



WHY SOME TEAMS WORK BETTER THAN OTHERS: AN
INVESTIGATION OF VOICE, TMS AND LEADERSHIP ON TEAM
PERFORMANCE

Louisa Carlotta La Porta

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Supervisor:

Prof. Ana Margarida Soares Lopes Passos, Associate Professor, ISCTE Business School, Department of Human Resources and Organizational Behavior

Supervisor:

Prof. Sílvia Agostinho da Silva, Associate Professor, ISCTE Business School, Department of Human Resources and Organizational Behavior

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Abstract

Teams have become the standard way of working in organizations and therefore the question of what differentiates highly performing units from other teams has attracted much research attention. Especially the utilization of knowledge such as team members sharing their knowledge and the awareness of other members' expertise can be decisive for team performance. Looking into the relationship between team member's behaviors, team cognition and self-management encouraged by the leader, this study connects three streams of literature, namely voice, TMS and leadership, to reach a better understanding how these interact and impact team performance. Specifically, in this study, we investigate the mediation role of TMS in the relationship between voice and team performance, and whether the leadership function of promoting team self-management moderates this relationship. A sample of 46 consulting teams has been analyzed through a moderated mediation model without finding support for the full model. However, this multi-level research showed that voice is positively related with performance but that the relationship between TMS and performance is less clear and depends on the extent to which leaders encourage the team to manage itself. In light of findings on both the individual and organizational level indicating that voice can have positive effects, this research extends the literature in terms of the applicability at the meso level. Also, further light is shed on the interaction between team cognition and team leadership warranting further research. Practical and theoretical implications of the findings and potential questions for future research are discussed.

Keywords: voice, transactive memory systems, leadership, self-managed teams, teamwork

JEL Classification: M12 Business Administration > Personnel Management • Executives; Executive Compensation, M50: Personnel Economics > General

Abstract (PT)

O trabalho em equipa tornou-se padrão no trabalho nas organizações, portanto, a questão do que diferencia unidades de alto desempenho de outras equipas atraiu muita atenção para o seu estudo. Especialmente a utilização de conhecimento, como, a partilha de conhecimento de membros de equipa e a consciencialização da perícia de outros membros, como fator decisivo para o desempenho de equipa. Analisando o relacionamento entre comportamentos de membros de equipas, a noção e a auto-gestão de equipa incentivados pelo líder, três fontes de literatura, nomeadamente a voz, TMS e liderança, estão relacionadas com uma melhor compreensão de como interagem e afetam o desempenho da equipa. Especificamente, o efeito da voz no TMS e no desempenho de equipa foi estudado com o moderador gestão de equipa autónoma. Uma amostra de 46 equipas de consultoria foi analisada por meio de um modelo de mediação moderada sem encontrar suporte para o modelo completo. Todavia, a pesquisa em diferentes níveis mostrou que a voz está positivamente relacionada com o desempenho, mas a relação entre o TMS e o desempenho é menos clara, dependendo da extensão em que os líderes incentivam as suas equipas a gerirem-se independentemente. À luz dos resultados, a nível individual e organizacional, é indicado que a voz pode ter efeitos positivos, aplicando-se à literatura em termos de nível meso. Adicionalmente, contribuições feitas para melhor entendimento da interação entre noção e liderança de equipa que merecem mais pesquisa. São discutidas implicações práticas e teóricas dos resultados e possíveis perguntas para futuras pesquisas.

Keywords: voz, sistemas de memória transativa, liderança, gestão de equipa autónoma, trabalho de equipa

JEL Classification: M12 Business Administration > Personnel Management • Executives; Executive Compensation, M50: Personnel Economics > General

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Why some teams work better than others: An investigation of voice, TMS and leadership on team performance

Introduction

In today's fast changing market and business environment, companies are struggling to keep up with the fast pace of change and focus on building adaptable organizations that are able to effectively use existing resources, skills and knowledge held by employees. In managing and leveraging these intangible knowledge assets, linkages between various sources such as individuals, teams or departments have to be created (Peltokorpi, 2003). Team structures in organizations have come into focus, and are nowadays the standard way of working, due to the nature of work becoming progressively more complex and the necessity to integrate various areas of expertise (Faraj & Sproull, 2000). Research in the area has shifted from investigating what predicts team performance to the more complex processes of why some teams work better than others (Ilgen et al., 2005). These processes within teams have been clustered in terms of "their echoes according to whether they are cognitive, affective/motivational or behavioral in nature" (Kozlowski & Ilgen, 2006: 81) that have guided research in the area.

The behavior *voice* is defined as the discretionary expression of suggestions to improve the state of affairs of the organization, group or individual (Bashshur & Oc, 2015) and is a way in which team members actively contribute their opinions and suggestions. Research has found that voice behaviors can have beneficial effects on the individual's affect (Colquitt et al., 2001; Ng & Feldmann, 2012) and, under the right conditions, on their reputation (Bashshur & Oc, 2015; Colquitt et al., 2001; Weiss & Morrison, 2019). Additionally, voice behaviors have been linked to several organizational-level outcome variables such as turnover (Bryson et al., 2013) and organizational performance (Bashshur & Oc, 2015; Dodgson, 1993). While these outcomes hold at the micro and macro level, the meso level, reflecting the team, has largely been neglected. Due to the fact that voicing can occur at the group level, research efforts should be directed towards the question of how team performance is affected by employees making suggestions and speaking up with their opinions.

Connecting the domain of behavior and cognition, it can be put forward that voice contributes to the sharing of knowledge and gives other team members indications of one's expertise and consequently should improve team cognition. In this research, we suggest that

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voice on the team level does not only have a direct effect on team performance but also an indirect effect through a specific form of team cognition, namely *Transactive Memory System* (TMS). TMS refers to a shared system between members of a team that functions as an external memory aid in the way that information is encoded, stored and retrieved (Lewis & Herndon, 2011). Especially in the knowledge-worker domain such as consultancies, teams are made up of members with diverse skills, abilities and knowledge and therefore having a clear picture of which colleague in a team knows what is crucial and an important step towards leveraging all information and knowledge within an organization. Research has shown that communication is a predictor of how well a TMS is developed in a team (Argote & Ren, 2012) and voice being a specific, possibly even richer, type of communication in terms of what kinds of information about expertise and knowledge are transferred to other members, should have a similar effect on TMS. Ultimately, if voice can enhance TMS which in turn leads to enhanced team performance, the black box of this relationship can be uncovered and research on members' behaviors, team cognition and team performance can be integrated.

The findings of this study can lead the way to better understanding team dynamics in more independently working teams. Looking at the possible future scenario of agile organizational structures, teams may not exist with a formal leader anymore but function as self-reliant and self-managed entities (McKinsey & Company, 2018). How this shift will play out with regards to team performance and which other team processes it may affect, remains a topic on which little academic research has focused. Rather than waiting for this shift to happen in the workplace and reactively trying to understand what this means for team dynamics, research should already put effort into the investigation now. Looking at traditional teams with a formal leader that shares some leadership functions with the team and encourages team self-management, is a promising approach to taking a more nuanced view on the leader-team dynamic. Especially when it comes to the effect of TMS on team performance, a team that has no leeway in shaping their way of working may not benefit from a well-developed team cognition due to the centralization of leadership.

Therefore, the contributions of this study are manifold. On the one hand, various factors that have been shown to be influential in team processes and ultimately in team performance are integrated to give a more holistic view of work within teams. Through the aim of uncovering how an explicit behavior impacts team performance through an implicit cognitive team faculty, overt and hidden mechanisms are linked which is a first step towards

the integration of various research streams. Next to that, in voice research the meso level of the team has been understudied and this research can contribute to closing the gap of research focused largely on the individual level.

On the other hand, our study contributes to team research in general as it uses a multi-level approach to studying teams. While the main focus of the study is the team as an entity, the members of the team are not the only source of investigation but are complemented by answers of the leaders, making the study design more robust and adding an additional layer for the interpretation of the results.

Literature Review

Gaining an overview of the concepts involved in the study is paramount before going into the specifics of the current study. Hence, this section aims at describing the concepts of voice with its predictors and outcomes that have previously been established in research, team cognitions and more specifically TMS as well as leadership as an influential factor to consider in team research. After this synthesis of prior empirical work and theory, the streams of literature will be combined leading to the propositions of the study at hand.

Voice

From a co-worker's perspective, an employee that challenges the status quo and shares unsolicited opinions frequently, may seem like a troublemaker or complainer that does not contribute to an organization in a positive way (Milliken et al., 2003). However, employees are in the frontline of the organization, observing established processes and practices all the time when interacting with colleagues, customers and other stakeholders. Hence, their feedback should be valued and taken seriously as when it is validated and acted upon, it can offer a solid basis for avoiding inefficiencies and leveraging opportunities for improvement on the team and organizational level. Due to the pressure for organizations to innovate, adapt and thrive in a dynamic environment, this type of feedback can have profound significance for the organization's survival. With the recognition of the importance to "achieving organizational effectiveness and avoiding potential crises" (Liang, Farh, & Farh, 2012: 71), and the changing nature of work into self-management and with it the necessity for the employee's initiative and responsibility to "care" (Knoll et al., 2016), an increasing number of studies has emerged to investigate the concept of employee voice.

Based on an early definition of the concept by Hirschmann (1970), various definitions have been utilized. Due to the variety of disciplines and context across which voice or at least

parts of the construct have been studied, conceptualizations have been messy at times (Bashshur & Oc, 2015). The concept has also been studied under other terms such as proactive behavior, proactivity, taking charge, personal initiative, feedback seeking or issue selling (Grant & Ashford, 2008; Parker & Collins, 2010). Following the definitions of a recent body of research (Detert & Burris, 2007; Morrison, 2014; Su et al., 2017), voice will be looked at based on one commonly used definition by Bashshur and Oc (2015) that captures the ideas of voice as a problem focused, change oriented, and constructive behavior. The authors specifically frame voice as

the discretionary or formal expression of ideas, opinions, suggestions, or alternative approaches directed to a specific target inside or outside of the organization with the intent to change an objectionable state of affairs and to improve the current functioning of the organization, group, or individual. (p. 1531)

Most recently developed conceptualizations have in common that voice focuses on the organization's, rather than the personal benefit. Based on this definition, voice behaviors can also be found in the organizational citizenship behavior (OCB) literature. OCBs are types behaviors employees enact contributing to organizational effectiveness, which can include in-role performance, functional extra-role behaviors and positive political behaviors (Van Dyne, Graham, & Dienesch, 1994), one of them being voice (Van Dyne, Cummings, & McLean Parks, 1995). More specifically, voice behaviors have been categorized as a promotive form of challenge-oriented behavior within OCB. As compared to affiliation-oriented behaviors which are interpersonal and cooperative, challenge-oriented behaviors are risky and can damage relationships with others because they criticize the status quo (Van Dyne et al., 1995). Because voice behaviors can be constructive suggestions intended to enhance organizational or team functioning for the better but at the same time challenge something already existing in the organization or the team, employees that decide to engage in voice, may risk their personal standing in the organization.

Voice has been studied most frequently as a behavior that can manifest itself in two ways, namely promotively and prohibitively. Promotive voice focuses on the expression of improvement suggestions for current work practices and processes (Liang, Farh, & Farh, 2012). Hence the main objective is to give an outlook of what the ideal state could look like and how the collective is able to reach it, which means that promotive voice is inherently future-oriented (McClellan et al., 2018). In contrast to that, the focus of prohibitive voice lies in

the avoidance of harm or threat. This entails the expression of concerns about existing work practices and processes seen as potentially risky or harmful (Liang et al., 2012). As prohibitive voice can highlight already existing or potentially arising factors, it can be either past or future-oriented (McClellan et al., 2018). Research has shown that both forms of voice can create value in different domains. Team productivity performance gains have been found to be facilitated through promotive voice, whereas team safety performance gains were associated with prohibitive voice (Li et al., 2017).

As a contrasting concept to voice, silence offers a way to discuss employees that fail to speak up (Milliken et al., 2003). Rather than seeing voice and silence as the extreme ends of one continuum, silence should be seen as a separate construct. The main argument for this claim is that a failure to speak up, hence a failure to engage in voice, can stem from various reasons. One of those reasons being that the individual simply does not have anything relevant to share, which would not be considered silence. Silence is the conscious decision to withhold information, suggestions or concerns despite them being useful (Knoll et al., 2016; Milliken et al., 2003; Morrison, 2014).

Organizational behavior scholars have identified multiple possible targets of voice such as supervisors (Detert & Burris, 2007; McClellan et al., 2018), skip-level leaders (Detert & Treviño, 2010), and co-workers (Detert et al., 2013). Brinsfield, Edwards, and Greenberg (2009) note that voice's qualitative experience is most likely to as diverse as the targets of it.

