aimed at preventing and reducing emotional stressors and, thus, could be seen as emotion-focused collective coping strategies. Therefore, we hypothesised:

Hypothesis 3: Dealing with emotions in the team is negatively related to emotional exhaustion.

Hypothesis 4: Dealing with emotions in the team mediates the relationship between team demands at work and emotional exhaustion, so that the negative impact of job demands on emotional exhaustion is reduced.

DET builds on the concept of EC, which includes aspects on what individuals do in emotional situations, DET is different, in that it focuses on firstly actual observable behaviour in emotional situations at secondly of the team. Analogous to the discussion of the distinction and relationships between EC and emotion regulation, defined as the strategies used by the individual to regulate emotions (see Hughes & Evans, 2018), team members' EC is a factor that influences DET. Recent research investigated the moderating effect of EC on the relationships between emotion regulation activities on emotional exhaustion (Nauman et al., 2019). Conservation of resource (COR) theory (Hobfoll, 1989) posits that individuals experience stress and negative psychological costs when there is a lack of psychological and/or physical resources to cope with stressors in the environment. Individuals with high EC have more personal resources that buffer stress occurring in work situations. Our study argues that DET are activities in teams that help team members to handle and address emotions and, therefore, team members with low EC who have fewer personal resources benefit from the activities more than those who have high EC. Therefore, the hypotheses are:

Hypothesis 5: Team members' emotional competence relates positively with dealing with emotions in the team.

Hypothesis 6: Team members' emotional competence moderates the relationship between dealing with emotions in the team and emotional exhaustion such that the relationship between DET and EE is stronger for low EC and weaker for high EC.

2.5 Team Learning Behaviours

Social organizations rely on teams in order to effectively accomplish the multiple, complex and diverse work tasks, with these teams being characterized by their work

structures, processes and collective experience and knowledge (Van den Bossche et al., 2006). Team processes which lead to common outcomes causing change and improvement for teams, their members, and organisations are described as team learning and include different behaviours in teams that emerge in team members interaction (Decuyper et al., 2010). Thereby, team learning behaviours (TLBs) include team activities such as *knowledge sharing* (exchange of knowledge, routines, or structures between team members; see Widmann, Mulder, & König, 2019), *co-construction* (creation of new common meanings of e.g., plans, knowledge and tasks across the team; see Van den Bossche et al., 2006), *constructive conflict* (negotiation, discussion and dialogue processes that combine different understandings and resolve misunderstandings that arise within the team; see Decuyper et al., 2010) and *team reflection* (reflection on strategies, methodologies, and tasks to gain an overview of current status and goals; see van Dick & West, 2005). Team members engage in TLBs to fulfil the team's goals and circularly generate change and improvement.

In this study, it is argued that the transactional theory of stress and coping (Lazarus & Folkman, 1984) is an explanatory approach for the relationships between demands at work, TLBs and EE. We hypothesize that TLBs act as problem-focused coping behaviours that help team members to face the stress occurring through the demands at work. For example, when stressed due to their high demands at work, team members who share their knowledge, elaborate, discuss, combine and reflect upon the information related to the demands they face, may find new strategies and ways to cope with the demands. In contrast, team members who do not engage in TLBs could be limited in their perspective of the situation and have less opportunities and strategies to cope with the stressor. Furthermore, referring to COR theory this lack of own resources to cope with the demands leads to stress and associated negative psychological costs. Therefore, we hypothesize:

Hypothesis 7: Team learning behaviours are negatively related to emotional exhaustion.

Hypothesis 8: Team learning behaviours mediate the relationship between team demands at work and emotional exhaustion, so that the negative impact of job demands on emotional exhaustion is reduced.

Hypothesis 9: Team members' emotional competence moderates the relationship between team learning behaviours and emotional exhaustion such that the relationship between

TLBs and EE is stronger for low EC and weaker for high EC.

Section 3. Method

For this study, a cross-sectional survey was carried out with a questionnaire in an online as well as paper version. Teams from different organisations providing care, education, and social services were asked to participate in the study. Only those teams were included in the data collection whose work objective was in the field of care, nursing and counselling of people, as there was a high emotional involvement in the daily work. Furthermore, data was only collected from teams that met our definition of a team (task interdependent; common work goal). Informal consent was obtained prior of the study by all participants. Ethical approval was granted by the ethics committee of the university of Regensburg (no. 22-3077-101).

3.1 Sample

Data was collected from a total of 457 team members from 107 different teams in organisations providing care, education, and social services to the elderly, youth, families or persons with disabilities. 29 teams were excluded when less than three or less than 33% of the team members participated in the survey. Therefore, the total data analysed consisted of 417 team members in 78 different teams. The team size ranged between 2 to 28 team members with an average of M (SD) = 11.27 (5.73) team members. Team stability was evaluated by the last time a member joined or left the team. 39.3% of all teams had lost a team member in the last three months, while for 44% of all teams a team member joined in the last three months. Nevertheless, 76.7% of the participants of the study reported that they joined their team over one year ago. 77.2% of the participants in the survey were female and the average age was M (SD) = 41.12 (12.35) years. For 36.2% of the participants, the last job turnover was more than 5 years ago. 40.1% joined their team more than 5 years ago, while 18.1% did so in the last year. 22.3% of the team members were nurses, 4.8% were nursing assistants, 0.7% further medical professionals (e.g., ergo-therapists), 23.5% were social or childcare workers, 3.8% were psychologists, 19.4% were (social) educationalists, 10.3% were assistants, 1.9% were further consulting and supporting professionals, 2.9% were team leaders, 3.1% administrative and economic staff and 7.2% refused to report their occupation.

3.2 Measures

Team members' emotional exhaustion. The nine items of the subscale "emotional exhaustion" of the Maslach Burnout Inventory (MBI-D; Büssing & Perrar, 1992) were

used to measure team members' EE. Participants answered on a 7-point Likert-type scale (1 = *never* to 7 = *daily*) how often they feel exhausted and have negative emotions during work. An example item is as follows: "*I feel burnt out by my work*". The Cronbach α was .91.

Team Demands at work. To measure team demands at work we adapted items of four scales of the German version of the Copenhagen Psychosocial Questionnaire (COPSOQ III; Lincke et al., 2021) including the quantitative demands (4 items), work pace (3 items), cognitive demands (4 items) and emotional demands (3 items). Items were measured on a 5-point Likert-type scale (1 = *never* to 5 = *always*) with a reference shift to the team level as for example "*how often does your team not have enough time to complete all the work tasks*" (quantitative demands). The Cronbach α ranged from .64 to .85.

Team members' Emotional Competence. For assessing team members' individual EC, the short version of the Multidimensional Emotional Competence Questionnaire (Gerbeth & Stamouli, 2023) was used. Items revolved around the perception of own and others' emotions, emotional expressivity and emotional management on a 5-point Likert-type scale from 1 = "*I completely disagree*" to 5 = "*I fully agree*". An example item is as follows: "*before I criticise someone, I try to imagine how I would feel if I were in their situation*" (perception of others' emotions). The Cronbach α ranged from .67 to .75.

Dealing with emotions in the team. For DET items were developed that measure team activities in perceiving emotions, being sensitive to the emotions of the team members, expressing emotions and managing emotions. Team members answered on a 5-point Likert-type scale from 1 = "*never*" to 5 = "*always*", how often their team engaged in those activities.

In the development process we started to select items of individual EC (Gerbeth & Stamouli, 2023). All items of EC (N = 32) were analysed and only those that contain behavioural aspects, are part of the four mentioned components, and whose emergence could be extended to the team level were further modified. We removed 14 items that emergence was only located at the individual level or have no behavioural components (e.g., "*I don't think it's worth paying attention to your emotions or moods*"). Items were then adapted and modified to the team level by the researchers individually and afterwards discussed. Before reaching agreement on a version of an item, special attention was paid to the measurement of observable behaviour as the key reference (e.g., "*we <u>discuss</u> the*

prevailing emotional situation of our team with each other for clarity"). In a further step we extended the theoretical facets by developing 14 new items (e.g., emotional expressivity: "*in our team, we praise each other for good performance*") for those who were underrepresented based on the theoretical framework and findings of emotional team research (Watzek & Mulder, 2019). The exploratory factor analysis supported a unidimensional model of DET and recommended the removal of three items (factor loadings < .30). The resulting unidimensional model has a Cronbach α = .95 and McDonald's ω =.95. Item wording, a description of the development and psychometrics are presented in the Supplemental Material 1.

