Knowledge withholding

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Knowledge Withholding

THE DEVELOPMENT OF A FRAMEWORK OF ANTECEDENTS FROM A RELATIONAL PERSPECTIVE

WRITTEN BY

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KNOWLEDGE WITHHOLDING

The development of a framework of antecedents from a relational perspective

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SUMMARY

Increasing transparency is at the forefront of the agenda of many businesses today. Especially during the last decade, the societal wave that called for transparency in and by organizations picked up and blew over to academia. This resulted in an increasing number of research projects that provided many granular-level insights into why people withhold, hoard, or hide knowledge. Taking a step back, we observe that the researchers applied a wide range of theories to explain the individual antecedents. Also, the extant research seems to have investigated the phenomena in competitive and zero-sum contexts often from a knowledge-sharing angle. In this approach, knowledge withholding has a bad reputation. That said, we take a neutral stance on knowledge-withholding behavior and aim to build a framework that maps its antecedents to address situations of competition and collaboration, individuals and groups, and within and between organizations. We, thereby, approach these antecedents from a relational angle because the behavior tends to occur in social settings where people experience some sort of relationship. We use the theories of interdependence, social identity, and social exchange to develop the framework.

We conducted a systematic literature review, a content analysis of five memoirs, and a single-case study. The literature review provided antecedents distilled from many research settings, after which we conducted two qualitative studies in a military context. The reason to investigate the behavior in a military context is that military personnel tend to operate in competitive and collaborative situations, deal with large amounts of knowledge, and handle the dangers of withholding too much or little. For the review, we aimed to identify the fundamental explanations of knowledge withholding, upon which we built an integrative framework. The systematic search of the literature resulted in 42 empirical research papers. The coding of these papers revealed 93 knowledge withholding antecedents based on the data of 16,649 respondents. We integrated these into a theoretical framework using the theories of interdependence, social identity, and social exchange. Regarding the memoirs study, we aimed to explore why leaders withhold knowledge and analyzed 1853 pages. As a result, we identified and coded 246 knowledge-withholding events. The coding process revealed that the U.S. general and flag officers interacted with eight actor categories: *enemies, competitors, politicians, foreign leaders, troops, instructors, family,* and *media*. We framed the reasons for knowledge withholding within these eight relational contexts. Concerning the case study, we aimed to add details to the emerging picture of knowledge withholding by investigating the more precisely defined knowledge *hoarding*. We, therefore, interviewed ten commissioned officers, observed as a

participant for five months, and examined archival records, which resulted in collecting 142 knowledge-hoarding events. We coded the actors involved in the knowledge-hoarding events on their goals and social identities. Next, we categorized seven discerned groups of actors that were subsequently classified into three types of relational contexts: hierarchical, non-hierarchical, and functional. Based on this coding process, we developed a relational framework of antecedents of knowledge hoarding. Finally, based on the results of the three studies, we developed an integrated framework on antecedents of knowledge withholding and hoarding from a relational perspective.

The main findings are that negatively interdependent goals between actors tend to increase knowledge withholding or hoarding, especially from a weaker towards a stronger actor or in case actors experience strong social identities. Next, actors with positively interdependent goals tend to decrease knowledge withholding or hoarding. That said, the opposite may occur when the behavior may benefit the other actor, or when it benefits the actor's group, especially in cases of strong social identification, when knowledge (leakage) risks are assessed as high, or when it assists people's learning journey. Last, actors who experience complex interdependencies may increase or decrease knowledge withholding or hoarding based on the strongest connection or trusted relationship that they share.

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General Introduction

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General Introduction

Creating transparency in the workplace is placed high on the priority list of leaders. For example, *The New York Times* posted on the 20th of January, 2021 that, "*Jen Psaki conducted the first news briefing of President Biden's administration on Wednesday just hours after the inauguration, vowing to bring 'truth and transparency back to the briefing room.*'" Or, as Mike Kappel, CEO of Patriot Software, says in *Forbes*, "*Transparent companies share information relating to performance, small business revenue, internal processes, sourcing, pricing, and business values… From increasing employee retention to boosting sales, transparency can do a lot for your small business's reputation and success*" (Kappel, 2019). It seems transparency is conceived of as the holy grail, and knowledge withholding is seen as its opposite, with the latter leading to mistrust and, as such, the suggestion to avoid the withholding of knowledge.

However, in the same *Forbes* article, Mike Kappel argues that "*in your quest for transparency, be careful not to be too transparent. What do I mean by that? Be transparent without jeopardizing what makes your business so special. Don't go around giving away trade secrets so your competitors can sweep the rug from under you.*" We asked ourselves the question of whether the notion put forward in the *New York Times* by Mike Kappel implies that knowledge withholding may be even beneficial under certain conditions? As a matter of fact, we have made this question the core problem that we aimed to tackle with this dissertation. In other words, we intend to increase the understanding of why knowledge withholding takes place by in-depth analyses of events where knowledge withholding has benefits as well as drawbacks for one or more actors.

Conceptualization of Knowledge Withholding

Scholars started to attend to and began describing the phenomenon of knowledge withholding as early as 2003. At that time, Hislop provided a definition that is still mentioned in academic papers almost two decades later. He described knowledge withholding as an accumulation of knowledge with the aim to share it at a later moment. Five years later, Webster et al. (2008) developed and reported a definition in which they focused on the fact that the behavior is about knowledge that is not being shared and knowledge that is not explicitly requested by another party. Also, this definition still circulates in academic papers many years after its publication. Another two years later, Lin and Huang (2010) took a slightly different

approach and defined the phenomenon as that people were giving less than full effort in contributing knowledge. In 2010, Connelly et al. proposed that it is an intentional behavior of people in which they aim to conceal requested knowledge, whereas Evans et al. (2015) offered that the behavior is a "…deliberate and strategic concealment of knowledge and information of the fact that they may possess relevant knowledge or information."

In this very brief description of the journey, along with the efforts to define the phenomenon, we have to be clear that these scholars also varied in the labels they used. While Lin and Huang (2010) chose to use the term knowledge withholding, other researchers used terminology like knowledge hoarding or knowledge hiding (Connelly et al., 2010; Evans et al., 2015). Also, along this journey, elements within the various definitions seem to come and go. In a recent study, Silva de Garcia et al. (2020) made an attempt to organize these various categories of knowledge withholding and related elements in the definitions. Based on their systematic literature review and subsequent analysis of all the included definitions, Silva de Garcia and colleagues construed a framework that has a vertical axis that categorizes a "yes" or "no" with regard to knowledge sharing and a horizontal axis that classifies "yes" or "no" for knowledge request. The researchers ordered knowledge hiding and hoarding in the top-level quadrants representing a "no" for knowledge sharing and dividing the two concepts over the axis of knowledge request. This means that knowledge hiding regards situations in which knowledge is requested while knowledge hoarding reflects situations of unrequested knowledge.

The recent study of Silva de Garcia et al. (2020) is helpful to advance the field in terms of conceptualizing notions such as knowledge hiding and hoarding. Nevertheless, the conceptualization in a recent study by Anand and colleagues (2020) indicates that there is still an ongoing debate and no definite distinction between these various categories. There seems to be no broad consensus yet about the definitional elements, let alone the definitions themselves.

This dissertation studies the broad concept of knowledge withholding and the more narrowly defined construct of knowledge hoarding. In the studies that investigate knowledge withholding, we are interested in all the instances in which knowledge is not given to another actor by intention or not, and by request or not. This means that we consider knowledge hiding, hoarding, and withholding as part of the same broad category of behavior. Moreover, the instances that we studied cover human behavior in various social contexts in which a party neglects to take action to

provide another party with the knowledge that he or she has (Connelly et al., 2012; Evans et al., 2015; Lin & Huang, 2010).

In contrast, in the study that investigates knowledge hoarding (Chapter 4), we define the phenomenon as the strategic retention of unrequested knowledge. We developed this definition based on the work of Silva de Garcia et al. (2020) and our own analysis of the commonalities between the concepts. This knowledge-hoarding definition is based on three elements. First, the knowledge hoarders retain the knowledge (Evans et al., 2015; Holten et al., 2016). In other words, the retention of the knowledge means that knowledge hoarders store, keep, or hold on to the knowledge. Second, the knowledge is not requested by other persons. While we are aware that researchers have various opinions about this element, we choose to define knowledge hoarding in this way (Anand et al., 2020; Evans et al., 2015; Connelly et al., 2011; Holten et al., 2016). The reason is that it enables a demarcation with other knowledge-behavior concepts (Connelly et al., 2012) and that it is in line with the framework of Silva de Garcia et al. (2020). Third, knowledge hoarding is a "strategic" behavior in which actors intentionally retain knowledge to be able to wield the knowledge for their own goals (Evans et al., 2015; Husted et al., 2012). This means that the knowledge that is hoarded may have strategic value or that the knowledge has interpersonal value.

The definitions of knowledge withholding and knowledge hoarding imply that these situations consist of an actor who possesses the knowledge and an actor who might receive the knowledge. The definitions also imply that the two actors are in some sort of social context and that they, therefore, experience a type of social relationship with each other. As a result, we investigated the concepts of knowledge withholding and hoarding from a relational perspective and, thereby, considered the actors' goals, interests, identities, and social exchange relationships.

The Issues in Extant Research on Knowledge Withholding and Hoarding

The research on knowledge withholding gained traction, particularly in the last decade, with an emphasis on the last five years. Scholars investigated the phenomenon from a variety of theoretical angles and in a diverse set of management areas. While these research projects provide some color to the image, there are still uncolored gaps that have to be filled to reveal the actual picture.

First, some scholars took the approach in which they related knowledge withholding to knowledge sharing (e.g., Stenius et al., 2016; Webster et al., 2008). The broad consensus in this strand of literature is that knowledge sharing is

beneficial for organizations, and therefore, knowledge withholding is counterproductive. For example, researchers studying knowledge withholding in relation to innovation or online behavior argued that this behavior has counterproductive effects in the sense that, for example, the spread of innovation through organizations is hindered when people withhold knowledge from each other (Kang, 2016; Shen et al., 2019). Findings such as these may be an explanation of why knowledge withholding and hoarding are considered as bad and as something that has to be discouraged in organizations (Bilginoğlu, 2019; Evans et al., 2015; Holten et al., 2016; Huo et al., 2016). Hence, knowledge withholding and hoarding have a bad reputation in the extant literature. However, we do agree with other scholars, such as Kang (2016) and Wang and Noe (2010), who focus on the counter-productiveness of knowledge withholding that may have led to an uneven starting point in the research of this phenomenon. Moreover, while knowledge sharing and knowledge withholding may seem mutually exclusive, they may occur at the same time and are found to be theoretically distinct (Kang, 2016; Pan & Zhang, 2018). An example is that at a particular time, a knowledge holder may share knowledge with one actor while withholding it from another.

Second, the quote that knowledge hoarding is like a "cardplayer holding an ace, until they stand to personally gain from sharing it" (Evans et al., 2015; p 495) illustrates the sentiment around the phenomenon well. Moreover, it also clearly indicates that the behavior is seen as something that only occurs in a competitive setting in which only one party can win at the cost of the other party (Anaza & Nowlin, 2017; Michailova & Husted, 2003). This win-or-lose approach to the phenomenon overlooks the possibility of potential positive outcomes for both of the involved actors. For instance, knowledge hoarding may save time for the knowledge hoarder and for the non-recipient (Husted & Michailova, 2002). This may be something that actors in collaborative situations experience as positive. Hence, by studying knowledge withholding and hoarding mainly in a competitive context and as inherently negative, we miss the full picture of what knowledge withholding is about and especially, why it occurs.

Third, when we scratch the surface and peek into the research on knowledge-withholding antecedents, we observe that scholars published over 40 papers with primarily quantitative methods that investigated over 15,000 respondents in a wide range of countries (Strik et al., 2021). However, we also notice that these scholars apply all kinds of theories to explain a specific reason of why individuals withhold knowledge (Anand et al., 2020; Strik et al., 2021). These theories range from goal orientation theory to extended-self theory and from conservation of resources theory to social exchange theory (Strik et al., 2021). This

means that the studies that have been conducted so far are able to explain a single reason for knowledge withholding by applying a specific theory. Thus, the extant research misses an overarching comprehensive theoretical framework that explains why one or more actors withhold or hoard their knowledge.

Taken together, the quantity of research projects so far on knowledge withholding and hoarding has substantially grown over the last two decades. In general, it is fair to say that these behaviors suffer from a bad reputation that seems to have been built up over time while a substantial number of the studies focused on the phenomena's occurrence in competitive settings. Also, the literature lacks an overarching theoretical framework that explains the behavior of one or more actors in organizational settings. These gaps have inspired us to develop a comprehensive theoretical framework of knowledge withholding and hoarding that addresses these gaps.

The Aim and Contributions of the Dissertation

In this dissertation, we build on the former granular-level groundwork on antecedents of knowledge withholding and hoarding by taking a step back and studying the phenomenon in such a way that it enables us to develop a framework that explains the antecedents of this behavior across competitive and collaborative contexts, incorporates individuals and groups, and considers the phenomenon within and between organizations. In other words, the core aim of this dissertation is to provide a theoretical framework that maps the antecedents of knowledge withholding and hoarding. We build the framework by taking a relational perspective and using the three theories of interdependence, social identity, and social exchange.

First, we conceptualized knowledge withholding and hoarding as behavior that occurs in a social context which implies that the goals of the person who possesses the knowledge and the goals of the potential recipient have some sort of relationship. The theory of interdependence explains how the goals and the outcomes of the involved people relate to each other (Johnson, 2003; Thibaut & Kelley, 1959). As in the extant research, an option is that the actors operate in a competitive context, which means that the actors have opposing goals. According to the theory of interdependence, this situation is categorized as negative interdependence between the goals. In contrast, actors who work in a collaborative context probably have goals that are aligned. Such a situation illustrates positive

interdependence between the involved actors. We use these interdependence structures in our framework to help explain how the goals of the actors relate to each other and how this relationship influences knowledge-withholding or hoarding behavior.

Second, another implication of considering the phenomena from a relational stance is that people may consider themselves as part of a group and act on behalf of that group. The theory of social identity explains why people pursue their individual interests or the interests of a group with which they identify (Tajfel & Turner, 1986; Tajfel, 1978). The theory also explains that people may experience multiple social identities and that they may feel more connected to some identities than others. People are inclined to pursue the goals of the social identity with which they feel the strongest connection. We integrate social identity theory in our framework to clarify how the social identities of people influence their knowledge-withholding or hoarding behavior.

Third, the relational perspective leads us to the next aspect that we deem important in human relationships, which is that trust and reciprocity between people play a crucial role. The social exchange theory explains trust and reciprocity's role in human exchanges (Cropanzano & Mitchell, 2016). Moreover, the theory describes why people may act against common interests that they may have with other people in situations where they do not trust the other party or in situations where they do not expect that the other party will return their favor. In our framework, we use social exchange theory to explain the role of (a lack of) trust and reciprocity and their influence on people's knowledge-withholding or hoarding behavior.

To gradually build an overarching framework of antecedents of knowledge withholding, we conducted a systematic literature review and two qualitative studies in the context of military organizations. Investigating knowledge withholding in these types of organizations is particularly useful because its personnel work in competitive and collaborative contexts and handle large volumes of knowledge, of which withholding too little or too much may have severe negative consequences.

This dissertation contributes to the field in different ways. First, by providing a comprehensive systematic synthesis of the existing research on the reasons why people withhold knowledge, we laid the foundational groundwork on which we built our further research. Second, by using qualitative methodologies and analyzing multiple sources, we highlight the nuances of reasons to withhold knowledge in real-life events and illustrate its benefits as well as its drawbacks.

Third, building on interdependence theory, social identity theory, and social exchange theory to frame the results of the different studies, we provide a theoretical framework of antecedents of knowledge withholding. Fourth, we propose three questions that leaders may use in knowledge-withholding situations to reflect on themselves and their teams.

Overview of the dissertation

When we began with our quest to understand in depth the people's knowledge-withholding behavior, the literature provided only scarce insights that were scattered over various academic disciplines. We conducted various studies over a period of a decade to grasp the phenomenon, and eventually, three of these studies made it into this dissertation. The studies are positioned in such a way that they reflect our progress in knowledge and understanding of the behavior. As such, we begin with a systematic literature review of knowledge-withholding antecedents, upon which we build with an investigation of why senior military leaders withhold knowledge. We then continue with a study that takes a dive into knowledge hoarding as a specific, underexamined category of knowledge withholding. This study is also conducted in a military organization. We now briefly describe each of the three studies and provide the aims of the studies, the methods of data collection, and the yields of the analyses.

Study 1: A Systematic Literature Review.

Research on knowledge withholding has substantially increased over the last decade, which allowed us to conduct a systematic literature review in which we studied the antecedents of knowledge withholding. The aim of this study was to develop an integrative framework that is built on a set of fundamental explanations of why people withhold knowledge. We searched for and selected studies that provided empirical evidence for the knowledge withholding antecedents. We were thereby aware of the existence of the various categories of knowledge withholding and systematically searched for them in the databases. That said, the included papers provided insufficient evidence for a conceptual distinction in the framework and were, therefore, all labeled as knowledge withholding. We eventually analyzed 42 empirical research papers that drew on the evidence of 16,649 respondents who represented most of the globe. The included papers described 93 antecedents that

were explained by a wide range of theories. We subsequently used the theories of interdependence, social identity, and the theory of social exchange to develop four propositions that together formed the integrative framework. The main contribution of this study is that the framework provides a comprehensive understanding of knowledge-withholding antecedents that, in turn, help people, groups, or organizations to influence knowledge-withholding behavior in such a way that it contributes to the goals and interests.

Study 2: A Content Analysis of Military Memoirs.

Leaders of organizations have access to and handle large amounts of knowledge due to their position within their organization. We aimed to explore the reasons why leaders withhold knowledge and, therefore, sifted through five military memoirs. Military memoirs reflect upon life in the military and defining moments during that journey. Due to the nature of the work, these memoirs often contain a diverse set of social situations. (Harari, 2007; Marche, 2015; Kleinreesink & Soeters, 2016; Rozman, 2019). As such, we selected and investigated the memoirs of five reputed U.S. general and flag officers. These officers are U.S. Generals McChrystal, Franks, Petraeus, Mattis, and U.S. Admiral McRaven. During the analysis of the 1853 pages of the five memoirs, we searched for relevant events that involved knowledge-withholding behavior. This search led to an identification of 246 events. Based on the findings of the systematic literature review, we took a relational perspective on these events and coded the data on actors who were involved, the interests that they had, the groups that they represented, and whether there were signs of trust or distrust between the actors. The iterative process of coding and subsequent analysis led to the identification of eight relational contexts between the U.S. general and flag officers and other actors. By integrating the results of the content analysis of the memoirs with the theoretical framework resulting from the systematic literature review, we took one step further in the development of a theoretical model that outlines the reasons underlying knowledge withholding. This means that we built again on interdependence, social identity, and social exchange theories to interpret the data and develop a model of knowledge withholding antecedents. As such, the contributions of this study are that the proposed model offers a deepened understanding that, in turn, provides a less biased foundation for scientific research and a more balanced tool for management practice.

Study 3: A Single Case Study in a Military Organization.

While the previous two studies started to paint a picture of knowledge-withholding behavior antecedents, we sought to make it even clearer by conducting an in-depth study of the reasons why people *hoard* knowledge within a single organization. We, therefore, took a qualitative research approach and conducted a single case study in a Dutch military organization. As such, we interviewed ten commissioned officers, conducted participant observations for five months, and studied archival records. This led to the accumulation of 142 knowledge-hoarding events that we subsequently coded on the involved actors, their goals, interests, and the groups that they represented. The analysis resulted in seven meaningful groups of relationships that personnel had with each other from which we derived the reasons why they hoarded knowledge from one another. In order to frame these reasons in a comprehensive way, we have looked at the goals of the actors in the knowledge-withholding process, the extent to which they are in line or conflict, and to what extent the relation in terms of social identity plays a role in the decision to withhold not. The main contribution of this study is that we develop a theoretical model that explains knowledge-hoarding behavior from a relational perspective in competitive and collaborative contexts.

Tying the Three Studies Together.

The systematic literature review provided a solid understanding and a foundational framework of why people conduct knowledge withholding behavior. We built on this foundation by investigating the knowledge withholding of five senior U.S. general and flag officers who led large, global, and powerful organizations during their careers. As such, we identified eight relational contexts of which, in fact, six were actors from outside their own organization. In other words, we studied the top leaders of large military organizations on the broad concept of knowledge withholding that proved to occur primarily outside their organization. Next, we took a different approach and studied the knowledge hoarding of personnel within a single organization. In other words, we focused on the narrower-defined and intention-driven concept of knowledge hoarding of commissioned officers in a Dutch military organization. Taken together, this academic journey led to the

accumulation and integration of three studies that provide a theoretical foundation that is deepened by a top-leader, outward-looking study, and personnel-centric, inward-looking research. At this point in the journey, these three studies and their models provide not only a nuanced understanding of knowledge-withholding behavior that may benefit management practitioners but also a resilient springboard for future research to carry on the voyage.

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CHAPTER 2

Antecedents of Knowledge Withholding: A Systematic Review & Integrative Framework

Abstract

The purpose of this research is to provide a systematic review and integrative framework of the antecedents of knowledge withholding. A systematic literature review (SLR) led to a selection of 42 empirical research papers that collected data from 16,649 respondents. The included papers identified 93 antecedents that showed a high degree of theoretical variety. We used the theories of interdependence, social exchange, and social identity to construct a framework that integrates and explains why people withhold their knowledge. We developed propositions of the antecedents of knowledge withholding, which we compare against the SLR. We propose and find that (a) negative interdependence increases knowledge withholding behaviors, but (b) positive versus negative social exchanges may respectively decrease or increase withholding in situations where the default may be positive interdependence. We also propose and find that actors who strongly identify with their immediate team will less likely withhold knowledge from them. In contrast, actors who strongly identify with a different identity will more likely withhold knowledge from their team. The integrative framework provides a strong theoretical foundation for future study and identifies many valuable new research questions.

Knowledge has become an essential commodity in modern society as, over the decades, the speed with which groups and organizations produce and utilize knowledge has continuously increased (Castells, 2011; Powell & Snellman, 2004). Accordingly, questions on how actors such as individuals, groups, and organizations handle knowledge in their interactions with other actors have sparked research attention from various disciplines (Hansen, 2002; Hu & Randel, 2014; Jerit et al., 2006; Tuan, 2019). Actors may *share* knowledge and may *withhold* knowledge. Sharing and withholding are distinct theoretical dimensions (Kang, 2016; Pan & Zhang, 2018) as, for example, a low degree of sharing could be caused by having no knowledge, whereas withholding entails having knowledge.

Sharing and withholding each hold advantages and disadvantages (Lin, 2010; Richey & Nokes-Malach, 2013; Ritala et al., 2015). An illustration of this is seen in the coronavirus crisis. Medical experts sharing knowledge helps solve the crisis as effectively as possible. However, governments withholding knowledge may prevent public panic. More generally, sharing tends to promote effective collaboration and good relationships (Hu & Randel, 2014; Lin, 2010). However, sharing is a process that costs time and mental resources (Ahmad, 2017; Widén-Wulff & Suomi, 2007). Withholding knowledge may save time and resources, but it may also prevent unnecessary misunderstanding (Husted & Michailova, 2002; Michailova & Husted, 2003). However, withholding may negatively impact relationships and collaboration effectiveness (Wang, Han, et al., 2019; Zhang & Min, 2019).

Given the value of knowledge to groups' and organizations' functioning, a high priority question is *why* actors share or withhold knowledge. Understanding causes and drivers may enable groups and organizations to manage and design antecedents that promote behaviors and outcomes they desire. Importantly, a constructive orientation and a belief in the benefits of knowledge sharing has led scholars to focus on sharing, but this has come at the neglect of understanding withholding. Moreover, antecedents of sharing are relatively well understood (Van den Hooff & de Leeuw van Weenen, 2004; Witherspoon et al., 2013), whereas the advancement of a fundamental yet integrative understanding of the antecedents of knowledge withholding has only very recently come into focus.