Antecedents of Voice Behaviors

The question of why and under which conditions employees engage in voice have interested scholars in the field for a while (e.g. LePine & Van Dyne, 1998) and many studies have investigated its antecedents (e.g. Andiyasari, Matindas, & Riantoputra, 2017; Grant, Parker, & Collins, 2009; Liang et al., 2012; Nikolaou, Vakola, & Bourantas, 2008). From these individual contributions, a number of insightful reviews and meta-analyses have been published, most notably Chamberlin and colleagues (2017), and Morrison (2014) which can be consulted for a more extensive review. Drawing upon this body of knowledge, several of the identified correlates suggested to be antecedents will be summarized in the following.

In general, there seems to be a consensus that even though voice behaviors can be beneficial to the functioning of the organization, employees choose to engage in silence, rather than in voice (e.g., Detert & Treviño, 2010; Milliken et al., 2003). An initial motivation for voice is the prosocial motive (Grant & Ashford, 2008) because through voice, an

employee aims at improving the current situation. In connection to this prosocial motivation, various studies have uncovered internal motivational states and dispositions that connect with voice such as felt obligation or responsibility (Chamberlin, Newton, & Lepine, 2017; Liang et al., 2012), identification (Liu, Zhu, & Yang, 2010), conscientiousness (Nikolaou et al., 2008), personal initiative and engagement (Chamberlin et al., 2017), psychological ownership (Andiyasari et al., 2017) as well as self-esteem (LePine & Van Dyne, 1998).

Despite this motivation, speaking up may feel risky for the individual employee because pointing out flaws or possibilities for improvement can be perceived as an attack to those who have the responsibility for the practices or who are personally committed to them. Taking this to the fact that voice is discretionary, many scholars (e.g. Detert & Burris, 2007; Liang et al., 2012; Mackenzie, Podsakoff, & Podsakoff, 2011) in the field have suggested that the decision to either engage in voice behaviors or stay silent is based on an internal cost-benefit analysis. Some of the potential benefits that an individual may expect include functional benefits (solving the problem), formal recognition (financial or career advances) or informal rewards (recognition or praise) if their voice is perceived as positive and helpful and leads to the suggested changes (Detert & Burris, 2007). On the other hand, the most commonly feared losses are related with being labelled negatively, damaging relationships, having a negative impact on others or even retaliation and punishment (Milliken et al., 2003).

A similar approach to looking at the decision-making process of employees is the efficacy-safety calculus (Morrison, 2014). Much like the risk-benefit analysis, it focuses on weighing two aspects against one another to make a decision of whether to act out the behavior. Instead of weighing risks against benefits, efficacy is weighted against safety. Efficacy, or instrumentality, refers to an employee's evaluation of how likely it is that their voice will lead to the intended results, whereas safety is the employee's perception of the likelihood and severity of potential negative consequences (Morrison, 2014). Based on the aforementioned studies, it can be said that individuals will be most likely to engage in voice when their evaluation of efficacy and safety is high, and most likely to engage in silence when they believe that their attempt will be futile and it is risky.

Another factor that impacts these evaluations is psychological safety. First introduced by Edmondson (2014), the concept was also applied to the voice literature. Believing that engaging in risky behaviors will not lead to personal harm, means that one feels "psychologically safe" (Detert & Burris, 2007). When this is the case, the perceived costs of

speaking up are minimized and seen as less risky and as a result the benefits outweigh the costs (Detert & Burris, 2007; Liang et al., 2012). The same is true for other variables that have been studied such as positive workplace climate (Chamberlin et al., 2017), and perceived support (Andiyasari et al., 2017).

In upward communication of voice, weighing out whether a behavior will be effective and lead to the desired positive outcomes, highly depends on the manager or leader. It has been shown that different types of leadership, such as ethical leadership (Lee et al., 2017), transformational leadership (Duan et al., 2017), paternalistic leadership (Liu & Liu, 2017) and coaching leadership (Yuan et al., 2019) as well as leader trust (Gao et al., 2011) facilitate voice behaviors. It was suggested that this is connected with the common characteristic of these types of leadership demonstrating non-traditional and non-conservative behaviors that decreases the perceived costs for the individual (Yuan et al., 2019). Similarly, the relationship between members and leaders, as studied under leader-member exchange theory has been found to be influential in the decision to speak up or stay silent (Chamberlin et al., 2017).

Outcomes of Voice Behaviors

One of the reasons why voice behaviors have attracted so much interest, is the common assumption that they lead to positive outcomes for the organization. Given the definition of voice as a well-intended and prosocial behavior that aims at improving organizational functioning, this assumption is not surprising. Pointing out flaws in existing practices, processes or projects and offering constructive solutions for them should indeed be beneficial. On which level these positive outcomes exactly arise is still a topic of much research. Bashshur and Oc (2015) have published a fairly extensive review based on which outcomes of voice can be distinguished in three categories, namely individual, group and organizational level. This review along with other insightful works (e.g. Chamberlin et al., 2017; Morrison, 2014; Ng & Feldmann, 2012) have guided this summary to take a more fragmented view on the possible outcomes.

The outcomes of voice are highly dependent on how it is perceived by the target. Even though positive outcomes for the individual are widely assumed, results are mixed. Meta analyses have found voice to be positively related to supervisor-rated performance (Colquitt et al., 2001) and a combination of supervisor, peer- and self-rated performance, but not with objective performance (Thomas et al., 2010). Through an experiment in which various aspects of the message, source of the message and context were manipulated, it was found that the

relationship between performance ratings and voice was strengthened when a solution is provided, the voicer is perceived as trustworthy and an expert, the input is provided early in the process, a norm for speaking up exists in the organization (Whiting et al., 2012) and when the employee expresses prosocial values and low negative affect (Grant et al., 2009).

Voice can also exhibit negative effects for the voicer, especially when it is seen as unhelpful by the target (Bashshur & Oc, 2015). It can damage interpersonal relationships at work which in turn can lead to negative performance evaluations by managers. Impairment is especially likely to occur when voice does not suggest a solution and focuses solely on the problem. This explanation has been offered by Seibert, Kraimer and Crant (2001) when they found a negative relationship between proactive voice and career progression and career satisfaction. Furthermore, it has been found that managers judge employees as performing worse and endorse their ideas less when they engage in voice in more challenging as compared to supportive forms (Burriss, 2012).

Even though the concept of voice is defined as inherently communal (focusing on the benefit of the group or organization), as opposed to individualistic (focusing on the benefit of the individual), the outcomes of the voice behavior depend also on whether the target perceives it as being communally-oriented. Higher status attainment of the sender of the voice only results when that sender is judged as confident, competent and other-oriented (Weiss & Morrison, 2019). In proactive work behavior literature, positive outcomes for the individual, like manager recognition, result from the impression that voice is prosocial and employees are perceived as committed to the organization (Bashshur & Oc, 2015).

Not only performance and performance evaluations are affected by voice. Indeed, beneficial attitudinal and affective outcomes for the voicer have been found, including a positive relationship with job satisfaction, organizational commitment (Colquitt et al., 2001), and a negative relationship with affective disengagement from the organization and organizational disidentification (Ng & Feldmann, 2012). A possible explanation for these findings is that employees are more motivated to express voice when they are more attached and identify with the organization because they would be more interested in its smooth functioning (Bashshur & Oc, 2015). Due to the correlational nature of the studies, it is unclear in which direction these relationships point and hence whether the attitudes are antecedents or outcomes of voice.

Looking at the organizational level, voice is conceptualized differently from the other levels, namely in terms of the channels through which they are communicated as a direct individual or a unionized voice. Direct voice is the type already examined before, which is an individual's behavior of speaking up and making suggestions in meetings. Unionized voice however is a representative type of voice of one or multiple employees. Both types can exist in conjunction which is then referred to as "dual form" (Bryson et al., 2013). Bryson and colleagues (2013) studied the effect of those three channels (individualized, unionized, dual form) on the organizational level outcome turnover. Based on a British workplace sample, the results suggest that the dual form of voice is most strongly negatively related to turnover. These outcomes can be seen in light of the positive impact that voice can have on the individual level and the power that is given to employees through the process of collective bargaining allowing unions to negotiate better wages, work conditions and other aspect of employees' work lives that make an exit from the company less attractive. Hence, in this case, voice is more likely to have an indirect effect on the organizational level outcomes (Bashshur & Oc, 2015).

Next to turnover, another variable that has been under investigation is organizational learning. For an organization to constantly and continuously evolve and gain relevant knowledge, the individual employee has been found to be a crucial contributor through voice and sharing of necessary information (Brinsfield et al., 2009; Dodgson, 1993). Brinsfield and colleagues (2009) have put forward that voice should be relevant for organizational learning because, as compared with individual learning, a key feature is "the method by which knowledge is stored and communicated to others". As indicated by Bashshur and Oc (2015) however, studies (e.g., Dodgson, 1993) measure organizational learning in terms of the outcomes (such as improvement or efficiency in activities) as compared to what organizational learning actually encompasses, namely the change in knowledge within the organization. Hence, what is oftentimes actually studied is organizational performance.

In most studies on organizational performance it is operationalized as financial performance, labor productivity or improvement in other organizational outcomes, such as service failures. A review by Bashshur and Oc (2015) found that only few studies consistently indicate the link between voice and organizational performance. Some studies found links between the different voice channels and different organizational performance indicators, while others do not find any correlation. The authors offer two possible explanations for these

mixed findings. Despite the well-established empirical and theoretical findings of how voice can positively affect individual-level results, there is a lack of literature that hints at the mechanisms through which these may translate into the broader organizational performance. Additionally, organizational performance is subject to many external factors such as the market environment that can overshadow the effect that voice can have (Bashshur & Oc, 2015).

Mackenzie and colleagues (2011) take a more nuanced view on the issue of disentangling the potential effects of voice on the organization and indicate that an inverted U-shape relationship may exist between voice and performance. More specifically, the study shed light on the differential outcomes that voice has on organizational performance and on relationships. The positive impact of low to moderate levels of voice on organizational performance initially outweighs the negative impact that it can have on relationships. Once voice however passes a point, the relationship conflict arising is too strong and its negative impact outweighs the positive effects. As compared to other studies, this research includes characteristics of the voice and the context of the sender and receiver to draw a clearer picture of the implications for the organization. The authors also showed a mediation of the relationship by workgroup task performance, meaning that organizational performance improved because voice can improve workgroup task performance.

As illustrated, voice outcomes have been extensively studied on the individual level, are still less clear on the organizational and have largely been neglected on the team level. Granting that voice behaviors exist in the context of immediate peers and more importantly, the team, an attempt to understand the outcomes that voice has on the team level should be made. Kozlowski and Ilgen (2006) offer an aggregated definition of teams as a group of two or more individuals within a broader environment, interacting to perform organizationally relevant tasks, sharing one or more goals and exhibiting interdependencies among individuals with different roles and responsibilities.

When looking at research that exists on the relationship between voice and group or team outcomes, only few studies can be found (Detert et al., 2013). Most of them are focusing on team creativity and innovation. In these studies, voice is framed as a minority opinion or dissent which can stem from one individual or a minority within the group (e.g., De Dreu & West, 2001; Dreu, 2002; Nemeth, 1986). It was argued that this minority dissent can lead to the consideration of other perspectives and rupture the pressure to conform with the group and

therefore translates into higher levels of creativity (Nemeth, 1986). For innovation to occur, creative ideas have to be implemented. Teams in which minority dissent has been voiced and that are high in participative decision-making and team reflexivity have been shown to be more innovative than those without minority dissent (De Dreu, 2002; De Dreu & West, 2001). From these results it can be concluded that minority dissent alone is not enough for innovation to occur. The context and team characteristics must match in order for the divergent opinions to be processed and as a resultingly allow the team to be more innovative.

Similarly, to the reasoning and interpretation on the effects of voice on creativity and innovation, minority dissent has also been studied with regards to its relationship to decision-making. Because the focus of the group is drawn to a divergent opinion, more complex thinking is stimulated and greater attention to the message is paid. Additionally, decision-making is enhanced through improved information search and greater flexibility of thought (De Dreu et al., 2000). Interestingly, Bashshur and Oc (2015) include the concept of the devil's advocate in their review on voice because in the same way that minority dissent can be compared with voice, the devil's advocate takes a stand within a group, questioning the team's assumptions. A crucial difference is the fact that in the case of the devil's advocate, a role is assigned to the voicer and hence the voice does not reflect the individual's own opinion. In an experiment, Nemeth and colleagues (2001) showed that authentic dissenting voice has a more powerful effect on decision-making than the other two conditions of no voice and the devil's advocate. Another intriguing finding of this study is that the groups in which a devil's advocate existed were less likely to consider alternatives and were more likely to agree on a decision more extreme than their initial judgment. This can be explained by the fact that the group perceives that they already considered an alternative opinion, namely the one of the devil's advocate, which was readily rejected because it originated not from an authentic team member but the role of the devil's advocate (Bashshur & Oc, 2015). While most studies done on group decision making were based in the laboratory, one field study (Dooley & Fryxell, 1999) showed that higher levels of team dissent related to better decision quality only if loyalty to the team was perceived by the others.