Team Learning Behaviours. To measure TLBs we used two instruments with all items were measured at a 5-point Likert-type scale from 1 = "*never*" to 5 = "*always*". We used items of Widmann, Watzek & Mulder (under revision) measuring knowledge sharing (eight items; Cronbach α = .86), co-construction (ten items; Cronbach α = .90) and constructive conflict (ten items; Cronbach α = .84). Team reflexivity was measured with eight items by (van Dick & West, 2005) and Cronbach α was .86. Example items were as follows: "we pass on task-relevant know-how in the team" (knowledge sharing), "*we draw conclusions from the ideas discussed in the team*" (co-construction), "*we try to address disagreements in the team directly*" (constructive-conflict) and "*we regularly discuss whether the team is working together effectively*" (team reflexion).

Control variables. We controlled for team size, team stability (by asking what the last time was that someone joined or left the team), gender, age and working years as well as team membership.

3.3 Analysis

Correlations analysis and descriptive statistics were carried out using IBM's SPSS Statistics 29 software. The structural equation modelling was performed using MPLUS 8.2 with robust maximum likelihood estimators. To adjust standard errors of regression coefficients "type = complex" setting for nested data was used (Muthen & Satorra, 1995). For moderation analysis we added interaction terms of the latent variables in the models. After evaluating the measurement instruments with confirmatory factor analysis, item parcelling for EE, TLBs and DET was conducted by averaging items based on correlations (Little et al., 2002) for reasons of parsimony in model estimation. For evaluating model fit χ^2 value, degrees of freedom, the comparative fix index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean

squared residual (SRMR) are reported. RMSEA values smaller than 0.08, SRMR values smaller than 0.10 and CFI values higher than 0.90 are satisfactory model fit, while RMSEA values smaller than 0.06, SRMR values smaller than 0.08 and CFI values higher than 0.95 are good model fit (Hair, 2014).

Section 4. Results

4.1 Descriptive Statistics & Correlations

In table 1 the descriptive statistics, correlations of all variables and Cronbach αs are presented. Team members reported a low to moderate level of EE. For the teams team members indicated that there are high levels of cognitive demands and moderate levels of amount of work, work pace and emotional demands. Females had higher levels of perception of others' emotions and emotional expressivity than males (*T*-test (*df*) = 2.96 (401) and 3.31 (401), $p < 0.01$). Furthermore, younger team members had higher levels of emotional competence. Work experience was positively related to overall demands at work, work pace and negatively related to knowledge sharing, co-construction and DET (r_{KS} = -.10, r_{CO} = -.12, r_{DET} = -.12, p < .05). Team members that worked in their team and their organisation for a long time reported higher EE and more perceived demands at work. Team size was only related with cognitive demands (r = .13, p < .01) and team stability with work pace (r = -.17, p < .01).

[insert table 1 about here]

In Table 1 the relationships between EC dimensions and EE are presented. Perception of own emotions, emotional expressivity and emotional management are related to EE, which partly supports hypothesis 1. Furthermore, EC was positively related to DET (r = .16-.29, p < .01), which supports the hypothesis 3. Teams that engaged in TLBs were also teams that engaged in DET, as indicated by the high correlations between them (r > .65, p < .01). Therefore, we tested our SEM models to evaluate separately the influence of TLBs and DET on the relationships between demands at work and EE due to multi-collinearity reasons.

4.2 SEM

In Table 2 the findings of the model for the relationship between demands at work and EE are presented. Work amount and emotional demands are related to EE (β = .42 and .39, p < .01). Therefore, the findings support hypothesis 2. For cognitive demands, surprisingly, we found a negative regression coefficient, which was just barely not

significant (β = -.20, p < .09). This finding is against our hypothesis 2.

[insert table 2 about here]

In table 3 the mediation model in SEM and moderated mediation models in SEM for the role of EC and DET on the relationships of demands at work and EE are presented. DET is negatively related to EE (β = -.15, p < .01), which supports hypothesis 4. DET mediates the relationships between work amount, cognitive demands and EE (indirect effect: β = .04 and -.07, p < .05). The findings partly support our hypothesis 5. In our moderated mediation analyses we found perception of own emotions and emotional management to moderate the relationships between DET and EE. Figure 1 and Figure 2 in the Supplemental Material 2 present the slopes with low and high EC. Therefore, hypothesis 6 can be partly supported.

The mediation model in SEM and moderated mediation models in SEM for the role of EC and TLBs on the relationships of demands at work and EE are presented in table 4. TLBs and EE are negatively related (β = -.13, p < .01), which supports hypothesis 7. In addition, TLBs mediate the relationships between EE and work amount (indirect effect: β = .04, p < .05), cognitive demands (indirect effect: β = -.08, p < .01) and emotional demands (indirect effect: β = .03, p < .06). The findings partly support our hypothesis 8. For the moderated mediation analyses perception of own emotions and emotional management moderate the relationships between TLBs and EE (see table 4). Figure 3 and Figure 4 in the Supplemental Material 2 present the slopes with low, moderate and high EC. Therefore, hypothesis 9 can be partly supported.

[insert table 3 about here]

Section 5. Discussion

Practitioners and researcher recognized the importance of reducing emotional exhaustion as a burnout component due to its predictive power on performance (Halbesleben & Bowler, 2007). This study extends the insights not only for personal resources, such as emotional competence, but also for team antecedents such as the dealing with emotions in the teams and team learning behaviours. Furthermore, this study addresses the role of team members' EC and team behaviours for teams in social organisations on the relationships between demands at work and team members' EE.

The team members investigated in the present study reported low levels of EE. Previous studies before COVID-19 pandemic reported similar but slightly lower values for EE

(Trauernicht et al., 2023). Team members also reported moderate to higher levels of demands at work. As the teams investigated work in social organisations, those findings could be due to the fact that the domain is still lacking a shortage of skilled workers, high turnover rates and health-related absences of team members (Schulze et al., 2022). Furthermore, the tasks teams are used for are characterised by complex cognitive decision making and a high amount of emotional labour due to social interactions (e.g., with patients or clients). Demands at work were found to be negatively related to EE consistent with JD-R model (Bakker & Demerouti, 2007). Hence, it is of importance to have emotionally healthy, vital, and resilient team members who commit themselves to these multifaceted and demanding work tasks.

Our findings indicated that team members' EC as personal resource is a predictor for EE, which is in line with previous studies (Szczygiel & Mikolajczak, 2018). Nevertheless, relying on a multidimensional approach we investigated four dimensions of EC rather than a global score. Doing this, we found that not necessarily all four dimensions predict EE. The effect of perception of others' emotions on EE was not significant, while perception of own emotions, emotional expressivity and emotional management were negatively related to EE. This result is consistent with our hypothesis that the focus on one's own emotions is a decisive factor for EE. Our findings indicate that perception of own emotions, emotional expressivity, and emotional management were capable to moderate the relationships between demands at work and EE, which supports the strain path in the JD-R model (Bakker & Demerouti, 2017; Xanthopoulou et al., 2007). Team members with high competences in perceiving own emotions, expressing emotions and managing emotions had lower EE being confronted with high emotional demands.

The second main purpose of our study is to provide insight into the teams themselves and their behaviour as antecedents of team members' EE. Overall, team members indicated that they engaged in TLBs and DET during their work. Although teams differed in their tasks and in the fields of application (e.g., disability care, eldercare, and childcare), we could not identify differences in the frequency with which they engaged in TLBs and DET. Findings show that not only team members' personal resources but the team itself through the activities engaged in could influence team members' EE. DET and TLBs were found to be negatively related to EE which is in line with stress and coping theory (Lazarus & Folkman, 1984) and COR theory (Hobfoll, 1989). Team members had lower EE when they worked in teams that perceive, express, regulate, reflect upon emotions as

well as in teams that share knowledge, create new knowledge, structures, and plans, achieve agreement, and are also characterized by a high level of reflective activities. The findings support previous studies investigating relationships between TLBs and burnout (Myers et al., 2018), but extended those findings to team activities directed on emotional aspects. DET and TLBs were also found to mediate the relationships between demands at work and EE. These findings support the value of collective strategies to cope with demands that involve the whole team or parts of the team, in reducing employee's stress and organisational stress climate (Rodríguez et al., 2018).

Our findings also contribute to the interplay of personal resources such as EC and team activities such as DET and TLBs. EC, DET and TLBs were all found to explain variance of EE independently. While DET and TLBs mediate the relationship between demands at work and EE, perception of own emotions and emotional management moderates the relationships between DET, TLBs and EE in the way that team members with low EC benefit from the activities more than those who have high EC. This is in line with COR theory (Hobfoll, 1989) that posits that individuals experience stress and negative psychological costs when there is a lack of psychological and/or physical resources to cope with stressors in the environment.