Anand and colleagues (2020) made an important initial contribution to a more systematic understanding of knowledge withholding by identifying myriad knowledge withholding events and categorizing these in terms of the behavior drivers. However, the categorization of these events into broad drivers, in our view, did not succeed in providing a theoretical causal understanding of how knowledge-

withholding behavior arises from the relationship between the knowledge holder and the knowledge (non)recipient and the organizational reality in which it plays out. In contrast, we systematically develop a set of causal explanations into an integrative framework that explains why people withhold knowledge. We, thereby, draw on the three core relational elements to understand the nature of a relationship within an organizational setting. These three relational theoretical elements refer to (a) the outcome interdependence among the actors, (b) the social exchange relationship, and (c) the (social) identities of the actors. As a result, the framework's key contribution is that it provides a comprehensive understanding of the knowledge-withholding antecedents and, accordingly, enables groups and organizations to promote behaviors and outcomes they desire. In turn, this integrative analysis contributes by providing a clear roadmap for future research in this area. After describing our review approach, we articulate our integrative theoretical framework through several overarching propositions and discuss how our systematic review of the literature (SLR; Booth et al., 2013) aligns with our propositions. Lastly, we use the framework to identify critical research gaps and articulate an agenda for future theory and empirical investigation.

Overview of the SLR Approach

In this review, we treat knowledge withholding as one broad concept, but it should be acknowledged that the literature uses the three terms knowledge withholding, hiding, and hoarding. Although authors in the literature disagree on these concepts' definitions, we kept the labels used by various authors. However, our SLR does not provide sufficient evidence to integrate a conceptual distinction between these three terms. In contrast, while we believe that the concepts are distinct, we return to this matter in the section Integration and Research Agenda. The three terms all refer to human behavioral instances in which an actor possesses knowledge but does not effortfully give the knowledge to another actor in a social context (Connelly et al., 2012; Evans et al., 2015; Lin & Huang, 2010). Taking all terms together, the not-giving of the knowledge to the other actor may be intentional or unintentional and may occur in situations where the other actor requested the knowledge or did not request the knowledge. Hence, we take a broad view of these closely related behaviors.

We applied Booth and colleagues' (2013) SLR approach and conducted our systematic search in December 2019 – February 2020 using the four databases: Business Source Complete, SocINDEX, ERIC, and PsycInfo. While using the

search engine EBSCO Business Source Complete, we also enabled searches in the engine "SocINDEX with full text." We abbreviate this combination of search engines to EBSCO to enhance readability. Besides the default settings, we applied the features "apply related words," "apply equivalent subjects," "scholarly (peer-reviewed) journals." Second, during our searches in the engine ERIC, we used the default settings and enabled the feature "peer-reviewed only." Third, the engine PsycInfo was used with default settings plus the additional selection features of "empirical evidence" in the methodology box and "peer-reviewed journals."

Furthermore, the terms that were used in the four search engines are "knowledge hoarding," "knowledge hiding," and "knowledge withholding." We intended to search for these search terms in the abstracts, but this was only possible in the engines EBSCO and PsycInfo. The other two engines generated results with the search terms in full text. Furthermore, we did not narrow the literature search by a time frame because of the review's exploratory nature and the limited number of empirical studies in this research area.

Next, we selected studies that met three criteria. First, the studies describe the antecedents of knowledge withholding, knowledge hiding, or knowledge hoarding. We thus excluded papers that did not meet the criteria of studying an antecedent. Second, the studies offer empirical evidence, and third, they are written in the English language. This search resulted in 107 included papers (Figure 1, Step 1). However, the use of four search engines resulted in duplicates per construct and between constructs. We first eliminated the duplicates per construct (Figure 1, Step 2) and, subsequently, eliminated duplicates between constructs (Step 4). The search and selection identified 42 empirical research papers. The articles included in our final review have been marked with an asterisk in the reference list.
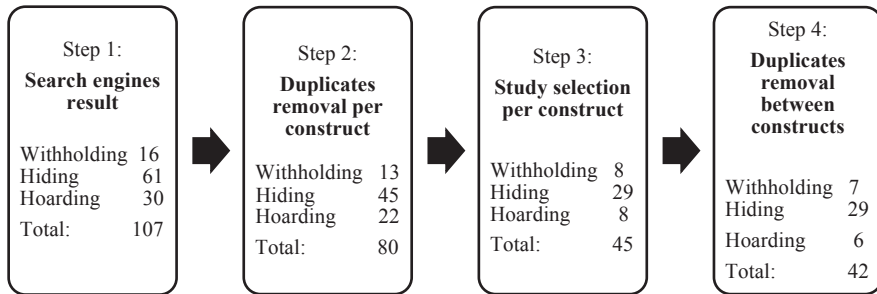
Figure 1

Number of Papers per Construct in the Systematic Literature Review

Table 1

Characteristics of Selected Studies on Three Main Constructs

Construct	Papers	Respondents	Methodologies	Countries
Knowledge withholding	7	1,806	7 quantitative survey-based papers	Taiwan, China, Finland, and Canada
Knowledge hiding	29	12,284	23 quantitative survey-based papers 4 qualitative papers 1 experiment 1 mixed-method	Taiwan, Turkey, United States, China, Austria, Germany, Pakistan, UAE, India, Australia, Croatia, Slovenia, Canada, Europe, South Korea, and Russia
Knowledge hoarding	6	2,559	3 quantitative survey-based papers. 1 qualitative paper 1 experiment	Pakistan, the US, China, Russia, and Germany

Chapter 2

Table 2

Examples of Theoretical Perspectives in Included Papers

Theoretical Perspectives	References
Conservation of resources theory	Abubakar, Behravesh, Rezapouraghdam & Yildiz, (2019).
	Škerlavaj, Connelly, Cerne & Dysvik (2018).
Cooperation and competition	Hernaus, Cerne, Connelly, Poloski Vokic & Škerlavaj (2019).
Extended-self theory	Lin Wang, Law, Melody Jun Zhang, Yolanda Na Li, Yongyi Liang, Wang, Liang (2019).
Goal orientation theory	Zhu, Chen, Wang, Jin & Wang (2019).
Leader-member exchange theory	Babič, Černe, Connelly, Dysvik & Škerlavaj (2019).
	Zhao, Liu, Li & Yu (2019).
Psychological contract theory	Pan, Zhang, Teo & Lim (2018).
Psychological ownership theory	Abubakar, Behravesh, Rezapouraghdam & Yildiz, (2019).
	Peng, H. (2013).
Self-determination theory	Gagné, Tian, Soo, Zhang, Ho & Hosszu (2019).
Social exchange theory	Černe, Nerstad, Dysvik & Škerlavaj (2014)
	Rhee & Choi (2017).
	Singh (2019).
Social learning theory	Offergelt, Spörrle, Moser & Shaw (2019).
	Peng, Wang & Chen (2019).

Using the findings, we constructed a review table based on Booth et al. (2013). Article information was sorted into five broad categories: publication details, study details, the study's nature, results, and reviewer's notes and comments. Examples of study details are the research question and aim. Also, examples of the study's nature include the type of empirical evidence, methodology, sample sizes, target groups, and case organizations' characteristics. Last, examples of the results are the study's conclusions with its limitations and suggestions for future research. Table 1 also shows the total number of papers and respondents per search term (across all studies), methodologies used, and countries in which data were collected. The included papers studied a total of 93 antecedents, and our initial conceptual observation was that there is a lack of theoretical unity across the 93 antecedents. There is enormous variety in the theoretical perspectives taken to study the antecedents of knowledge withholding, hiding, and hoarding (Table 2). Therefore, we set out to provide a framework to integrate the various examined antecedents of knowledge withholding, hiding, and hoarding.

Empirical Review and Integrative Framework

We assume that, for both the actor who hoards, hides, or withholds knowledge and for the potential recipient, knowledge is useful for their goals. This assumption shows two key elements that are present in all instances of knowledge-withholding behavior. Firstly, these instances are "relational" and, secondly, knowledge is a (sometimes scarce) "commodity." However, the actors' interests and goals are also undergirded by various possible identities that they hold. Therefore, we suggest that our framework must be built on a basic understanding of the interrelations of people's goals, interests, and identities in organizations, as well as the expectations that people have of their exchange partners.

First, we use interdependence theory to account for the covariance of people's interests. A fundamental characteristic of all instances of knowledge withholding, hiding, or hoarding is that the different parties stand in some type and degree of interdependence with each other. Interdependence reflects the objective or subjective structural features of the situation in terms of how outcomes of different parties are related to each other. In other words, interdependence is fundamentally about the goals that people have and how those goals relate to other people's goals and behaviors (Thibaut & Kelley, 1959).

Second, we need to apply social exchange theory to understand further and predict knowledge-withholding behavior, because interdependence only reflects the (perceived) structural features of the relational situation. Within a given outcome interdependence structure, the exchange nature of the relationship can differ significantly. In other words, relationships with identical degrees of outcome interdependence may nonetheless vary in terms of the trust or reciprocity between the individuals (e.g., Cropanzano & Mitchell, 2016).

Interdependence and exchange theoretical perspectives provide the basic building blocks for understanding the relational contexts in which knowledge withholding behaviors occur. However, because we focus on explaining and predicting individual behavior in groups and organizations, these theories alone do not provide a sufficient set of explanations. This is because various possible identities undergird the actors' interests and goals in organizations. As will become clear, different identities have opposite effects on employees' knowledge-withholding behavior. Therefore, we also integrate self-categorization and social identity theory into the framework (Tajfel & Turner, 1986; Turner, 1978).

As our review and framework illustrate, we argue that these three elements are necessary and sufficient to understand and predict knowledge withholding behavior. Taken together, this means that these elements provide a complete fundamental understanding of the behavior, but that the behavior cannot be fully understood without taking all three into account. As our framework illustrates (Figure 2), we will propose that negative interdependence tends to increase knowledge withholding, while the effect of positive interdependence on knowledge withholding pivots on the exchange relationship. Furthermore, we will propose that employees' identities tend to affect from whom they withhold knowledge. For example, they tend to withhold knowledge more from outgroup members and less from ingroup members.

Negative Outcome Interdependence

Outcome interdependence is negative when one actor's attainment of an outcome detrimentally affects the other actor's attainment. In other words, in situations that are (perceived to be) structured in a negatively interdependent way, the successful outcome of one person entails the other person's unsuccessful outcome. As a result, when a knowledge holder considers sharing or withholding their knowledge with someone with whom they perceive to be negatively outcome

interdependent, withholding is likely. This is because the knowledge could function as a means to success that may be useful to both actors, but it would be irrational to share this knowledge if doing so would help the other actor attain their goal (Poortvliet & Darnon, 2010). In other words, negative interdependence may be a consistent predictor of knowledge withholding behaviors.
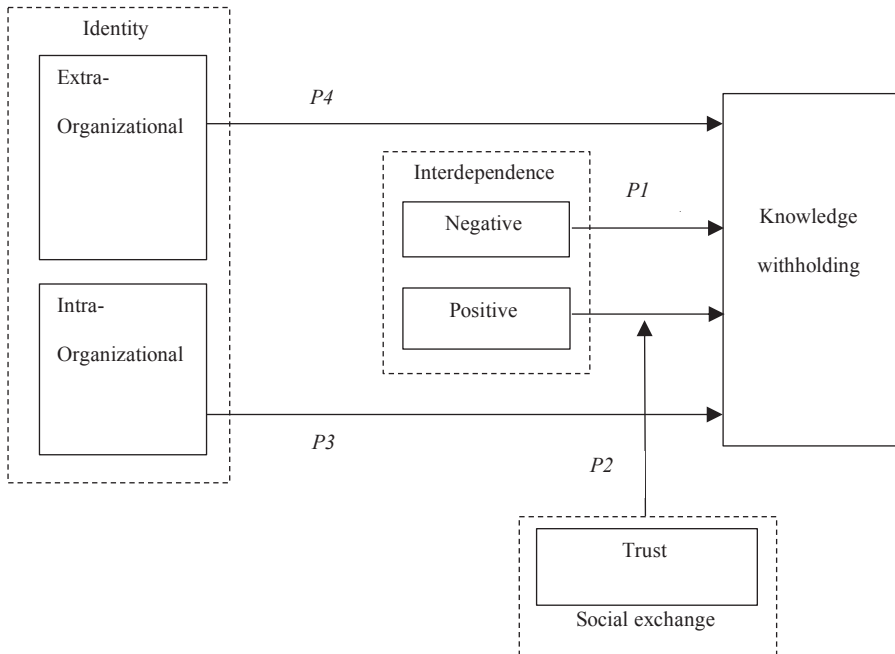
Figure 2

The Integrative Framework

Chapter 2

Proposition 1: Negative interdependence in the workplace is positively related to knowledge withholding.

Our review showed many examples of this. For the sake of the clarity, we believe it is useful to separate them into two sections, one that encompasses variables that directly or indirectly reflect (perceived) competition in the workplace, and another that encompasses variables that they reflect scarcity or uncertainty.

First, competition occurs when people see each other as rivals, pursuing the same outcome that cannot be attained by both. Perceptions of competitiveness in the workplace were found to predict knowledge withholding among 233 US salespeople toward their immediate colleagues (Anaza & Nowlin, 2017) and competitiveness as an individual difference predicted knowledge withholding among 211 Croatian academics (Hernaus et al., 2019) and among 20 respondents in buying and supplying companies in the United Arab Emirates (Butt & Ahmad, 2019). Similarly, the individual difference variable performance goal orientation or "prove" orientation – which refers to the dispositional motivation to outperform others (Button et al., 1996) – was related to knowledge withholding among 214 South-Korean students (Rhee & Choi, 2017) and among 725 Chinese employees from various organizations (Zhu et al., 2019). Other person-variables such as the Dark Traid of Machiavellianism, Narcissism, and Psychopathy, also imply competitiveness. People with these traits want to control others, be superior. They seem to approach other people with a zero-sum game mindset. Among 150 IT employees, Machiavellianism was positively related to knowledge hiding (Chawla & Gupta, 2019) and among 251 automotive and electronics workers in China, all three Dark traits positively predicted knowledge hiding. Researching another individual characteristic that reflects a desire to use knowledge to one's advantage and to have superior outcomes compared with others, Demirkasimoglu (2016) found a positive correlation between psychoticism and knowledge hiding among 386 Turkish academics. Lastly, organizational factors may also contribute to competitiveness perceptions. For example, Zhu and colleagues (2019) found that feedback provides social comparison information that can strengthen the effects of competitiveness on knowledge hiding. Related, Ray and colleagues (2013), among 76 students in Germany, argue that social comparison information prompts self-evaluation processes that subsequently create negative interdependence. Indeed, they found that social comparison information leads to knowledge hoarding.

Second, when an employee views resources as scarce, threatened, or uncertain, they believe that not all employees can have the resource. When resources are scarce, uncertain, or threatened, knowledge is a means to obtain those resources, and withholding knowledge is the rational choice. One example of a scarce commodity is job insecurity. Insecure jobs represent a scarce resource that people may perceive not all of them can have simultaneously. Indeed, job insecurity was found to predict knowledge withholding among 695 Canadian and US Credit Union workers (Serenko & Bontus, 2015), among 19 Indian R&D employees (Khumar Jha & Varkkey, 2019), 26 respondents in Russian-Western firms (Michailova & Husted, 2003) and among 20 respondents in buying and supplying firms in the UAE (Butt & Ahmad, 2019). The latter researchers also found that employees who feel indispensable hide their knowledge. They argue that knowledge sharing would lessen their indispensability and, thereby, raise uncertainty. Khumar Jha and Varkkey (2019) argue something similar and describe that people who have a low knowledge efficacy will hide their knowledge to prevent others from passing them on the career track. Their data from 19 R&D professionals in India found that a lack of confidence in their knowledge increased knowledge hiding. Similarly, Michailova and Husted (2003), in their study among 26 employees in Russian-Western firms, found that uncertainty about knowledge in the form of avoidance of exposure increased knowledge hoarding. Relatedly, in their study of US salespeople, Anaza and Nowlin (2017) studied the trait neuroticism. This means that people worry about threats to their interests and about what losing their knowledge would entail. They found neuroticism positively related to knowledge hiding, a finding that Demirkasimoglu (2016) also observed among 386 respondents at a Turkish university, and Pan and Zhang (2019) also replicated among 214 employees in software development teams. While most studies found a positive relationship, Wang, Lin, Li & Lin (2014) found a negative relationship with knowledge withholding in a study of 365 Taiwanese students.

Organizational factors may also create scarcity. Examples are the effects of the (lack of) incentives. A lack of incentives for a behavior may make that behavior costly to the individual, executing the behavior would then have a negative impact on their own interests. Anaza and Nowlin (2017) find that a lack of knowledge sharing rewards increased knowledge hoarding. Labafi (2017) studied 20 software engineers and reported the same. Similarly, Kumar Jha and Varkkey's (2018) study of 22 Indian research and development professionals found that a lack of recognition for sharing increases knowledge hiding. However, the presence of rewards could also increase withholding. For example, Wang and colleagues (2014) studied 365 Taiwanese students they found that expected rewards for knowledge sharing seem to improve knowledge sharing and increase knowledge withholding. It

is likely that the respondents tactically withhold information from some peers to maintain its value toward getting the reward in a context when the person who provides the rewards will be able to see the behavior.

Scarcity also plays a role in the costs associated with the act of communicating knowledge. For example, Zhao and Xia (2019) studied 640 Chinese healthcare employees. They explained that nurses who deal with aggressive patients experience high-stress levels and do not want to wait to discuss knowledge about the patients with the next shift. So, helping a colleague would harm one's interests. The authors found that such situations drive negative affective states which positively relate to knowledge hiding. Relatedly, Škerlavaj and colleagues (2018) found that, in data collected from 342 students and insurance employees in Europe, time pressure increases knowledge hiding. Also, Shen et al. (2019) found in a Chinese study of 480 respondents that people may withhold knowledge while attributing their behavior to external factors. Similarly, characteristics of the knowledge itself and the potential recipient may relate to knowledge withholding. Hernaus and colleagues (2019) collected data from 211 respondents at universities in Croatia and found that academics hide more tacit than explicit knowledge. In their study among 20 software engineers, Labafi (2017) found that knowledge complexity increased knowledge hiding.

In sum, our SLR identified many findings that support the proposition that negative interdependence, be-it in the form of competition or scarcity, tends to increase knowledge withholding behaviors. Our next proposition involves, in contrast, positive interdependence situations but particularly considers how social exchange processes play a role.

Positive Outcome Interdependence and Social Exchange

Positive outcome interdependence entails that one actor's outcomes are positively interlinked with another actor's outcomes or behaviors, so in situations that are (perceived to be) structured in a positively interdependent way, one actor's success is helped by another actor's efforts or another actor's success. Since these actors can help each other, it may be tempting to assume that positive outcome interdependence leads to decreases in knowledge withholding. Yet, positive outcome interdependence does not unequivocally lead to the opposite effect of negative interdependence. The effect of positive outcome interdependence pivotally depends on the nature of the exchange relationship between the knowledge holder and the potential (non)-recipient. Moreover, interdependencies occur in different forms. First, positive outcome interdependence implies two or more parties'

interests are not just aligned but depend on each other. This means that when one party accomplishes their goals, the other party may as well or maybe helped by the first party's success. Second, relationships with positively interdependent goals may occur in situations where the parties' outcomes do not directly depend on each other. This means a first person's outcomes may be helped by a second person's behavior, while the behavior neither helped nor harmed the second person's interest. In other words, this form refers to people who believe that others might help them and vice versa. These forms of positive interdependences tend to co-occur but do not necessarily do so.

Importantly, we assume that positive outcome interdependencies such as described above may often be the default situation in a workplace because people (e.g., in teams) need to collaborate to attain their goals. In fact, almost no employee works in total isolation from others, and almost all workers need to ask for advice, help, or information from others at some point. Hence, this is why we assume that positive interdependence is a default in the workplace. Particularly, when employees reciprocate and learn that others can be trusted to help them pursue their own goals, withholding knowledge from each other is not an effective means to attaining their own goal and is, in fact, counterproductive. In contrast, when employees believe that other colleagues cannot be trusted or will not reciprocate their help, employees will quickly learn that it is not useful for them to engage in helpful behavior such as sharing their knowledge. In this case, the knowledge holder's sharing would help the knowledge recipient, while the knowledge holder may neither be harmed nor helped necessarily. However, what is important to keep in mind is that in positively interdependent situations, employees still depend on others' behavior or performance for their success even when they do not trust each other. In these situations, knowledge is likely to be used as a tool or a form of influence and employees may likely withhold knowledge as leverage to get the knowledge they need from the other party. Hence, in addition to positive interdependence, the nature of the exchange relationship (Cropanzano & Mitchell, 2016) plays a pivotal role in knowledge withholding behavior. Stated simply, the key issue here is whether individuals expect positive exchanges – do they trust the other party, do they expect reciprocity, and so forth. We propose that the effect of positive outcome interdependence will pivot on whether people also perceive a positive reciprocal, trusting relationship.

Proposition 2: When employees (in positively interdependent situations) have positive exchange expectations/relationships, knowledge withholding will decrease, but when they have negative exchange expectations/relationships, knowledge withholding will increase.

Since positive interdependence may be the default in the workplace, there are not many knowledge withholding studies that directly address this element. However, assuming that it is to some extent the default, variables reflecting social exchange theory processes can provide evidence for our proposition. For the first part of Proposition 2, we found various studies and variables that support the effect of positive social exchange variables in decreasing knowledge withholding. For example, Lin and Huang (2010) studied 162 software developers and found various relevant effects. First, participants who expected that their knowledge would help the team perform showed lower withholding. This is an indicator of a basic effect of positive outcome interdependence. Second, participants showed less withholding when they expected that colleagues would reciprocate their knowledge in some way. Third, trust (positive expectancy) was negatively related to knowledge hiding. Labafi (2017) also found that software engineers' trust decreases knowledge hiding. Another example is a climate of collaboration, in which people work together and help each other. Indeed, Chawla and Gupta (2019), in their study among 153 IT employees, found that a collaborative organizational climate was negatively related to knowledge hiding.

Furthermore, the trait agreeableness reflects a person's view of being positively interdependent with others. Agreeable individuals tend to be cooperative and comply with others' interests (Chawla & Gupta, 2019). In their study of 153 IT professionals, Chawla and Gupta (2019) found that agreeableness is negatively related to knowledge hiding. They also found that the personality trait openness to experience negatively relates to knowledge hiding. They describe that people with high openness to new experiences are independent and liberal. Wang et al. (2014) found a similar relationship with knowledge withholding in a study of 365 Taiwanese students. Interestingly, their research also provide some explicit indication for our proposition that exchange may act as a moderator, since they found that people's expected associations moderated (decreased) effects of other variables on knowledge withholding intention. Another variable that Chawla and Gupta (2019) found to be negatively related to knowledge hiding is organizational citizenship behavior. Those who score high on this behavior contribute to the good of the organization or their colleagues. This effort may even go beyond what is expected of them formally. Hence, these individuals likely view their outcomes as positively interrelated with others' outcomes and the organization.

For the second part of Proposition 2, various studies support the effect of negative social exchange variables in increasing knowledge withholding behavior. For example, in Michailova and Husted's (2003) study, a respondent explained that they do not want to be perceived in public as more knowledgeable than their superiors as doing so may hamper their promotion. Moreover, Shen et al. (2019) found in a Chinese study of 480 respondents that people withhold knowledge when they predict a negative outcome of knowledge sharing. In a similar vein, Demirkasimoglu (2016) examined 386 academics in Turkey and found that lower-ranked employees, namely research assistants, hide more knowledge than assistant professors. Another example comes from Butt and Ahmad (2019), who collected data from 20 respondents buying and supplying firms in the UAE. They found a positive relationship between a lack of personal relationships and knowledge hiding. Similarly, Labafi (2017) collected data from 20 software engineers and found a negative relationship between a level of personal contacts and knowledge hiding. A more specific process that may play a role is the fear of experiencing negative fallout. For example, Butt and Ahmad (2019) found that participants felt accountable for their knowledge to the extent that they expected negative evaluations or fallouts if a junior colleague used the communicated knowledge improperly.