These studies taken together hint at important aspects that should be taken into account when studying the concept of voice. Namely, the presence or absence of voice does not only have a direct effect on individual, group and organizational level outcomes but oftentimes this relationship is dependent on other contingencies. Because voice behaviors do

not exist in a vacuum but in a social context, not only other team behaviors or affect will be influenced but also team cognition. Oftentimes the deciding factors may not be the existence of voice in a group but the inferences and attributions made by other team members when a concern or suggestion is voiced about the voicer.

Cognition in Teams

Working in teams allows individuals to collaborate on a task in which different skills and areas of expertise can be leveraged. As such, tasks can be accomplished that would usually be too challenging or complex for an individual alone. While the division of tasks has obvious benefits for task completion, it also comes with increased demands that go beyond the individual level. The interdependencies of the tasks within teamwork introduce the need for team members to be coordinated (Cooke et al., 2001). Cooke, Gorman and Rowe (2008: 3) define team cognition as “the cognitive activity that occurs at a team level”. It arises from the interactions of team members and the interplay of individual’s cognitions and as such does not equal the sum of the individual cognitions (Cooke et al., 2005). Through the investigation into characteristics of effective teams and facilitating mechanisms, this concept arose as a powerful explanation (Cannon-Bowers & Salas, 2001).

Because the workplace is becoming increasingly centered around teams, studies in the area proliferated and team cognition has been studied by a variety of disciplines using different approaches. When looking into these different approaches to team cognition, Wildman and colleagues (2012) identified two conceptualizations. On the one hand, the concept is looked at from a team knowledge perspective that sees team cognition as the emergent knowledge structures developing from team interactions and the interplay of team cognition. On the other hand, team cognition is seen as the externalized interactions and behaviors of the team rooted in individual-level cognitive processing. This process approach views the observable cognitive processes within teams as team cognition. Even though it acknowledges that team knowledge can influence team cognition, it does not define it as such. Based on the authors’ literature study, they concluded that “the majority of the existing team cognition literature is actually reflective of the team knowledge approach” (Wildman et al., 2012: 86).

Taking into account the conceptual model of team knowledge by Wildman and colleagues (2012), the knowledge structure in teams can be clustered into four separate categories: task-, team-, process- and goal-related knowledge (see Appendix 1). This

categorization is based on 86 independent studies that were analyzed by narrative review, giving a more holistic understanding of team knowledge in terms of the content in each category (who, what, why, when and how) and an integration of different research streams. Additionally, within each category, a distinction is made between dynamic and static concepts. Static concepts remain relatively stable over time, or might change gradually but not as rapidly as dynamic concepts.

Within the first category, task-related team knowledge, integrates task mental models and task knowledge as well as situation awareness and knowledge. Task mental models and task knowledge are seen as mostly static as compared to the dynamic situation awareness and knowledge because an individual's knowledge about information for a particular task does not change frequently, nor rapidly. Similarly, team-related knowledge applies to the concepts that revolve around an understanding of the characteristics and qualities of one's team or individual team members, but not the team process itself such as communication which is rather process-related knowledge. A recently studied concept in this category and the focus of this study is transactive memory systems (TMS) which, put in simple terms, is a team member's knowledge of other team member's expertise and skills. Process-related knowledge is concerned with the interpersonal exchanges that occur between team members such as teamwork. Although processes themselves are obviously dynamic, the knowledge that is required of individuals within the team about team processes such as communication, teamwork and leadership remain stable even with changing demands and contexts. One dynamic concept within the process-related domain is the short-term team process knowledge. Lastly, the goal-related knowledge includes the teams shared understanding of their objectives as well as means of achieving their goals. Both concepts, shared vision and strategic consensus, that the authors mention, are classified as static components. The mental representations in this cluster do not reference the task or team characteristics or team processes but solely focus on the common mission.

In the review, the authors did not only consider the clusters in more depth but also investigated past research on the separate concepts (Wildman et al., 2012). They found that despite the fact that TMS has gained a considerable upturn in studies devoted to the concept from 2000 to 2009 (2000: 9 studies, 2009: 34 studies), compared with mental models, the concept is still lagging behind. 50% of the studies considered in 2009 were focused on mental models, whereas only 29% studied TMS. Taking this review together with the call for more

studies investigating TMS in natural settings and understanding relationship with other variables better (Cabeza-Pulles et al., 2016; Ren & Argote, 2011), it becomes clear that TMS is a concept within team cognition that represents a fruitful domain for further research. Even if all other types of knowledge are present, meaning that all team members understand the task and its characteristics, how to work within a team and their ultimate goal, achieving complex tasks can be dreadful and difficult. Especially in more dynamic and complex environments, commonly experienced by knowledge-workers, TMS has been shown to be beneficial (Argote & Ren, 2012; Lewis et al., 2005). Studies have demonstrated its value when problems change and prior knowledge becomes obsolete (Ren et al., 2006) or when new tasks and problems arise (Lewis et al., 2005; Miller et al., 2012), enabling teams to adapt to these new complex circumstances more quickly and readily.

TMS should be especially important when it comes to complex tasks. Pearce (2004) suggested that the likelihood that only one individual can possess the expertise for all components of a task gets increasingly smaller with an increasing complexity of a task. Hence, knowledge, skills and expertise of the members in a team need to be pooled in order to complete those kind of tasks (Bligh et al., 2006) which also requires an understanding of what each member in the team actually knows.

Transactive Memory System (TMS)

TMS was first introduced as a concept by Wegner (1987) when studying intimate couples. He found that the two members of a dyad frequently use one another as external memory sources. This shared system of collectively codifying, storing and recovering memory was extended also to groups or teams, because they represent structures composed of people with complementary abilities committed to a common purpose and sharing goals (Oertel & Antoni, 2015). Hence TMS theory proposes that members of one team can function as external memory aids to each other, in the way that information is encoded, stored and retrieved (Lewis & Herndon, 2011). Put more simply, a functioning TMS allows each individual in a group to have knowledge about which member in the group has the expertise on which topic (“who knows what”). This way, the need for every member to be an expert in everything is mitigated and frees up time and cognitive resources for members to become specialized. A distributed memory is created through which team members can complement one another and exchange knowledge at the group level (Cabeza-Pulles et al., 2016).

There are two types of meta-memories existing in a team, as Bachrach and Mullins (2019) refer to it. These types are on the one hand the kind of knowledge held by each member and on the other hand, the location of that knowledge within the whole team. The transactive process within a TMS is the on-going interaction, communication, or transaction, through which expertise and location knowledge are encoded, stored and retrieved (Wegner, 1995). Using the concepts of transactive memory and the transactive memory system interchangeably negates their clear conceptual distinction. Transactive memory, the meta-knowledge, provides information about which knowledge is located where in the team but the transactive processes that team members engage in is the key to understanding the value of the shared system. As indicated, there are two components in a TMS: a structural and a process component (Argote & Ren, 2012; Lewis & Herndon, 2011; Ren & Argote, 2011). The structural component which links the individual's memory to the collective includes the knowledge the individual possesses and the metaknowledge about another member's knowledge. The process can be broken down into the three transactive processes of encoding, storing and retrieving information based on Wegner's (1995) computer network model of TMS. Directory updating refers to team members building cognitive representations of what the others are likely to know, information allocation is the process in which new information is passed on to the expert in this field and lastly, in retrieval coordination the information is retrieved from the corresponding expert in the field.

Lewis (2003) identified three crucial factors on which research up to date has based the study of TMS. These three factors indicate that a functioning TMS is present within a team. First of all, when all members in a team have the exact same knowledge available to them, a TMS would neither exist nor be necessary because each individual could do a task just as well alone as in a group, given that there are no time constraints. Hence, the basis for the existence of a TMS is that there is specialization of team members. Additionally, members within the team have to trust each other that their knowledge is valid and their expertise legitimate in order to accept suggestions, referred to as member's credibility. Furthermore, it is crucial that the team is able to coordinate tasks in a way that utilizes all the knowledge present. Because these manifest variables, specialization, credibility, and coordination, are used to infer the existence of a TMS in a group, several implications for the interpretation of the findings arise. One of the implications of the latent variable model is that the variables cannot be interpreted as being components of TMS itself and hence "do not map

onto the TMS structure and process components” (Lewis & Herndon, 2011). Additionally, observing the presence of one of the components is not a sufficient condition to infer that TMS exists. Looking at a group that has scored high on one of the variables can mean many different things and have multiple causes but it does not necessarily implicate a well-developed TMS.

Antecedents of a TMS

The development of a well-functioning TMS has been connected to multiple factors in the literature. In their integrative review, Ren and Argote (2011) summarized the findings of 76 studies on TMS between 1985 and 2010. The authors have clustered antecedents related to the existence and development of a TMS into three groups. The first cluster, team composition inputs such as member demographics, member technical competences and assertiveness have been shown to relate to the concept. In terms of team demographics, gender and ethnicity specifically have caused members to attribute certain knowledge or expertise to other members based on stereotypes they associate with each group (Bunderson, 2003; Bunderson & Barton, 2010). Team member assertiveness on the other hand matters in the development of a TMS because those team members are more able to effectively communicate their ideas and hence facilitate the flow of information (Pearsall & Ellis, 2006). The second cluster of antecedents, team-level inputs, include interdependencies in tasks, goals and rewards, group training, team familiarity, shared experiences, communication, technology/virtuality and imposed knowledge structures. For many of the variables, the main rationale of why they facilitate TMS development and existence is that they allow team members to have a more correct evaluation of other team members’ expertise through time to observe them and exchange knowledge (e.g. group training, team familiarity, shared experiences, communication) (for a review see Ren and Argote (2011)). In this cluster, voice as a type of communication can be suggested to have an impact on the development of a TMS as it can also contribute to the evaluation of expertise. Lastly, also organizational and contextual inputs have been found to affect a TMS within teams. Generally, stress has a negative relation with the development of a TMS but it depends on the type of stressor. In one study, hindrance stressors, like role ambiguity, prohibited the development of a TMS, whereas challenge stressors, such as time constraints, facilitated the development of a more advanced TMS as compared to when no stressor was present (Pearsall et al., 2009).

More recent studies have shed light on additional factors that enhance a group's TMS, like knowledge sharing and social network ties (Cabeza-Pulles et al., 2016; Huang & Chen, 2018), trust and collective mind (Cabeza-Pulles et al., 2016), social interaction (Huang & Chen, 2018), communication (Argote et al., 2018; Lewis, 2004) and value congruence between team members, psychological safety and organizational commitment (Peltokorpi, 2003).

Outcomes of a TMS

When a TMS is well-developed and functional, a team can benefit from it in multiple ways. On the individual level, it means that each team member can master a different area of knowledge and become specialized (Austin, 2003), in turn providing the team with in-depth task-critical knowledge. As members have a shared cognitive process, coordination of tasks and ultimately the cooperation between team members is enhanced (Oertel & Antoni, 2015). Additionally, TMS has been linked to goal attainment (Austin, 2003), innovation (Cabeza-Pulles et al., 2016), group learning and learning transfer (Lewis et al., 2005), knowledge integration (Huang & Chen, 2018) and overall team performance (De Souza Cuconato, 2018; Faraj & Sproull, 2000; Lewis, 2004; Lewis & Herndon, 2011; Ren et al., 2006) and viability (Lewis, 2004). Taking into account some contingencies such as group size, environment and dimension along which team performance is assessed, Ren, Carley and Argote (2006) concluded that TMS in small groups is associated with enhanced results in the quality of their work, whereas for larger groups and groups in a dynamic and volatile environment, TMS relates more to the dependent variable of time.

The performance benefits are suggested to be rooted in the division of cognitive labor for tasks and a common understanding of how knowledge can be coordinated (Hollingshead, 1998). Zimmer and Henry (2015) showed in their study on the use of interpersonal information resources that this highly depends on the perceived quality of the sources. Members of teams with a well-developed TMS judge their interpersonal sources to be of higher quality and more accessible and in this way, interpersonal information source utilization is improved.

Furthermore, Lewis and colleagues (2005) developed a framework that explains how a TMS does not only provide knowledge relevant for one specific task, but how transferrable knowledge that can be used in subsequent tasks is created through cycles of learning. The framework consists of three consecutive cycles of learning, the first one being the

establishment of a TMS. In order to develop, team members start to associate some members with specific areas of expertise and build the structure and processes for the TMS. The learning process continues after the initial development of the TMS which, in the future, has effects beyond the task for which it was established. In the second cycle, TMS learning happens while the team is working on their tasks. New knowledge is encoded and stored continuously which facilitates the transfer of learning across tasks. Lastly, the third cycle requires more abstract knowledge to be produced. Increasingly abstract knowledge in the team is created when the team performs a different task in the same domain as the members learn about principles underlying the both tasks. Hence, also in this cycle, learning occurs as members perform transfer tasks.

Team Leadership

When we think about teams, the image of a leader automatically comes to mind. For many, leadership is typically leader-centric and an individual-level phenomenon (Friedrich et al., 2009) in which the leader has a downward influence on the followers (Pearce, 2004). Comparing this conception to reality shows that this is rarely how leadership works. Much more close is leadership as a dynamic team-level process with influences in multiple directions (Carson et al., 2007; Morgeson et al., 2010; Wang et al., 2014) and the team as more than just the sum of its components (Contractor et al., 2012). Especially keeping in mind the current shift towards and increased interest in self-managed teams, a black-versus-white view on leadership in teams should be abandoned. Rather the grey areas in which a formal leader may exist but is sharing some responsibilities with the team and engages in a participative approach towards leadership should be considered.