With successfully developing items measuring DET our findings contribute to the multilevel issue described by Elfenbein (2006). With addressing both team members' EC and DET insights into the relationships between the two perspectives for addressing and handling of emotions in a team were provided. Our results indicate that there is a moderate positive relationship between DET and team members' EC that supports the detachedness of handling and addressing emotions in the team as team composition model (the coalescence of team members' perception of team activities to perceive, to express, to regulate and to reflect upon emotions) from a team compilation model (team level is a complex combination of different team members' EC) based on Kowzlowski's (2000) multilevel theory. In light of previous work of Druskat and Wolf (2001) our findings provide insight into the actual emotional behaviours and activities in teams and contribute to the understanding of teams and their members handle and address emotions during teamwork to maintain resilient and not emotional exhausted.

5.1 Practical implications

In order to prevent becoming emotionally exhausted during the high demands at work, our study provides insights that, in addition to the EC of team members as a personal

resource, the team as a social unit can also impact EE. Teams and their members need to be made aware that their team interactions, especially fostering DET and TLBs, can mitigate emotional exhaustion. Based on our study TLBs and DET are also able to reduce the negative effects of demands at work on EE and, moreover, are able to strengthen other work aspects such as work engagement (Gerbeth & Mulder, 2023). Therefore, our results are important for various organizations characterized by teams with high demands at work. Implications for organisations, leaders and human resource professionals evolve around team composition, recruiting respective onboarding processes and providing opportunities for teams to learn and work together.

In the sense of team composition as well as recruiting processes human resource professionals and leaders could use the engagement in DET and TLBs as useful characteristic for the selection of new team members. Furthermore, as DET and TLBs were related to EC, human resource professionals are encouraged to use EC as a personal resource of potential employees for recruiting. Team members with high EC are not only less emotional exhausted but have found to engage in more TLBs (Gerbeth et al., 2022) and with respect to the teams investigated in this study also engage in more DET. For example, team members with high EC could recognize present emotions in the team and then trigger different team activities or interactions (e.g., DET or TLBs) that help the team and their members to cope with the emotions and, therefore, maintain effective and not exhausted. Onboarding processes could be tailored to emphasize and encourage active participation in team activities such as DET and TLBs. Moreover, this focus on team activities in the onboarding process positively impacts all team members on a social and emotional level. It facilitates a deeper understanding among team members, thereby strengthening the team's cohesiveness.

Regarding a team perspective team leaders and organisation can change the environment and framework of teams at work. For example, team leaders could provide time and place in team meetings for DET and TLBs to happen. Furthermore, leaders could trigger DET and TLBs through their own leadership behaviour by, for instance, expressing emotions clearly to stimulate team members' perception of emotions or directly address problems or emotions in meetings to start joint regulation by reflecting or discussing. In our study we found that TLBs, DET and EC to be related. Leaders should encourage themselves and their team members to foster EC, for example through trainings. These competences enable them to be better equipped for the demands at work and to remain vital, mentally

healthy and not exhausted. Moreover, high EC are useful to cope with emotional situations and to gain emotional experiences, which in turn are beneficial to DET.

5.2 Limitations of the study and future research

The present study had some limitations that could be addressed in future research. First, being a cross-sectional study, the focus was on the identification of antecedents of team members' emotional exhaustion. As DET and TLBs provide both change and improvement, future research could use longitudinal studies to examine these changes or improvements to investigate the relationships between demands at work, team behaviours and EE over time. Second, for the moderated mediation models with our multidimensional approach many parameters needed to be estimated, so that our sample with 78 teams and 417 team members might have been too small. Our model-fits were adequate, but replication studies with more teams or even with teams of other domains could help to validate our findings. Third, the scale of DET was good covering team activities focused on expressing and reacting to emotions as well as discussing and reflecting about emotions. However, the instrument needs further validation. Especially, the hypothesized factor structure with four factors remains unclear considering the results of this study. Future research is needed to further investigate the dealing with emotions in the team. In this turn, a consensus-based type of scale could be useful to investigate the multilevel issue raised by Elfenbein (2006). An additional concern are the high correlations of DET with TLBs, which prevented testing a common SEM model due to multicollinearity. The aforementioned future studies with teams from domains with a lower amount of emotion labour could help to better analyse the relationships between DET and TLBs and provide further insight into the interplay of DET and TLBs for EE as well as other outcomes such as performance or turnover-intention.

Section 6. Conclusion

Understanding the role of personal resources and team activities for the relationship between demands at work and emotional exhaustion of team members in teams providing care, education, and social services to the elderly, youth, families or persons with disabilities may enable social organisations to provide support to teams and their members as part of the occupational health management. Thereby, this study addresses research gaps regarding the importance of team members' emotional competence, dealing with emotions in the team, and team learning behaviours and what role has the interplay of personal resources and team activities for emotional exhaustion. Our findings highlight

the capability of team activities such as DET and TLBs to mediate the relationships between demands at work and emotional exhaustion and point out the role of team members' emotional competence as a predictor for emotional exhaustion. In addition, our study provided insights that team activities such as DET and TLBs are particularly useful for those team members who have low levels of emotional competence. Researchers and practitioners are encouraged to consider and address the team level along with individual factors, providing new opportunities for training and team composition. In this regard, our research sheds light on the interplay of personal resources and team activities, that may encourage future research to provide a better understanding of teams and their behaviours.

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Table 1: Descriptive statistics, internal consistency and zero-order correlations

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Emotional exhaustion	2.69	1.22	*.91*														
2. Demands at work	3.30	.50	.38**	.87													
3. Amount of work	2.98	.49	.39**	.68**	.79												
4. Work pace	3.10	.84	.24**	.74**	.37**	*.84*											
5. Cognitive demands	3.81	.69	.19**	.81**	.32**	.48**	*.78*										
6. Emotional demands	3.27	.69	.38**	.74**	.44**	.30**	.52**	*.63*									
7. Knowledge sharing	4.07	.64	-.23**	.09	-.09	.07	.24**	-.03	*.87*								
8. Co-construction	3.75	.65	-.19**	.14**	-.08	.13**	.29**	-.00	.86**	*.91*							
9. Constructive conflict	3.63	.64	-.25**	.04	-.15**	.06	.12**	-.07	.80**	.85**	*.86*						
10. Team reflexion	3.27	.71	-.11*	.20**	-.04	.14**	.32**	.10*	.65**	.76**	.67**	*.86*					
11. Dealing with emotions in the team	3.50	.56	-.13*	.19**	-.02	.14**	.28**	.10*	.71**	.76**	.72**	.65**	*.95*				
12. Perception of own emotions	3.86	.60	-.11*	.09	-.03	-.03	.17**	.15**	.20**	.17**	.17**	.08	.16**	.68			
13. Perception of others' emotions	3.52	.58	.01	.13**	.08	.04	.16**	.12*	.18**	.23**	.20**	.19**	.25**	.22**	.77		
14. Emotional expressivity	3.19	.56	-.08	.11*	.04	.04	.14**	.09	.20**	.25**	.20**	.26**	.29**	.31**	.32**	.73	
15. Emotional management	3.03	.60	-.32**	-.10*	-.19**	-.05	-.01	-.10*	.16**	.16**	.21**	.16**	.17**	.17	.05	.19**	.67
16. Gender	1.22	.42	-.01	-.03	-.02	.03	-.05	-.05	.05	.01	.06	-.01	-.03	.03	-.15**	-.17**	.08
17. Age	41.12	12.35	-.09	-.01	-.03	.04	-.04	.01	-.04	-.04	.05	.00	-.11*	.03	-.12*	-.12*	.06
18. Work experience	14.66	11.33	.01	.11*	.04	.10*	.09	.09	-.10*	-.12*	-.04	-.07	-.12*	.07	-.14**	-.10*	.06
19. Joining team	3.08	1.52	-.10*	-.12*	-.09	-.12*	-.04	-.09	.09	.09	.06	.03	.04	-.04	.12*	.07	.01
20. Last job turnover	2.81	1.55	-.24**	-.14*	-.15**	-.16**	-.02	-.11	.10	.12*	.05	.02	.07	-.01	.07	.05	.08
21. Team size	11.27	5.73	.07	.08	-.02	.05	.13**	.03	.02	.04	.04	.07	.03	-.09	-.03	-.05	-.02
22. New team member	5.15	.95	.01	-.06	-.02	-.17**	.02	-.00	.07	.02	.01	.03	.00	.04	.08	.00	-.01
23. Lost team member	5.08	.99	.09	-.04	-.02	-.02	-.03	-.01	.01	-.02	-.01	-.04	.01	-.04	.08	.06	-.02