Other examples come from studies on negative behaviors from co-workers and manager. Among 1650 respondents, behavior such as bullying led to distrust and subsequently increased knowledge hoarding (Holten et al., 2016). Distrust similarly led to knowledge hiding among 345 Canadian finance professionals, students, and an online panel (Connelly et al., 2012) and among 19 R&D professionals in a pharmaceutical company in India (Kumar Jha & Varkkey, 2018). Other negative experiences such as co-worker opportunistic behaviors also increased knowledge hoarding (Anaza & Nowlin, 2017), as did the experience of negative interpersonal conflicts, which were studied among 560 respondents from software development and banking in Turkey (Semerci, 2019). As another example, Serenko and Bontis (2016) collected data from 693 employees of the Credit Union in Canada and the United States on reciprocity "loops." The authors find that a lack of reciprocity of one person could lead to knowledge hiding of another who, in turn, negatively reciprocates by also hiding. Such reciprocity loops were also found among 336 students and employees in Slovenia (Černe et al., 2014). As a final set of examples of negative behaviors, various supervisory behaviors were found influential: abusive supervision predicted knowledge hiding in a sample of 364 Pakistani Telecommunications employees (Jahanzeb et al., 2019), despotic leadership was associated with knowledge hoarding in a sample of 334 Pakistani Telecom employees (Sarwar et al., 2017), and in a range of Austrian and German

companies, it was found that leaders' actively tolerating or even showing hiding behavior prompted employee knowledge withholding among 2331 respondents (Offergelt et al., 2019).

Organizational climates or norms may also create unpleasant social experiences that install negative exchanges. Among 316 employees at Pakistani universities, Malik and colleagues (2019) found that employees in highly political organizations hide more knowledge. Relatedly, according to Aljawarneh and Atan (2018), organizations sometimes tolerate uncivil behaviors. As a result, the victims become cynical about their colleagues' intentions and may start to believe that others will misuse the knowledge they share. This is indeed what the authors found studying 329 hospitality employees in Jordan. Furthermore, Butt and Ahmad (2019) collected data from 20 buying and supplying employees from the UAE and found that hiding norms positively relate to knowledge hiding. Moreover, they also found a positive relationship between the restrictions of senior management and knowledge hiding. Interestingly, a few studies directly compare positive outcome interdependence situations where people perceive trust and reciprocity versus those who do not. For example, Labafi (2017) found that participants will hide their knowledge except when more powerful people ask for it. In this case, the knowledge holder shares knowledge when they anticipate that the knowledge recipient will do something for them in return. Still, they will hide knowledge when they do not anticipate reciprocation.

Other evidence for the pivotal role of social exchange comes from studies on justice and injustice. On the one hand, injustice perceptions reflect a lack of trust in the organization's fair treatment (Abubakar et al., 2019). Indeed, in their study of 152 banking employees in Turkey, they found that organizational injustice perceptions positively related to knowledge hiding. A similar effect can be observed among colleagues who do not anticipate that others will reciprocate their knowledge. Kumar Jha and Varkkey (2018) studied 19 employees in R&D in India and found that a lack of reciprocity increased knowledge hiding (see also Butt and Ahmad (2019) who found the same). On the other hand, overall justice perceptions reflect the employee's view that the organization will treat them fairly. Pan and Zhang (2018) collected data from 214 employees in software development teams and found a negative relation between overall justice and knowledge hiding. Moreover, Pan and Zhang (2018) find evidence that explicitly supports a moderating effect of exchange, as they find overall justice moderates the effect of conscientiousness and neuroticism on knowledge withholding. Furthermore, Lin and Huang (2010) studied 162 software developers and found a negative relationship between distributive justice and knowledge hiding (Lin and Huang, 2010). In short,

when injustice occurs in a positive outcome interdependent situation, it reflects negative expectations regarding trust and reciprocity and, thus, increases knowledge withholding behaviors. In contrast, organizational justice reflects positive expectations regarding trust and reciprocity and decreases knowledge withholding.

Considering both interdependence and exchange in the relationship between knowledge holder and potential recipient may go a long way toward explaining most knowledge withholding. However, exclusively focusing on these principles as explanatory factors would imply that actors withhold knowledge only out of concern for their individual interests. Yet, actors will often engage in these behaviors even when doing so is not in their self-interest. Conversely, they may stop withholding knowledge even when it is bad for them individually, but when it is good for their social group.

The Effects of Identity

According to social identity theory (Tajfel & Turner, 1986), people derive their self-worth from their important group memberships. The groups with which people may identify can be manifold. Examples are their country, work organization, team, profession, or brand identities. The key to identification is that people believe in a strong overlap between their identity and the essence of the social category. Social identity theory was conceived, at least in part, to account for the fact that people sometimes act against their self-interest when helping an ingroup with which they strongly identify (Turner, 1978). Social identity theory would thus predict that people will work and even sacrifice for the good of the group with which they identify. For knowledge withholding, this means that when individuals identify with their organization, group, work unit, and so forth, they should be less inclined to withhold knowledge from individuals who are part of the ingroup.

Proposition 3: Employees who strongly identify with their team or organization will be less inclined to withhold knowledge from colleagues.

While studying 153 IT employees, Chawla and Gupta (2019) found that organizational commitment negatively relates to knowledge hiding because commitment implies an emotional connection to the organization. Similarly, Tsay et al. (2014), in their study of 227 Taiwanese workers, found that affective bonding to the organization negatively relates to knowledge withholding. Along a similar line,

Serenko and Bontis (2016) studied organizational knowledge culture among 693 employees of a Credit Union in Canada and the United States. The authors argue for two mechanisms that closely relate to how identification works. First, they argue that a positive organizational knowledge culture increases commitment to a collective goal. Second, this culture creates an ethical obligation to contribute to the collective organization. They indeed found that positive organizational knowledge culture decreases knowledge withholding. While it may seem less closely related, the trait conscientiousness decreases knowledge withholding for the same reason. Conscientious people tend to be dutiful; they follow social rules and work for the collective's good. Pan and Zhang (2018) studied this relation in software development teams among 214 respondents. Chawla and Gupta (2019) also investigated this relation in the IT sector among 152 respondents, while Wang and colleagues (2014) examined 365 Taiwanese students. All these studies found conscientiousness decreased knowledge hiding.

Furthermore, employees who experience a good relationship with their immediate supervisor will also develop a stronger identification with the organization. In a study of 565 respondents in consulting and large diversified companies in China, Zhao and colleagues (2019) found support for this negative relation between leader-member exchange quality and knowledge hiding. Also, Babič and colleagues (2019) found a negative relationship between social leader-member exchange and knowledge hiding in a study of 683 respondents in the insurance industry in Eastern Europe and. These researchers also found that a high social leader-member exchange reduced knowledge hiding in situations of low prosocial motivation. This indicates that even for people who say that they do not view groups as very important, identification with a particular group can still reduce knowledge hiding.

Social identification is very similar to feelings of organization-based ownership because both imply that people regard the organization as part of themselves. Peng and Pierce (2015) studied 158 employees working in human resources in China and found that organization-based psychological ownership has a negative relation with knowledge withholding. In addition, a closely related variable is identified motivation, which means that people have internalized the goals of the organization. Among 200 public service employees in Finland, Stenius and colleagues (2016) indeed found that identified motivation is negatively related to knowledge withholding. Gagné and colleagues found the same effect in a study of 589 employees of, for instance, accountancy and legal firms in Australia.

Lastly, the potential of social identification to reduce knowledge withholding behaviors is so strong that it may even moderate and override the effects of negative interdependence that may be instilled by other factors. As mentioned earlier, Malik and colleagues (2019) showed that organizational politics increase knowledge withholding. However, the authors also found that professional commitment moderated this effect. Those who were committed to their profession choose to withhold knowledge less despite the potential political disadvantages. These participants were academics. Their identification or commitment to their profession is relevant to their direct colleagues who are also academics. Hence, their professional and team identity overlaps in this research which may explain the effect of professional commitment.

In sum, a strong social identification with a team or organization reduces people's knowledge withholding towards colleagues. Essentially, this implies that social identification can align a person's interests with those of the group. In other words, social identification focuses a person on positive interdependence between the person and the group. However, people do not always identify with the ingroup of their immediate colleagues. They may simply not identify with that group, but they may also identify with a completely different group. In the former case, the person is not likely to be motivated to work for the interests of the (immediate colleagues) group. In the latter case, the person may be more likely to consider their interests as negatively interdependent with those of the (immediate colleagues) group. Under these conditions, we propose that employees will be more inclined to withhold knowledge from their colleagues, who are, in that sense, an outgroup.

Proposition 4: Employees who identify relatively strongly with people or entities outside their team/organization or who are being excluded from the social identity of their team/organization will be more inclined to withhold knowledge from colleagues.

While many employees socially identify with their immediate team or organization, they might also identify with and feel ownership over, for example, their job or their profession. When the latter identification is relatively stronger than the first, employees may withhold their knowledge from colleagues. This could be the case, for example, with a lawyer who strongly identifies with her profession as a lawyer, but who is the only lawyer working in a military organization. Several studies examined people's association to identities/categories based on people's ownership feelings that are not directed to the organization or immediate colleagues. Wang, Law et al. (2019) argue that people can feel that their job or profession is part of who they are as a person. This identity may represent a different, even conflicting

identity than the identity of immediate colleagues, the team, or the organization. A study of 479 employees in pharmaceutical and electronics companies found a positive relationship between job-based psychological ownership and knowledge hiding. Moreover, employees who created knowledge may also feel a sense of knowledge-based psychological ownership. In a study among 190 IT professionals in China, Peng (2013) found that this type of ownership enhances knowledge hiding. In a similar vein, territoriality refers to a protective sense of ownership over matters such as knowledge. Implicit in this is that not keeping the knowledge to oneself somehow decreases the (symbolic) value of that knowledge. Huo and colleagues (2016) collected data from employees of research institutions and universities in China, and Singh (2019) studied insurance employees in the United Arab Emirates. Both papers found that territoriality positively relates to knowledge hiding. Another factor that could contribute to people's sense of identity is the level of autonomy in their job, which makes their job and their tasks their own. In a study of 214 respondents from software development teams, Pan and Zhang (2018) found a positive relationship between job autonomy and knowledge hiding.

Furthermore, some employees may be excluded from their colleagues' group. Indeed, studies found that workplace ostracism increases knowledge hiding and hoarding. For example, Sarwar et al. (2017) collected data from 334 respondents in the Pakistani telecom companies, whereas Zhao and Xia (2017) studied 240 employees in Chinese manufacturing, R&D, and logistics companies. Also, Zhao et al. (2016) examined 253 hospitality workers in China. The latter researchers also found two moderators. First, excluded people may morally disengage from their coworkers to cope with the ostracism. Second, excluded people may have negative reciprocity beliefs, which means that they treat people negatively who treat them negatively. So, the more employees are excluded, the more they need to rely on knowledge as a resource, the more they hide their knowledge.

Lastly, some variables can relate to both a person's desire for social associations and a desire to be distinct. For example, the trait extraversion reflects both ambition/dominance and sociability/gregariousness. Indeed, in their sample of 386 Turkish academics, Demirkasimoglu (2016) found a positive correlation between extraversion and knowledge hiding. However, Wang and colleagues (2014) found that extraversion tended to decrease knowledge withholding and found this effect to be mediated by social identification.

Integration and Research Agenda

As Figure 2 indicates, we proposed that processes of interdependence, exchange, and identity all influence knowledge-withholding behaviors. As we observed earlier, the literature that we reviewed shows a rather scattered picture of antecedents of knowledge-withholding behavior and of theoretical perspectives to explain their role (Table 2). A systematically developed set of causal explanations for knowledge withholding has been missing so far. Moreover, through our review, we have identified theoretical and methodological gaps and issues that research needs to address to sophisticate this important area of scientific inquiry.

Theoretical Sophistication

A first key question concerns the effects of identities. Besides the effect of identity articulated in Proposition 3, we suggest that intra-organizational identifications lead to a feeling of positive interdependence with immediate colleagues as connecting to a social identity means caring about the group's interests. In turn, this positive interdependence may decrease knowledge withholding. Conversely, besides the direct effect of other identifications (extra-organizational ones) articulated in Proposition 4, we believe that this identification results in a feeling of negative interdependence toward immediate colleagues because this situation might enhance the actor's favoritism toward that group versus the colleagues' group. As a result, the negative interdependence might increase knowledge withholding from teammates. We thus believe it is an important extension of the literature to examine whether identities drive knowledge withholding via interdependencies.

Additional questions about the role of identities arise from our model and review, which we believe are all important to consider. For instance, identity can also function as an *overarching* purpose that can bring people together and lead them to put their different interests aside. Peng and colleagues (2019) provide such an indication. While they found a positive relation between self-serving leadership and knowledge hiding, they also argue that a high task interdependence between team members weakens this relationship. This suggest that a high task interdependence can bring people together despite a force toward negative interdependence at a different level. Hence, a question is whether identification might be able to moderate the impact of negative interdependence on knowledge withholding within groups. We would suggest that it may do so by changing

people's view of the interdependence structure in the situation: team mates who do not identify with the team may act as competitors when they perceive negative interdependence, but identification would highlight the common interests and would change their view to one of positive interdependence. Another important question about identities concerns the effects of multiple identifications that employees may hold, especially when these represent conflicting interests. Having such conflicting interests implies that withholding knowledge is detrimental for one group but may be beneficial for the other group. In sum, considering the effect of identities and considering the possibility that identities influence behavior by affecting the interdependencies that people experience, opens important and interesting questions for future research.

A second key question, which we believe has high priority, concerns the possible differences and different causes of knowledge withholding versus hiding versus hoarding. As we have noted, the literature sometimes distinguishes these three albeit not in a highly consistent manner. It may be useful to examine these three labels more systematically in terms of the different behaviors and causes that they imply. In this regard, knowledge *withholding* may generally refer to instances in which an actor possesses knowledge but does not effortly give the knowledge to another actor (Lin & Huang, 2010). Considered as such, the term knowledge withholding does not prescribe whether the behavior was intentional or unintentional, and whether the actor, from whom the knowledge is withheld, did or did not request the knowledge. In contrast, knowledge *hiding* and *hoarding* are often considered intentional. Also, knowledge hiding often refers to instances in which another actor requested the knowledge, whereas knowledge hoarding often regards instances of unrequested knowledge (Connelly et al., 2012). However, knowledge hoarding is defined by Evans et al. (2015, p. 495) as "an individual's deliberate and strategic concealment of knowledge and information or the fact that they may possess relevant knowledge or information." They note that knowledge hoarding covers (un) requested knowledge, which results in a conceptual overlap with knowledge hiding. Hence, there is an overlap between the labels' scopes, and there appears not to be a consistent application of different terms.

Nonetheless, it may be useful to consider a sharper distinction among different types of knowledge withholding behaviors and to examine different antecedents of such different behaviors in light of our theoretical model. That is, considering these three labels, there appear to be differences in terms of whether the behavior was intentional and whether the other party requested the knowledge or not. In general, we believe it would contribute clarity to the field if researchers consider these differences. First, we believe it is important to distinguish between

intentionally and unintentionally withheld knowledge. It stands to reason that intentionally withholding knowledge is more likely to be caused by situations of direct competition, negative interdependence, whereas unintentionally withholding knowledge may be more driven by less direct factors such as characteristics of the work and the knowledge itself. What this also points out is that, while interdependence is a useful concept for understanding all of these behaviors, it may operate in different ways, some very direct and others quite indirect. Second, within intentional forms labelled hiding and hoarding, we offer the suggestive advice that it may be productive to follow the distinct usage of the terms (Connelly et al., 2012) and utilize knowledge hiding when referring to *requested* knowledge and using knowledge hoarding when referring to *unrequested* knowledge. In short, we suggest that it could be good practice to apply more precise and more distinct definitions.

Considered as such, when we assume that hoarding and hiding are intentional, we can see that (direct) positive and negative covariance of interests is likely to be most relevant to hiding and hoarding. As such it is important to note that, in our review, the papers' distribution per label/construct indicates an empirical gap. For example, knowledge hiding (29 papers) received far more research attention compared to knowledge withholding (8 papers) or knowledge hoarding (5 papers). Hence, there is a clear need for research on knowledge hoarding and, considering the distinction we propose researchers to use consistently, various questions arise. For example, the difference between hoarding and hiding becomes relevant in situations with varying levels of awareness of the existence of knowledge. This is because one cannot request knowledge that one does not know exists. We suggest that hoarding is more likely when people do not work closely together or have little overlap in their expertise and knowledge. In contrast, hiding is intuitively more likely when there is some degree of existing overlap in knowledge and expertise. Various new questions arise as key organizational factors may be relevant in understanding hiding and hoarding and their differences. Factors such as power differences and distance working situations affect awareness of knowledge and may therefore be relevant in understanding hoarding.

Methodological Sophistication

A first methodological area that requires attention is the design and operationalization of knowledge-withholding studies. From the review, we observed a cluster of design opportunities that could dramatically improve the validity of research in this area. The SLR synthesized 42 papers, of which 24 were based on

quantitative methods. Specifically, these studies collected self-reported questionnaire data. Also, two papers contained experiments, and five papers involved qualitative methodologies. We believe qualitative studies may be necessary to understand better the various *forms* of knowledge withholding and their antecedents. As we observed earlier, the set of theoretical explanations of knowledge withholding has been very scattered and lacks a unifying theoretical framework. Our work makes one step in that direction, but we could not answer questions regarding the differences between hoarding and hiding for example. Another major issue in this literature also appears to be causality, affected by various specific issues. First, it is difficult to assess withholding behaviors in a way other than self-reports, yet for a more valid understanding of the behaviors, we believe efforts need to be made to employ other methods as well. Qualitative and quantitative studies that have an observational component in them are necessary. This may be challenging, but considering quite specific study contexts, researchers may be able to identify valid and reliable sources for measurement of knowledge-withholding behaviors.

Second, an issue in measuring knowledge-withholding behaviors is that it is often not specified who the non-recipient is. Fully understanding this behavior requires knowing who the other party is and, specifically, what group or identity that person represents. Our interpretation of the literature and our argumentation for identity effects made a distinction between ingroup-members and outgroup-members from whom knowledge holders might withhold their knowledge. In all reviewed studies, it could be implicitly seen that (non-)recipients were immediate colleagues, so when knowledge holders identify with their work unit or organization, the default would be that immediate colleagues are ingroup-members. In contrast, when knowledge holders identify with a different social unit such as their profession, immediate colleagues become outgroup-members. Hence, research should specify more clearly, and empirically determine who are the targets in an instance of knowledge withholding and should expand their scope in this sense, because only considering immediate colleagues is likely to leave out many important instances of knowledge withholding.

Third, the designs of the studies we reviewed leave questions open regarding reversed causality or more complex patterns. The model we proposed is simple but an important question for future research is how experienced and enacted knowledge withholding shapes the three key elements of our model, interdependence perceptions, identities, and exchange relationships. Perceptions and behaviors in this model likely develop in a cyclical pattern over time, and research studying such patterns would be highly valuable.

A fourth important matter for research to consider is context, such as national culture. For example, none of the empirical evidence was specifically collected in South and Latin America, and only one of the included papers was based on data collection in Oceania (Gagné et al., 2019), while eight out of 29 studies on knowledge hiding were conducted in China. National cultural differences such as individualism-collectivism are closely aligned with identification and group-based behavior. In contrast, cultural dimensions such as power distance and uncertainty avoidance are connected with individual motivations and, thus, outcome interdependencies. A question for future research might be whether identities are stronger drivers of behavior in some cultures, whereas interdependences are stronger drivers in other cultures. A similar argument could be made for organizational culture. For example, Černe and colleagues (2014) found that motivational climates play an essential role in knowledge hiding. On the one hand, a performance climate increases social comparison and competition. People in such a climate do not seem to identify with the social group and perceive a negative interdependence with other members. On the other hand, a mastery climate focuses on cooperation and valuing people's contribution, people having a shared fate and interests. In this climate, people seem to identify with a social group and perceive a positive interdependence with other members. Currently, because no studies combine these two key elements, they are confounded with culture.

Conclusion

In this paper, we provided a systematic review that showed 93 antecedents of knowledge-withholding behavior. We integrated these in a framework by using the theories of interdependence, social exchange, and social identity. In short, negative interdependence increases employees' knowledge-withholding behaviors, while positive and negative exchange mechanisms are key in positive interdependence situations. Also, identifying with a social unit (group, team, organization) tends to decrease knowledge withholding from coworkers. In contrast, knowledge withholding from coworkers tends to increase when people identify with a different group or have a negative relation to the work unit.

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Chapter 2

CHAPTER 3

Knowledge Withholding By and From Leaders: An Emerging Theoretical Model

Abstract

This study explores the reasons why leaders withhold knowledge by analyzing various types of relational contexts in which knowledge is withheld. We conducted a content analysis of the memoirs of five reputed U.S. general and flag officers, analyzed 1853 pages, collected 246 knowledge-withholding units, and identified eight relational contexts. We build on interdependence, social identity, and social exchange theories to interpret the data and develop an emerging model. Our data indicate (a) conflicting interests increase knowledge withholding, particularly among weaker parties; (b) common goals increase knowledge withholding when failure imposes greater risk, and when there is a lack of trust (c) parties may simultaneously experience competing and common goals in which behavior may be driven by their strongest (social) identity.

As decision-makers, leaders are the loci and hubs of knowledge in organizations and, as such, frequently face the choice of whether to share knowledge with another party or to withhold knowledge from the other. "What do I know? Who needs to know? Have I told them?" are typical questions that leaders ask themselves, as exemplified in the book *Callsign Chaos* (p. 44) by former U.S. Secretary of Defense and former commander of U.S. Central Command, General Mattis. These questions, Mattis explains, are routine questions that he asks himself, and the second question, "Who needs to know?" indicates that not everything should be shared. Indeed, as Mattis acknowledges: "the details you don't give in your orders are as important as the ones you do" (p. 44). Hidden in the latter quote may be a great variety of *reasons* for withholding knowledge – the current research seeks to promote understanding of these many reasons.

Although choosing whether to withhold knowledge is one of the most common choices a leader faces, current management literature and practice tend to exalt leaders' sharing knowledge (Srivastava et al., 2006). Conversely, knowledge withholding has suffered a bad reputation (Holten et al., 2016; Huo et al., 2016). However, we feel safe in stating that knowledge sharing and knowledge withholding both have drawbacks and benefits and that both have their proper place in effective leadership (Anaza & Nowlin, 2017; Michailova & Husted, 2003). For example, whereas knowledge withholding may hold certain disadvantages for building relationships (Wang, Han, et al., 2019; Zhang & Min, 2019), knowledge sharing has the drawback of being costly in terms of time and resources (Ahmad, 2017; Widén-Wulff & Suomi, 2007). Moreover, in sensitive and competitive environments that characterize most organizations, knowledge withholding may often be functional and even necessary (Butt & Ahmad, 2019).

The negative reputation accrued by knowledge withholding and the literature's emphasis on encouraging the sharing of knowledge has led to normatively biased research on withholding (Strik et al., 2021) and this has caused a dearth of research on leaders' knowledge withholding. As a consequence, the reasons underlying leaders' knowledge withholding are poorly understood. A similar observation was made in two recent literature reviews (Anand et al., 2020; Strik et al., 2021), both of which sought to provide structure and integration to the scattered research on *employee* knowledge withholding. These literature reviews have resulted in important insights on a set of overarching factors in the literature on antecedents of knowledge withholding. Nonetheless, because of the immense conceptual diversity of studies in this area and the bias toward examining knowledge withholding from a negative (normative) perspective, the conclusions from these literature reviews are likely biased and limited. Inspired by these

researchers' insights, we suggest that shedding light on the reasons why leaders withhold knowledge may benefit from stepping back and considering *all* of the relational context(s) in which leaders interact with other potential knowledge actors. Hence, the current research aims to explore the reasons for knowledge withholding of leaders and other actors with whom they relate, focusing on different types of relational contexts in which these behaviors are shown.

Understanding the antecedents of knowledge withholding by and from leaders may enable building an encompassing, less biased theoretical foundation for comprehending leader knowledge-withholding behavior and for conducting theory-driven research. In addition, exploring the reasons for knowledge withholding may help counteract the bias against knowledge withholding that is prevalent in the literature and to understand that there are many valid reasons for leaders to withhold knowledge. As such, this research may aid in validating knowledge-withholding behaviors and giving it a more balanced reputation in management.