Based on the view of functional leadership, the idea that there is only one person that can be considered a leader can be questioned. Functional leadership theory defines the leadership role as “to do, or get done, whatever is not being adequately handled for group needs” (MacGrath, 1962: 3) which makes it inclusive to incorporate others who take on that responsibility and can fulfill the function besides the formal leader. MacGrath (1962) suggested that the focus of research should be shifted from a focus on the leader to a focus on leadership.

Quite some time after the functional leadership theory emerged, the topic of shared leadership has become popular in research (Avolio et al., 1996; Carson et al., 2007) as well as a focus in the applied context (Pearce, 2004). The shift towards team-based organizational

structures, increasingly knowledge-intensive work and an increased complexity in work have contributed to this (Sweeney et al., 2019). Carson and colleagues (2007: 1218) define shared leadership as “an emergent team property that results from the distribution of leadership influence across multiple team members”. It represents a condition of mutual influence embedded in the interaction among team members. Based on this conceptualization, shared leadership exists on a continuum, varying on the number of leadership sources that have an influence in the team and is not necessarily an all-or-nothing concept. That means on the one end of the continuum, the team follows the leadership of only one single individual whereas the other extreme captures a team in which all members have some kind of leadership influence on the others (Bruccoleri et al., 2019).

As noted by D’Innocenzo and Kukenberger (2016), the concept of shared leadership has been looked at from a variety of perspectives and the literature has become incoherent in terms of the conceptualizations and terms used to describe a similar, if not the same, construct on leadership that emanates from and is shared by members of one team. Examples for the nomenclature besides shared leadership include distributed leadership (Mehra et al., 2006), collective leadership (Friedrich et al., 2009), and team leadership (Morgeson et al., 2010). However, in commercial organizations, the term shared leadership is most frequently used, whereas distributed leadership can be found mostly in the educational literature (Sweeney et al., 2019). Even though each leadership theory has its unique value that it brings to understanding leadership styles and the effects of it on teams, it should be noted that there are many indistinct boundaries at the level of the concept and overlapping behaviors that are prescribed to the theories.

In order to integrate these conceptualizations, a meta-analysis of 43 studies has outlined five themes that are prevalent in the literature (D’Innocenzo et al., 2016), many of which can also be found in Sweeney and colleagues' (2019) systematic literature review. Locus and formality of leadership are two of them. Morgeson and colleagues (2010) have developed a matrix along these two dimensions to identify various types of leadership (see Appendix 2). Locus refers to the source or origin of leadership which can either be internal or external from the team, whereas the formality of leadership refers to whether the leader’s authority is rooted in the organization or not. From the four bases of leadership, shared leadership can be found as an internal and informal type. Additionally, the distribution of leadership within the team is another of the themes that was identified. More specifically,

there are two types of theories of shared leadership that reflect equal and nonequal distribution. The former reflects the frequently applied approach of aggregate theories in which shared leadership is seen as a team-as-a-whole occurrence. Because the emphasis lies on the change from one referent (the formal leader) to another (the team), it is also referred to as the referent-shift measure. There is no distinction made of who exhibits a leadership role, rather the idea is that the team as a whole takes on leadership tasks. On the other hand, the social network approach requires each member to rate the others. This way, each unique influence and participation in leadership can be studied and hence it assumes nonequal distribution. Next to that, the temporal aspect of shared leadership has been found to be a common theme. Shared leadership is dynamic (Friedrich et al., 2009) and the leadership role can be assumed at various points during a team's life cycle (Erez et al., 2002). Finally, another salient theme is the fact that leadership is a multidimensional construct and a leader is taking on multiple responsibilities, depending on the team's needs and the phase in which it is currently in. One of them being that the team is encouraged to manage itself and engage in various leadership functions (Morgeson et al., 2010).

Although many authors assume the positive influence that shared leadership can have on team outcomes and processes (Avolio et al., 1996; Carson et al., 2007), results have been mixed. Some studies were able to demonstrate the positive relationship between shared leadership and team performance when comparing it to vertical leadership (Avolio et al., 1996; Ensley et al., 2006). This was especially apparent in knowledge-work teams who deal with complex situations and tasks (Bligh et al., 2006). Boies, Lvina, and Martens (2011) found the opposite effect in their study of 49 self-managed teams in a business challenge. While they found that teams who rated other members' leadership styles as passive-avoidant to perform worse than those who do not, the positive relationship between shared transformational leadership and performance was not found. Taken together, while the majority of studies confirm the positive relationship of shared leadership with team performance, the magnitudes of this effect can vary tremendously and in some contexts, such as manufacturing work, it may not be beneficial at all (D'Innocenzo et al., 2016; Sweeney et al., 2019).

Besides direct benefits on team performance, teams with shared leadership have been found to react with greater flexibility and adaptivity to challenges, taking a collaborative approach to them (Yukl, 2009). Similarly, when leadership is more indirect and on the basis

of the self-management philosophy (Manz & Sims, 1992), it was hypothesized that encouraging teams to self-manage and hence resolve problems without the interference of the leader, they would need to be more self-reliant on their internal resources and as a result become more adaptable and resilient (Manz & Sims, 1992; Morgeson et al., 2010).

Due to the beforementioned issue of having a multitude of leadership concepts that include similar behaviors of leaders, this study adopts a broader perspective on shared leadership which is the behavior of leaders to share some of their responsibilities and hand them over to the team. This shifts the responsibility and some leadership functions directly to the team and means that the leader does not directly intervene in the team functioning but acts rather supportive and takes on a more indirect form of leadership (Morgeson et al., 2010).

The Current Study

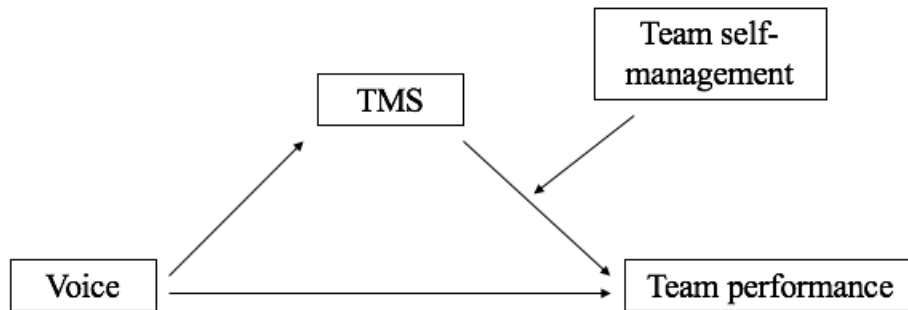
Due to the surge in team-based work in organizations the questions of how knowledge can be best managed and, more importantly, utilized to the benefit of the team has arisen and should be addressed by empirical investigations. Similarly, the idea that many concepts that have been studied for decades on the individual level should also be examined in a more dynamic context in which they occur, namely the team, applies to voice within teams. Therefore, looking at behaviors, cognitions and affect in teams and disentangle the effects that each of these factors have on teamwork and the team's performance is crucial.

The current study focuses on behaviors within the team as well as team cognition and how these dynamic processes can lead to better performance. More specifically, this research tests TMS as a mediator for the voice and team performance relationship, in which voice can be considered an antecedent for a developed TMS within the team. Additionally, as the manager's role will likely lose importance in the future with the move to more agile organizational structures, the transition between vertical leadership and completely autonomous and self-managed teams has to be accounted for. Based on this, examining the role that leadership, and more indirect forms of its influence, plays in these relationships cannot be neglected. Hence, a moderation effect of the relationship between TMS and team performance by team self-management is proposed and examined (Figure 1). Using a field study with consulting teams, the results enable us to gain a more valid picture of teamwork in knowledge- and project-based work environments.

In the following, findings from the previous literature review will be integrated and the reasoning for the hypotheses in the study at hand will be presented.

Figure 1

The Proposed Model



Note. Own illustration of the proposed model

Voice and Team Performance

As mentioned before, voice behaviors are seen as the expression of ideas and suggestions with an intent to change and improve the current state of affairs (Bashshur & Oc, 2015) and hence originate from a prosocial motivation (Grant & Ashford, 2008). Especially promotive voice, which is future-oriented and focuses on improvement suggestions towards an ideal state, is more likely to be seen as helpful and warranted than prohibitive voice which encompasses pointing out threats and potentially harmful processes or practices (Bashshur & Oc, 2015; Liang et al., 2012; McClean et al., 2018). Employees engaging in promotive voice have been found to receive more positive performance ratings than their peers engaging in prohibitive voice (Whiting et al., 2012) and additionally productivity gains within the teams were also only observed with promotive voice behaviors (Li et al., 2017). Beneficial outcomes from voice behaviors have been under investigation for quite some time and have been extensively studied on the individual level, including performance ratings and attitudinal outcomes (for a review, see Bashshur and Oc (2015)).

Even though voice behaviors rarely occur in a vacuum or within a dyad, research on team level outcomes has lagged behind and only few studies have been conducted. The studies that have examined group-level variables have looked at creativity (Nemeth, 1986), innovation (De Dreu, 2002; De Dreu & West, 2001) and decision-making quality (De Dreu et al., 2000) from a minority-dissent perspective, which has many similarities with voice but is not necessarily the same construct. Furthermore, research has already established that

workgroup performance can be enhanced by voice, as long as it does not damage relationships (Mackenzie et al., 2011).

Based on the overall aim of voice behaviors, namely to improve the functioning of the organization and on the smaller scale, the team, the variety of positive outcomes on the individual level as well as enhanced decision-making and creativity in the team context, we propose that voice behaviors should also be beneficial for team performance.

H1: Voice behaviors are positively related to team performance.

The Mediating Role of TMS

In order to get a good understanding of one's team and form the perception about other team members, people attend carefully to cues available that signal expertise (Bunderson, 2003). A beneficial effect of having knowledge about other member's expertise is that cognitive labor can be shared and divided amongst team members. When this division takes place with respect to encoding, storage, retrieval and communication of information, a TMS exists within the team (Lewis & Herndon, 2011).

While there are some types of cues that can make expertise inferences quite easy such as role assignment (Stewart & Stasser, 1995) and performance rankings (Moreland & Myaskovsky, 2000), other times expertise cues may be more subtle or indirect like past experience (Wittenbaum, 2000) or assertiveness (Pearsall & Ellis, 2006). Some parts of knowledge are personal and have to intentionally be made available to others in order for them to know about someone's expertise (Brauner & Becker, 2006; Bunderson, 2003).

Communication, specifically face-to-face interactions, familiarity and shared experiences has been found to be an important antecedent of a TMS's development and has been established as a predictor of a strong TMS (Argote et al., 2018; Hollingshead, 1998; Kozlowski & Ilgen, 2006). Communication helps the team to get a more profound and realistic understanding of what other members know and through these interactions, members' location information becomes more accurate (Lewis et al., 2005). Another outcome of this transactive process is that members discover links between their knowledge and create new knowledge that no one member has possessed before. Early research, looking at the transactive memory development in intimate couples has already emphasized the crucial role that self-disclosure plays to facilitate a better understanding of one another (Wegner et al.,

1985). In addition to that, communication leads individuals away from heuristic inferences on expertise based on stereotypes of gender and others, moving them to more accurate attributions (Hollingshead & Brandon, 2003). For example, group discussions within the team have been shown to lead to a more thorough understanding of who is an expert in a particular domain (Ren & Argote, 2011) and also social interaction processes in general have been found to be positively related with the construction of a TMS (Huang & Chen, 2018). Similarly, in their research, Pearsall and Ellis (2006) studied team member's assertiveness and its effect on TMS and as outcome variables team performance and satisfaction. To explain the effects found, they argue that assertive members are better able to communicate and share ideas.

Integrating these findings with the concept of voice, it can be argued that voice, as a type of communication within a team, can also inform other team members about one's knowledge and expertise. More precisely, when someone offers their suggestions to improve a current state in the team, the other team members can infer that that individual has additional information that they might not possess, specialized knowledge about a process, or other insights, through which they are able to spot possibilities for improvement. Additionally, when considering promotive voice, not only pointing out flaws but also proposing alternatives requires even more in-depth expertise of the specific field that is also more practical and tailored to the situation at hand. Even more in these cases, other members should attribute expertise and, in this way,, the meta-knowledge should be enhanced. Based on this, the positive effect of voice on team performance are proposed to be mediated by the TMS existing in a team.

Answering to the findings of Kozlowski and Ilgen's (2006) review that the empirical research on TMS is not yet up to par with the theoretical development and that especially more research is needed when looking at its antecedents, we propose voice as one of the levers facilitating TMS development.

In summary, it can be proposed that TMS mediates the relationship between voice behaviors and team performance.

H2: The positive relationship between voice and team performance is mediated by TMS.