Note: N = 417 team members in 78 teams (Teams > 33% or min. 3 TM) Cronbach α (internal consistency) cursive on the diagonal
** = p < .01,
* = p < .05

***Table 2**. Moderation in SEM for the effect of EC on the relationship between demands at work and emotional exhaustion*

		Model 1		Model 2		Model 3		Model 4	4a	4b
Variables	β	β	β	β	β	β	β	β	β	β
DV: Emotional Exhaustion (EE)										
Work amount	.421**	.396**	.467**	.424**	.445**	.411**	.389**	.120	.595**	-.025
Work pace	-.029	-.081	-.368*	-.036	-.060	-.040	-.024	.071	-.399**	.069
Cognitive demands	-.201^{t}	-.115	.170	-.190^{t}	-.165	-.149	-.149	-.109	.216	-.247
Emotional demands	.389**	.403**	.215	.391**	-.386**	.374**	.381**	.342*	-.086	.515^{t}
Emotional Competence[1]		-.198**	-.686**	-.041	-.078	-.202**	-.221**	-.562**	-.763**	-.681**
Work amount x Emotional Competence			-.398**		-.173		.002		-.465**	
Work pace x Emotional Competence			.248^{t}		.154		-.118		.254**	
Cognitive demands x Emotional Competence			.115		.085		.260*			.333*
Emotional demands x Emotional Competence			-.229^{t}		-.080		-.206*			-.518**
R^2 (*EE)*	.339**	.373**	.993**		.383**	.379**	.415**	.594**	.994**	.957**
X^2 / df	284.078 / 109	440.522 / 214		544.002 / 306		578.895 / 307		424.339 / 214		
CFI	.938	.932		.936		.931		.940		
RMSEA	.062 [.053-.071]	.050 [.044-.057]		.043 [.037-.049]		.046 [.040-.052]		.049 [.042-.055]		
SRMR	.054	.053		.051		.054		.056		
AIC	17794.373	24473.255	24464.661	28789.637	28793.636	28654.405	28655.842	24277.499	24231.038	24232.589
BIC	18040.391	24816.067	24823.606	29188.913	29209.044	29049.647	29067.217	24620.311	24581.917	24583.467
Adj. BIC	17846.822	24546.339	24541.185	28874.759	28882.197	28738.667	28743.544	24350.583	24305.842	24307.393

Note: N = 417 in 78 teams, β = regression coefficient, R^2= coefficient of determination, [1]Emotional competence was analysed with the four dimensions: perception of own emotions (model 1), perception of others' emotions (model 2), emotional expressivity (model 3) and emotional management (model 4)

* = $p < 0.05$, ** = $p < 0.01$, ^{t} = $p < 0.10$

Table 3. *Moderated mediation in SEM for the effect of EC on the mediation of dealing with emotions on the relationship between demands at work and emotional exhaustion*

			Model 1		Model 2		Model 3		Model 4	
Variables	β	β	β	β	β	β	β	β	β	β
DV: Emotional Exhaustion (EE)										
Work amount	.421**	.387**	.367**	.378**	.384**	.378**	.387**	.386**	.109	.015
Work pace	-.029	-.011	-.056	-.077	-.006	.001	-.016	-.013	.071	.069
Cognitive demands	-.201^{t}	-.147	-.075	-.038	-.153	-.155	-.147	-.146	-.036	.058
Emotional demands	.389**	.372**	.384**	.355**	.373**	.377**	.383**	.384**	.306^{t}	.250
Dealing with Emotions in the Team (DET)		-.152**	-.140**	-.149**	-.153**	-.152**	-.097^{t}	-.099^{t}	-.115*	-.123*
Emotional Competence[1]			-.173*	-.170*	.018	.012	-.147*	-.148*	-.522**	-.606**
Dealing with Emotions in the Team x Emotional Competence				.157*		.066		.023		.159**
R^2 (*EE)*	.339**	.362**	.387**	.412**	.363**	.367**	.385**	.385**	.570**	.631**
DV: Dealing with Emotions in the Team										
Work amount		-.241*	-.240*	-.242*	-.224*	-.225*	-.200	-.204	-.259*	-.257*
Work pace		.094	.084	.087	.062	.063	.020	.024	.103	.099
Cognitive demands		.434**	.450**	.447**	.478**	.477**	.581**	.576*	.449**	.452**
Emotional demands		-.156	-.161	-.160	-.181	-.181	-.275	-.271	-.163	-.167
R^2 (*DET)*		.134**	.140**	.139**	.145**	.145**	.178**	.177*	.145**	.145**
X^2 / df	284.078 / 109	411.145 / 194	610.972 / 329		755.504 / 441		788.685 / 442		601.349 / 329	
CFI	.938	.956	.949		.947		.944		.952	
RMSEA	.062 [.053-.071]	.052 [.045-.059]	.045 [.040-.051]		.041 [.036-.046]		.043 [.038-.048]		.045 [.039-.050]	
SRMR	.054	.052	.054		.058		.060		.063	
AIC	17794.373	21410.975	28090.297	28085.413	32404.780	32405.588	32271.509	32273.349	27896.599	27886.971
BIC	18040.391	21737.655	28513.771	28512.920	32884.717	32889.559	32747.413	32753.286	28320.073	28314.478
Adj. BIC	17846.822	21480.620	28180.577	28176.554	32507.098	32508.766	32372.967	32375.667	27986.880	27978.112

Note: N = 417 in 78 teams, β = regression coefficient, R^2= coefficient of determination, [1]Emotional competence was analysed with the four dimensions: perception of own emotions (model 1), perception of others' emotions (model 2), emotional expressivity (model 3) and emotional management (model 4)

* = $p < 0.05$, ** = $p < 0.01$, ^{t} = $p < 0.10$

***Table 4**. Moderated mediation in SEM for the effect of EC on the mediation of team learning behaviours on the relationship between team demands at work and emotional exhaustion*

			Model 1		Model 2		Model 3		Model 4	
Variables	β	β	β	β	β	β	β	β	β	β
DV: Emotional Exhaustion (EE)										
Work amount	.421**	.384**	.368**	.369**	.382**	.381**	.388**	.380**	.102	.056
Work pace	-.029	-.021	-.065	-.074	-.017	-.017	-.025	-.027	.060	.061
Cognitive demands	-.201^{t}	-.133	-.067	-.041	-.139	-.139	-.138	-.131	-.012	.011
Emotional demands	.389**	.361**	.373**	.359**	.363**	.365**	.375**	.380**	.286^{t}	.289^{t}
Team learning behaviours (TLBs)		-.131**	-.115*	-.116*	-.131*	-.129*	-.078	-.073	-.094^{t}	-.104^{t}
Emotional Competence[1]			-.168*	-.167*	-.008	.006	-.156**	-.164	-.534**	-.547**
TLBs x Emotional Competence				.162*		.021		.089		.182**
R^2 (*EE)*	.339**	.356**	.380**	.408**	.356**	.357**	.384**	.393**	.573**	.601**
DV: Team learning behaviours										
Work amount		-.316**	-.313**	-.316**	-.299**	-.300*	-.281*	-.281*	-.332**	-.329**
Work pace		.061	.044	.050	.031	.031	-.003	-.002	.067	.066
Cognitive demands		.580**	.610**	.602**	.623**	.622**	.709**	.707**	.598**	.593**
Emotional demands		-.252*	-.267*	-.261*	-.279^{t}	-.278^{t}	-.358**	-.357^{t}	-.262*	-.259*
R^2 (*TLBs)*		.218**	.230**	.228**	.232**	.232**	.266**	.265**	.232**	.229**
X^2 / df	284.078 / 109	545.160 / 260	765.879 / 413		916.189 / 537		943.562 / 538		772.476 / 413	
CFI	.938	.953	.946		.946		.944		.947	
RMSEA	.062 [.053-.071]	.051 [.045-.057]	.045 [.040-.050]		.041 [.037-.046]		.043 [.038-.047]		.046 [.041-.051]	
SRMR	.054	.058	.058		.062		.060		.065	
AIC	17794.373	238550.142	30528.202	30522.448	34843.490	34845.364	34708.408	34707.440	30334.462	30323.056
BIC	18040.391	24213.120	30987.974	30986.253	35359.725	35365.632	35220.610	35223.675	30794.233	30786.861
Adj. BIC	17846.822	23927.526	30626.221	30621.327	34953.547	34956.281	34817.605	34817.497	30432.481	30421.935

Note: N = 417 in 78 teams, β = regression coefficient, R^2= coefficient of determination, [1]Emotional competence was analysed with the four dimensions: perception of own emotions (model 1), perception of others' emotions (model 2), emotional expressivity (model 3) and emotional management (model 4)

* = $p < 0.05$, ** = $p < 0.01$

Electronic Supplementary Material 1

Further information on the development and psychometrics of items measuring the dealing with emotions in the team

Abstract

This Supplementary Material 1 presents further information on the development and psychometrics of items measuring the dealing with emotions in the team (DET). DET are defined as team activities, shared by the team or at least two team members, to directly handle and address emotions in the team. DET consists of team activities perceiving emotions (e.g., a team recognises and understands its emotions by discussing or exchanging), being sensitive to the emotions of the team members (e.g., a team responds empathically to the team's emotions or shares different perspectives), expressing emotions (e.g., a team's expression of both positive and negative emotions) and managing emotions (e.g., a team actively influences or copes emotions).