Military leaders are particularly useful to examine: their experiences offer a rich set of contexts to study because these leaders tend to lead people in high stakes, potentially lethal situations such as war. They collaborate with their troops while they simultaneously fight against an enemy. In these high-risk environments, military leaders also have to cooperate intensively with other national and international actors. Hence, they have various relationships inside and outside their organization (Godé-Sanchez, 2010; McChrystal, 2013). Military officers who write a memoir share their reflections about their life in general and defining moments in particular (Harari, 2007; Marche, 2015; Kleinreesink & Soeters, 2016; Rozman, 2019). These memoirs, therefore, present a broad array of social situations that enable us to take a wide lens in exploring the reasons for knowledge-withholding by and from leaders. Accordingly, we take a qualitative approach and investigate the written memoirs of five recent U.S. general and flag officers.

Review of the Literature

So far, we have discussed knowledge withholding as one broad concept, yet studies have used different labels, sometimes accompanied by different connotations. The broad concept of withholding refers to not effortfully giving the knowledge that one has to another actor (Lin & Huang, 2010; Strik et al., 2021). Researchers also use the labels knowledge hiding (Connelly et al., 2012) and knowledge hoarding (Evans et al., 2015). Knowledge withholding covers all

situations in which knowledge is withheld, whether the knowledge was or was not requested by another person, and whether knowledge was or was not intentionally withheld. Knowledge hiding and hoarding are often construed as intentional; however, whereas knowledge hiding tends to refer to unrequested knowledge, knowledge hoarding tends to refer to requested knowledge (Evans et al., 2015; Connelly et al., 2012). Some researchers hold that the constructs are distinct (Connelly et al., 2012; Kang, 2016), while others consider them synonymous (Anand et al., 2020; Evans et al., 2015). For now, we regard all three as part of the broader phenomenon.

Focusing on knowledge withholding by *employees* (not leaders), several attempts have recently been made to make sense of knowledge withholding through literature reviews. One was conducted by Anand and colleagues (2020), who collected and described various *events* in which knowledge withholding occurs. These events were then categorized but were not further integrated theoretically. Strik and colleagues (2021) took a different, decidedly *relational* approach to construct a theoretical framework based on a systematic review. The conclusions from these authors' framework can be summarized in accordance with the principles of interdependence theory (Johnson, 2003; Thibaut & Kelley, 1959), social exchange theory (Cropanzano & Mitchell, 2016), and social identity theory (Tajfel & Turner, 1986; Tajfel, 1978).

Outcome interdependence means that two (or more) actors' outcomes may be interrelated. Outcomes may be negatively interrelated in that when one achieves their goal, the other is hindered; for example, when only one person in a department can attain a promotion. Negative outcome interdependence between actors, which was seen in many forms such as rivalry, threat, uncertainty, or scarcity of resources, was found to increase employees' knowledge withholding (Strik et al., 2021). Actors' goals may also be positively interdependent in the sense that when one person achieves their goal, it facilitates the other's goal-achievement. To understand the effect of positive interdependence, Strik and colleagues (2021) drew on social exchange theory, which assumes that people make cost-benefit comparisons in their relationships, which strongly affect their social behavior. In essence, Strik et al.'s (2021) review and framework suggest that a high-quality relationship (e.g., high trust, reciprocity expectations) leads positively interdependent individuals to be less inclined to withhold knowledge (e.g., teammates who trust each other), whereas a low-quality relationship leads positively interdependent individuals to be more inclined to withhold knowledge (e.g., an employee who feels their manager is untrustworthy). Lastly, their review also found that actors' (social) identity was a driver of their knowledge withholding: people tend to show less knowledge

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withholding to their immediate in-group colleagues (i.e., with whom they share a strong identity), but more withholding from colleagues when they identify with another (outside) identity.

Driven by the above, leader behavior may often be a cause for *employees* to withhold knowledge (Strik et al., 2021), yet the reasons underlying *leaders'* withholding have received almost no research attention. One exception that studied leaders' knowledge withholding comes from Butt and Ahmad (2019), who conducted interviews with 20 senior managers to examine why these managers withheld knowledge from the middle managers reporting to them. They identified ten themes among the reasons why managers hid knowledge, and although they did not provide a theoretical explanation or integration, it is interesting to observe that these ten themes resonate closely with Strik and colleagues' (2021) framework. Specifically, the ten themes reflecting why Butt and Ahmad's respondents hid knowledge from their subordinates essentially come down to two factors. The first is that they feared consequences for themselves if they would not withhold the knowledge. Therefore, part of these reasons is negative interdependence: the knowledge recipient might benefit, but the knowledge holder expects that not withholding the knowledge will be detrimental to their own interests. The second factor evident in the themes that Butt and Ahmad identified is the social exchange (lack of personal relationships and negative reciprocity). These authors' themes, indeed, often combined stories of negative interdependence with stories of a lack of trust (e.g., if I share this information down-ward, I might be held accountable for it by someone above me, meaning the person I shared it with might not be trustworthy and my manager might not have my interests at heart either).

Strik and colleagues (2021) grounded their framework in fundamental relational theories, and we can also discern these mechanisms in Butt and Ahmad's ten themes. These insights are important and provide a first attempt at integration of a scattered literature. Nevertheless, their conclusions and their framework remain limited in several ways. As Strik and colleagues (2021) acknowledged, former studies resulted in a large number of antecedents. However, given they start from a variety of different theoretical perspectives, there is seemingly little connection between them which jeopardizes theory development. Moreover, one of the key issues is that extant literature has exalted a negative normative view on knowledge-withholding behavior and, therefore, presented a one-sided view on knowledge withholding. This is clearly discernible in Strik and colleagues' review and framework, where actors are proposed and found to withhold knowledge from others mainly because, and mainly when, not withholding the knowledge will in some way harm their interests or will advance the interests of others at actors' own

detriment.

In sum, recent reviews leave us with some understanding of the general reasons for knowledge withholding. These reviews advanced the literature by clearly showing the utility of viewing knowledge withholding in a relational context and analyzing fundamental relation causes. Nevertheless, extant theory and research provide us with barely any explicit information on the reasons why *leaders* withhold knowledge. Therefore, we take Strik and colleagues' (2021) framework as a jumping-off point, but we zoom out and conduct a qualitative study in which we remove the normative view of knowledge withholding as negative. In our discussion, we compare and contrast our findings explicitly against Strik and colleagues' (2021) framework.

Methodology

Setting

Military organizations have unique characteristics that enable a thorough exploration of knowledge withholding by and from leaders. Nations deploy military units to wars to support national interests. The deployed officers have legal authority to apply military force against the enemy to win the war, while they have a moral obligation to prevent death and injuries among their troops (Yammarino et al., 2010). Hence, military officers pursue the interests and goals of themselves, their units, and their government. Furthermore, the situations in which the military officers find themselves can quickly change (Godé-Sanchez, 2010; Laurence, 2011). To prevail against an enemy, units often have to collaborate without knowing each other, which means that they have to rely on colleagues whom they do not know (Godé-Sanchez, 2010). Whereas the actors in the traditional conflicts between states were clear, the situation has become much more blurred in terms of actors and interests. Nowadays, military units fight insurgents who dress like civilians while protecting the local population simultaneously (Laurence, 2011). To be successful in such a context, military officers need to maintain relationships with their troops and with other organizations. No individual in a unit or individual organization can have all the necessary knowledge to operate successfully (Laurence, 2011; Yammarino et al., 2010). Relationships are an important ingredient to navigate organizational and national differences (Laurence, 2011).

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Memoirs as Data Sources

More and more military leaders have chosen to write their memoirs and, historiographically, they are considered particularly useful for studying military leadership and leader networks (Harari, 2007). Memoires are a form of historiography or life writing in which the memoirist attempts to "…describe past events, actions, and conditions, to explain the causes of these events, and to interpret their meaning (Egerton, 1992, p. 237). Memoires are to an extent similar to autobiographies (Mathias & Smith, 2016) but whereas autobiographies tend to focus on the self, the personality of the author, the author's causal role, and turn strongly to inward reflection, memoires are more about recounting, "…to explain and interpret the choices made and forces encountered, and to portray the relationships experienced" (Egerton, 1992, p. 222). While we acknowledge that the similarities and differences between autobiographies and memoires are a matter of dispute (Rak, 2004) it appears that autobiographies tend to have a more literary focus, while memoires tend to be more distant, less focused on the person of the author.

From a historiographical perspective, Egerton (1992, p. 237) explains that under the right conditions "…the political memoirist has the potential to produce a first history of the episode based on both unique remembrance and privileged documentation." Indeed, "…the well-placed political diarist or memoirist can offer invaluable source of privileged information on contemporary history long before the official documentation becomes available." (p. 233).

Moreover, Mathias and Smith (2016) recently expounded the benefits of autobiographies for organization and management research, and while they treat memoires as identical to autobiographies, the benefits of studying autobiographies equally apply to the study of memoires, while some of the drawbacks of autobiographies they mention are potentially less severe in the case of memoires. For example, memoires and autobiographies both provide a level of depth into the complexities and relationships of leaders, but where autobiography authors tend to focus on the internal causes of success, the memoire tends to paint a more removed picture where the author is more of an observer of the events and relationships (Egerton, 1992; Rak, 2004). Mathias and Smith (2016) recount that autobiographies provided new explanations that they would have otherwise missed, and that they gave much richer data than the authors had expected. They concluded that "…autobiographies offer researchers a valuable methodological alternative…" and "…whether the goal is to enhance reliability from an initial study or explore new areas to provide a holistic, contextual portrayal of the phenomenon of interest…" (p. 225).

Especially in the setting of military, Harari (2007) argues that a closer study of military memoirs is necessary if we aim for "uncovering the mindset of military command" (p. 308).

"What has usually been regarded as a major drawback of commanders' memoirs - their obsessive interest in the petty intrigues and personal relations of commanders - makes them an excellent source for studying the sociology of command" (p.30). The analysis of memoirs offer a unique possibility to "examine how command networks functioned in the real emotional world of people rather than in the imaginary world of paper (official documents)" (p. 304). Hence, military leaders' memoires offer a valuable and valid source of information for the purpose of our study. First, although military events are usually reported in various administrative documents, military organizations tend to be closed institutions and many documents are confidential, entailing that the information would not be accessible to researchers (Kleinreesink & Soeters, 2016). The unique and privileged information possessed by the high-ranking leaders we studied will, in contrast, provide the kind of access to data that enables a rich and valid understanding of the factors involved in knowledge withholding in these situations. Second, memoires as a unique type of historiography tend to provide descriptions that are rich in contextual and relational detail, not in the least because they do not focus solely on the individual author but are observational in recollections. Given our decidedly relational focus in this research, memoires offer exactly the kind of rich, contextual, relational information that will be valuable in shedding light on the reasons why leaders withhold knowledge.

Selection of Data Sources

In this research, we applied the multiple case-study methodology of Yin (2010) to the written memoirs of five U.S. general and flag officers. The selection of memoirs is based on six criteria (see Table 3). Based on the first five criteria, we identified the U.S. general and flag officers who had been commanders of U.S. Central Command, U.S. Special Operations Command, or the operations in Afghanistan (International Security Assistance Force and Resolute Support). This resulted in a list of 35 U.S. general and flag officers. The wars in Afghanistan and Iraq ran at the same time, so many of these officers (e.g., General Petraeus) had experience in both geographical areas.

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Table 3

Selection criteria for cases

	Criteria	
1.	Time	Timeframe 9/11 to January 2020
2.	Culture (land/organizational)	United States military
3.	Leadership level	Four-star general officers
4.	Leadership experience	Commanded troops in combat
5.	Geography of experience	Commanded troops in Iraq and Afghanistan
6.	Available data	Memoirs of general officers

Of these 35 general and flag officers, five four-star general officers (selection criterion 3), commanding troops in Iraq and Afghanistan (selection criterion 4 and 5) wrote a memoir: General Mattis (*Callsign Chaos),* General McRaven (*Sea Stories),* General McChrystal (*My Share of the Task)*, General Franks (*American Soldier)*, and General Petraeus (*The Insurgents).* While *Callsign Chaos* and *The Insurgents* are written by credited authors other than the main character, we found no indication of memoir ghostwriting among our selected data sources.

With respect to selection criterion 2, General Franks, McChrystal, and Petraeus are former U.S. Army officers, whereas general Mattis is a former U.S. Marine and Admiral McRaven a U.S. Navy SEAL. This representation means that three out of four U.S. military services are covered. That said, the wars in Iraq and Afghanistan had substantial ground components of the U.S. Army and the U.S. Marine Corps. The U.S. Air Force was also an important troop contributor in those wars, but numerically less than the Army and Marine Corps. A similar rationale applies to the U.S. Navy. They contributed troops in, for example, support roles and special operations forces. This could explain why the U.S. Army and Marine Corps provided most commanders in those wars, resulting in a relatively greater number of memoirs.

We subsequently studied book reviews of the selected memoirs. These reviews served as a methodological check in which the reviewers may illuminate things such as factual inaccuracies, memory recall bias, or contextual disconnections. This did not reveal flaws that influenced our study of leader knowledge withholding (see Supplementary Document).

Data analysis

We analyzed the 1853 pages of the five data sources on meaningful units of knowledge withholding. A piece of text was identified as a meaningful unit when it contained information on the following two questions: "does this content reflect the withholding of knowledge?" and "what actors played a role, including the author and others?" (Saldaña, 2012). We collected, summarized, and quoted all the meaningful units in a data collection table for further analysis. This process resulted in 249 knowledge-withholding text units.

In the first step (Figure 3), we used narrative coding to analyze these meaningful units (Saldaña, 2015). This means that we searched in the narrative of a unit for clues that revealed knowledge withholding. Some units were clear. For example, Admiral McRaven broke into an ammunition complex at the military base where he lived with his parents. His father came home and asked him, "There has been an attempted break-in at the ammunition storage facility. Do you know anything about it?" Admiral McRaven answered, "No, Sir." Knowledge withholding in other units was more implicit. For example, General Franks describes, "the V.C. [Viet Cong] ambush was perfectly placed." The word "ambush" implies that an actor, in this case, the Viet Cong, withheld their knowledge. Other indicators of knowledge withholding are words like "secret," "top secret," or "compartmented." These are terms that imply that knowledge needs to be withheld from unauthorized people.

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┌──────────────────┐     ┌──────────────────┐     ┌──────────────────┐     ┌──────────────────┐
│                  │     │     Step 2       │     │                  │     │     Step 4       │
│     Step 1       │     │   Attribution    │     │     Step 3       │     │   Grouping of    │
│  Narrative coding│     │     coding       │     │ Grouping of units│     │  attribute codes │
│      Aim:        │  ⇨  │                  │  ⇨  │                  │  ⇨  │                  │
│    Identify      │     │      Aim:        │     │      AIm:        │     │      AIm:        │
│ (meaningful units│     │    Identify      │     │  Identify larger │     │Identify groups of│
│  of) withholding │     │  participants    │     │    narratives    │     │      actors      │
│                  │     │    within a      │     │                  │     │                  │
│                  │     │ meaningful unit  │     │                  │     │                  │
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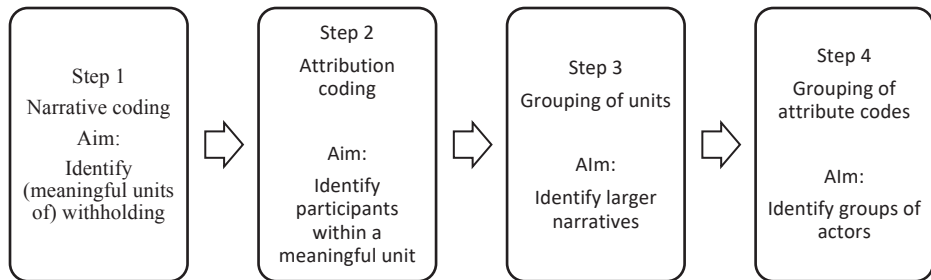
Figure 3

The data analysis process

In the second step, we applied an attribution coding of the meaningful units
to identify the actors per instance of knowledge withholding (Saldaña, 2015) (Figure
3, Step 2). For example, when a unit describes names of participants such as
"General Petraeus," "Mullen," "the President," or "President Saleh," we noted the
names in the table. In other cases, the authors used the names of job roles such as
"my battalion commander," "company commander," or "chief of staff." In these
cases, we noted the actors by their roles. We also encountered participants who were
enemies such as "Al-Qaeda", "Viet Cong", or "Abu Musab al-Zarqawi." During the
attribution coding, we distinguished the knowledge withholder from the knowledge
non-recipient (these codes are summarized in Table 4).

Table 4

Examples of attribution codes for the various actors

	Actor types	Attribution codes
1.	Enemy	VC [Viet Cong], Al-Qaeda, Abu Musab al-Zarqawi [terrorist]
2.	Competitors	CIA, FBI, State Department
3.	Politicians	The President, Senator, Vice President,
4.	Foreign leaders	[Iraqi] Prime Minister Maliki, [Yemeni] President Saleh, [Afghan] Elders
5.	Troops	Battalion commander, Company commander, chief of staff
6.	Instructors	Sergeant Kittle, Sergeant Reilly, Platoon sergeant
7.	Family	Georgeann [McRaven's wife], Cathy [McChrystal's wife], dad
8.	Media	The Rolling Stone magazine, reporter, press

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In the third step, we grouped meaningful units that formed a larger narrative by using narrative coding (Saldaña, 2015) (Figure 3, Step 3). That is, although every unit reflected one instance of knowledge withholding, some units constructed a story of various cases of knowledge withholding. Whereas the previous step identified knowledge withholding between two actors, these narratives indicated knowledge withholding between multiple actors.

In the fourth step, we grouped actors in an iterative process based on the attribution codes and the Step 3 narrative coding (Figure 3). We, thereby, started with the meaningful single units that were not coded as part of a larger narrative. For example, we categorized codes such as "Al-Qaeda," "Viet Cong," or "Abu Musab al-Zarqawi" and labeled them as *enemies*. Or, we categorized codes such as "my battalion commander," "company commander," or "chief of staff" and labeled these as *troops*. Or, we labeled a category as *foreign leaders* from codes such as "Prime Minister Maliki," "President Saleh," and "elders" (see Table 4).

Subsequently, we looked at larger narratives and the actors who played a role. We categorized them within an existing category when the actor-category of all the included knowledge-withholding units was the same. For example, if General Franks' larger narrative consists of three meaningful units that all reflect knowledge withholding in his military unit, we categorized it as *troops*. However, some larger narratives included more than one actor category. For example, the narrative of Admiral McRaven and the raid on Usama bin Laden consisted of 21 units among various actors. We labeled these larger narratives as a separate category and tagged them as multiple actor types.

A second coder also conducted the coding in the data analysis. After Step 1 (Figure 3), the second coder assessed the meaningful units' descriptions and quotes in the data coding table. The coder labeled them with either "agree" or "uncertain." In the latter case, the first coder extended the quotes from the data sources to represent meaningful units. Then, the second coder took Steps 2 to 4 (Figure 3) and discussed the coding differences with the first coder. In the end, this process resulted in the rejection of three units and a full agreement on 246 meaningful units.

Results

The relationship between the person who has the knowledge and the person who may receive the knowledge or, more accurately, the broad relational context in which the behavior occurs plays an essential role in knowledge-withholding behavior (Strik et al., 2021). We investigated with whom the general and flag officers interacted in the meaningful units and identified eight actor categories: *enemies, competitors, politicians, foreign leaders, troops, instructors, family,* and *media*. Accordingly, these actors signify different types of relationships and different relational contexts in which the knowledge withholding-behavior took place.

Next, we describe knowledge withholding between the officers and the eight actor types. For every actor type, we describe the responsibilities, provide meaningful units, explain the implications, and arrive at a reason for knowledge withholding. We, thereby, draw on the analysis of 246 meaningful units of which 163 units illustrate interactions of the general and flag officers with one of the eight individual actors, and 83 units reflect interactions with multiple actors (Table 5 provides a summary of the results in terms of actors, their reasons, and how often these were observed across the data. When we look in more detail at the 163 units,

we distinguish 58 units of knowledge withholding by the general and flag officers and 105 units by the *other* actors.

Table 5

The individual actors and the reasons to withhold knowledge

Actors	Knowledge withholding reasons	Elements within reasons	By General and Flag Officers	By actors	Total number of units
Enemies	To enable weaker or disadvantaged parties to win against a stronger or advantaged enemy in combat	-To enable offensive action -To protect own troops	4	14	18
Competitors	To strengthen competitive organizational positions	-To guard relevancy -To ensure budgets	5	7	12
Politicians	To serve one's closest interests	-To serve political interests -To serve military interests	3	13	16
Foreign Leaders	To maximize support	-To navigate relationships -To execute operations	3	15	18
Troops	To enhance teamwork and, ultimately, win against an enemy	-To maintain focus on winning -To support creativity -To motivate troops	18	41	59
Instructors	To educate students	-To stimulate learning -To avoid discussing sensitive issues	4	8	12
Family	To preserve relationships	-To maintain a harmonious family -To avoid stress	15	3	18
Media	To support the quality of decision making	-To discuss decisions in person -To investigate options	6	4	10
Total			58	105	163

Enemies

The officers described how they fought with enemies such as the Viet Cong, Iraqi army, or Iranians. A warring party considers it their mission to search and destroy the other party. This usually means that a party applies violence to inflict casualties and damage to the opposing party. The data included 18 units of knowledge withholding between enemies; 14 units reflect knowledge withholding by the enemy, and 4 units reflected knowledge withholding by the officers. For example, General McChrystal describes that Iranians took U.S. embassy staff hostage in Iran in 1980. The Iranians demanded that the Americans stop interfering in Iranian national politics. However, the U.S. forces intended to free the hostages. Accordingly, the Iranians and the U.S. intended to prevail at the expense of each other's interests. General McChrystal describes that, during Operation Eagle Claw, "The demands of operational security were understandably heavy" (p. 36). The term "operational security" implies that the knowledge is hidden from the enemy so that the assault force has the tactical advantage of surprise. Moreover, the assault force aimed to maintain their surprise by avoiding "detection at the airstrip". General McChrystal also writes that "the soldiers would spend the night hiding in advance of an early-morning assault" (p. 35). Despite the focus on knowledge withholding, the assault force endured multiple accidents and lost eight service members. Besides that, the Iranians guarded the hostages in their country, which gave them the upper hand. Hence, the U.S. task force relied heavily on knowledge withholding because they needed to surprise the Iranians to free the hostages and, simultaneously, avoid Iranian assaults.

The same reason for knowledge withholding is found on the enemy side: General Franks describes how "the V.C.[Viet Cong] ambush was perfectly placed and timed, hitting my column from the dense bamboo to outright, exploding a captured American claymore mine and raking the trail with AK-47 fire" (p. 74). The word "ambush" means that the Viet Cong withheld knowledge to attack General Franks unexpectedly with overwhelming force. The Viet Cong were able to launch surprise attacks against General Franks' patrols, even though General Franks far exceeded their military strength. Taken together, the data showed that the weaker party in an enemy relational context applied knowledge withholding for two reasons. First, it enabled them to launch surprise attacks against the stronger or advantaged party. Second, it supported them to keep their people safe from their opponent's attacks. Both of these elements are necessary to win in combat. Hence, knowledge withholding was used by weaker or disadvantaged parties to win against a stronger or advantaged enemy.

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Competitors

The officers also describe interactions with other U.S. government organizations such as the Central Intelligence Agency (CIA) and the U.S. State Department. While these organizations all serve an administration in their own way, each also has a seat on the U.S. National Security Council, which coordinates policies across governmental organizations. While the U.S. President chairs this security council, the President also allocates budgets to separate organizations through a different (political) process. This leads to a tension between two interests in which organizations cooperate to serve the National Security Council and compete for scarce resources.

The data showed six events of knowledge withholding between governmental organizations. For example, General McChrystal describes that agencies withheld knowledge. He says that "valuable information that might slide across a table downrange had to cross miles and clear bureaucratic hurdles back in the States" (p.117). "Downrange" is military jargon for being in the warzone. In other words, General McChrystal expected that people who work together "downrange" might share knowledge with each other sooner. However, in the current set-up, people from various agencies withheld knowledge because they first had to work through "bureaucratic hurdles"; they withheld knowledge until they went through internal approval procedures to obtain permission to share the knowledge. He, thereby, notes that there was "counterproductive infighting among the CIA, State Department, Department of Defense, and others back in Washington" (p. 116). The clause "counterproductive infighting" signals that the organizations competed rather than collaborated. He acknowledges that by saying that "the agencies" were "less collaborative" due to "culture" and "competing priorities." The parts "infighting" and "competing priorities" illustrate the tension between collaboration and competition. That said, the specific organizational activities such as collecting intelligence or maintaining diplomatic relationships enabled them to show their relevance and secure their part of the administration's finite financial resources. Hence, knowledge withholding enabled organizations to protect their relevance and to secure budgetary resources.