Team Self-Management as a Moderator

Shared leadership refers to leadership that is distributed within a team, as compared to leadership that is embodied by only one individual (Carson et al., 2007). This also means, that the team takes over functional leadership tasks that need to be handled for efficient team work so that the needs of a team are met (MacGrath, 1962). Allowing this kind of autonomy and freedom to structure work and fulfill the team's needs that might change from day to day with varying task requirements and a volatile world is a crucial influence on team performance.

The performance benefits of a TMS in teams are proposed to be rooted in the division of cognitive labor for tasks and a common understanding of how knowledge can be coordinated (Hollingshead, 1998). When leadership resides only in one person and the leader claims all leadership functions for themselves, a high cognitive load is centralized on the leader who possibly does not have access to all relevant information. Considering also the mixed results that research has produced on the direct effects of shared leadership on team performance, it might be suggested that shared leadership is a necessary but not a sufficient condition for team performance. Meaning that with the right conditions in place, shared leadership can facilitate the positive effects on team performance or hinder them. Seeing teams in a dynamic environment, it has already been widely established that the structure of work and the context in which it resides must fit for positive results to emerge (Bachrach & Mullins, 2019). Taking into account Morgeson and colleagues' (2010) study in which they developed a taxonomy of team leadership functions, a team leader that encourages self-management of the team is sharing their leadership tasks and handing those responsibilities over to the team itself. Manz and Sims (1992) have found in their study that the variance in leadership effectiveness explained by encouraging team self-management is independent of any variance explained by other team leadership functions. This study shows that this specific leadership function, closely related to sharing leadership, should be investigated as a fruitful domain in this context.

Consequently, the manager's role as an assistant to facilitating the dynamic functioning of a team (Ren & Argote, 2011) and ways in which shared leadership can influence the team (Sweeney et al., 2019) should be investigated. It can be proposed that the extent to which the formal leader encourages team self-management moderates the relationship between TMS and team performance. This hypothesis also answers also the call for more research on moderating factors of the TMS and team performance relationship

(Bachrach & Mullins, 2019; Ren & Argote, 2011). Specifically, team self-management can make a difference when there is a well-developed TMS present in a team. In a team with a TMS, this opportunity for self-management would exacerbate the positive effects of the TMS on team performance. However, even with a functioning TMS present, the positive effects of it on team performance would not occur when there is no possibility for self-management. In teams with no TMS or a weak TMS, this factor is unlikely to make a difference in the effect on team performance.

H3: Team self-management moderates the relationship between TMS and team performance.

Methods

Participants

Participants of the study are consulting teams in different European countries. Consulting teams were specifically chosen as the target group due to the fact that those workgroups often share responsibility for the group outcomes. Additionally, their performance depends on the coordination and integration of various skills, fields of expertise and activities of the members due to the variety of projects that they work on for their clients (Lewis et al., 2005). Having a specific target group in which some characteristics of the tasks are known is crucial when studying concepts like team cognition because the team task determines the requirements of the constellation of team members in terms of their knowledge and capabilities and also the workflow structure and need for coordination (Kozlowski & Ilgen, 2006) which are critical aspects for the variables under investigation.

The sample studied is a convenience sample as the research group approached most of the teams through their personal and professional network. However, also the snowball technique was applied when contacts from the direct network were asked to refer other potential teams.

A total of 46 teams (168 individuals) participated in this study. Team sizes ranged from two to 32 members with an average of 8.1 ($SD = 5.3$) and the most frequently reported team size being four (22%). In 90.5% of the teams surveyed, up to four team members filled in the questionnaire. The average age of the participants is 28 years ($M_{range} = 20-55$; $SD = 5.5$). The tenure of participants ranges from one to five years with an average tenure of 1.9 years ($SD = 1.0$). The sample consists of 51.2% male participants ($n = 84$).

The leaders that were sampled ($n = 45$) for each team were on average 35 years old ($M_{range} = 25-63$; $SD = 7.9$) and have been working for the company on average for 3 years ($SD = 1.4$). The majority of the leaders were male (68.9%).

Procedure

The questionnaire was distributed to all team members and their managers in a paper-pencil format. Each member of the team filled in a questionnaire, whereas the team leader received a separate one. Additionally, teams not located in Portugal were provided with links to access an online survey on Qualtrics. Anonymity and confidentiality were assured in both methods of data collection. The survey was available in both English and Portuguese language and teams could state their preferred language before we administered the survey.

The team member's survey took approximately 15 minutes to fill in whereas the manager's survey was shorter (approximately 5 minutes). The data collection was done in a research group with a variety of topics in the area of teamwork. In the following, the focus will be only on the measures relevant to this particular study.

After a short introduction to the study and an explanation about the overall goals of the research and a declaration of confidentiality and anonymity, the team members answered questions about voice behaviors in their team, leadership behaviors, TMS and finally, socio-demographic characteristics. Leaders received the same introduction as team members and answered questions about the team performance, their leadership behaviors and also socio-demographic information.

Measures

Team Voice

We measured team voice with a validated scale developed by Liang, Farh and Farh (2012). Only the five items for promotive voice were included in the questionnaire in order to keep the survey as short as possible and due to promotive voice being more informative about a team member's expertise as laid out above. The items were modified to make the team as the referent ("Members of my team..." instead of "I..."). This modification of the scale follows prior research in order to investigate voice within teams in more depth (Li et al., 2017) and recommendations within the field of research on teams that measures can be employed using group-level referents when they are consistent with the conceptualization of the construct (Kozlowski & Klein, 2000: 38)

Team members were asked to think about their team's behavior and indicate to which degree they agree with statements like "Members of my team proactively develop and make suggestions for issues that may influence the unit." on a Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The analysis for internal consistency yielded a Cronbach's α of .92 which suggests good reliability.

TMS

Because it is difficult to directly observe and measure TMS, an indirect measure was used to then infer the existence of a TMS. The scale developed and validated by Lewis (2003) using proxy variables reflects both the structure and process component of the original construct. Based on Liang, Moreland, and Argote's (1995) early study, the scale measures the dimensions of specialization, credibility and coordination as indicators and is based on three assumptions: (1) The indicators can be used to infer that a TMS is operating in a team; (2) the three indicators are observed together because TMS is operating; (3) the indicators are independent of one another after controlling for TMS existence (Lewis, 2003; Lewis & Herndon, 2011). This indirect measure represents an approach following the latent variable model in which TMS is defined as the latent construct which can be expressed by observable and measurable indicators (Lewis & Herndon, 2011). Using this approach has been deemed acceptable if the research aims at "predicting the existence of a TMS or predicting the effects of a TMS" (Lewis & Herndon, 2011) which applies to this study.

As the original scale consists of 15 items, the number of items had to be decreased, leaving us with five items, three for credibility ("I do not have much faith in other members' expertise."; "Team members are comfortable accepting procedural suggestions from other team members."; "I trust on other team members knowledge about the project.") and one each for coordination ("Our team has very few misunderstandings about what to do.") and specialization ("We know which team members have expertise in specific areas."). The participants were asked to think about the members of the team and report their degree of agreement on a Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The scale revealed a good reliability (Cronbach's $\alpha = .75$).

Team Performance

Team performance is measured using the leader's rating of the performance but the same items were also included in the consultant's questionnaire. Not only does the team leader possess an outside view on the team as they are not directly part of it and hence also is

less likely to be biased, but the leader is usually the responsible for a team's performance appraisal and therefore knows the targets and is better able to evaluate them. Additionally, using sources other than the members' self-reports can mitigate some contamination effect such as leniency bias (D'Innocenzo et al., 2016).

Based on this, collecting the team's self-assessment and the supervisor's rating makes the results more robust and allows for the multi-level research design. Two items were used to assess team performance (e.g. "My team has a good performance.") which were adopted from a validated scale (González-Romá et al., 2009). The correlation between the two items revealed a good reliability of the scale ($r = .65$) (Hemphill, 2003).

Team Self-Management

The leader's promotion of team self-management was assessed using part of the Team Leadership Questionnaire (Morgeson et al., 2010). One of its dimensions, namely *encourage team self-management* can be closely linked with the concept of shared leadership as laid out in the section on Team Leadership. Participants were asked to imagine their leader's behavior and respond to the six items of the scale on a seven-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). A sample item included is "Encourages the team to solve its own problems". The scale revealed a good reliability (Cronbach's $\alpha = .90$).

Additionally, these items were included in the manager's questionnaire in which they had to indicate the degree of agreement with the six items on a seven-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The items were the same as in the member's questionnaire, but the referent was adapted to fit the perspective of the leader. Hence, the sample items mentioned above was adapted in the leader's questionnaire as follows: "I encourage the team to solve its own problems".

Control Variable

Due to the fact that the sample was expected to be made up of teams of different sizes, team size is considered to be an important factor that needs to be controlled for in the study. Especially because the literature suggests that in the development of TMS, team size is a contingency factor (Bachrach & Mullins, 2019; Ren et al., 2006). Hence, all consultants were asked to indicate the size of their team ($M = 8.1$; $SD = 5.3$). While in most groups, agreement about the team size was found, four teams showed large differences ($M_1 = 9.4$, $SD_1 = 11.6$, M_1 range = 2-30; $M_2 = 8.0$, $SD_2 = 6.0$, M_2 range = 4-15; $M_3 = 7.0$, $SD_3 = 6.1$, M_3 range = 3-15; $M_4 = 9.8$, $SD_4 = 3.7$, M_4 range = 7-18).

Generally, seeing these different perceptions of team boundaries is not surprising, especially in the field of consultancy, which can be described as an “environment(s) offering the opportunity to flexibly join interest groups and communities” (Wimmer et al., 2019: 719) and hence the cases were included in the analysis despite their low levels of agreement.

Results

Aggregation to the Team Level

While the data was initially collected at the individual level, the goal of the study is to draw conclusions about the team level. Hence, data from the individuals was aggregated to the level of analysis (Costa et al., 2013). Several measures have been developed to combine individual answers to the group level, one of them being within-group interrater agreement r_{wg} (James et al., 1993). This measure has been developed to judge the level of agreement between multiple raters in one group towards multiple items on a scale and can hence be used as a valid justification of the aggregation of data from the individual to the team level. While the original authors suggested a mean value of 0.7 to be an appropriate cut-off point to judge the quality of the estimation, other authors (Biemann et al., 2012; Costa et al., 2013; Santos et al., 2016) have made the case it may not be sufficient for the decision to disregard cases to be based solely on this measure. With the goal of increasing the validity of the justification and maintaining high statistical power and the approach of Santos and colleagues (2016) was followed. The mean values of r_{wg} were complemented by an analysis of the “degree of agreement in terms of two categories (a) lack of agreement or weak agreement and b) moderate, strong or very strong agreement) for each variable” (Santos et al., 2016: 580).

For voice, the r_{wg} mean value is .81, and 4.5% of the values indicate a lack of or weak agreement (ranging from .00 to .50), while 95.5% indicate moderate, strong or very strong agreement (ranging from .51 to 1.00) (Biemann et al., 2012). For TMS the r_{wg} mean value is .88, 2.3% of values indicate a lack of or weak agreement, while 97.7% indicate moderate, strong or very strong agreement. Similarly for promotion of team self-management, the r_{wg} mean value is .84, with 4.5% of values indicating a lack of or weak agreement and 95.5% indicate moderate, strong or very strong agreement.

Hypothesis Testing

Table 1 shows the means, standard deviations and correlations of the variables under study and the control variable team size. Despite the expectation for significant correlations

between the variables, only some of them are significantly related. Interestingly, only team self-management was positively correlated with all other variables besides team size while none of the predictors shows a significant correlation with the criterion variable performance. In the following analyses, team size was used as a control variable.

Table 1*Descriptive Statistics and Correlations of the Study Variables*

	RWG(j)	M	SD	1	2	3	4
1. Voice	.81	5.4	0.6				
2. TMS	.88	5.7	0.6	.23			
3. Team self-management	.84	5.5	0.8	.36*	.36*		
4. Performance		5.8	0.8	.26†	.04	.36*	
5. Team size		8.1	5.3	.16	.12	.12	-.01

Note. $n = 46$.

* Correlations are statistically significant at $p < .05$. † Correlations are statistically significant at $p < .09$.

The PROCESS Macro for SPSS (Version 26) (Hayes, 2017) was used to test the direct and indirect effects in the relationship between voice, TMS and performance as well as the moderation of team self-management. PROCESS estimates the coefficients of a model using ordinary least square method for all continuous outcomes which is followed by bootstrapping estimates with 5000 resamples. Bootstrapping estimates the sampling distribution of a test statistic based on repeated sampling of the data. Multiple advantages were put forward by Hayes (2012) when it comes to bootstrapping as compared to the OLS approach. The technique allows for the test of multiple mediators at the same time, does not require the assumption of a normal sampling distribution, reduces the likelihood of a Type I error as a result of reducing the number of inferential tests and outperforms other tests when the sample size is small. Hence, it was deemed that this method of analysis would be appropriate. However, before looking at the full model, the two separate models, namely a mediation and a moderation, were tested in order to get a better understanding of the relations. Results that yield a p-value of less than 0.1 will be included in the further discussion as effects that

warrant further study. The p-value has long been critically discussed and its use as the only one measure to determine whether an effect is present or not has been doubted (Royall, 1986; Sullivan & Feinn, 2012). Due to the small sample size, the study is unlikely to yield p values considered very low (such as 0.01) and even relationships that are not conforming to the traditionally used p cut-off point of 0.05 should be acknowledged and discussed.