The Supplementary Material 1 contains four sections: item development and description; item-analysis; exploratory factor analysis; descriptive statistics and reliability.

Section 1

7.1 Item Development and Description

In the development process we started to select items of the short version of the Multidimensional Emotional Competence Questionaire (Gerbeth et al., 2021, Gerbeth & Stamouli, 2023). All items of the MECQ-s (32 items) were analysed regarding their content relatedness to dealing with emotions in the team and only those that contain behavioural aspects and whose emergence could be extended to the team level were further modified. We removed 14 items that emergence was only located at the individual level or have no behavioural components (e.g., “I don’t think it’s worth paying attention to your emotions or moods”). Items were then adapted and modified to the team level by the researchers individually and afterwards discussed. Before reaching agreement on a version of an item, special attention was paid to the measurement of observable behaviour as the key reference (e.g., “we **discuss** the prevailing emotional situation of our team with each other for clarity”). In a further step we extended the theoretical facets by developing 14 new items (e.g., emotional expressivity: “in our team, we praise each other for good performance”) for those who were underrepresented based on the theoretical framework and findings of emotional team research (Watzek & Mulder, 2019). In Table 1 the 32 items developed are presented.

References

Gerbeth, S., & Stamouli, E. (2023). Validating the Short Version of the Multidimensional Emotional Competence Questionnaire. Psychological Test Adaptation and Development, 4(1), 128–140. https://doi.org/10.1027/2698-1866/a000041

Gerbeth, S., Stamouli, E., & Mulder, R. H. (2021). Development of the Short Scale of the Multidimensional Emotional Competence Questionnaire in a German Sample. Sage Open, April-June 2021, 1-15. https://doi.org/10.1177/21582440211009220

Watzek, V., & Mulder, R. H. (2019). Team Learning Behaviours and Team Affective Reactions: An Empirical Study on Interdisciplinary Work Teams. *Vocations and Learning*, *12*(1), 1–22. https://doi.org/10.1007/s12186-018-9205-3

Table 1: Description of the items

Item	Item Wording
ep_at01	In unserem Team erkundigen wir uns in der Regel darüber, wie wir uns fühlen.
ep_at02	In unserem Team informieren wir uns darüber, welche Emotionen gerade im Team vorherrschen.
ep_at03	In unserem Team nehmen wir Zeit in Anspruch, um uns über die Emotionen im Team zu verständigen.
ep_cp01	In unserem Team fragen wir nach, um die Emotionen unseres Teams zu verstehen.
ep_cp02	Wir fragen uns gegenseitig nach den Gründen unserer derzeitigen Gefühlslage.
ep_cp03	Um Klarheit zu schaffen, besprechen wir miteinander die vorherrschende emotionale Lage unseres Teams.
se_ec01	In unserem Team reagieren wir sensibel auf die Emotionen der Teammitglieder.
se_ec02	Wir werden von den Emotionen der Teammitglieder beeinflusst.
se_er01	In unserem Team zeigen wir verbale Reaktionen auf Emotionen der Teammitglieder.
se_er02	In unserem Team zeigen wir nonverbale Reaktionen auf Emotionen der Teammitglieder.
se_er03 (reversed)	In unserem Team reagieren wir nicht auf Emotionen einzelner Teammitglieder.
se_pt01	Um die Standpunkte der Teammitglieder in einer emotionalen Situation zu verstehen, tauschen wir uns über diese im Team aus.
se_pt02	In unserem Team tauschen wir uns über unterschiedliche Perspektiven zu einem emotionalen Ereignis aus.
ee_pes01	In unserem Team danken wir einander für die gute Arbeit.
ee_pes02	In unserem Team sprechen wir uns gegenseitig Lob für gute Leistungen aus.
ee_pea01	In unserem Team sprechen wir offen unsere Zustimmung aus.
ee_pea02	Wenn wir mit etwas einverstanden sind, stimmen wir einander zu.
ee_pec01	In unserem Team lachen wir viel.
ee_pec02	Wir machen in unserem Team auch mal Witze.
ne_nea01	In unserem Team stellen wir negative Aspekte (wie z.B. Fehler) in den Mittelpunkt.
ee_nea02	In unserem Team sprechen wir unsere Abneigung gegenüber Aspekten, die uns nicht gefallen, offen aus.
ee_nes01	Negative Emotionen in unserem Team drücken wir anhand unserer Gestik und Mimik aus.
ee_nes02	In unserem Team sprechen wir offen über negative emotionale Ereignisse.
ee_ve01	In unserem Team drücken wir unsere Emotionen offen aus.
ee_ve02 (reversed)	In unserem Team sprechen wir nicht über Emotionen.
em_in01	In unserem Team geben wir uns Mühe die Stimmung im Team aufrecht zu halten, indem wir positive Emotionen ausdrücken.
em_in02	In unserem Team strengen wir uns an negative Emotionen zu überwinden, indem wir positive Emotionen ausdrücken.
em_in03	In unserem Team geben wir uns Mühe mit negativen Emotionen umzugehen, indem wir optimistisch über unsere Zukunft sprechen.
em_re01	In unserem Team diskutieren wir emotionale Aspekte, die uns aufgeregt haben.
em_re02	Wir reflektieren über emotionale Ereignisse, die uns als Team beschäftigt haben.
em_re03	In unserem Team werden vergangene Dinge, die uns als Team geärgert oder frustriert haben, angesprochen.
em_re04	In unserem Team reflektieren wir über positive Emotionen.

Note: ep = perceiving emotions; se = being sensitive to emotions; ee = expressing emotions; em = managing emotions; at = directing attention to emotions; cp = clarity of perception of emotions; ec = empathic concerns; er = emotional reactions; pt = perspective-taking; pes = positive expressivity (solidarity); pea = positive expressivity (approval); pec = positive expressivity (cheerfulness); nea = negative expressivity (antagonism); nes = negative expressivity (tensions and negative emotions); ve = confidence and openness in expressivity; in = influencing emotions; re = reflecting about emotion

7.2 Item Analysis

Table 2: Means, standard deviations, item-difficulty, item-total correlation, and item-dimension-correlations of the items of dealing with emotions in the team

Dimension	Facet	Item Nr.	M	SD	r_{it}
Perceiving emotions	Directing attention to emotions	01	3.43	1.02	.70
		02	3.19	.98	.72
		03	3.20	.93	.72
	Clarity of perception of emotions	01	3.34	.96	.75
		02	3.17	.97	.72
		03	3.08	.98	.70
Being sensitive to emotions	Empathic concerns	01	3.59	.91	.59
		02	3.10	.87	
	Emotional reactions	01	3.57	.90	.46
		02	3.13	.98	.31
		03 (-)	3.94	1.05	.32
	Perspective-taking	01	3.40	.94	.68
		02	3.56	.93	.69
Expressing emotions	Positive expressivity (solidarity)	01	3.54	1.02	.65
		02	3.60	.98	.66
	Positive expressivity (approval)	01	3.88	.80	.66
		02	4.29	.70	.58
	Positive expressivity (cheerfulness)	01	3.99	.83	.62
		02	4.07	.82	.52
	Negative expressivity (antagonism)	01	2.36	.96	
		02	3.45	.90	.64
	Negative expressivity (tensions and negative emotions)	01	3.09	.87	
		02	3.46	.88	.64
	Confidence and openness in expressivity	01	3.44	.90	.72
		02 (-)	4.01	.96	.48
Managing emotions	Influencing emotions	01	3.63	.88	.63
		02	3.18	.91	.52
		03	3.22	.92	.55
	Reflecting about emotion	01	3.63	.87	.64
		02	3.57	.99	.71
		03	3.26	.96	.62
		04	3.33	.90	.67

Note: N = 417 team members in n = 78 teams, r_{it} = item-total correlation

7.3 Exploratory Factor Analysis

The exploratory factor analysis pointed to a one-factor solution (see figure 1; scree-plot)) as well as a two and four-factor solution (see figure 2 and table 3; parallel analysis; Velicer's MAP-Test). Table 4 presents the factor loadings.