The same dynamic was observed in six examples of knowledge withholding between smaller elements within organizations, such as in the memories by General Franks, who discusses tensions and consequently knowledge withholding between the Defense Department's combat units and legal departments (p. 104). Taken together, the governmental organizations or the smaller sub-organizations should have had the respective national or organizational strategic

aims as a common, overarching goal. However, they also played a zero-sum game in which the limited financial resources were divided between the (sub-)organizations. As a result, the (sub-)organizations seemed to prioritize the financial interests over the strategic national or organizational interests. In doing so, they guarded their relevance and strengthened their position. Hence, knowledge withholding was used to influence organizations' competitive positions.

Politicians

The officers also interacted with politicians such as the U.S. Vice President and the Secretary of Defense. Both parties serve the U.S. and, accordingly, the U.S. policies are their guiding principles. However, on a lower level, the officers embodied the military profession, and the politicians served their electorate. This introduces another form of tension. The data included 16 units of knowledge withholding between the officers and politicians. For example, General Mattis interacted with the Secretary of Defense, who is the politically appointed leader of the Department of Defense. In this example, General Mattis describes a meeting with the Defense Secretary where they had to decide how and where to cut the Defense budget. General Mattis describes, "I listened attentively, not wanting to add my gripes to the litany already heard" (p. 186). While he eventually proposed to disband his organization, he did this "based on many months of reflection and experience of decades spent looking at what delivers real capability" (p. 186). The clause "delivers real capability" suggests that General Mattis doubted his organization's added value compared to others. Related, the clause "many months of reflection" indicates that he had withheld his knowledge for an extended period. Under the pressure of a restrained budget, General Mattis concluded that his added value was insufficient and eventually suggested cutting his organization's budget. In other words, he served the military interests by adding some value and withheld knowledge about potential overhead. Hence, knowledge withholding supported General Mattis to serve the military's budgetary interests.

Hence, the officers and the politicians had the common purpose of advancing U.S. interests. However, General Mattis in this example withheld knowledge in favor of the military interests but stopped doing that when it started to affect their shared interests. These are strong indications that the officers and politicians had conflicting interests despite their common purpose. Hence, knowledge withholding supported the officers as well as, in other examples of knowledge withholding units, the politicians, to serve the interests closest to them.

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Media

  The officers also describe knowledge withholding between themselves and the media. It is the officers' responsibility to communicate to the public about their organizations so that the public can get a grasp of what is happening, but they also need to ensure that decision-making processes are not influenced by media coverage. It is the media's responsibility to publish news and investigate what they present to the public. Yet, the media companies also need to generate revenue, which is often achieved by breaking news sooner than competitors. This leads to a tension in which the general and flag officers can deliberately choose knowledge withholding.

  The data included 10 such knowledge-withholding instances. We provide an example of General McChrystal, who interacted on various occasions with a Rolling Stones magazine reporter. General McChrystal aimed to provide transparency about the command team's difficulties during their fight against the Taliban. However, the reporter published an article named "The Runaway General." When General McChrystal read the article, he describes, "For a number of minutes I felt as though I'd likely awaken from what seemed like a surreal dream, but the situation was real." The reporter did not focus on the difficulties of fighting the Taliban but rather on the command team's supposedly critical attitude toward their political leaders. General McChrystal continues that "its ultimate effect was immediately clear to me" and that he "knew only one decision was right for the moment and for the mission." In other words, after reading the article, he "immediately" "knew" that he needed to resign directly, but he kept that decision to himself. The article resulted in General McChrystal being the center of a serious controversy. From his technologically advanced headquarters in Kabul, he could have ended the controversy quickly by publicly announcing his resignation through the media, but he chose to withhold his decision from them. He describes that he had a "professional meeting with President Obama," and the President "accepted my resignation" (p. 388). Hence, knowledge withholding supported General McChrystal to meet the President and discuss his resignation in person.

  This particular event involving General McChrystal also comes back in a unit from the book of General Petraeus, from which it becomes clear that General McChrystal's withholding knowledge of his resignation from the media provided President Obama time to arrange a replacement for General McChrystal and a press conference to share the news. Taken together, although leaders and the media both aim to publish news, leaders may temporarily withhold knowledge from the media to allow them to meet in person with people and discuss the issues at hand. This

provides them with the necessary time to investigate and decide on potential next steps. Hence, withholding knowledge from the media supported leaders in the quality of their decision-making.

Foreign Leaders

The officers also interacted with leaders of other countries such as Iraq and Pakistan. The commonality between these parties is that they both strive to increase security in a country or geographical area. However, they also serve their national agendas. This leads to a tension in which they have common ground on security but may have opposing interests on other issues. These matters are further complicated with the involvement of a third party. The data indicate that foreign leaders often maintained a connection with a local enemy of the U.S. for political reasons. This leads to a triangular relationship between the three parties.

The data included 18 knowledge-withholding units involving foreign leaders. For example, General Petraeus and Iraqi Prime Minister Maliki cooperated to improve the security in Iraq. Meanwhile, Muqtada Sadr's Shiite insurgents attacked American patrols as they wanted them to leave Iraq. Thus, Muqtada Sadr's insurgents were American enemies. In General Petraeus' book, the author describes how the same problems in Iraq seemed to reoccur regularly. When the American discussed this with Maliki, he said that these "problems" were caused by "miscommunication and incompetence" (p. 188). The Americans investigated the issues, and "wiretaps revealed that Muqtada Sadr's lieutenants [Shiite insurgents] had been tipped off [by Shiite politicians]" (p. 188). The phrase "tipped off" shows that the Maliki informed the Shiite insurgents about the Americans. Maliki thus withheld his connections with the insurgents from the Americans. The author concludes that "Maliki's power base rested in part on Sadr, so, regardless of what the Americans wanted, Maliki's administration would protect him" (p. 188). In other words, Maliki needed the Americans' military support while he also needed the Shiite insurgents' political support. He managed this triangular relationship by withholding knowledge from the Americans. These "problems" and the fact that the Americans put a "wiretap" on Maliki indicates that they did not trust each other. Hence, knowledge withholding served Maliki to navigate his relationships with General Petraeus and the Muqtada Sadr.

In another example, by General McChrystal, he was aware that the Pakistanis might tip the Taliban in Afghanistan off about a U.S. attack on Al-Qaeda

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camps. While General McChrystal and the Pakistanis both aimed to defeat the Taliban, the Pakistanis and the Taliban sought to maintain a relatively controlled border region. This awareness must have influenced General McChrystal's trust in the Pakistanis. Hence, the Americans "gave the Pakistani notice, but just barely," because "Pakistan's military and intelligence establishment would tip off the Taliban or bin Laden" (p. 69). Hence, Taken together, the officers and the foreign leaders cooperated to achieve the shared the goal to advance security in an area. However, one party also had shared interests with a third party who, in turn, had conflicting interests with the other party. Hence, this triangularity affected trust between the parties who subsequently withheld knowledge to advance their interests or maximize support.

Troops

The general and flag officers also interacted with their troops. Together, they formed military units in which the officers had the responsibility to lead the unit. In contrast, the troops were responsible for executing the orders of the officers. When military units are in combat, they fight as one, with a strong and inherently shared purpose to prevail against the enemy. The data showed 59 relevant knowledge-withholding units.

A recurring theme was the communication of the commander's intent, a common military leadership philosophy in which commanders express what missions have to be achieved and withhold their knowledge on how to do this. This direction provides the troops with focus but leaves room for creative solutions and raises their buy-in. General Mattis explains, "The details you don't give in your orders are as important as the ones you do" (p. 44). He continues that he withholds knowledge to "unleash" "their cunning and initiative" (p. 44). In another unit, he describes, "After I communicated my intent, subordinate commanders, along with their Navy and Marine staffs, drafted plans for how they would execute their parts of the mission" (p. 60). While this practice is widely taught and practiced in the military, the data also show that the reality is often less straightforward. Kaplan (2013) describes, "David Kilcullen [expert in counterinsurgency doctrine] came to Iraq in late February 2006." Kaplan continues that "he [David Kilcullen] spent several hours talking with some of these newly arrived junior officers: the American lieutenants, captains, and majors." These officers had read the new strategy and "understood its drifts," but said, "I get what we're supposed to achieve, but what are we supposed to do?" In other words, the commander in Iraq described what goal he

wanted to achieve and withheld all other knowledge. The troops understood its "drifts," which indicates that they understood that it differed from known strategies. However, they could not develop a plan, which implies that the commander withheld too much knowledge. This event illustrates that commanders have to walk a tightrope in how much they withhold. Hence, when done appropriately, knowledge withholding may support commanders to generate creativity and motivate troops.

Instructors

Officers spend a considerable amount of time on training to acquire and update essential knowledge and skills. Knowledge withholding takes place in the interaction between instructors and officers participating in the training. The data included 12 knowledge-withholding units. For example, Admiral McRaven applied for SEAL training, and he notes that "it was difficult to find out anything about SEALs or SEAL training" (p. 36). While in training, they were briefed by a trainee who had been through Hell week. This week is known as the most challenging week of the training. This trainee was a "rollback," which means that he had to do Hell week again. While this trainee had all the knowledge and experience of a previous Hell week, the only advice he offered was: "you must stick together" (p. 38). At some point it was the last day of Hell Week, but the SEAL instructors tightly withheld that knowledge. Only after the relieving words "congratulations, Class 95. Hell Week is over" and "get the Class out of the water" (p. 56), they knew for sure that the week was over. The SEAL instructors were able to withhold knowledge about the SEAL training in such a way that Admiral McRaven did not know what to expect, which is a standard military practice that teaches the realities of war.

In another example, General Franks describes that he asked the supply personnel for wide "triple E" boots but received narrower ones. That personnel also neglected to explain how General Franks could widen the boots with water. As a result, he got blisters and limps while marching, but he does not tell the platoon sergeant. The platoon sergeant comes to him and says, "Been watching you, boy. The way you march ain't normal. Come with me." General Franks walked with the platoon sergeant to the barracks. He says he knows that General Franks has got blisters and asked, "why didn't you tell me?" and then explained, "I'm your platoon sergeant. My job is to get all your sorry asses trained as soldier, and that won't happen if you can't march" (p. 37). General Franks' rationale remains unclear. He may have thought that this was part of the training or did not want to accuse the

supply personnel. Notwithstanding General Franks' rationale, both reasons indicate that he did not trust the instructor enough to discuss his problem.

However, by uncovering the knowledge withholding, the instructor showed care and, thereby, their common purpose. Hence, the knowledge withholding enabled General Franks to continue training without having to discuss a potentially sensitive issue. Taken together, the officers as trainees and the instructors had the common goal that the trainees successfully complete a course. As such, when knowledge is withheld to provide trainees with a safe space to practice, they can benefit from it. However, when knowledge is withheld from the instructors, they are unable to provide educational support to the students.

Family

The general and flag officers describe how knowledge was sometimes withheld within their families. Compared to the previous actors, family members do not have formal responsibilities apart from marital agreements and legal responsibilities to take care of their children. Also, the military profession has associated risks that the family experience the consequences when things go wrong. In general, it may be fair to say that family members strive to have a harmonious life together. Knowledge is withheld not only in a marriage but also in a parent-child relationship. The data included 18 knowledge-withholding units within families.

We start with an example of parents who withheld knowledge from their children. For instance, General Franks was living in a student room in Austin, but his parents couldn't afford it anymore. His parents did all they could to keep him in college. His father sold their business to move to Austin so that Franks could live with them and reduce their spending. Also, General Franks noticed that "things got so bad that my mother was selling her pies and cakes again to help keep me in college" (p. 31). He notes that, "Only later that afternoon did I realize what my parents had in mind: If I moved back in with them in Austin, it would save them the ninety dollars a month room" (p. 31). Although his parents withheld knowledge, these instances illustrate that they wanted the best for their child.

The general and flag officers also withheld knowledge from their wives. For example, General McChrystal "scheduled a parachute jump" for his unit, which was "finished after midnight." After the jump, he "decided to raise morale" and organize a party at his house, but "the plan…was not relayed to Annie [his wife]"

(p. 31). The part "was not relayed to Annie" indicates that he withheld his plan from her. He might have known that his plan would "raise morale" of his men but not necessarily of his wife, Annie. He thought that he could be "home before everybody arrived" (p. 31). In other words, the officers withheld knowledge because they did not want their wives to worry. They trusted that their wives would be fine with the withholding because they had good intentions. Hence, knowledge withholding supported the general and flag officers to avoid stress with their wives. Taken together, families tend to have shared goals that focus on a harmonious family life together. Dangers or accidents that happen in the professional life of the officers may affect this harmonious family life. Hence, knowledge withholding by military leaders is used to preserve relationships within their families.

Discussion

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We analyzed the written memoirs of Generals Franks, Mattis, McChrystal, Petraeus, and Admiral McRaven on knowledge-withholding. The results indicated that knowledge withholding occurred when these officers interacted with enemies, competitors, politicians, media, foreign leaders, troops, instructors, and family. The actors withheld knowledge with the aim to outmaneuver a (stronger) enemy, strengthen competitive organizational positions, serve one's closest interests or identity, support the quality of decision making, maximize support, educate students, or preserve relationships. We now apply a theoretical lens to the various relational contexts in which the actors withheld knowledge to frame the results of our analysis. In doing so, we identified three broad relational clusters that represent different contexts in which knowledge-withholding behavior took place. Based on these three clusters and significant factors within clusters, we subsequently return to the theoretical claims made by Strik and colleagues (2021). We, thereby, look for commonalities in terms of interdependence, social identity, and social exchange as drivers of knowledge withholding among the eight actor-types that we observed in the memoirs and synthesize the results in an overarching model.

Cluster #1: Negative Interdependence

A first cluster consists of the actors whose interests directly oppose the interests of the officers, namely: enemies, competitors, politicians, media, and foreign leaders. Warring adversaries pay a lethal price from losing; sub-

organizations and departments aim to strengthen their position at the cost of another's position within larger organizations; the officers and politicians pursue opposing outcomes when they serve their closest interests; officers strive to withhold news from the public until the decisions are taken, while the media publishes as soon as possible to serve their audiences and generate revenue; officers and foreign leaders withhold knowledge from each other while they navigate triangular relationships with the enemies. All these actors have opposing interests in that some compete in the distribution of scarce resources such as money, others seek to prevail where a favorable outcome is only attainable by one, and yet in other cases, one actor's attainment of their goal detrimentally impacts the interests of the other actor. In all these cases, the actors' outcomes are *negatively interdependent* (Johnson, 2003; Thibaut & Kelley, 1959), which made knowledge withholding the rational, sometimes even the necessary choice. Thus, results confirm the Strik et al. (2021) argumentation that negative interdependence enhances knowledge-withholding behavior.

Nonetheless, our data indicate new insights concerning this general finding. We found knowledge withholding particularly in situations of a power difference, with the weaker actors tending to withhold knowledge. Strength or power differences create a certain imbalance as the negative consequences of loss for the weaker party are relatively greater than the negative consequences of a loss for the stronger party. Power or strength-driven asymmetries seem to strengthen knowledge-withholding behavior in negatively interdependent contexts. More straightforwardly, it seems parties apply knowledge withholding as a compensatory tool for lower power or strength in negatively interdependent contexts because (a) they do not have the strength to overpower their adversary and (b) the negative consequence of failure to withhold knowledge would be more consequential. Comparing this finding with the Strik et al. (2021) framework, we add the role of power/strength differences as a moderator in negative interdependence situations, arguing that people with competing goals increase their knowledge-withholding behavior, particularly when they need to compensate for a relative disadvantage.

Cluster #2: Positive Interdependence

A second cluster concerns the actors whose individual interests are aligned. These actors are attempting to help each other and share a common or collective goal. This cluster consists of three actor types: the troops, families, and the instructors with their students. Although the relationships between these three actor

types and the officers are not identical, in all instances knowledge withholding was benevolent. The relationship between officers and their troops is perhaps the strongest example of people who have a shared goal because they collectively fight to defeat an adversary. Sometimes knowledge is withheld to safeguard effective teamwork or enhance creative problem-solving. Less extreme shared-goal situations occurred between the officers (in training) and the instructors who both aim to successfully finish an educational journey. Similarly, the general and flag officers and their families have the shared goal of a harmonious life together, and they may withhold knowledge to avoid disrupting that equilibrium. In sum, the aims and outcomes of the troops, instructors, and family are *positively interdependent,* meaning that a good outcome for one also means a good outcome for the other (Johnson, 2003; Thibaut & Kelley, 1959), and they withheld knowledge to achieve shared goals.

Next to positive interdependence, this second cluster illustrates another common theme among actors whose goals are aligned. Military units invest substantial resources in forming cohesive teams out of individual soldiers. This process starts as early as their training by the military instructors who come from those units. As such, a strong *shared identity* (Tajfel & Turner, 1986; Tajfel, 1978) appears to drive an individual knowledge holder's pursuit of common goals and, accordingly, knowledge withholding often serves a social identity-driven goal that an individual knowledge holder shares with the other actor.

At a first glance, these conclusions seem contrary to the Strik et al. (2021) framework and review, which finds that positive interdependence and shared identity tend to decrease knowledge withholding. The reason for this difference resides in the context of the two studies and the role that knowledge plays. Our study investigated military personnel in high stakes situations where knowledge had the potential to *harm* the shared interests. Our data suggest that knowledge holders assess the consequences of not withholding the knowledge and when these are too costly, they decided to withhold knowledge to promote pursuit of the common goal. In contrast, Strik et al. (2021)'s review covers employees in business organizations, where the knowledge had the potential to *help* the actors' shared interests. Here, too, based potentially on a shared identity, the knowledge holder assesses consequences but because the shared interests are oriented on advancement and profit, rather than on preventing a loss, a shared identity and a common goal will tend to lead to less knowledge withholding.

Among some actors who have positively interdependent goals, we discerned a third relational theme, which echoes earlier findings by Strik et al.

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(2021), namely that even actors with shared goals and shared identities may withhold knowledge due to the (low) quality of their exchange relationship, their level of trust and reciprocity. Our data suggest that when knowledge holders are uncertain about what the other actor will do with the knowledge, they are likely to withhold that knowledge as a means of protecting their individual interests. As Strik et al. (2021) argued, actors with common goals who do not trust each other will tend to withhold knowledge. This role of trust is best explained by social exchange theory. When people do not trust each other, they tend to focus on individual goals rather than shared goals or helping others because they feel uncertain about the potential consequences of sharing (Cropanzano & Mitchell, 2016).

In sum, our findings contribute to the current understanding of antecedents of knowledge-withholding behavior (Strik et al., 2021) by indicating that knowledge withholding can support a collective goal pursuit by parties who experience a shared identity. Specifically, knowledge withholding may occur as a means to safeguarding against a high-stake collective failure. However, in situations with common goals and identities in which individuals do not trust each other, knowledge withholding may occur as a means to self-protection due to uncertainty.

Cluster #3: Complex Interdependences

A third cluster, overlapping partly with the other two clusters, regards the actors with simultaneously opposing and common goals . These actors are competitors, politicians, media, and foreign leaders. The negative interdependence between some of the actors' goals in Cluster #1 only provides a part of the explanation for the actors' behavior based on the data. In fact, some actors' interests seem to be affected by multiple goals. In essence, the actors experience a complex interdependence structure in which negative and positive interdependences co-occur between more than two actors or with regard to different interests.

When actors experience such an interdependence structure in their relationships, the question is why they choose to pursue the one above the other. The explanation for this knowledge-withholding behavior is twofold. First, the financial gain that the competitors can obtain with knowledge withholding has a direct and positive impact on the organization itself, while the impact of advanced national interests is far less visible and positive for that specific organization. They thus seem to serve an organizational identity rather than a national identity. In the same vein, the general and flag officers, the politicians, and the media all seem to

serve goals that are related to organizational identities rather than the national goals and identities. Social identity theory explains that people often have multiple social identities that differ in strength (Thoits, 1983). When people strongly identify with a group, they also feel a strong connection with that group's goals. In contrast, weaker group identifications also result in weaker connections to those goals. People tend to pursue the goals of the group with which they feel the strongest identification (Tajfel & Turner, 1986; Tajfel, 1978). Thus, social identity theory and, more concretely, the phenomenon of multiple identities help explain why actors withhold knowledge to compete rather than collaborate for a superordinate goal and identity. Second, the general and flag officers and foreign leaders' examples reveal a triangular relationship that includes the enemy's category. The key element here is that the military officers are aware of the triangularity. This awareness severely affects their trust in the foreign leaders, which subsequently triggers knowledge-withholding behavior. As before, when people do not trust each other, they tend to worry about their own interests being harmed (Cropanzano & Mitchell, 2016). This explains why parties with a non-trusting relationship withhold knowledge from each other.

In sum, in contrast with Strik et al. (2021), who described negative and positive interdependence with regard to knowledge withholding as phenomena that seem to occur separated from each other, this study indicates that parties may operate in more complex situations where positive interdependence and negative interdependence co-occur. Moreover, whether their behavior is driven by one or the other could vary as a consequence of other factors. One of these factors may be the actor's social identity: when the actor identifies with their own immediate group, negative interdependence to the other party in the situation becomes more salient. A second reason is a lack of trust among actors, which drives people with common goals to worry about their own interests being harmed.

An Emerging Model of Knowledge Withholding

By examining the relational contexts in which leaders operate, integrating our observations with prior theory (Strik et al., 2021), we propose a theoretical model that outlines the reasons underlying knowledge withholding (Figure 4). At the center of the model are two actors with their respective individual goals (Actors 1 & 2). These two actors' goals may be opposed, as indicated by the arrow between them (negatively interdependent), or they may be common goals as indicated by the rectangle around the goals (positively interdependent). Actors' individual goals are

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driven by their own identities, and their own identities may be, or may not be, driven by an overarching identity that they both share (oval around actors' identities). Logically, when actors experience a shared identity, their goals are likely to be shared goals too. Nonetheless, one of the actors (Actor 2 in Figure 4) may also share an identity with a third actor that that Actor's goals and, indirectly, that Actor's interdependence to Actor 1.

In situations of negative interdependence, the two actors tend to increase knowledge withholding during their goal pursuit. Moreover, in asymmetric power distribution, a weaker or disadvantaged actor tends to withhold knowledge from a stronger or advantaged actor. In the case of positive interdependence, the effect on knowledge withholding is highly contingent on several moderators. As evidenced predominantly in Strik and colleagues' review (2021), positive interdependence tends to decrease knowledge withholding in non-threatening situations such as business, wherein individuals believe that they have little to lose and focus on what they can gain from not withholding knowledge. In threatening military contexts, knowledge holders have a lot to lose as they deal with matters of life and death. Thus, if actors are concerned about the potential risks and the knowledge that may harm shared interests, they are more likely to withhold knowledge to prevent such costs. In both loss and gain contexts, nonetheless, lack of trust enhances knowledge withholding because it relates to additional risk or cost that occurs as a consequence of the exchange relationship between the two parties. A lack of trust implies that the knowledge holder cannot rely on the other actor to handle the knowledge benevolently and puts the individual actor in a more self-protective, individualistic mindset where knowledge is withheld because helping the other or the shared goal is no longer the priority.
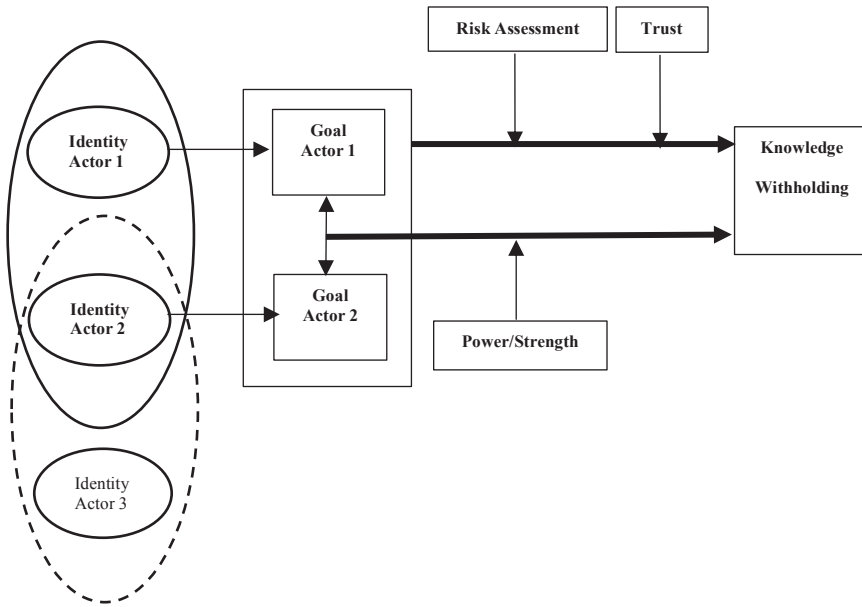
Figure 4

An emerging model of knowledge withholding

Avenues for Future Research

This research and the model emerging from it, synthesized with recent theoretical work, open up many directions for research. First, our research focused on knowledge withholding by individuals in leadership positions. Leaders take a special position as representatives of groups in the sense that, as opposed to situations examined in other research, the knowledge-withholding behavior of leaders may have a great impact. Leaders may withhold knowledge for individual benefit, which they may do when they seek to exploit their subordinates, whereas looking at social identity, leaders may also hoard knowledge for the benefit of their unit. Depending on the leader's hierarchical level (in an organization or in society), the costs and benefits of leaders' knowledge withholding could manifest for large groups. That is to say that our insights on the complex interdependence and identity structure underlying the reasons for leader knowledge withholding may be useful in shedding light on leader knowledge behavior more broadly.