Hypothesis 1 is set out to test the direct effect of voice on the outcome variable team performance. As expected, controlling for team size, the direct effect of voice could be established ($b = 0.36$; $t(41) = 1.88$; $p = .067$, see Table 2) and is significant with $p = 0.067$. Hence, this finding offers support for Hypothesis 1.

Table 2
Results of Mediation Analysis (Hypothesis 1 and 2)

Steps	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	
Direct and total effect $R^2 = .081$; $p = .332$					
Team performance regressed on voice (c path)	0.36	0.19	1.88(41)	.067	
TMS regressed on voice (a path)	0.24	0.15	1.54(41)	.130	
Team performance regressed on TMS controlled for voice (b path)	-0.047	0.20	-0.24(41)	.815	
Team performance regressed on voice controlled for TMS (c' path)	0.37	0.20	1.86(40)	.070	
Partial effects of control variables					
Team size	-0.01	-0.02	-0.37(40)	.715	
	Unstand. value	<i>SE</i>	LL 95% CI	UL 95% CI	<i>p</i>
Bootstrap results for indirect effect					
Effect	-0.011	0.06	-0.100	0.141	

Note. $n = 44$, LL = lower limit; CI = confidence interval; UL = upper limit. All predictor variables were mean-centered.

Considering the indirect effect of voice on team performance through the mediator TMS, Hypothesis 2 was tested. Contrary to the expectations, no indirect effect was found ($b =$

-0.01; 95%CI: -0.100; 0.141, see Table 2). Additionally, looking at the separate paths from voice to TMS and TMS on performance, neither of them suggests significant relationships.

Finally, Hypothesis 3 proposes that team self-management interacts with TMS such that teams with a more developed TMS and higher levels of self-management would perform better. As expected, the two-way interaction between TMS and team self-management was found ($b = 0.55$; $t(39) = 2.29$; $p = .003$, see Table 3). Taking a closer look at the conditional effect of TMS on performance on different levels of team self-management, it can be established that for lower levels of self-management, a more developed TMS affects team performance negatively (-1 *SD*: $b = -0.61$; 95%CI: -1.332; -0.095; $p = .025$). In Figure 2, the interaction effect of team self-management and TMS on team performance is visualized.

Table 3

Results of Moderation Analysis (Hypothesis 3)

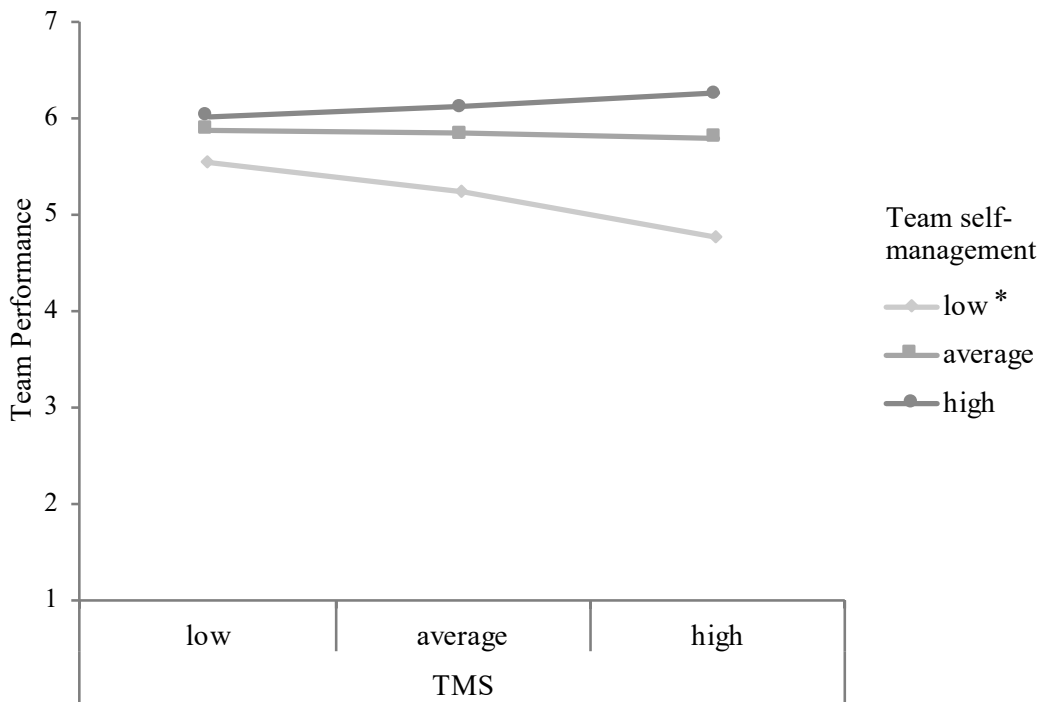
Predictor variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>
DV: Team performance $R^2 = .257$; $p = .018$				
Constant	5.75	0.19	30.25(39)	.000
TMS	-0.19	0.19	-1.01(39)	.321
Team self-management	0.54	0.15	3.55(39)	.001
TMS * Team self-management	0.55	0.24	2.29(39)	.003
TMS' conditional indirect effect at team self-management = $M \pm 1 SD$	Unstand. boot indirect effect	Boot <i>SE</i>	Boot LLCI	Boot ULCI
-1 <i>SD</i> -0.81	-0.61	0.28	-1.177	-.045
<i>M</i> 0.00	-0.21	0.21	-.624	.207
+1 <i>SD</i> 0.81	0.19	0.32	-.458	.846

Note. $n = 45$, LL = lower limit; CI = confidence interval; UL = upper limit; All predictor variables were mean-centered.

Running the full model for the moderated mediation did not yield any significant results for the proposed model (index of moderated mediation = 0.12; 95%CI: -0.102; 0.372). However, also in this model, the interaction term was significant at $p < .10$ ($b = 0.50$; $t(38) = 2.00$; $p = .053$).

Figure 2

Graph for the Two-way Interaction



Note. The graph shows the outcome variable at low, average and high levels of the moderator and low, average and high levels of the mediator.

* Slope is statistically significant.

Complementary Analysis

While the results of the analysis driven by literature and hypotheses already gave rise to some insights, the initial screening of the correlation between all variables that were collected (see Table 4) suggests that taking a look at the relationships of the study variables with performance as reported by the team members may also be interesting. While team performance reported by the team leader and the team members are correlated ($r = .290$; $p = .054$), possible differences in their relationships with the variables under study can be discussed. Hence, a complementary analysis was conducted for a possible moderated mediation of the variables under study with performance as reported by the team. The average performance reported by team members is 5.93 ($SD = 0.58$).

Table 4

Correlations of the Study Variables and Performance Reported by the Team (tr)

	Voice	TMS	Team self-management	Performance	Team size
Performance tr	.494**	.412**	.368*	.290†	-.089

Notes. $n = 46$ Teams.

† Correlations are statistically significant at $p < .1$ * Correlations are statistically significant at $p < .05$. ** Correlations are statistically significant at $p < .01$.

Table 5

Results of Complementary Mediation Analysis

Steps	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	
Direct and total effect $R^2 = .239; p = .003$					
Team performance (tr) regressed on voice (c path)	0.46	0.13	3.57(42)	.001	
TMS regressed on voice (a path)	0.28	0.16	1.80(42)	.078	
Team performance (tr) regressed on TMS controlled for voice (b path)	0.35	0.12	2.99(41)	.005	
Team performance (tr) regressed on voice controlled for TMS (c' path)	0.37	0.12	2.95(41)	.005	
Partial effects of control variables					
Team size	-0.02	0.01	-2.22(42)	.231	
	Unstand. value	<i>SE</i>	LL 95% CI	UL 95% CI	<i>p</i>
Bootstrap results for indirect effect					
Effect	0.10	0.07	-0.036	0.258	

Note. Results of the complementary mediation analysis of voice on performance reported by team members through TMS. $n = 45$, LL = lower limit; CI = confidence interval; UL = upper limit; tr = team-reported. All predictor variables were mean-centered.

Firstly, looking at the relationship between voice and team-reported performance, the relationship is significant ($r = .494$; $p < 0.01$, see Table 4), also when controlling for team size ($b = 0.464$; $t(42) = 3.57$; $p < 0.01$). As shown in Table 5, all path coefficients are significant at $p < 0.08$, however no indirect effect and hence no mediation was found as the 95% confidence interval of the bootstrap analysis includes zero ($b = 0.10$; 95%CI: -0.036; 0.258). This result must be seen with caution however, as the lower level of the confidence interval is very close to zero.

Table 6
Results of Complementary Moderation Analysis

Predictor variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>
DV: Team performance tr; $R^2 = .288$; $p = .008$				
Constant	6.114	0.14	43.78(40)	.000
TMS	0.38	0.13	2.84(40)	.007
Team self-management	0.12	0.11	1.04(40)	.305
TMS * Team self-management	-0.13	0.18	-0.75(40)	.457
TMS' conditional indirect effect at team self-management = $M \pm 1 SD$	Unstand. boot indirect effect	Boot <i>SE</i>	Boot LLCI	Boot ULCI
-1 <i>SD</i> -.806	0.49	0.20	0.085	0.887
<i>M</i> 0.00	0.38	0.13	0.110	0.650
+1 <i>SD</i> .806	0.27	0.19	-0.110	0.658

Note. Results of the complementary moderation analysis of TMS and team self-management on performance as reported by team members. $n = 45$, LL = lower limit; CI = confidence interval; UL = upper limit; tr = team-reported. All predictor variables were mean-centered.

Considering the interaction between TMS and team self-management on team-reported performance, the moderation analysis resulted in a non-significant interaction term ($b = -0.13$, $t(40) = -0.75$, $p = .457$, see Table 6), meaning that no moderation takes place. Even though there is no moderation of TMS' effect on performance, taking a closer look at the simple slopes for TMS on performance on different levels of team self-management shows an effect in the opposite direction as compared to when running this analysis with the leader-

reported performance. Even though also in this case, the slopes are only significant for lower levels of team self-management, there is actually a positive relationship of TMS on performance ($-1\ SD: b = 0.49; 95\%CI: 0.085; 0.887; p = .019$) (See Appendix 3 for a visual comparison of the moderation effects for the complementary analysis).

Running the full model for the moderated mediation did not yield any significant results for the proposed model (index of moderated mediation = $-0.07; 95\%CI: -0.227; 0.038$).

Discussion

The goal of the current study is to contribute to the understanding of the black box that links voice to team performance by including team cognition. Furthermore, the effect of the leader and their encouragement of the team to be more independent and work autonomously as well as to take over some of the leadership functions themselves, was investigated. Thus, this research aims at contributing to the team literature in a new way, incorporating multiple processes when looking at team performance, namely behaviors, cognition and leadership.

Even though the analysis provided support only for two of the three hypotheses established and no support for the overall model, taken together with the complementary research, there are some important findings that can be discussed. Firstly, the positive direct effect of voice on team performance was found in both leader- (Hypothesis 1) and team-reported performance. This is in line with prior research on voice positively influencing multiple other team-level outcomes such as productivity gains (Li et al., 2017) and minority dissent on creativity (Nemeth, 1986), innovation (De Dreu, 2002; De Dreu & West, 2001) and decision-making quality (De Dreu et al., 2000) at the team level. Complementary to these prior findings on the positive effect of voice on teams, this research confirms the positive effect specifically on team performance.

The process through which voice behaviors improve performance was proposed to be mediated by TMS. Interestingly, only the direct effect was found while its proposed mechanisms could not be supported (Hypothesis 2). The separate paths of voice on TMS and TMS on performance can be investigated separately. While the mediation was not supported, the proposed direction of the effect, namely positive, from voice on TMS was present and can be further supported by the results of the complementary analysis in which a significant positive relationship was found. These results should be acknowledged and warrants further research with a larger sample size.

Many studies have established a positive effect of communication on TMS (Peltokorpi & Hood, 2019), based on the idea that communication is an initial building block of TMS due to the information that is transmitted directly, such as information of members' expertise (Lewis et al., 2005), and indirectly based on the inferences made about the speaker. Similarly, this reasoning was applied to voice as a type of communication in which knowledge is shared and which makes the TMS 'transactive'. Indeed, also other research (Akgün et al., 2005) has yielded findings that were not in line with prior research from the group behavior literature that found evidence for the relationship between formal and informal communication and TMS.