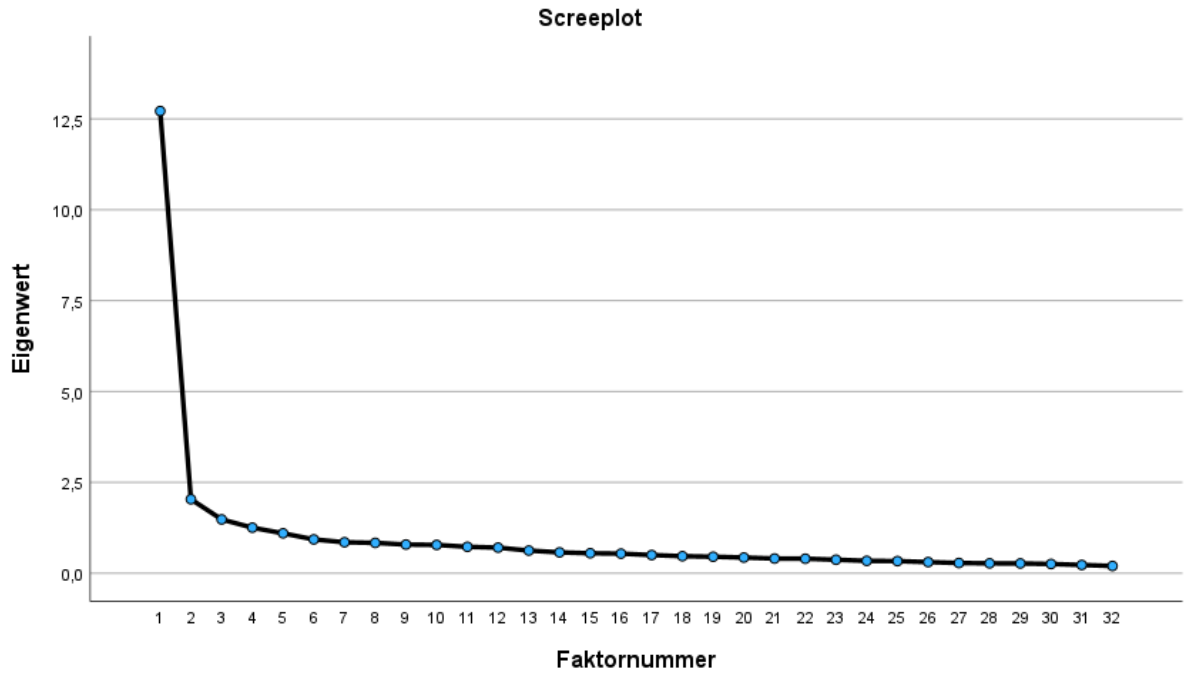

Figure 1: Scree Plot of the Exploratory Factor Analysis

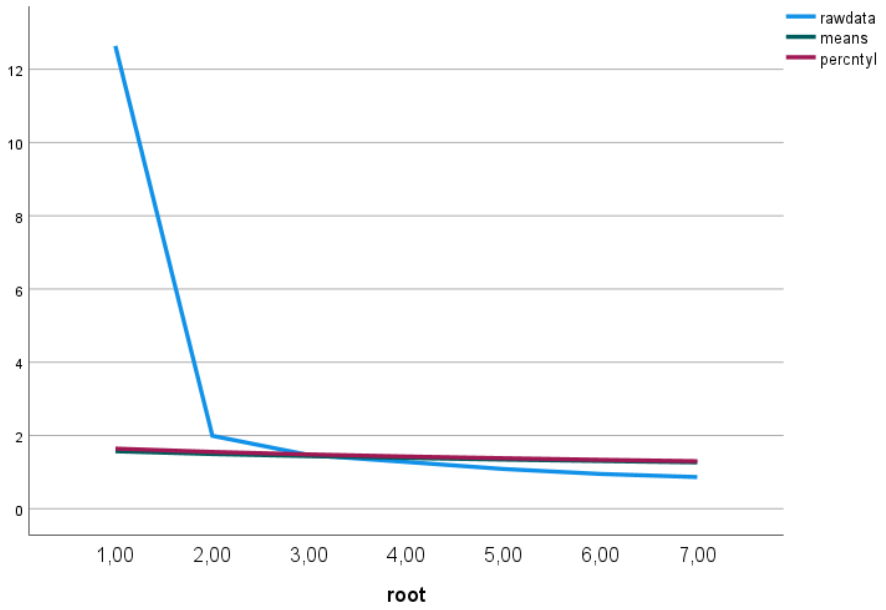

Figure 2: Parallel analysis

Table 4: Velicer's MAP Test

Average Partial Correlations

	squared	power4
,0000	,1459	,0317
1,0000	,0112	,0006
2,0000	,0105	,0004
3,0000	,0106	,0004
4,0000	,0109	,0004
5,0000	,0122	,0007
6,0000	,0135	,0008
7,0000	,0159	,0012
8,0000	,0174	,0016
9,0000	,0197	,0020
10,0000	,0215	,0025
11,0000	,0243	,0040
12,0000	,0266	,0041
13,0000	,0292	,0053
14,0000	,0327	,0066
15,0000	,0380	,0075
16,0000	,0417	,0081
17,0000	,0476	,0101
18,0000	,0530	,0127
19,0000	,0593	,0162
20,0000	,0669	,0170
21,0000	,0748	,0174
22,0000	,0865	,0224
23,0000	,0977	,0285
24,0000	,1136	,0371
25,0000	,1311	,0482
26,0000	,1603	,0660
27,0000	,1988	,0885
28,0000	,2491	,1244
29,0000	,3315	,1940
30,0000	,5030	,3776
31,0000	1,0000	1,0000

The smallest average squared partial correlation is
,0105

The smallest average 4rth power partial correlation is
,0004

The Number of Components According to the Original (1976) MAP Test is
2

The Number of Components According to the Revised (2000) MAP Test is
4

Table 5: Factor loadings of the exploratory factor analysis with Maximum Likelihood estimation and Promax rotation

	1-factor	2-factor		4-factor			
Items	1	1	2	1	2	3	4
ep_at01	.720	.360	.409		.297		
ep_at02	.746		.617	.494	.371		
ep_at03	.741		.591	.539			
ep_cp01	.779	.535		.342	.497		
ep_cp02	.748	.415	.382	.346	.453		
ep_cp03	.736		.510	.625	.347		
se_ec01	.605	.359				.338	
se_ec02	.092	-.500	.611				.580
se_er01	.465		.512				.437
se_er02	.314		.422				.595
se_er03 (-)	.322	.247				.491	
se_pt01	.707		.558	.748			
se_pt02	.713		.530	.444			
ee_pes01	.667	1.029	-.320		.813		
ee_pes02	.679	.945			.721		
ee_pea01	.667	.550				.538	
ee_pea02	.587	.384				.537	
ee_pec01	.626	.662			.347	.496	
ee_pec02	.526	.472				.425	
ne_nea01	-.158	-.503	.346			-.418	.416
ee_nea02	.664	.337	.370	.556		.321	
ee_nes01	.200	-.322	.548				.530
ee_nes02	.657		.590	.472			
ee_ve01	.739	.495			.371		
ee_ve02 (-)	.488		.459	.437		.323	
em_in01	.644	.627			.501		
em_in02	.542	.585			.657		
em_in03	.562	.631			.693		
em_re01	.650		.612	.553		.323	
em_re02	.731		.605	.806			
em_re03	.630		.532	.429			
em_re04	.696	.577			.530		

Note: N = 417 team members, n = 78 teams, item loadings presented for >.30, exploratory factor analysis with Maximum Likelihood and Promax rotation, Kaiser-Meyer-Olkin = .949, Bartlett-Test $\chi^2(df) = 6633.011\ (496)\ p < .001$

Table 6: Factor loadings of the exploratory factor analysis with Principal Axis estimation and Promax rotation