While it was not the main focus of our research, the units of knowledge withholding illustrated another factor that is important in future research. That is, what implicitly but very clearly emerges from these examples is that cases of knowledge withholding are fundamentally different depending on whether the party from whom knowledge is being withheld has an awareness of the existence of the knowledge to begin with and how elaborate that awareness is. This factor relates to the distinction between hoarding versus hiding. Where the latter is often used to describe the withholding of knowledge from someone who requested it, the former is used to describe the withholding of knowledge that was not requested. In our data, situations where knowledge was withheld for the purpose of shared goal-accomplishment do not appear to have been situations in which the other actor was aware of the knowledge and appear to reflect situations that would be more aptly referred to as hoarding. An interesting and important question for future research is whether knowledge hiding (requested knowledge) or hoarding of knowledge that the other is aware of, would occur in shared goal/shared identity situations. That is, hiding knowledge in such situations violates the expectations of a positive social exchange, so while positively interdependent individuals may hoard knowledge from each other to benefit the collective goal, they may be less likely to *hide* knowledge from another as the act of hiding would harm the relationship and the pursuit of the common goal. Conversely, in negatively interdependent situations, hiding and hoarding are likely both prevalent. Therefore, research on when knowledge holders may hide and hoard or when they might hoard but not hide would be very valuable in shedding further light on these behaviors.

Lastly, our research focused on the reasons why knowledge holders in leadership contexts decide to withhold their knowledge from other actors. The findings indicate that there are benefits to this behavior, as they have shown that there are good reasons, reasons of effective leadership, for withholding knowledge. Nonetheless, we did not explicitly study consequences of knowledge-withholding behavior by leaders and we, therefore, believe it is important for future research to seek a fine-grained understanding of the different consequences of leader knowledge withholding. As an example, we can imagine that despite the tactical benefits and necessities of withholding knowledge in situations with shared goals, there could be unintended side-effects of this behavior in terms of affecting trust between the actors in the long term.

Research Limitations

In this study, we aimed to explore knowledge withholding by and from leaders. Thereby, we investigated the various types of relational contexts in which knowledge is withheld between leaders and other parties. Given our aims, we chose to conduct a qualitative study of the memoirs of several highly influential leaders in the U.S. military, and as any methodological choice, this comes with limitations. First, we specifically studied knowledge-withholding behavior in a military context. This is a high-stake context in which decisions have far-reaching consequences; people can be harmed, nations may degrade, or economies may be affected. This context also places a high value on creating a shared identity and trust among people. Moreover, our findings revealed situations in which actors have multiple identities and illustrated how the particular social identity they identify with most, among the different social groups to which they might be affiliated, influences their knowledge-withholding behavior. These specific characteristics might explain some of our findings, especially those that add to the framework by Strik et al. (2021).

Second, we have collected our data solely from memoirs. A cautionary note is that memoirs are not identical to historical accounts and may be censored by Defense institutions (Harari, 2007; Kleinreesink & Soeters, 2016). This means that memoirs might be less accurate than wartime diaries, letters, and administrative documents (Harari, 2007). The use of these other sources in a study can reveal potential missing elements in memoirs (Rozman, 2019). However, we also inspected book reviews by various reviewers of the same books, which did not reveal factual inaccuracies, memory recall bias, or contextual disconnections. These results supported the memoirs' utility as a data source to investigate knowledge withholding.

Practical Implications

In daily practice, leaders tend to interact with multiple actors at the same time or in short succession. This means that leaders need to evaluate how their goals are related to the potential knowledge recipient's goals in each interaction and they need to decide whether knowledge sharing or withholding best contributes to their interests. Admiral McRaven's narrative of the raid on Usama bin Laden aptly illustrates the dynamic reality of leader knowledge withholding. At the start of this history, Admiral Mullen, the Joint Chief of Staffs, spoke to Admiral McRaven about a potential intelligence lead to bin Laden. He writes, "you can't tell anyone else

about this mission," which means that Admiral McRaven had to withhold his knowledge from everybody. Admiral McRaven subsequently had a meeting about the intelligence lead at a CIA facility but called the facility "The Pentagon" to withhold his destination from his (personal) staff. Next, he started to develop plans for an operation to capture or kill Usama bin Laden. He needed extra expertise in his planning team and called a Navy SEAL officer. Before he briefed the officer, the Admiral ensured knowledge withholding with a "yes, Sir" on his question, "I am going to tell you something, and I need to ensure that no one, absolutely no one else, learns about this."

Next, Admiral McRaven and the Navy SEAL officer went to a meeting with the CIA. The Admiral instructed the officer: "Just listen. The last thing I want is for the Agency to think that we are trying to take over the mission." The officer was thus expected to withhold his knowledge about what the SEALs regarded as viable options. In the meeting, there were tensions between the two organizations. CIA gathered the information and wanted to conduct the mission while Admiral McRaven supported a raid by the Navy SEALs. The CIA Director was also present, quietly listening. Admiral McRaven describes, "As the meeting ended, Panetta pulled me aside and reaffirmed his support for the SOF raid." Again, sensitivities and competition appeared between the two organizations, and it seems that Panetta wanted to withhold his opinion from his organization. When Admiral McRaven had to brief the President, the director of the briefing room in the White House, "Subtly made it known that he was unaware of whatever was transpiring that afternoon. There was no record of the meeting on the President's calendar." During the briefing, the President decided that Admiral McRaven could inform the assault force and rehearse it. The squadron commander hand-picked the assault force. He instructed them to be at a meeting, but "none of them knew why they were being asked to come to North Carolina on such short notice." They started the meeting by signing "non-disclosure forms" to ensure knowledge withholding. The raiding force's rehearsals began straightaway at a U.S. Airforce facility. Admiral McRaven writes that "if a crowd develops Mohammad will tell them it is a Pakistani exercise and to go back to their homes." This means that the assault force planned to hide their operation by acting as the Pakistani military.

The assault force then moved to Afghanistan. Petraeus and Mattis, as regional command, would be informed on the upcoming mission by their chain of command. However, when Admiral McRaven spoke to General Petraeus, he found out that "Petraeus had been left out of the planning for the raid." Also, when "I [Admiral McRaven] called Mattis", he "found out he knew little about the mission as well." So, commanders withheld knowledge from subordinate commanders and

units. The assault force of Navy SEALs conducted the raid and killed bin Laden. The President made an announcement late that evening in the U.S. McRaven describes that "it was unprecedented." Some presenters speculated that "it must be that Moammar Gadhafi was dead…What else could it be?" The President withheld his knowledge of the raid's outcome from the public until a planned media conference.

This narrative illustrates how a leader may use knowledge withholding as a tool. Hence, we suggest that leadership development programs use our findings and the emerging model of antecedents of knowledge-withholding behavior to make current and future leaders aware of the situations in which there are clear and logical arguments for withholding knowledge instead of sharing it. Although knowledge sharing is highly valued in leadership practice, we suggest leaders take a more nuanced position and carefully consider the relational context argued upon in this study when deciding on withholding or sharing.

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Concluding Remarks

The purpose of this study was to explore the reasons underlying knowledge withholding in leadership contexts. Examining a wide variety of contexts in which our focal leaders interacted with many different parties enabled a model to emerge in synthesis with prior conceptual work. The main drivers of knowledge withholding behavior appear to be interdependences among the different parties that are driven by individual, shared, or outside social identities. How interdependences affect knowledge withholding behavior seems to be further determined by other relational characteristics such as trust/exchange and power differences, but also by the risk that the knowledge would pose if not withheld. These insights provide important, basic theoretical insights, they open various important avenues for future research and, taken together, clearly show that knowledge withholding is an important and valid tool for effective leadership.

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CHAPTER 4

Antecedents of Knowledge Hoarding in Collaborative and Competitive Settings: a Theoretical Framework from a Relational Perspective

Abstract

This study explores why people in organizations hoard – strategically retain – knowledge by studying individuals and teams across competitive and collaborative settings. We conducted a case study in a military organization using interviews, participant observations, archival records, and member check interviews. These investigations and the subsequent data analysis yielded 128 pages of transcribed interviews, 142 knowledge-hoarding events, and seven meaningful groupings of relational contexts. We applied the lenses of interdependence and social identity theory to develop a framework that explains why people hoard knowledge in competitive and collaborative settings and hoard knowledge for themselves and the interests of groups with whom they identify. Our framework illustrates that conflicting goals increase knowledge hoarding, especially when a knowledge hoarder aims to serve the interests of a group with whom they identify. Furthermore, common goals increase knowledge hoarding when group members experience that their common interests are at stake or to preserve team dynamics or team sentiment, especially in situations of strong shared identities. Last, people who experience conflicting and common goals simultaneously tend to serve the identity-driven goals with which they feel the strongest connection or hoard knowledge to reduce the risk that others may misinterpret their knowledge.

In modern organizations, where knowledge is the central commodity, employees continuously have to decide how to deal with the knowledge they possess, as their decisions may be highly consequential for their own and others' interests. One option that employees have is to *hoard* knowledge from other people, meaning individuals keep this knowledge from others so that they can utilize the knowledge (Evans et al., 2015). Given the value of knowledge for organizations, research on knowledge hoarding has gained traction over the last two decades (Holten et al., 2016; Michailova & Husted, 2003; Zhao & Xia, 2017).

Most extant research regards knowledge hoarding as a phenomenon in which people retain knowledge as if they are a "cardplayer holding an ace, until they stand to personally gain from sharing it" (Evans et al., 2015, p. 495). This image suggests that knowledge hoarding primarily occurs in competitive settings where individuals seek to further their individual interests at the cost of the interests of others (Anaza & Nowlin, 2017; Michailova & Husted, 2003), and it suggests that hoarding is bad for the person from whom the knowledge is being hoarded (Michailova & Husted, 2003; Evans et al., 2015). This negative outlook on knowledge hoarding seems to have prompted advocacy to avoid knowledge hoarding in organizations (Bilginoğlu, 2019; Evans et al., 2015).

While extant research has been insightful and has provided important advances in understanding knowledge hoarding, only a few scholars investigated knowledge-hoarding behavior with consideration of more collaborative, relational contexts (Lin & Huang, 2010). This one-sided, competitive and negative, perspective on knowledge hoarding has jeopardized the development of an overarching theoretical framework of knowledge-hoarding antecedents. We suggest that understanding knowledge hoarding would benefit from a neutral stance that considers a wider range of relational contexts. In fact, we suggest that knowledge hoarding also occurs in many collaborative contexts, that it often occurs for good, benevolent reasons in situations where it supports people's shared goals and their need to collaborate to succeed. Clear examples are team members who, during periods of high workload or during a crisis, retain knowledge from the others to save time and, in this way, help their team to significantly outperform other teams (Stachowski, Kaplan, & Waller, 2009). Hence, the current state of insights on knowledge hoarding inspired us to go back to the drawing board and develop a framework that explains knowledge-hoarding behavior from a neutral standpoint for individuals, and in teams, both in competitive and collaborative contexts.

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For the development of this theoretical framework, we take a relational perspective on knowledge-hoarding behavior. The hoarding of knowledge, in collaborative as well as in competitive contexts, occurs in the interaction between the person who has the knowledge and the potential recipient. Accordingly, the choice to hoard knowledge and the motivational factors behind such behavior is grounded in the relationship(s) between the actor and the potential recipient (Chow et al., 2000). Our study, therefore, takes a step back from the granular level of individual antecedents that have been the focus in most former studies on knowledge hoarding and seeks to understand what causes this behavior by considering the relationship between the knowledge hoarder and the potential recipient.

In our quest to develop a theoretical framework of knowledge-hoarding antecedents, we sought for our research setting an organization in which employees face competitive and collaborative situations. As such, we identified military organizations as suitable because military units have to collaborate intensively to fight a common enemy. At the same time, they also compete in other situations, such as being selected for desirable exercises. Moreover, knowledge hoarding may have serious consequences in the sense that the lives of military personnel are at stake when knowledge is hoarded too much or too little.

We subsequently narrowed our research focus to employees who handle and have access to large amounts of knowledge within these organizations. We identified military officers as a group that met this requirement due to their hierarchical positions in the organization. While officers aim to generate successful outcomes in high-stake competitive situations, they also collaborate with people and teams throughout the organization. This means that we focused on the knowledge hoarding that military officers engaged in or encountered during their daily work.

The contributions of our study are threefold. First, we develop a model of antecedents of knowledge hoarding by analyzing the relation between knowledge holder and potential knowledge recipient using interdependence theory and social identity theory (Johnson, 2003; Thibaut & Kelley, 1959; Tajfel & Turner, 1986; Tajfel, 1978). Second, our findings show that knowledge hoarding takes place in competitive situations as focused upon in previous research and in collaborative situations. Third, our results suggest that the decision to hoard knowledge is not always destructive but is often justified, and the behavior positively contributes to the organizational goals. Therefore, the proposed model of antecedents of knowledge hoarding offers a less biased theoretical foundation for comprehending knowledge-hoarding behavior than argued for in previous studies.

Knowledge Hoarding: A Relational Perspective

Conceptualization and Demarcation

Building upon previous work in knowledge hoarding, we conceptualize knowledge hoarding as the strategic retention of unrequested knowledge. This conceptualization is built on a set of defining features that jointly clarify what knowledge hoarding entails and what it does not by demarcating how knowledge hoarding is distinct from other knowledge behavior concepts.

First, considering knowledge hoarding as *strategic* behavior entails that, in order to attain and or maintain an advantaged position, a person intentionally retains knowledge that somebody else could take advantage of, even though the other person may be unaware of it (Husted, Michailova, Minbaeva, & Pedersen, 2012). That is, hoarding knowledge can be strategic as not hoarding would jeopardize the attainment of a goal. Thus, hoarding represents a choice based on an overarching strategic reason. Note that this defining feature means that the knowledge itself may have strategic value. This intentional and strategic element sets knowledge hoarding apart from more ambiguously defined and broader concepts such as knowledge withholding (Lin & Huang, 2010).

Second, hoarding entails *retention*: keeping the knowledge, storing it, and holding on to it. We utilize the term retention to point to the broad implication of keeping and saving the knowledge (Silva de Garcia, Oliveira, & Brohman, 2020). This general term also enables the inclusion of a broader set of phenotypes that qualify as knowledge hoarding. For example, individuals may actively hold back knowledge from others by covering up the knowledge, making it less visible, putting barriers in place that prevent others from discovering the knowledge, while other gradations of retaining the knowledge for strategic reasons might simply be not sharing the information even when one is aware that the knowledge would be useful to another person. In other words, there are different forms and degrees of retaining knowledge that may qualify as hoarding. By choosing the term retention, we also address the notion that knowledge hoarding entails accumulating knowledge (Evans et al., 2015) because retention is a broader term that can encompass varying degrees and scopes of accumulation. In contrast, the term accumulation is more restrictive in its meaning and invokes the idea of an increasing, growing storage of knowledge, which would be a highly specific instance of hoarding. Note that both the term "strategic" and the term "retention" invoke the notion that the knowledge

will be useful or important at a later point in time (Connelly et al., 2012). While this may often be the case, the time element is not critical to the conceptualization of hoarding. For example, the knowledge may already be used simultaneously in another context.

Third, we believe it is useful to consider knowledge hoarding as pertaining specifically to knowledge that *another person has not requested.* In the distinct concept of knowledge *hiding*, the definition focuses on the knowledge that another person requested and where the knowledge-holder essentially goes out of their way to hide the knowledge from others who have asked for the knowledge. It also implies that hiding may involve more deception since the hider of knowledge will need to lie or deny that they have the knowledge, whereas the hoarder is not asked about the knowledge directly. Accordingly, knowledge hiding conceptualized as such appears to imbue the behavior with a selfish or even malevolent intention. Therefore, defining knowledge hoarding as distinct from knowledge hiding by focusing hoarding on the knowledge that was not requested demarcates the concept from other knowledge behaviors, particularly from hiding.

Towards a Theoretical Framing

The definitional elements of strategic, retention and unrequested knowledge cover a broad but demarcated scope of knowledge hoarding behaviors. All of these have in common that they refer to a setting that includes a person who hoards knowledge and a person from whom the knowledge is being hoarded. This implies that they have some sort of relationship with each other, and, as we have alluded to above, most research has implied that this relationship is usually competitive. However, this implicit assumption seriously limits and hampers the consideration of other types of relationships and relational drivers (see Strik et al., 2021). Various interests, goals, and identities may be at play in the interaction and relationships between the people in knowledge-hoarding situations. A neutral relational view would elucidate a broader and more complete set of drivers of knowledge hoarding and transcend individual-level predictors characterizing the research on knowledge hoarding to date (Holten et al., 2016; Michailova & Husted, 2003).

As said, defining knowledge hoarding as strategic behavior points out that the actors' *goals* matter. When we then consider that hoarding behavior always involves several parties, combining those two elements means that a logical

question is how the goals of these actors are related to each other – for example, whether their goals are aligned or whether their goals conflict with each other. This, the objective or subjective structural features of the relationship in terms of how outcomes of different parties are related to each other, is the domain of interdependence theory (Johnson, 2003; Thibaut & Kelley, 1959) and is referred to as outcome interdependence. Accordingly, we apply this theoretical lens as the primary way of describing the relations between outcomes of entities that hoard knowledge and entities from whom the knowledge is hoarded.

Additionally, the interests of actors in the hoarding situation may be driven by factors further removed from their self-interest, as people will often act on behalf of the interest of the group with which they identify. Just as with individual interests, the identity-driven interests and outcomes of the hoarder stand in a certain interdependent relationship to the interests of those from whom the knowledge is being hoarded (which may also be driven by group identity interests, of course). To better understand the different interests that individual knowledge hoarding might serve, we utilize the theoretical lens of social identity theory (Tajfel & Turner, 1986; Tajfel, 1978). This theory explains how people's behaviors may serve their interests or the interests of the various groups with which they identify. Moreover, identification with a group is a powerful predictor of behavior in favor of the group's interest because such an identification refers to the cognitive "overlap" between a person's self-identity and that particular group's identity. The more people identify with a group, the more they see themselves as one with the group (Dutton et al., 1994). Given the complex structure of organizations, employees may identify with different groups whose interests in specific cases might compete. Hence, it is important to consider not only behavior motivated purely by self-interest but also to consider the covariance of interests of entities, groups, and the organization as a whole with whom the employees identify.

Taken together, this study thus explores how the interrelations between people's goals, interests, and social identities affect the actor's decision to hoard knowledge. Therefore, we look through the lens of interdependence theory to investigate the interests of the potential knowledge recipients, those of the knowledge hoarders, and most importantly, the relationship between these interests. Also, we use the lens of social identity theory to consider with which group the hoarders identify and how this explains why people hoard knowledge. By integrating these two theories, we develop a theoretical framework that explains why people hoard knowledge in competitive or collaborative contexts and for reasons that serve themselves or their group's interests.

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Research Setting and Methods

Case Organization

We conducted the case study in a medium-sized military organization in the Netherlands, the Royal Netherlands Marine Corps (RNLMC), with approximately 2500 employees. The RNLMC is a subsidiary of the Royal Netherlands Navy (~ 10,500 personnel), which in turn, is integrated into the larger Netherlands Defense force (~ 65,000 personnel) (Figure 5). The purpose of the RNLMC is to provide security on the high seas and in the coastal areas. Ever since its inception in 1665, it has been widely considered an elite military organization that operates in high-intensity conflicts (Cate & Maaskant, 2015; Dorren, 1948; Gehem et al., 2015). The RNLMC was recently deployed for operations in Afghanistan, the Gulf of Aden, and Iraq (Cate & Maaskant, 2015). This long history forged a strong organizational culture with the core values being strength, unity, and dedication.
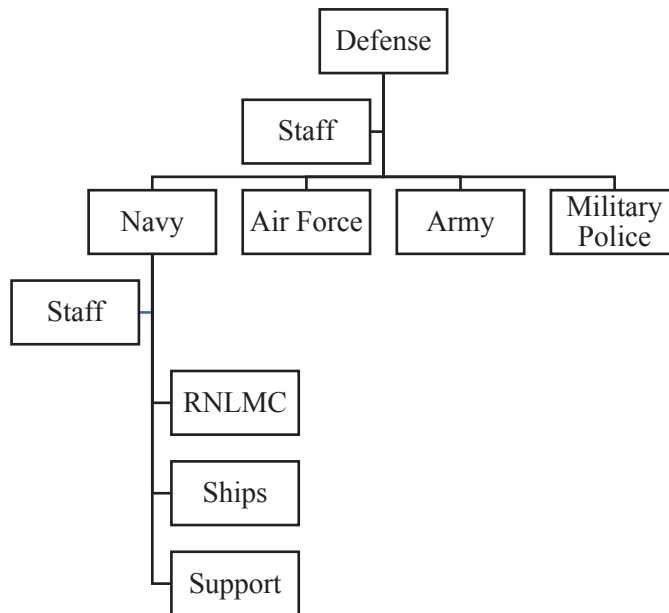
Figure 5

A simplified Defense structure

The RNLMC workforce consists of three hierarchical categories: frontline employees (marines), middle managers (non-commissioned officers), and senior leaders (commissioned officers). Furthermore, the RNLMC organizational structure comprises four battalions that each consists of a battalion staff and three to six squadrons. A staff consists of a commander and functions such as operations, logistics, or intelligence. A battalion has 300 to 700 personnel, of which 20 to 50 commissioned officers. In this line, a squadron has a squadron staff and three troops and tends to have approximately 100 personnel, including five commissioned officers (Figure 6). This means that at each hierarchical level, the RNLMC and the Royal Netherlands Navy have units that consist of a staff and subordinate units (Figure 7). As a result, the RNLMC staff has, for example, a hierarchical relationship with the battalions, and a battalion has a hierarchical relationship with its squadrons, but a battalion has a non-hierarchical relationship with other battalions.
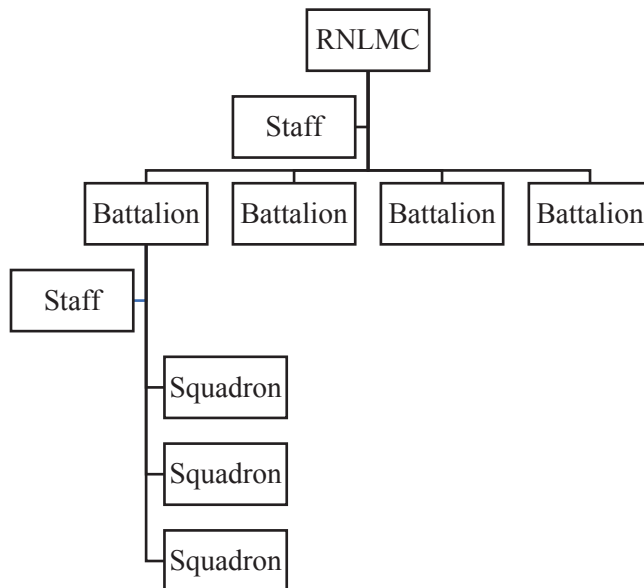
Figure 6

The RNLMC organization

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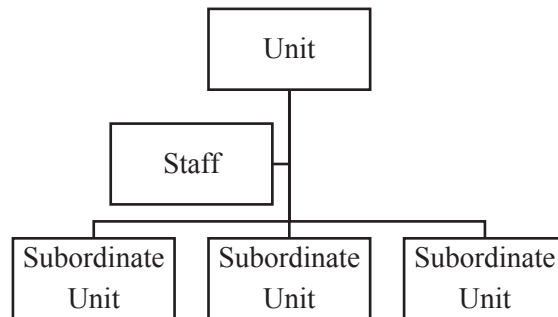
Figure 7

A Traditional Military Structure

The RNLMC also fills positions in various staffs of the Royal Netherlands Navy and the wider Defense organization. Depending on the counting method, about 80 commissioned officers work in approximately ten staff entities. An example of such a staff is the human resources department as part of the Navy support. Such a staff has a functional instead of a (non)-hierarchical relationship with operational units such as battalions. While this may seem to imply they have less authority, this staff has a substantial influence on the units. The Netherlands Defense force has a job-rotation system in which personnel has to change jobs every two to three years and get promoted after two to three jobs. The human resources department orchestrates all these job rotations in consultation with senior leaders.