There are however several possibilities to reason why the magnitude of the effect was not as expected. First while communication can be an indicator of expertise and is oftentimes positively associated with perceptions of expertise (Pearsall & Ellis, 2006), sometimes the frequency, duration and proportion of communication from individuals within the group, may actually not be closely related with true expertise (Hollingshead, Brandon, Yoon, & Gupta, 2010). As an example while introverted individuals with expertise may not speak up or display a lack of assertiveness with higher status person, individuals with no expertise may speak up and fake task confidence. However, social desirability, personality, status differences and other contextual factors are just a small part of the variety of factors that play a role when members aim at accurately judging other members' expertise. Especially when joining a new team, assertiveness and exclamations of expertise may be interpreted with caution. These aspects may play into the fact that while voice can be facilitative of developing a TMS, future research should look into the mechanisms through which that happens such as under which conditions expertise is accurately associated with other team members.

Another aspect to take into account in these possible prescriptions of expertise are the theoretical propositions of Bunderson and Barton (2010) who, in their work on status cues and expertise assessment in groups, utilize status characteristics theory underlying their propositions. The authors state that:

status characteristics theory proposes that because expertise is a latent characteristic and therefore not directly observable, group members form these expectations by drawing inferences about relative expertise based on a consideration of those manifest member characteristics they have come to associate with expertise differences. (p. 217)

Specific behaviors such as verbal task confidence cues and task skill cues which can be transmitted through voice, are only one of the factors that can lead to expertise assessment. While specific behaviors are judged as high in validity, they are also seen as low in reliability because of the possibility of impression management as well as that it cannot be assumed with certainty that the demonstration of a task skill will be generalizable and replicable (Bunderson & Barton, 2010). It may depend greatly on the salience of a certain cue and hence on the group composition, environment, familiarity of the task and motivation to be accurate whether diffuse or specific attributes and behaviors are taken into account when assessing expertise in team members. That judgement made by team members builds the foundation of a well-functioning TMS but it can be influenced by various factors depending on the context which we did not account for in this study. In summary, it can be said that the relationship between voice and TMS is not as straight-forward as was hypothesized.

Another suggestion that can be made to explain the finding that voice does not predict TMS comes from research that has looked at TMS from a longitudinal perspective. Research has shown that a TMS develops in teams over time (He et al., 2007; Lewis, 2004; Lewis et al., 2005). Consequently, as the transactive process progresses, information existing in the memory storage become richer and may require updating as team or task structure or the environment changes. When the structure and content of the TMS varies, proper functioning and continuous development will not be driven by the same factor. Taking into account the theory of team development by Kozlowski and colleagues (1999), only in the third stage of team compilation, the individual's focus from the self shifts to a focus on dyadic and team relationships to develop team cognition and an adaptive team network. Similarly, it was found in studies on leadership in team that mostly in the initial stages of development, leadership promotes TMS and hence is a crucial factor only in specific phases (Zaccaro et al., 2001). Thus, it can be put forward that voice as a means to identify type and location of expertise is more important in the earlier stages of the team development. In later stages when the team is performing, results that are delivered, task-related behavior and similar factors besides verbal cues of expertise may be more relevant.

Next to that, the relationship between TMS and team performance could not be supported in this study. The results were not significant and additionally, the effect was not in the proposed direction. Here again, the relationship between TMS and team performance is not yet clear in the literature to this point and more research is needed into the exact workings

of team cognition. When looking at the study at hand however, it can also be hypothesized that in this specific case, TMS might not be of crucial importance for team performance. In our sample, the teams consist of relatively young consultants with low tenure in the company. It can therefore be suggested that have not yet achieved a high level of specific expertise or specialization in a field. TMS might not be highly related to team performance because in this case, the tasks they work on are not as complex as the ones more senior consultants might face.

Furthermore, the significant positive effect of TMS on team performance, as hypothesized in the mediation, was only found in the case of team-reported performance which indicates that the direct effect of TMS on performance cannot be generalized across various levels of measurement. Similarly, Lewis (2004) found a stronger influence of TMS on team-rated performance than on client-rated performance. Considering other studies that have found the positive effect of TMS on performance, some utilized objective performance measures like achieved sales (Bachrach & Mullins, 2019), evaluation in a business simulation (De Souza Cuconato, 2018), time to complete tasks and quality of operations and decisions (Ren et al., 2006), number of errors and development of new features (Argote et al., 2018), while others included supervisor ratings of effectiveness and efficiency (Faraj & Sproull, 2000) and also team-reported innovation performance in R&D teams (Cabeza-Pulles et al., 2016) to name a few. What can be stated from this observation complemented with this study's findings is that the literature has not yet found a common ground on what the best way to measure team performance is in this context, assuming that there is one best way. Insofar, extrapolations to general team performance should be avoided when one is measuring a certain type of team outcome.

The different results when comparing performance measured by the supervisor and performance measured by the team itself align to another issue, namely that the team leader does not always understand the coordination efforts that are happening in the team. Even though leader-rated performance is oftentimes seen as an objective measure of how well the team is performing, this measure should be interpreted with caution. Specifically the team cognition and performance relationship remains unclear because of the inherent characteristic to team cognition, namely that it is internal to the team and not observable. Team members engage in teamwork, cooperation and coordination behaviors which may seem like a waste of time or not necessarily directed towards their ultimate performance goal to the team leader.

Because the leader is unaware of the team cognition, they cannot grasp the benefit that the activities the members engage in have in the long run. This can lead to the leader's impression that the team is not performing as expected when they are actually setting the stage for their teamwork. In summary, there are many aspects that should be taken into account when researching team performance.

Finally, in an effort to get a clearer picture of TMS' effect and to address calls for a deeper understanding of moderators of the TMS and team performance relationship (Ren & Argote, 2011), team self-management was investigated (Hypothesis 3). While the direct effect of TMS on performance was not found in the leader-reported measure, the picture becomes clearer when team self-management is taken into the model and a significant moderation was found. Leaders that directly intervene to satisfy critical team functions and are hence not encouraging their teams to manage themselves do not facilitate their team's ability to leverage a well-developed TMS. On the contrary, those teams who are not encouraged by their leader to manage their work in the team independently suffer performance losses when they have a highly developed TMS. However, when turning to the more supportive and indirect form of leadership in which the team is encouraged to perform its own leadership functions, TMS does not seem to have an effect on performance.

This is an important realization that can be looked at from various angles. Firstly, the proposition can be made that when a team has a functioning TMS and the team members possess knowledge of who in the team is the expert on certain topics, their ideas about task delegation or general cooperation on tasks may be different from what the leader has assigned to them. As a result of the disagreement between leader and the team, a conflict about the formal plan of action and what the team members might construe as the right plan of action may unfold. Not having the freedom to act on and implement the information gained through the TMS may result in negative affect and ultimately hinder effective team performance. In addition to that, having a leader that engages in more traditional leadership behaviors and that does not actively encourage self-management might also signal to members that their leader is not open to listen to them and consider their perspectives. This perception of a leader has been referred to as low authority openness, which has been previously shown to reduce team performance (Tost et al., 2013).

Furthermore, the negative effect of TMS on performance in conditions of low self-management encouraged by the leader may also be explained through decreased collective

efficacy beliefs. Based on Bandura's early work on self-efficacy (Bandura, 1982, 1994), which refers to an individual's belief that they can perform a given task successfully, collective efficacy has been broadened to the team level and reflects a shared belief that the team is able to mobilize motivation, utilize cognitive resources and follow the needed course of action to achieve their goals (Gibson, 2003). Empowering leadership, which is a broader construct than just participative leadership, allowing team members to "take charge of any part of their work", has been found to foster efficacy beliefs in teams (Kim et al., 2018: 258). The encouragement of self-management as one type of team leadership behavior can be linked to empowering leadership behaviors. A leader that has a more autocratic style negates the team's ability to plan and execute work independently which can have a destructive effect on collective efficacy (Lin et al., 2019). It can be speculated that impeding on the team's efficacy beliefs when a functioning TMS exists may be considered a possible mechanism through which leadership is affecting the TMS – performance relationship which should be investigated further in empirical studies. When the TMS is not as functional in a team, team members are more reliant on their leader for some tasks as the leaders have a better overview of team member's areas of expertise, past performance and the project specifications and hence performance will not suffer from a more autocratic leader, or leadership that is highly centralized around one individual, as compared to high TMS teams.

Implications

Practical Implications

Knowledge as an intangible asset of a firm may be one of the most important sources for a company to differentiate its products and services from competition (Lewis, 2003). These intangible knowledge assets have to be leveraged and managed through the creation of linkages between individuals, teams and departments (Peltokorpi, 2003) and therefore the investigation of how employees utilize this knowledge to the firm's benefit, how they share, transfer it and create knowledge at the team level is a topic of utmost importance and interest.

Participating in the discussion and offering suggestions for improvement, engaging in voice, does not only have positive outcomes for the individual and the whole organization (Bashshur & Oc, 2015) but also for the units and teams that the employees work in day to day. This finding has important implications for HR departments, managers and team members alike. First, voice behaviors within the team should be developed and rewarded. In order to develop team member's propensity to speak up, it should also be encouraged by

leaders so that a climate of appreciating and acknowledging voice can be fostered. This recommendation does not only hold for upward feedback to the leader but similarly horizontal suggestions to peers and colleagues. Furthermore, within team meetings, time could be allotted for suggestions and novel ideas to again convey that these are appreciated.

Complementary to this more informal way of facilitating voice behaviors, targets could also be included in performance appraisals of the individual (LePine & Van Dyne, 1998) as well as in evaluation of team behaviors. However, when it comes to evaluating voice, studies have shown that the perception of voice can be different between self and non-self measures (Ng & Feldmann, 2012) as well as the resulting performance evaluation (Colquitt et al., 2001; Thomas et al., 2010) which leads to the conclusion that 360 degree feedback might be more suitable for the proposed performance rating. Examples for other HR practices that could be implemented based on this study is a revamped staffing process to include and put an emphasis on personal initiative; job design to elicit a sense of personal responsibility and ownership; or trainings to foster ways of effectively offering and receiving suggestions.

While knowledge is something that can be made explicit through behaviors, it exists in an individual's cognitions and is generally not overt and observable. Within teams, knowledge is oftentimes shared across individuals to divide responsibility for different areas. A team that has profound knowledge of each team members' knowledge and expertise has developed a TMS. We find that the relationship between TMS and team performance depends on team self-management. While many studies call for the active generation of TMS in teams (Bachrach & Mullins, 2019), this study points to boundaries of this implication. In light of the negative interaction of team self-management and TMS, utilizing resources such as time and effort into the development of TMS may be a misallocation of efforts in teams with a low level of self-management. It is therefore critical that managers and team leaders are aware of their own behaviors with regards to whether they encourage their team to manage itself or not. Likewise, leaders should develop distinct strategies in order to accommodate their team's collective cognition to avoid performance losses. Additionally, it can be considered that teams that are known to have a high TMS to be matched with a leader allowing for high levels of self-management or even have these types of teams work as completely self-managed teams.

Theoretical Implications

After more than 50 years of research on small groups and teams, a substantial foundation has developed into all directions of behaviors, attitudes, affect and cognition

(Kozlowski & Ilgen, 2006). With this research, a solid base has been generated to further look at team dynamics and various team performance outcomes in order to expand current concepts and theories.

Voice is one type of behavior that developed from being a desired contribution to one that is required in the workplace (Knoll et al., 2016). Research emphasis speaks to the crucial role of employees voicing their viewpoints for the individual and the organization as a whole (Bashshur & Oc, 2015; Ng & Feldmann, 2012). While the workplace is nowadays consistently arranged around teams and teamwork, voice behaviors and their impact on the team are still a topic that has not yet attracted much research. In light of findings on both the individual and organizational level indicating that voice can have positive effects, this research extends the literature in terms of the applicability of the findings at the meso level. This represents a starting point for future projects to look into the mechanisms through which the positive effect on team performance occurs.

Additionally to the contributions to research on behaviors of team members, such as voice, another focal point of this study has been the relationship between the leader and team internal processes such as team cognition. Considering the vast amount of literature that has already been published on the topic of leadership, relatively little is known about the relationship between leadership and TMS (Bachrach & Mullins, 2019). In order to further this area of research, a specific type of leadership behavior, namely encouraging team self-management has been studied. The result that under certain types of leadership behaviors, TMS' effect on team performance is negative, points to the fact that there are still many open questions when it comes to the interaction of team dynamics, in this case team cognition, and leadership. As TMS is a sought-after characteristic of a team, it should be better understood how leaders can facilitate the development and utilization of team members' knowledge and meta-knowledge. This is especially important given the fact that in this study, no positive relationship of TMS on team performance was uncovered when considering the leader's performance rating. The finding of a positive effect of TMS on performance as rated by the team should be seen with caution due to the possibility of the common-method bias and also highlights the fact that performance and generally team outcome measures should be objective or at least rated by other subjects than the ones under study for TMS.

Beyond this, the study at hand challenges the current practice of generalizing diverse performance measures. Studies looking at different measures such as decision-making,

innovation of products, time to finish tasks and quality of the output cannot be used to draw generalized conclusions about team performance. On the same note, performance rated by individuals in the team, the supervisor or even clients may yield different results on a variety of factors. Additionally, these different types of measurements should be interpreted with respect to their actual target outcome. Looking at a performance rating of a supervisor may align to different topics than looking at performance rating by the team.