	1-factor	2-factor		4-factor			
Items	1	1	2	1	2	3	4
ep_at01	.720	.601		.303			
ep_at02	.739	.590		.640			
ep_at03	.736	.609		.641			
ep_cp01	.774	.772		.462	.368		
ep_cp02	.743	.679		.484	.313		
ep_cp03	.727	.664		.721			
se_ec01	.608	.559				.274	
se_ec02	.092		.593				.573
se_er01	.472		.400				.423
se_er02	.322		.421				.616
se_er03 (-)	.331	.346				.587	
se_pt01	.699	.612		.790			
se_pt02	.715	.603		.437			
ee_pes01	.667	.884	-.343		.764		
ee_pes02	.682	.841			.717		
ee_pea01	.574	.715				.462	
ee_pea02	.594	.556				.460	
ee_pec01	.633	.713			.541	.380	
ee_pec02	.534	.535			.463		
ne_nea01	-.166	-.402	.386			-.437	.426
ee_nea02	.663	.635		.540		.323	
ee_nes01	.203		.520				.544
ee_nes02	.656	.505		.490			
ee_ve01	.740	.713			.386		
ee_ve02 (-)	.492	.384		.342		.472	
em_in01	.645	.764		.308	.478		
em_in02	.540	.670		.302	.596		
em_in03	.561	.697			.622		
em_re01	.653	.498		.485		.371	
em_re02	.729	.626		.784			
em_re03	.631	.490		.440			
em_re04	.693	.746		.331			

Note: N = 417 team members, n = 78 teams, item loadings presented for >.30, exploratory factor analysis with Principal Axis estimation and Promax rotation, Kaiser-Meyer-Olkin = .949, Bartlett-Test $\chi^2(df) = 6633.011\ (496)\ p < .001$

Electronic Supplementary Material 2

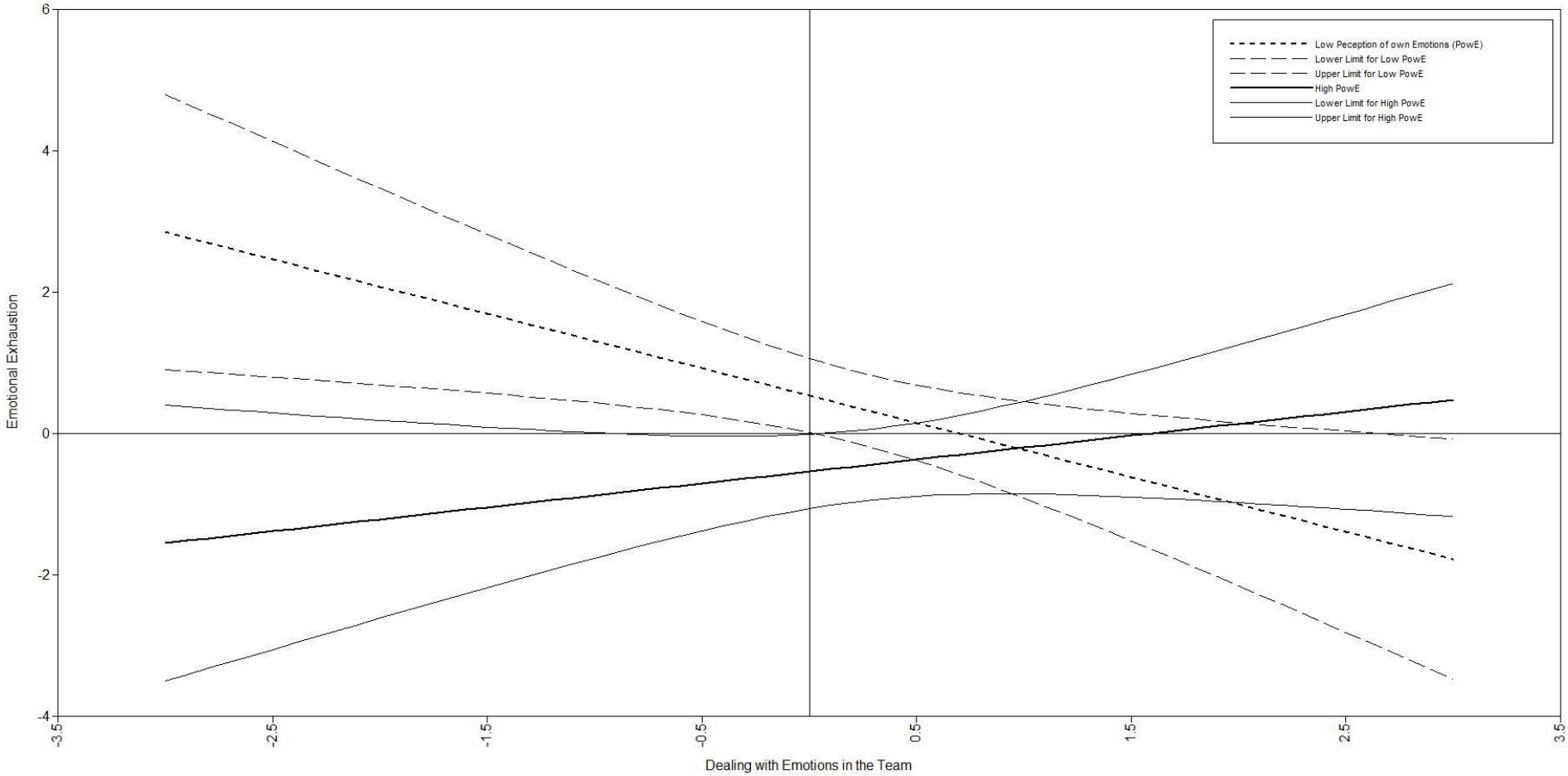

Figure 1: The simple slope indicating the moderation effects of perception of own emotions on the relationships between dealing with emotions in the team and emotional exhaustion.

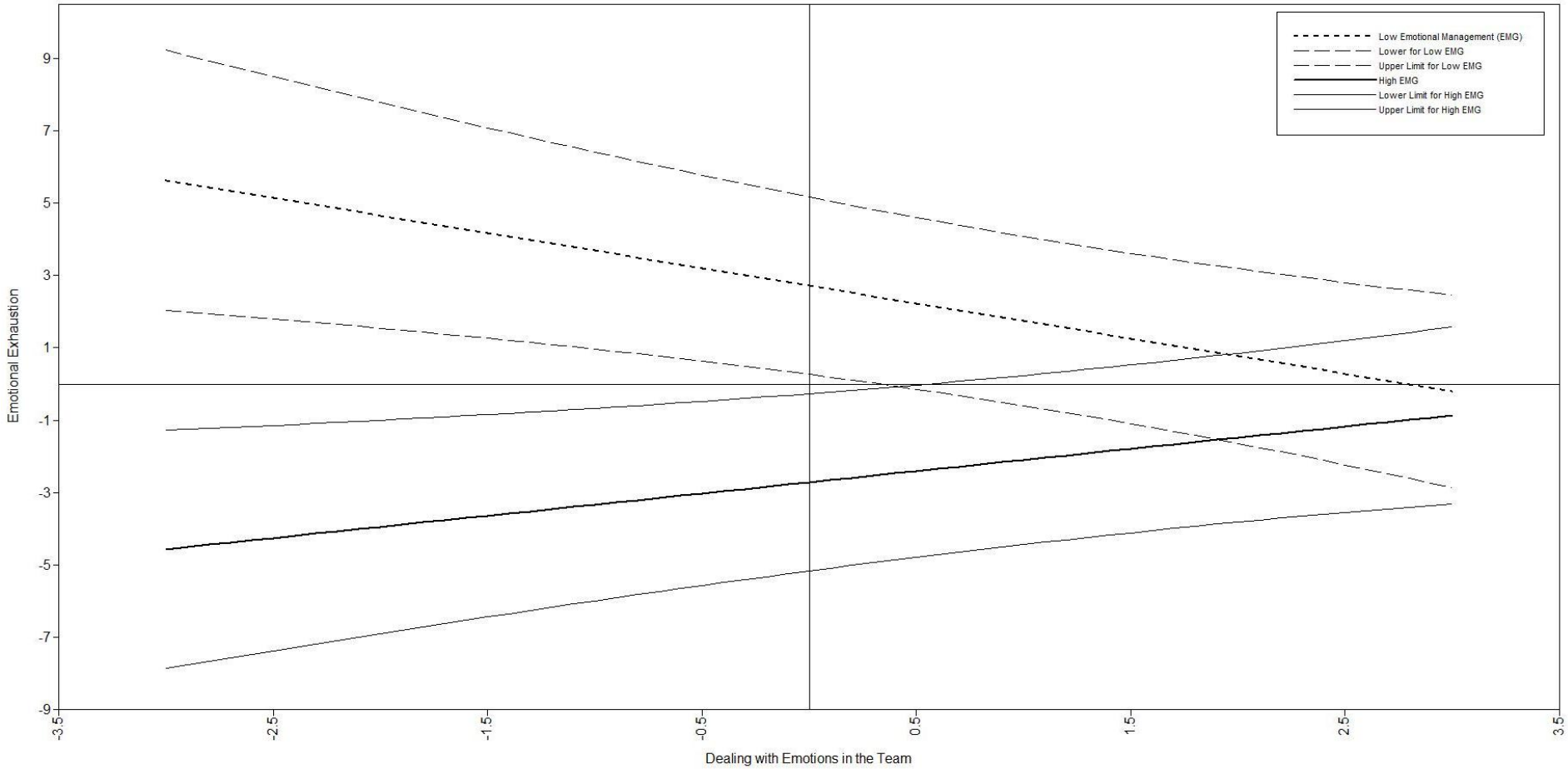

Figure 2: The simple slope indicating the moderation effects of emotional management on the relationships between dealing with emotions in the team and emotional exhaustion.