Taking together, the selected organization offers an interesting setting to explore knowledge-hoarding antecedents from a relational perspective for a variety of reasons. First, the RNLMC has a long-standing tradition of deployments to war and conflicts. This means that its personnel who went on these deployments had to collaborate and handle knowledge to succeed in potentially extreme and unique situations as well as that they had to compete for, for instance, resources in regular business circumstances by making use of the knowledge they have (Pettigrew, 1990; Yin, 2013). Second, commissioned officers had access to large quantities of knowledge due to their rank. Meanwhile, they also had to be successful in high-stake competitive situations and cooperate with others throughout the organization. Third, the organization has (non)-hierarchical and functional relationships that may

influence the goals, social identities, interactions between actors. Combined, these three reasons point at a richness of data that is likely to yield valuable answers to the research question (Eisenhardt, 1989; Yin, 2010).

Data Collection

The first author had access to the personnel of the case organization and internal data such as after-action reports. The research data were gathered adhering to protocols of informed consent and anonymity. We started to study the phenomenon by interviewing ten commissioned officers, which took three months (Table 6 & 7). We asked open and closed questions and sequenced the questions in such a way that trust and openness would evolve over the course of the interviews (Harvey, 2011). The interviews took between 30 minutes and one hour and were recorded. We then transcribed the interviews in 98 pages and distilled 63 knowledge-hoarding events.

We subsequently collected data by conducting participant observations for five months. One of the researchers identified knowledge-hoarding events during many random dialogues with employees. Upon identification, he discussed these events with the employees and logged them in a database (Yin, 2013). Besides these instances, the researcher also noticed his own knowledge hoarding and reflected on it between one and three hours at the end of every week. He, thereby, logged each event, described the situation, and noted the involved employees in a database (Yin, 2013). This resulted in 67 knowledge-hoarding events.

Next, we studied the archival records and reports of battalion-level training deployments over the last four years. These deployments ranged from two to ten weeks and primarily occurred outside the Netherlands. Afterwards, battalion personnel reflect extensively on all aspects of a deployment and write these lessons down in after-action reports so that a next deployment may learn from these lessons. We, therefore, searched exclusively for after-action reports in filenames of a battalion database. We then investigated the reports and logged all events in a database. The investigation of the archival records resulted in 12 knowledge-hoarding events.

After the interviews, participant observations, and the archival records, we conducted member-check interviews with the previous interview respondents in approximately one-and-a-half hour interviews. We, thereby, discussed our findings

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so far on why people hoard knowledge. We summarized the conversations in a total of 30 pages. The respondents checked and approved their summaries.

Table 6

Selection criteria of the respondents

Selection	Criteria
1	Commissioned officers
2	Tenure of 4 to 18 years
3	The rank of captain or major
4	Leadership role (at time of interviews)
5	Representation of the various entities inside and outside the RNLMC

Table 7

The roles and organization of the respondents

Respondent	Date	Role	Organization
1	23-07-2013	H.R.- manager	H.R.- department
2	26-07-2013	Logistics manager	Battalion
3	29-07-2013	Operations manager	Squadron
4	06-08-2013	Training manager	Non-commissioned officer training
5	07-08-2013	Training manager	Navy dive school
6	13-08-2013	Operations manager	Navy headquarters
7	15-08-2013	Training manager	RNLMC training staff
8	24-08-2013	Operations manager	Battalion
9	03-09-2013	Training manager	Commissioned officer training
10	11-09-2013	Operations manager	Navy headquarters

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Data Analysis

We analyzed 142 knowledge-hoarding events in three stages. In the first stage, we used descriptive coding to identify the actors and potential recipients in the knowledge-hoarding events and their relationship (Saldaña, 2013). For example, the archival records described an instance in which a squadron hoarded knowledge from their battalion staff. The event described the "[squadron name]" and *the operations section of the battalion."* We coded the "[squadron name]" as the knowledge-hoarding actor and the "operations section of the battalion" as the potential recipient. As such, all knowledge-hoarding events were first characterized in terms of the actors and potentially involved recipients. We then coded the relationships of these actors. This means that we labeled the previous example as a hierarchical relationship because these two actors were in the same battalion and had such a relationship. Also, as on the organizational charts, we distilled which of the actors was the lower and higher-ranking party. This first stage illuminated the

actors and their (non)-hierarchical or functional relationships in the knowledge-hoarding events.

In the second stage, we used magnitude coding to label the actors' goal achievement and then applied descriptive coding to label the linkages between these achievements (Saldaña, 2013). This means that when knowledge hoarding supported the actor's goal achievement, we labeled it as "positive," but oppositely, we labeled goal achievement as "negative" when it did not. As such, a single knowledge-hoarding event may support the goal achievement of one actor while supporting or obstructing it for another actor. We labeled these linkages either "positive" or "negative." In other words, when an actor's knowledge hoarding led to the goal achievement of both actors, we labeled the linkage between them as "positive." Conversely, we labeled them as "negative" when the goal achievements were mutually exclusive. For example, a participant observation described an event of a battalion staff in Norway. The staff and an international military unit had come to *"an initial agreement of a 50/50 use a Norwegian camp"* during an earlier meeting. The battalion staff *"hoarded all their plans until the agreement was confirmed,"* because the staff *"knew that these facilities were extremely scarce and the other party might want to increase their usage."* In this case, we coded the knowledge hoarding as positive for the battalion staff and negative for the other international party. We subsequently coded the relationship between the aims as negative. Together, these first two stages provided us with a set of first-order codes of the actors, aims, and relationships in the knowledge-hoarding events.

In the third stage, we took the first-order codes and continuously iterated them in order to arrive at meaningful groupings of actors. For example, we grouped the actors that received a coding label as "specialist" into one group which represented the knowledge hoarding between specialists and military units. Another example is the category of actors with the coding label "staff." Many events were labeled as "staff," so we refined the groups based on the codes of the (non)-hierarchical and functional relationships. For instance, some knowledge was hoarded within staffs while other knowledge was hoarded by a staff from subordinate units. In the end, we identified seven meaningful groupings and analyzed the reasons for knowledge hoarding in every group.

Results

Below, we order the seven meaningful groupings that resulted from our data analysis based on the three types of relationships in the case organization. First, we start with non-hierarchical relationships in which we describe knowledge hoarding among military units or staffs, within a military unit or staff, and between specialists and military units. Second, we continue with functional relationships and distinguish the role of trainers towards their trainees, military units and operational security, and the human resources department in relation to military units. Third, the last type that we describe is knowledge hoarding within hierarchical relationships, in which we explain the knowledge hoarding by a staff from its subordinate units.

Non-hierarchical Relationships

Among Military Units or Staffs

The events that we identified paint a picture of how knowledge hoarding is used among units or staffs who have non-hierarchical relationships with other units or staffs to achieve their goals. More specifically, they hoard knowledge from other units or staffs to obtain the preferred assignments or resources. The data show that military units can influence the task allocation process. In other words, squadrons may try to influence this process in such a way that they go on an exciting exercise, which automatically means that another squadron has to conduct the less exciting tasks. This subsequently means that they have competing goals. That said, these assignments can be allocated during either one-on-one meetings or collective meetings, which leads to an asymmetry of knowledge between units and staffs. Also, during the collective meetings, assignments and resources are often allocated based on priority lists of senior executives, but these lists are not necessarily the same. The data show 21 of these types of events. For example, respondent 8 explains how he regularly attended collective meetings for task allocations. The individuals in those meetings are operation officers who represent their unit. He said, "*Operational deployments or necessities, or those types of things are often used as arguments. That is being kept for oneself and shared at the very last moment. To overtrump the other.*" The "arguments" refer to the assignments that operation officers received during one-on-one meetings, whereas the phrase "to overtrump the other" indicates that the operation officers hoarded this knowledge during the collective meeting to increase their bargaining power. They knew that their specific assignment would result in a higher priority on a particular priority list

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which may get them assigned to the preferable tasks. Also, when referring to "the other," the operation officer clarifies he aims to reach benefits for his unit at the costs of the other units. Respondent 5 acknowledges this by saying that *"RNLMC-squadrons often compete with each other."* Taken together, military units and staffs who have a similar organizational position hoard knowledge to influence the task or resource allocation process. This process leads to competition between them due to the fact that they need to distribute a set list of taskings or resources among representatives who aim to favor their unit at the costs of the other units.

Personnel Within a Military Unit or Staff

Our data revealed that people who work in a team hoard knowledge from each other. These teams can be either personnel who cooperate in a staff or employees who operate in a unit together. Due to the nature of war and the necessity to cooperate, there is an aim and explicit expectation within military staffs and units that they work as a team in the sense that their individual aims are aligned towards the pursuit of the common team goals. In other words, the people in these military teams have common goals. Moreover, they try to achieve these common goals by focusing on constructive team dynamics and effective team output (Kozlowski & Ilgen, 2006). The data show 41 events in which people hoarded knowledge from their team members. For example, a participant observation described an instance in which the head of staff received a tasking to provide a *"boarding team for a … frigate* [to go on a deployment to Somalia], *but the mission was still very uncertain."* He decided to *"hoard the knowledge until there was more clarity about the mission"* due to the fact that "*the planned departure was on Christmas day."* A departure on "Christmas day" would have substantially affected the assigned personnel and their families which could, in turn, have a detrimental influence on the team dynamics. Also, the phrase "the mission was … uncertain" implied that it might change over time. In that case, personnel and families would have been unnecessarily upset, and staff work would have been conducted for nothing. As such, it made sense to hoard knowledge to keep personnel focused and team dynamics stable. In a similar vein, respondents 1 and 5 said that knowledge hoarding occurred to avoid "uncertainty" or "misinterpretation" of knowledge which, in turn, may "lead to unrest within a unit." So, knowledge hoarding prevents that fragmented or quickly changing knowledge leads to speculations that subsequently have a detrimental influence on a group's sentiments, processes, and output. The phrase "lead to unrest within a unit" also illustrates that team members show a concern for the team's well-being. Taken together, our findings illustrate that

team members hoard knowledge from other team members with the intention to maintain constructive team dynamics and focus on effective team output.

Military Specialists and Military Units

Military units draw on the expertise of specialists who have acquired particular skills and knowledge over the course of years. Military units make use of the specialists' knowledge to achieve their general goals, whereas the aim of the specialist is to support units. This means that their goals are aligned in the sense that they both aim to contribute to a successful outcome. However, specialists have the additional goal to maintain their expert role. In other words, both parties have the common goal to pursue a successful outcome but might have potentially conflicting goals in protecting individual positions. The data show 14 events of knowledge hoarding by military specialists from military units. For example, respondent 2 explained that he worked in a "niche" market and hoarded knowledge to increase his 'right to exist." Moreover, he said that, *"Mostly specialists hoard their knowledge in order to stay specialist."* The role of respondent two at that time was to support military units with his expertise in fire support weapons such as artillery and attack helicopters. He, therefore, hoarded knowledge about fire support to protect the value of the position that he had. Besides that knowledge hoarding protects competitive positions of specialists, respondent two was also worried that personnel from the military units that he supported "may draw conclusions that are incorrect" based on the bits of knowledge that he does share with them. He, therefore, said, *"I am careful about sharing only little pieces of knowledge because it could lead to misinterpretation."* When people have fragments of fire-support knowledge but feel competent to apply that in an exercise or operation, this misinterpretation may lead to dangerous or even lethal situations. As such, specialists hoard knowledge to prevent accidents from happening and, thereby, protect the military units and the RNLMC as a whole. Taken together, specialists have a crucial role in supporting military units, and they hoard knowledge to protect their individual competitive position and when they assume that the misinterpretation of fragmented knowledge could have negative consequences for them and the unit. The data suggest that the common group-level goals trump the competing individual-level goals when it comes to knowledge hoarding.

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Functional Relationships

Military Trainers and the Trainees

Our data revealed that people hoard knowledge in situations where they intend to teach something to other people. In other words, the trainers and trainees embark on a journey in which the trainers hoard knowledge so that the trainees can develop themselves towards the learning goals. This means that the actors in this educational context pursue a common goal. These situations may occur in, for example, military units and staffs, military schools, or in the department that trains recruits. The data showed five events of knowledge hoarding in training settings. For example, at some point, a staff was practicing a planning process called the 7-question planning process and made a mistake. The trainer noticed the error but hoarded his knowledge to enable the learning process of the staff. A participant observation describes that "*during the 7-question training, things did not go as they should* [according to the documents that describe the process and the trainer's experience]. [The trainers] *let them continue until the moment of evaluation.*" During the evaluation, the trainees aimed to reflect on their performance and tried to identify potential improvements. The trainers aided them in this process and eventually revealed the error. The realization of the trainees that they have made a mistake is often a powerful moment of learning that will only be achieved through the trainer's knowledge hoarding. These moments are mostly translated into the learning goals of the next practice run which, in turn, fuels an overall learning cycle. Taken together, knowledge hoarding enables trainers to educate trainees.

Military Units and Operational Security

In our investigation, we found that knowledge hoarding is used by military personnel to ensure operational security. This means that knowledge is hoarded from those who do not need to know it or are not allowed to know it with the aim to avoid jeopardizing operational success, peoples' lives, or organizational interests. As such, units with classified missions have shared goals and shared knowledge but hoard that from everybody else. In doing so, military organizations have systems in place that verify and classify people, knowledge, and communication systems with labels such as top secret, secret, or unclassified. The most sensitive knowledge receives a top-secret label, while the non-sensitive knowledge gets an unclassified tag. Military personnel may receive a top-secret label after a very thorough background check. This label allows them to work with top-secret knowledge and

use top-secret communication systems. While top-secret cleared personnel are also allowed exposure to secret or unclassified knowledge and systems, this is not the case in the opposite direction. In other words, top-secret knowledge is hoarded from secret or unclassified cleared personnel. The data showed six events of such knowledge hoarding. For example, respondent 7 explains that knowledge about "operations in foreign countries" and "training deployments of special forces" is hoarded from all personnel that does not have the correct security clearance and are not directly involved. The reason is that it could otherwise "jeopardize the execution of the operation." The phrase "jeopardize … the operation" implies that a knowledge-hoarding failure increases the risk of an operational catastrophe because an adversary may become aware of the unit's intentions. This would enable the adversary to, for example, lay an ambush to inflict casualties in the unit and avoid the unit achieving its aims. As such, knowledge hoarding enables a unit to maintain the initiative and reach its goals. Taken together, military units hoard knowledge to safeguard operational success, peoples' lives, or organizational interests.

Human Resources Department and the Military Units

In our data, we found that people hoard knowledge in functional relationships such as between the human resources department and the military personnel in the units and staffs. While the human resources department aims to orchestrate the job rotations and try to take the employees' interests into account, the organizational interests regularly overshadow other interests. This means that personnel may indicate their job preferences but, in the end, get directed to a new position by the human resources department. Such a new position can theoretically be on any military base in the Netherlands, which means that a new job could have large consequences for personnel and their families in terms of moving to another area and changing schools for children. That said, human resources managers consult with the unit commanders and senior officers to determine the priorities per unit, whereas the managers among themselves trying to balance the priorities across the entire organization. In sum, when the organizational and individual interests align, the department arranges the job rotations in terms of a common goal. However, when the interests conflict with each other, the department prioritizes one over another, which automatically creates a shared interest with one and a conflicting interest with the other. The data showed nine events in which people hoarded knowledge in these functional relationships. For example, respondent one worked as a human resource manager and said that, *"There are job vacancies that must be filled and job vacancies that will not be filled* [despite that people want

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those jobs].” The contradiction of job vacancies that “must be” and “will not be” filled suggests that some vacancies have priority over others. He continued that, *“The organization has its reasons for that. These will be explained at some point, afterwards.”* The phrase “*these will be explained at some point, afterwards*” indicates that he hoarded the reasons why particular job vacancies had priority over others. The respondent explained that the processes in the human resources department are not only influenced by personal and organizational interests but also budgetary restraints, legal developments, and operational changes. He described that *“when everybody knows everything … people will make assumptions* [about the future jobs that they will get] *… which leads to chaos.”* He clarified the “chaos” further by saying that *“the operational product that Defense delivers, may come into jeopardy.”* Due to the possibly large consequences, this "chaos" may occur due to a disbalance between the goals of potentially anxious personnel and the organization's interests. That said, the quotes show that the respondent tries to contribute to the organizational output. He, thereby, considers personal and organizational interests and hoards knowledge about other parameters. In turn, this knowledge hoarding enabled him to smoothen the process of job rotations. Taken together, knowledge hoarding ensures that the human resources department is able to orchestrate the job-rotation processes and, as such, contribute to the organizational output.

Hierarchical Relationships

Staffs with their Subordinate Units

Our research revealed that staffs hoard knowledge from subordinate units. In general, the goals of a staff are to allocate tasks and resources, synchronize activities, and support their units. In turn, the units have to execute the activities within the given time frame by using the provided resources. However, there is often still some level of uncertainty about if and how the execution will progress. This uncertainty, combined with the aim of military units to conduct challenging or enjoyable activities, may influence the unit's sentiment. As such, staffs hoard knowledge from subordinate units to avoid unnecessary sentimental influences and maintain their output. This means that the staffs and subordinate units pursue common goals. The data showed 47 events of such knowledge hoarding. For example, a squadron is designated to go on deployment to Iraq, but they will only go when the decision-makers decide to send troops. A participant observation describes that at some point, *“the probability of the mission decreased.”* While this meant that it seemed less likely than before that the decision-makers would send troops, the

staff hoarded this knowledge from the designated unit. The deployment would be a challenging mission for the unit in the sense that it required the utmost level of military professionalism, but it may also have resulted in the unit suffering casualties among the ranks. Therefore, the reason for the staff to hoard knowledge is that a decision not to send them would *"have a negative effect on the group's sentiment and distract them from their necessary training,"* while the probability may also increase again. Indeed, the next participant observation describes that *"the designated unit might be combined into one task group with special forces"* during the potential deployment. This would mean that the unit would get a substantial increase of resources and become tasked with the most difficult military missions. This knowledge would have had a substantial positive effect on the group's sentiment, but the staff hoarded it to, again, not distract the training and avoid a negative backlash on the group's sentiment when the decision-makers decide otherwise. Taken together, staffs hoard knowledge for subordinate units to avoid unnecessary influences of the unit's sentiment and to maintain the unit's focus on current tasks.

Discussion

In this study, we investigated the knowledge hoarding of commissioned officers in a military organization by conducting interviews, participant observations, and researching archival records. We found that people hoard knowledge to favor their unit or specialism, maintain effective team or organizational output, influence units' sentiment, or educate trainees. When we observe these knowledge-hoarding reasons through the lens of interdependence theory, a clustering emerges in which the goals of the knowledge hoarder and potential recipient have either a negative, positive, or complex interdependence.

Cluster #1: Negative Interdependence

Representatives of units and staffs hoarded knowledge to favor their group at the expense of other groups. In other words, they applied knowledge hoarding in an attempt to influence the task or resource allocation process in such a way that their group would be given the preferred assignment, meaning that the others had to do the less desirable tasks. This means that the units and staffs in these situations have opposing interests and, as such, their goals have a negative interdependence

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with each other (Johnson, 2003; Thibaut & Kelley, 1959). Moreover, it appeared that these individual representatives hoarded knowledge on behalf of the units or staffs that they represented. As such, when the representatives were successful in their goal pursuit, they essentially achieved the goal of a whole unit or staff. This signals that the representatives experienced a strong connection with their unit or staff, which subsequently indicates they have a strong shared identity (Tajfel & Turner, 1986; Tajfel, 1978). When we connect the negative interdependence and shared identities, strong shared identities among groups of people appear to increase the competition between these groups. In turn, these shared identities in a negative interdependent context lead to an increase in knowledge hoarding between (individual representatives of) the two groups.

Cluster #2: Positive Interdependence

Military trainers hoarded knowledge to promote the learning process of the trainees. In addition, our data showed that in the case of operational security, knowledge gets hoarded from military personnel to protect operational success, peoples' lives, or organizational interests. The commonality between these reasons for knowledge hoarding is that the knowledge hoarder and the potential recipient have common goals. They both aim to either support military education or adhere to operational security. Having such a common goal means that the actors' aims have a positive interdependence with each other (Johnson, 2003; Thibaut & Kelley, 1959). To reach the common goals, the potential consequences of *not* hoarding the knowledge are assessed. The results of this risk assessment inform the decision to hoard or not hoard the knowledge. The difference between the reasons is that the stakes are much higher in the case of operational security in the sense that too much or too little knowledge hoarding could have serious consequences. Hence, in the case of positive interdependence, knowledge hoarding increases when the knowledge holder assesses the risks of not reaching the common goals as too high.

The data also revealed that staffs hoard knowledge to keep subordinate units focused on the assignments that they are executing at a given moment, and staffs want to avoid those subordinate units getting distracted by avoidable influences of the unit's sentiment. In line with the military trainers and operational security, the actor who has the knowledge assesses whether *not* knowing contributes to the goal achievement of the other party. This means that staffs hoard knowledge to support the goal pursuit of subordinate units which, in turn, indicates the existence of positively interdependent goals between the staffs and subordinate units

(Johnson, 2003; Thibaut & Kelley, 1959). Furthermore, people hoard knowledge to preserve constructive dynamics within their team and the effective output of that same team. These considerations signal that those people care for their team members and the team as a whole. In other words, these team members seem to experience a strong shared identity with each other (Tajfel & Turner, 1986; Tajfel, 1978). This indicates that people who experience a strong shared identity with a group of people may hoard their knowledge from that group if it leads to a collective benefit (Tajfel & Turner, 1986; Tajfel, 1978).

In sum, positive interdependence increases knowledge hoarding when the shared interests of a group are at stake. As such, the risk assessment is a moderator in these types of relational contexts. Also, shared identities in relationships with positively interdependent goals lead to an increase of knowledge hoarding when people who have the knowledge assess that their team or a subordinate team will benefit from not knowing.

Cluster #3: Complex Interdependencies

In our research, we found that military specialists hoard knowledge from military units to avoid that military units might misinterpret fragmented knowledge, which could have severe negative consequences. In this case, both actors pursue the similar goal of integrating their knowledge and skills to be as effective as possible during combat training and operations. In other words, the goals of these actors are positively interdependent (Johnson, 2003; Thibaut & Kelley, 1959). Indeed, specialists also seem to weigh the risks just as in cases of operational security. This notion supports identifying risk assessment as a moderator in relationships with positively interdependent goals. However, a complicating factor of this type of knowledge hoarding is that the data also illustrated that specialists hoard their knowledge to protect their competitive position. This suggests that they might come into a situation of multiple goals in which they prioritize their individual goal over the common goals and hoard knowledge accordingly. While this indicates that the interdependence structure of the actors' goals can be complex, the data suggest that, in the case of the specialist, the common goals tend to trump the competing goals. This seems to imply that the specialists feel that their competitive position is not challenged. Indeed, only a person with power within the organization would be able to challenge and pose a threat to their specialist position. So, positive interdependence increases knowledge hoarding when the misinterpretation of knowledge carries high risks. However, negative interdependence raises knowledge

hoarding in the case that the individual interests of the specialist are questioned by influential people within the organization. Hence, complex interdependence raises knowledge hoarding based on a risk assessment of the knowledge hoarder or when individual goals may be jeopardized.