Limitations and Future Research

Given the prevalence of studies on teams in the laboratory, this study is noteworthy for its inclusion of team in the organizational context working in a field setting and the use of various levels of measurement for team performance, namely the team itself and its leader. However, this study is not without limitations that should be acknowledged and can point towards future research directions.

A common limitation in team studies is the small sample size. With a sample size of 46 teams, it is challenging to adequately examine the proposed model. Given the relatively low statistical power, some findings that are on the border to being statistically significant may reveal significant findings in bigger samples. The global Covid-19 pandemic during the time of data collection introduced even more complications to acquire potential participants. Due to the geographical dispersion of teams as well as their preoccupation with organizationally vital tasks, some teams showed a low answer rate, meaning that based on their actual team size, only few members responded to the survey. Hence, future research should put efforts into the collection of data in which all members of a team are sampled, possibly even allowing for a network approach to the topics discussed here.

The focus of our study are teams in the consulting industry due to the nature of their work (shared responsibility for outcomes, high need for coordination and integration of skills) and nature of the teams (interdisciplinary, knowledge-workers). While these factors are a good foundation for the variables under study, a limitation to the study of teams in this industry has become clear. Even though many teams agreed on the number of members in their teams, there were teams with a high dispersion. Because team boundaries are often not as clear-cut in consultancy teams, research on team behaviors may become more difficult to study (Wimmer et al., 2019).

Moreover, TMS is a cognitive structure that develops over time and is constantly evolving with new information, the need for updating due to turnover in the team or changing

task requirements (Lewis, 2004). Considering this property of a TMS and the effect that possible antecedents have on its development and functioning, the research design as a cross-sectional study may be considered a limitation. The effect voice has on TMS could be more beneficial in the early stages of team development such as forming, norming and storming (Tuckman, 1965) rather than in the later stages. A longitudinal study design should be used at to answer this question.

The aim of this study was to highlight voice's effect on team-level outcomes. Due to this, patterns of voice distribution, content of voice, characteristics of the voicer as well as target of voice were not part of the proposed model. However, it may be of interest to take into account how the distribution of voice affects the development of a TMS. More specifically, it can be proposed that voice has less beneficial effects when it is centralized as compared to being spread across the majority of group members (Li et al., 2017; Sherf et al., 2018) because knowledge of all members' topics of expertise is necessary in order to have a well-functioning TMS. Similarly, this study focused solely on promotive voice and on the positive outcomes of this type of behavior. Future studies could complement the findings of this study through also taking into account voice behaviors that may be destructive as well as accounting for the intention of the voicer which could reverse the positive effect of voice on team performance. Furthermore, taking a more qualitative approach to the study of voice may also give more insights into what kind of verbal cues of expertise are mostly transmitted and how these are attributed to stable characteristics of the voicer's expertise and status. Similarly, to get a full picture of how expertise attribution occurs within the team and its connection to TMS, other factors of the voicer such as stable and diffuse attributed and behaviors should be controlled for or included in the model (Bunderson & Barton, 2010).

Conclusion

This research aimed at further shedding light on why team performance varies between teams. Specifically, a bridge is drawn across various long-standing research domains in the area of team research, namely behavior, cognition and leadership. Based on a quantitative analysis, taking into account both the team members and team leaders of consulting teams, the effect of voice behaviors, TMS and the interaction with team self-management on performance was investigated. This multi-level research showed that voice behaviors affect team performance ratings by the leaders but that the relationship between

TMS and performance is less clear and depends on the extent to which the leader encourages the team to manage itself.

Driven by insightful works in both areas of voice and TMS research that hint at positive effects for the team, this study focused on the areas separately before drawing hypotheses for the possible relationship. Voice behaviors have been extensively studied on the individual level and have also been extended to the organizational level. Researchers have found relationships between voice and individual affective and attitudinal outcomes as well as performance ratings. Additionally, relationships between organizational level outcome measures such as turnover and performance could be established. Despite these promising findings, the construct has not been studied with the same intensity on the team level. This research clearly puts evidence to the idea that employee's discretionary expression of suggestions and opinions has a positive effect on team level performance.

Secondly, on the level of team cognition, TMS which has its origins in research of couples and dyads, is a relatively new area of interest within teams. Due to the fact that much is known about the effect of communication on a team's understanding and knowledge of other member's expertise and hence the existence of a TMS, similar conclusions should hold for the effect of voice on TMS. Through verbal cues in the form of suggestions, opinions and such, members are able to get a better understanding of what knowledge and expertise each member possesses. Even though the evidence in this study was not significant in supporting this hypothesis, the findings indicate that more research should be conducted in order to get a better picture of how behaviors and cognitions coexist and interact in teams.

Furthermore, a core finding is reflected in the interaction between team cognition and leadership on team performance. Leaders have a tremendous influence on the teams they are leading and so it is not surprising that leadership has been frequently included in studies on teams. Whereas most studies focus on one of the common leadership theories, this study includes one function of team leadership, namely encouraging team self-management. This type of behavior can be connected with multiple leadership theories like shared leadership, participative leadership and empowering leadership and can be of great importance given the rise of agile organizational structures and with it the rise of self-managed teams. The findings of the study suggest that teams that do not get the possibility to manage their work and themselves independently actually face performance losses when they have a highly developed TMS.

VOICE, TMS AND LEADERSHIP IN TEAMS

These findings leave both, academic endeavors to further knowledge in the area of teamwork, and practitioners with interesting insights. On the one hand, the research has drawn attention to the interface of both behaviors and cognition in teams and has driven the approach of a holistic view on team dynamics. Additionally, calls for more attention to leadership as a moderator in TMS literature have been answered. Following these outcomes, more research attention is warranted in both domains. Furthermore, this study contributed to the field with a study conducted in working consulting teams as compared to student samples and combines leader and member answers to reach a multi-level research design. On the other hand, practitioners in HR and leaders of teams can step away from this with suggestions on how the findings can be implemented directly in the workplace. Bill Bethel's known quote "A successful team is a group of many hands but of one mind." is an interesting starting point for investigating team dynamics in terms of behaviors and cognition. However, behavior and cognition are merely that starting point and depict just two aspects to consider when aiming at high performing teams and organizations should further invest in empowering their teams to leverage their competencies through providing them with fitting (leadership) structures.

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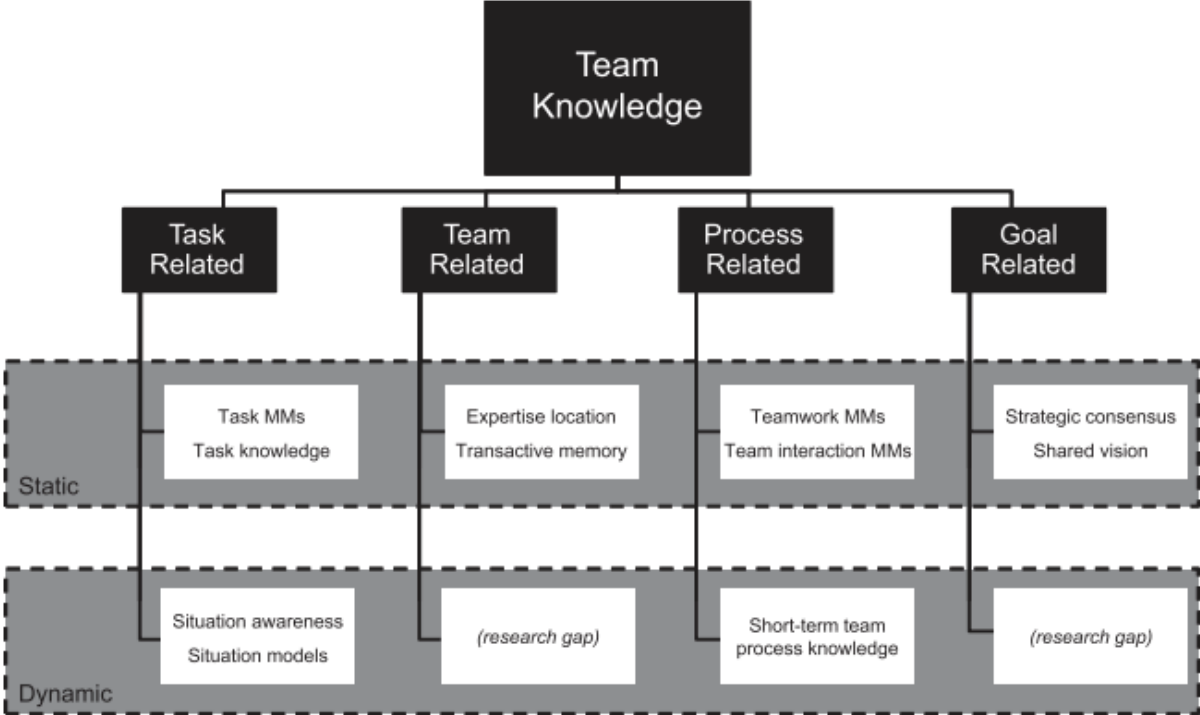
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Appendix

Appendix 1

Organizing framework for team knowledge from Wildman and colleagues (2012)



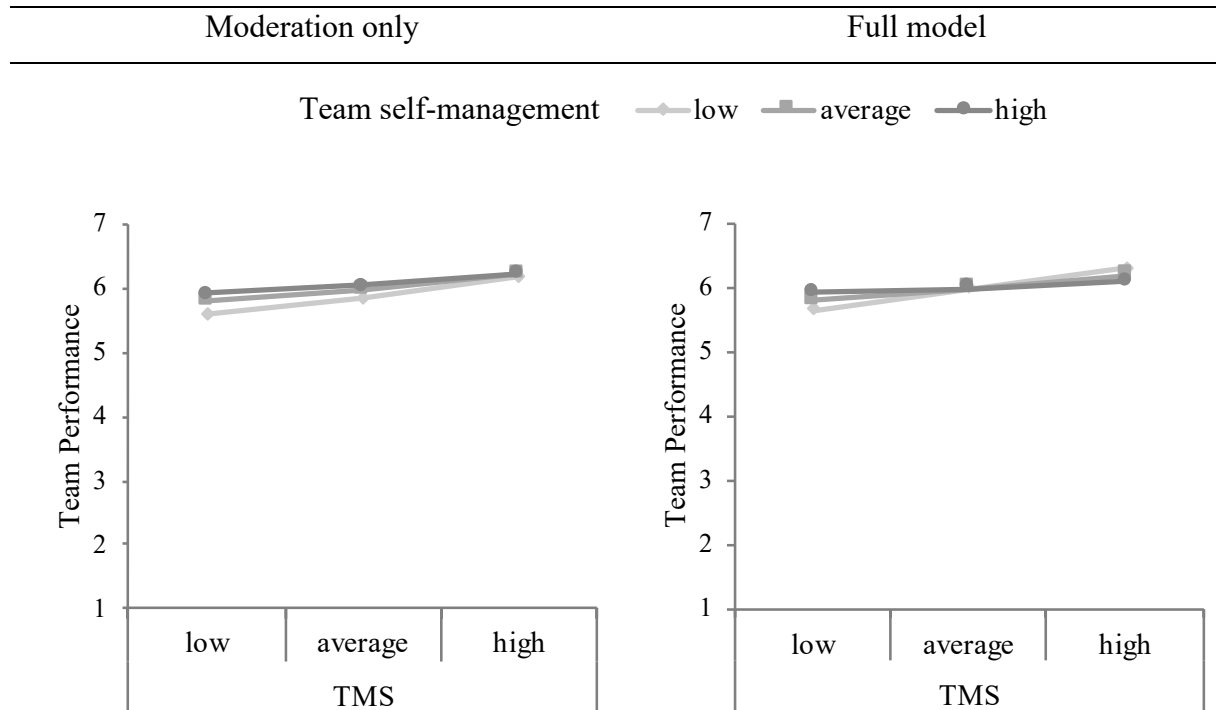
Appendix 2

Sources of Leadership in Teams from Morgeson and colleagues (2010)

		Formality of Leadership	
		Formal	Informal
Locus of Leadership	Internal	Team leader	Shared
		Project Manager	Emergent
		Sponsor	Mentor
	External	Coach	Champion
		Team Advisor	Executive coordinator

Appendix 3

Visual representation of interaction effect of team self-management and TMS of performance from the complementary analysis. Based on the syntax visualization code from PROCESS.



Interaction term is not significant ($b = -0.13$; $t(40) = 0.18$; $p = .457$)

Slopes for low and average level of self-management are significant ($-1SD$: $b = 0.49$, $t(40) = 2.45$; $p = .019$; M : $b = 0.38$, $t(40) = 2.84$; $p = .007$)

Interaction term is not significant ($b = -0.25$; $t(39) = -1.5$; $p = .143$)

Slopes for low and average levels of self-management are significant ($-1SD$: $b = 0.52$, $t(39) = 2.86$; $p = .007$; M : $b = 0.32$; $t(39) = 2.60$; $p = .013$)