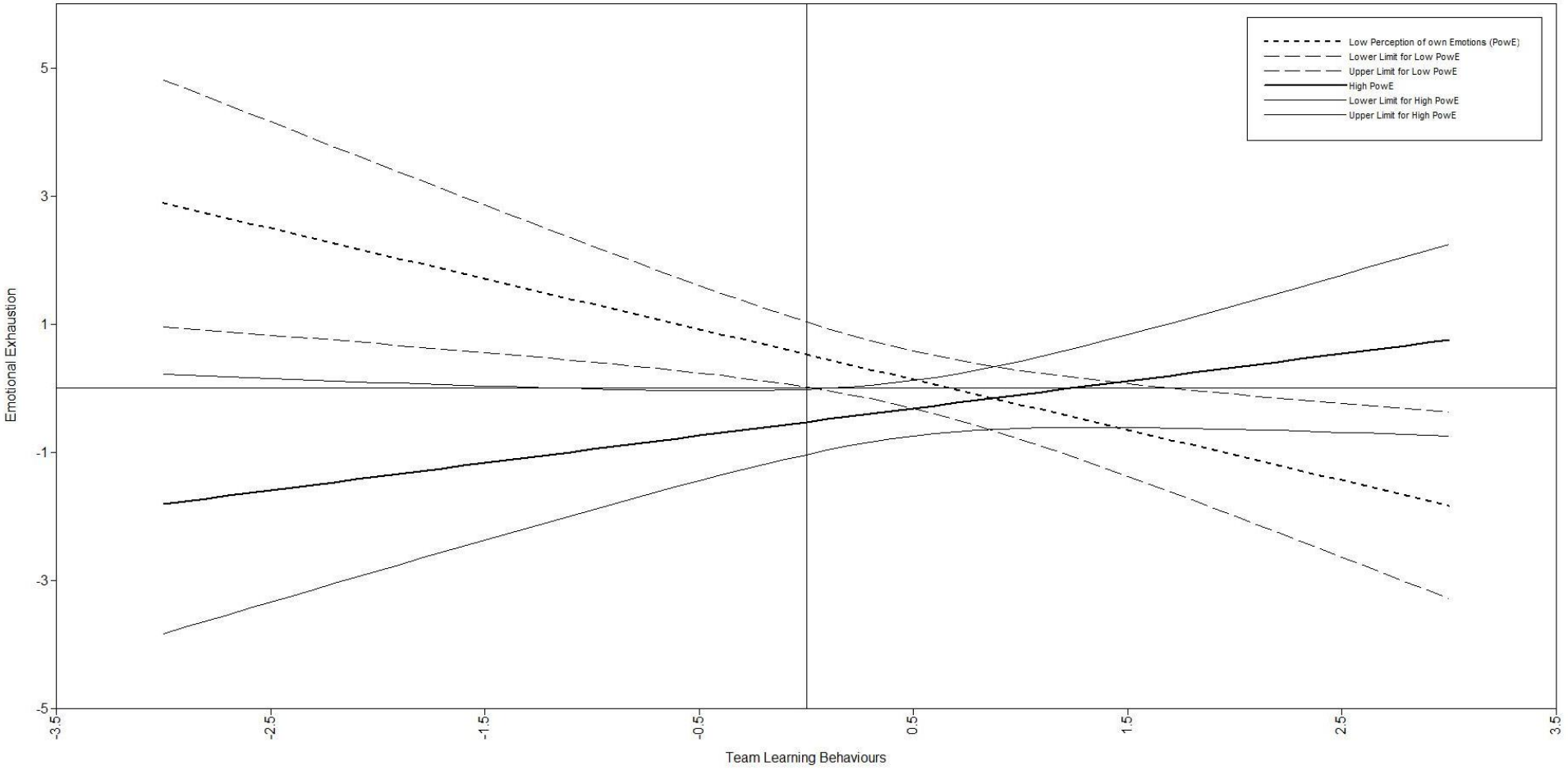

Figure 3: The simple slope indicating the moderation effects of perception of own emotions on the relationships between team learning behaviours and emotional exhaustion.

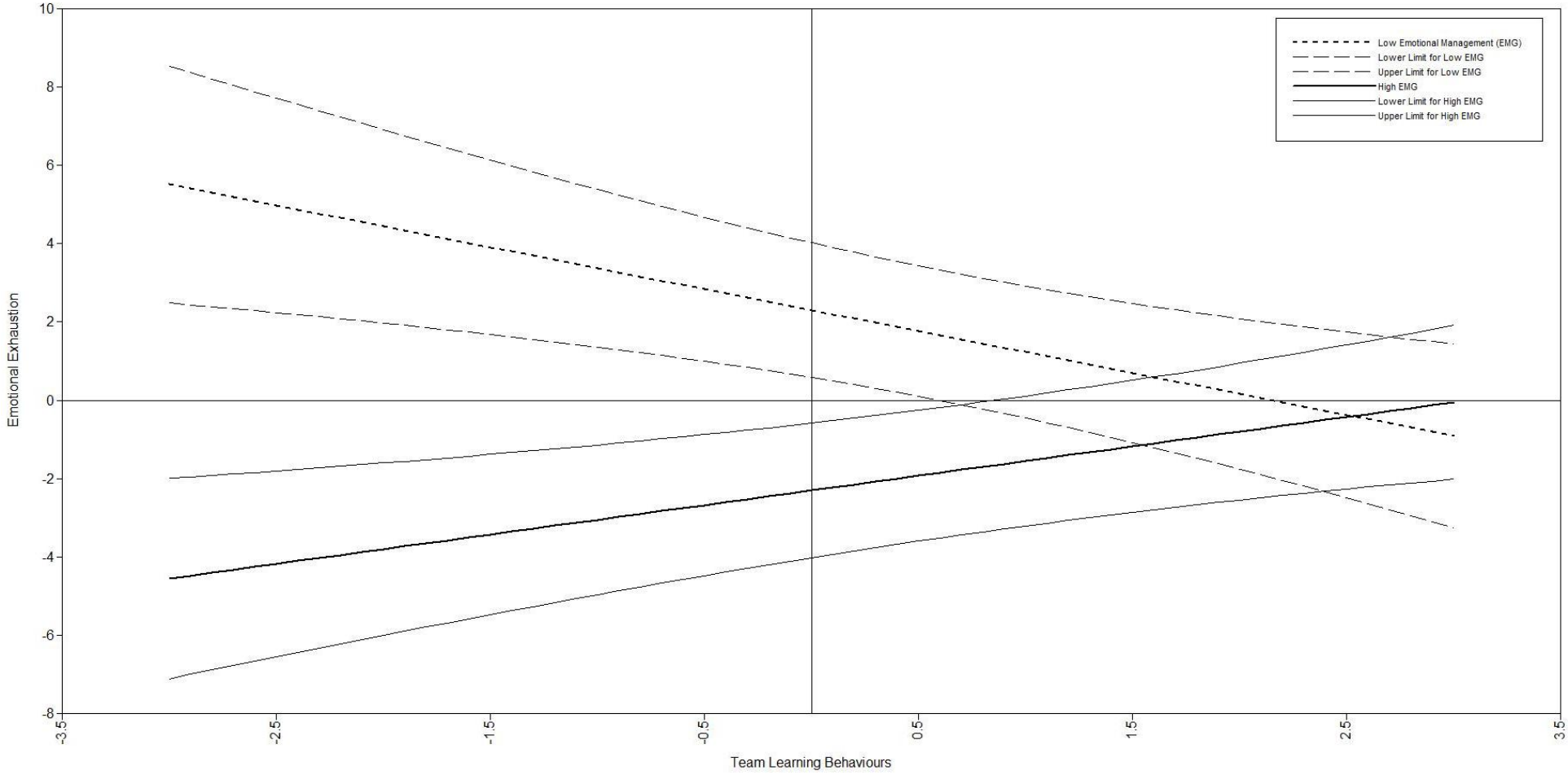

Figure 4: The simple slope indicating the moderation effects of emotional management on the relationships between team learning behaviours and emotional exhaustion.