Next, we found that human resources departments hoard knowledge from military units and staffs to coordinate the job-rotation process. They, thereby, try to balance the organizational and individual interests in such a way that it contributes to an effective output of the organization. This means that when the organizational and individual interests align, the actors' goals are positively interdependent in the sense that they all want to deliver an effective output (Johnson, 2003; Thibaut & Kelley, 1959). In these situations, the human resources department can rotate personnel and fill positions without any issue. However, when employees want the jobs that they aspired to get but the filling of these particular jobs is not deemed necessary by the organization, the interdependence structure changes in the sense that these two actors now have opposing aims. In such a situation, the department's role stays unchanged, so they have to prioritize one interest over the other which leads to a positive interdependence with the one and a negative interdependence with the other. An explanation of why they seem to prioritize organizational interests over individual interests may be found in the social identity theory (Tajfel & Turner, 1986; Tajfel, 1978). As such, the data suggest that the H.R. department experiences a stronger sense of shared interests with the organization than with individual employees that they need to rotate through the organization. In sum, complex interdependence structures increase knowledge hoarding to smoothen the job-rotation process in the case of the human resources department.

In sum, complex interdependencies may occur between actors when a functional actor may have to prioritize the interests of two other actors or when one of the actors needs to balance multiple goals. In the latter case, actors are inclined to pursue the goals that feel as the closest to them in case they have a strong shared identity or in the case that they experience a dependency on a higher-ranked individual.

Towards a Theoretical Framework

By integrating the three clusters, we propose a theoretical framework that explains how the interdependencies and various social identities influence the knowledge-hoarding behavior of the involved actors (Figure 8). At the center of the

figure, two actors represent the knowledge hoarder (Actor 1) and the potential knowledge recipient (Actor 2). In this study, the goals of these two actors may come in two variations. First, the actors' goals may conflict with each other (negative interdependence). The bidirectional arrow between the actors illustrates this negative interdependence. Second, the actors' goals may be aligned (positive interdependence), which is illustrated by the rectangle around the two actors. Furthermore, the actors may have various social identities that come to expression depending on the context that they are in. This means that Actors 1 and 2 may socially identify with different groups, which are represented by the ovals, and these identities may relate to their goals, represented by the lines between the identities of the actors and the actors' goals. However, the actors may also see themselves as part of the same group, which is illustrated by the oval circle around the two actors' identities. In this case, experiencing a shared identity is related to having shared interests, so positive interdependence, which is represented by the line between the large oval around the two social identities and the rectangle around the two actors.

In relationships with negative interdependent goals, actors tend to increase their knowledge hoarding, especially when hoarding knowledge from competing groups supports goal achievement of the group with which they strongly identify. However, knowledge hoarding does not only occur between representatives of competing groups but also between actors from the same group. In positively interdependent situations, actors tend to conduct a risk assessment and hoard knowledge from their group members in situations where the interests of their group are at stake. Or, in cases of strong shared identities, an increased knowledge hoarding may preserve team dynamics or team sentiment. Next, in situations of complex interdependencies, actors tend to increase their knowledge hoarding when they have a functional role and need to prioritize one of two actors' interests or when they experience multiple goals. Actors with multiple goals tend to hoard knowledge in pursuit of their individual goals or the interests of a group with whom they strongly identify. In a complex interdependence structure, actors may also hoard knowledge based on a risk assessment that they did on the possibility that the other party misinterprets their knowledge.

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                                    ┌─────────────────┐
                                    │ Risk Assessment │
                                    └─────────────────┘
                                             │
                                             ▼
  ╭────────────╮     ┌──────────────────┐        ┌──────────────┐
 ╱  ┌────────┐  ╲    │  ┌────────────┐  │        │   Knowledge  │
│   │Identity│   │───┼─▶│    Goal    │──┼───────▶│   Hoarding   │
│   │Actor 1 │   │   │  │  Actor 1   │  │        │              │
│   └────────┘   │   │  └────────────┘  │        └──────────────┘
│                │───┼────────▲─────────┼───────▶
│   ┌────────┐   │   │        ▼         │
│   │Identity│   │   │  ┌────────────┐  │
 ╲  │Actor 2 │  ╱ ───┼─▶│    Goal    │  │
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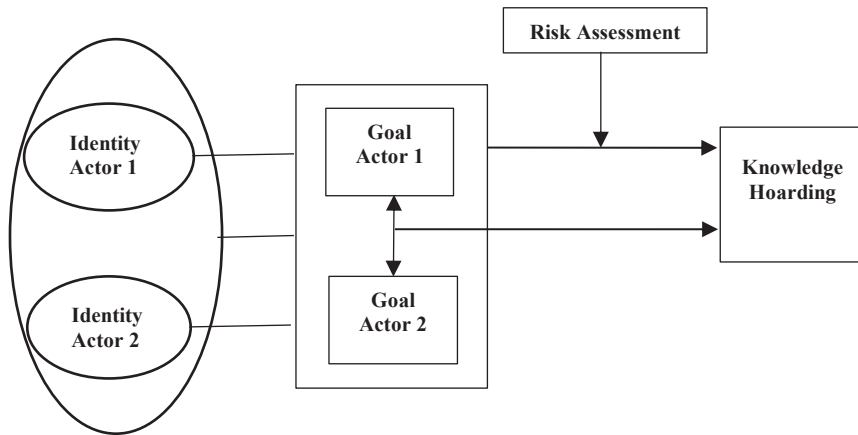
Figure 8

A Theoretical Framework on Knowledge Hoarding

Research Limitations

In this study, we aimed to understand the antecedents of knowledge hoarding in competitive and collaborative settings. The daily business in a military organization covers these two settings with personnel and units competing and collaborating with each other, depending on the various relational and identity contexts. We, therefore, considered a military organization as a suitable research context to achieve this aim. That said, a military context may also be a specifically strong context in the sense that the stakes during combat training and wartime operations center around human life and tend to be high. This indicates that the origins and levels of the stakes in military knowledge-hoarding situations play a role. Other governmental contexts have in common with a military setting that there is no commercial interaction between actors but differ in the sense that there is not such a strong focus on the potential loss of human life. In other words, the generalizability of the results applies to other governmental and non-governmental organizations as far as that revenue and profits have a limited role. Due to this research context, the results may be less generalizable for businesses that aim to

create shareholder value. Hence, a research limitation of our study is that knowledge-hoarding behavior may be influenced by the origins and levels of the stakes and, as such, have an effect on how people behave in competing or collaborative settings.

We also aimed to study knowledge hoarding of individuals and teams. As such, military organizations are uniquely suited because military units tend to consist of many teams. While most military units tend to have some level of shared identity, the personnel of the RNLMC experience a relatively strong unit cohesion. They even named it as one of their core values. This implies that individuals and teams may not represent a high level of variation on shared identity. In other words, organizations in which individuals and teams feel much less or no connection with their coworkers or organization may add insights to the developed framework. Hence, a research limitation is that the knowledge hoarding of the personnel in this case organization occurred in a setting in which they likely experienced a high level of shared identity with each other, their team, and the organization. As such, the knowledge-hoarding behavior of people in low or non-shared identity contexts might differ from these high levels of shared identity.

Besides that military organizations consist of many teams, these organizations are also known for being operated as strict hierarchies. This means that military organizations have numerous hierarchical levels of teams which are, in general, lead in a top-down fashion. Such an organizational structure differs from businesses that are organized in, for example, a matrix structure. Such a structure implies that personnel tends to have project and line responsibilities and, as such, report to various managers. As a result, the interests of individuals or teams may be more diffuse, which subsequently have an influence on the knowledge-hoarding behavior of the involved actors. Thus, a research limitation is the knowledge hoarding of people occurring in an organization with a hierarchical structure. As such, other types of organizational structures might influence the knowledge hoarding of personnel.

In this study, we developed a theoretical framework that explains the antecedents of knowledge hoarding from a relational perspective. We, thereby, identified the goals, interests, and social identities of the involved actors as the main drivers of their knowledge-hoarding behavior and constructed the framework accordingly. That said, extant literature also describes instances in which personality traits such as neuroticism play a role in knowledge-hoarding behavior (Anaza & Nowlin, 2017). Looking at this finding, an implication for knowledge hoarding may be that people's personality traits influence how they perceive a social situation. As

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such, people with a high level of neuroticism are concerned about their interests that may be at stake and increase their knowledge hoarding to protect those interests, thereby neglecting the relational structure of the situation (Strik et al., 2021). In other words, a personality-traits perspective on knowledge hoarding may lead to results that vary from the findings of a study that takes a relational perspective. However, such a personality-traits perspective would prevent us in our study from incorporating the various shared identities that played a role in the case organization. Hence, a research limitation is that this study examined the knowledge-hoarding behavior of people from a relational perspective and, therefore, focused on the goals, interests, and shared identities of the involved actors. A personality-traits perspective might be appropriate for investigating knowledge hoarding in some situations.

Concluding remarks

The study aimed to explore the reasons why people hoard knowledge from a neutral standpoint, across competitive and collaborative contexts, and for individuals themselves or the groups with whom they identify. We, therefore, investigated knowledge hoarding in a military organization by conducting interviews, participant observations, and study archival records. We found explanations of the behavior's drivers in the theories of interdependence and social identity. In turn, we constructed a framework with these theories that showed that individuals might hoard knowledge for benevolent reasons to serve themselves or their group, taking into account the risks that might appear when they do not hoard the knowledge.

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CHAPTER 5

General Conclusion

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General Conclusion

In this concluding chapter, we start with a short summary of the three studies that we conducted. We then continue with a brief explanation of the theories of interdependence, social identity, and social exchange because these theories are the building blocks of the frameworks that we developed. As a next step, we integrate the results of the three studies and describe them along with three interdependence structures. We first discuss the negative and positive interdependencies of the people who withhold and hoard knowledge. Next, we describe the complex interdependence structures that parties may experience. In these descriptions, we use the theories of social identity and social exchange to clarify the various processes and mechanics that we found during our studies. Furthermore, we propose three questions that leaders may use to reflect upon their or their teams' behavior in knowledge-withholding situations. Finally, we provide a brief conclusion that states that the key ingredients of an optimal level of knowledge withholding within an organization are common goals, trust, reciprocity, and a shared social identity.

Short Summary of the Studies

In general, it is fair to say that knowledge withholding and hoarding have a negative reputation in the academic literature as well as in business literature. We argue that this stance should be nuanced. The core problem that we tackled is that knowledge withholding may, in fact, be beneficial under particular circumstances. We, therefore, investigated the phenomenon with the aim of increasing the understanding of why people withhold knowledge and, thereby, illuminating the benefits as well as drawbacks that the behavior may have for one or more of the actors. In this dissertation, step by step, we developed two theoretical frameworks of the antecedents of knowledge withholding and one framework that explains the antecedents of knowledge hoarding. Note that in the first two studies, we took a broad view of the human behavioral instances in which actors do not effortfully give the knowledge that they possess to other actors (Connelly et al., 2012; Evans et al., 2015; Lin & Huang, 2010). This means that we focused on the concept of knowledge withholding in those studies. That said, in the third study, we investigated the behavior of knowledge hoarding, which means that the knowledge that actors have is unrequested by other actors (Anand et al., 2020; Evans et al., 2015; Connelly et al., 2011; Holten et al., 2016).

The first study was a systematic literature review on the antecedents of knowledge withholding. For this review, our literature search identified 42 empirical research papers that used data from 16,649 respondents, resulting in 93 knowledge-withholding antecedents. Based on the analysis of the papers, we developed four propositions of knowledge-withholding antecedents. We then drew on interdependence, social exchange, and social identity theory to develop an integrative framework that explains why people withhold knowledge.

In the second study, we investigated the content of the memoirs of five reputed U.S. general and flag officers. Thereby, we analyzed 1853 pages and collected 246 knowledge-withholding events. We examined the events in relational contexts and observed eight distinct categories in which the U.S. general and flag officers interacted with other actors. These eight actor-categories are the enemy, competitors, politicians, foreign leaders, troops, instructors, family, and media. We further developed the theoretical framework on interdependence, social exchange, and social identity theory to explain why knowledge is withheld in a military leadership context.

The third study was a single case study in a military organization and focused on the reasons why people hoard knowledge. In this study, we interviewed ten commissioned officers, conducted participant observations for five months, and studied after-action reports as archival records. This led to an identification and subsequent analysis of 142 knowledge-hoarding events. The results of this study show that people within the case organization hoard knowledge to favor the unit or specialism to which they belong, educate trainees, maintain effective team or organizational output, or influence units' sentiment. We used the theories of interdependence and social identity to develop a framework that explains why people hoard knowledge.

A Brief Explanation of the Included Theories

In the three studies in this dissertation, we applied the theories of interdependence, social identity, and social exchange as lenses through which we examined the reasons for knowledge withholding and hoarding. As extensively explained in the dissertation, knowledge withholding and hoarding are human behavior that occurs in a social context. Moreover, there are at least two parties involved in which one party possesses the knowledge, and the other party does not possess this knowledge. Due to the social context of the situation, the actors have a

goal that stands in some sort of relationship to the goal of the other involved parties. Interdependence theory explains the relationships between the goals of the involved actors (Johnson, 2003; Thibaut & Kelley, 1959). Moreover, these goals may occur in a competitive or collaborative setting. When the goals are mutually exclusive and represent a win-lose situation, the interdependence structure of the goals is called negative interdependence (Johnson, 2003; Thibaut & Kelley, 1959). However, the other form of interdependence is a positive relationship in which both parties achieve their goals. This can be regarded as a win-win situation. In this case, they achieve their goals by knowledge withholding or hoarding while other people also achieve theirs. Interdependence theory describes this relationship between goals as being positively interdependent (Johnson, 2003; Thibaut & Kelley, 1959). Hence, we integrated interdependence theory into our frameworks to explain how the goals and interests of the involved actors affect their knowledge-withholding and hoarding behavior.

While actors withhold or hoard knowledge in pursuit of a particular goal, they may also conduct this behavior because they experience a shared identity. Such a shared identity means that people identify with a certain group of people in such a way that they take over the group interests as their own interests. As a result, they withhold or hoard knowledge that benefits their social group. This phenomenon is best explained by social identity theory (Tajfel & Turner, 1986; Tajfel, 1978). Moreover, people may also experience that they are part of various social identities at the same time. The social identity theory explains that people tend to pursue to interests of the social identity with which they experience the strongest connection (Tajfel & Turner, 1986; Tajfel, 1978). Hence, the integration of social identity theory into our frameworks enabled us to explain how the social identities of the involved actors affect knowledge withholding and hoarding.

Besides goals, interests, and social identities playing a role in knowledge-withholding and hoarding behavior, the relational perspective in our studies also revealed that the social-exchange quality between actors is of importance. In more detail, the (lack of) trust and reciprocity between actors who have a common goal may lead to a situation in which they withhold knowledge from each other. In other words, when two actors have similar goals but do not trust each other, they withhold knowledge to achieve their own goals. Social exchange theory describes the foundation of this phenomenon and explains the pivotal role of trust and reciprocity (Cropanzano & Mitchell, 2016). The essence of this theory is that a lack of trust increases knowledge withholding. The opposite is also the case. When two people do trust each other, they grow their social interactions which tend to decrease knowledge withholding in relationships with positively interdependent goals.

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Hence, the integration of social exchange theory into the frameworks enabled us to explain the pivotal role of trust and reciprocity in knowledge-withholding situations.

In sum, we conducted three studies that investigated the phenomena of knowledge withholding and hoarding. In these studies, we applied the theories of interdependence, social exchange, and social identity to develop frameworks that explain why people withhold and hoard knowledge. We now tie the findings of the three studies together and describe them per type of interdependence.

Negative Outcome Interdependence

A consistent finding across our three studies is that a negative interdependence between the goals of a person who possesses the knowledge and those of a potential recipient leads to an increase in knowledge withholding and hoarding. In our first study, the systematic literature review on knowledge withholding, we found various antecedents that refer to a negative interdependence (Johnson, 2003; Thibaut & Kelley, 1959). In more detail, empirical research showed that competition between actors occurs in situations in which they pursue a goal that only one of them can obtain and regard each other as rivals. Such a rivalry leads to a zero-sum game where only one of the actors can achieve their goal and the other cannot, which, in turn, increases the knowledge withholding between these two actors (Anaza & Nowlin, 2017; Hernaus et al., 2019). The systematic literature review also shows that scarce, threatened, or uncertain resources lead to a negative interdependence between parties, which subsequently results in an increase in knowledge withholding. Indeed, when a resource such as a job may get uncertain, people tend to increase their knowledge withholding in an attempt to safeguard that resource (Serenko & Bontus, 2015). Another example is that when a resource such as time becomes scarce, people tend to withhold more knowledge from others (Škerlavaj et al., 2018). Hence, this study provided the groundwork in the sense that the granular level antecedents addressed in the reviewed studies are integrated into a proposition that states that negative interdependence increases knowledge withholding.

In our second study, the content analysis of the memoirs, we found five actors whose interests directly oppose the interests of the U.S. general and flag officers, which means that the interests among these actor-relationships are negatively interdependent (Johnson, 2003; Thibaut & Kelley, 1959). These five actors are the enemies and competitors of the officers, the politicians, the media, and

the foreign leaders whom the offers dealt with. As we described in the introduction of this dissertation, the five general and flag officers were the top leaders of their organizations, and as such, this study provides a more outward view of knowledge withholding. In other words, note that these five actors are from outside the organizations that the officers led.

In this study, we found corroborating evidence for the finding in the systematic literature review that competition between actors leads to an increase in knowledge withholding between those actors. The most extreme and clear example that supports this finding is probably the fighting between parties in a war or, said differently, between the officers and their enemies. The memoirs revealed numerous instances in which knowledge was withheld by one of the sides with the aim to attack the other. As such, we see that these parties conduct the ultimate competition in which they strive for victory. A nuance that we found in the memoir study, which adds to the finding of the systematic literature review, is that the weaker or disadvantaged parties tend to withhold knowledge from the stronger or advantaged parties. This means that the former seems to apply knowledge withholding as an additional tool against the latter in order to obtain victory. The memoirs study also provided less extreme examples of how competition and negative interdependence lead to knowledge withholding. It showed that, for example, the officers and their competitors aim to strengthen their position at the cost of the other's position. Such interactions imply that they withhold knowledge from each other to obtain a larger portion of scarce resources such as budgets. That said, the memoirs study revealed five actors who had opposing goals in regard to the general and flag officers. We just described the enemies and the competitors and now continue with the politicians, media, and foreign leaders.

As such, the memoirs study describes corroborating evidence for the findings of the systematic literature review in the sense that the general and flag officers and politicians pursue opposing outcomes when they serve their closest interests. This study indicated that this might happen in situations of potential military deployments. When the officers achieve their goals in the sense that they receive support for a military campaign, this may result in a situation in which the politicians cannot keep promises that they might have made during an election campaign. While the officers and their competitors contested for the same financial resources, the situation between the officers and the politicians shows that the opposing interests of actors may regard different sets of resources. This is also the case for knowledge withholding between the officers and the media. The officers aim to withhold news from the public until decisions are taken, while the media pursue their interests by publishing content as soon as possible to serve their

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audience and generate revenue. In this line, the memoirs study illustrated how the general and flag officers and foreign leaders withhold knowledge from each other. They do so because the officers know that the foreign leaders have their interests in maintaining local support. However, that local support often comprises of the enemies of the general and flag officers. In other words, they withhold knowledge in an attempt to navigate triangular relationships with the enemies. It is fair to say that the officers strive for support for their military interests while the foreign leaders aim to maintain or grow the political base in their country. Hence, the study of the five memoirs confirmed the findings of the systematic literature review in the sense that it showed that negative interdependence increases knowledge withholding when actors compete for the same resources or when scarce and uncertain resources of one of the actors are at stake. That said, the memoirs study advances beyond the insights of the systematic literature review by finding that weaker or disadvantaged actors tend to withhold from stronger or advantaged actors and that actors tend to withhold knowledge to serve their closest interests.

In our third research project, the single-case study, we also found support for the findings of the systematic literature review and the memoirs study that negative interdependence between actors increases knowledge withholding. In more detail, we found that the units and staffs compete with each other for the same resource of enjoyable and challenging exercises. This means that these representatives hoarded knowledge during meetings in which tasks or resources were allocated to the various units and staffs. They did that to such an effect that they were given the preferred assignments, such as those enjoyable or challenging exercises. That said, the single case study also adds to the findings of the previous two studies. As described, we found that representatives of units and staffs hoard knowledge to achieve the goals of the group that they represent, which automatically means other groups do not get to their goals (Johnson, 2003; Thibaut & Kelley, 1959). These findings indicate that the competition between the various entities get fueled by the strong connections and identifications that the representatives experience with their groups. While this signals that the units and staffs have a strong shared identity (Tajfel & Turner, 1986; Tajfel, 1978), it also illustrates that these shared identities deepen the competition between the various groups.

The findings so far may pose the question of what the exact difference is between the situation of the competing units and staffs, on the one hand, and the general and flag officers and their competitors, on the other hand. True, the competing units are based on an internal focus of an organization, while the competitors of the general and flag officers regard external actors. However, large

organizations tend to have numerous sub-organizations. For example, General McChrystal and the CIA regarded each other as competitors. In a sense, they represented separate organizations because General McChrystal led a military organization, whereas the CIA exists as its own entity, but they also represent organizations that are part of the federal U.S. government. This means that the actual difference between the two relational contexts is determined by the level of analysis. In other words, the difference between the two relational contexts matters from the standpoint of a leader because the internally-focused competition is in the control of a leader, but the external competition is not. Leaders might aim to set shared goals and develop trust between their subordinate teams in such a way that the knowledge-withholding behavior favors an entire organization. However, this is much harder in the case of external competition because leaders have less power and other roles to play. These leaders might be team members of a governmental-level executive team, members of a political party, or members of an international organization. Hence, the difference between internal and external competition is of importance for leaders because that may guide them to a particular skill set to influence knowledge-withholding behavior.

Taken together, our three studies show that people increase their knowledge withholding or hoarding when the involved actors experience a negatively interdependent relationship between their own goals and the goals of the other party. The actors may compete for the same resources or pursue their own interests supported by separate sets of resources. Also, in case of a power difference between the two actors, the weaker or disadvantaged party tends to withhold knowledge from the stronger or advantaged party. However, when the parties are of equal strength, the knowledge withholding may be fueled by the strong social identities of the parties.

Positive Outcome Interdependence

The general finding is that positive interdependence may increase or decrease knowledge withholding and hoarding, depending on various factors. As such, in our systematic literature review, we found various knowledge-withholding antecedents that play a role in positive-interdependence relationships (Johnson, 2003; Thibaut & Kelley, 1959). In more detail, the evidence provided by the included empirical papers showed that in situations of shared interests, knowledge withholding decreases when people trust each other or when they expect positive reciprocal behavior. As such, employees who expect that colleagues will contribute

to the performance of their team lower their knowledge withholding to them (Lin & Huang, 2010). That said, the evidence also showed the opposite in the sense that in the case of positive outcome interdependence, employees increased their knowledge withholding when they distrusted colleagues or when colleagues behaved in a way that may harm the group's performance (Anaza & Nowlin, 2017; Holten et al., 2016). In sum, this systematic literature review showed that people in collaborative, shared goal, positively interdependent situations might decrease or increase their knowledge withholding, depending on whether they trust the other person or whether they expect that they act reciprocally (Cropanzano & Mitchell, 2016). Hence, a positive or negative social exchange between people has a pivotal effect on the knowledge withholding between people with positively interdependent outcomes.

Next, the evidence of the memoirs study advances beyond the findings of the systematic literature review and indicates that knowledge withholding can actually increase in situations of positive interdependence. As such, in the memoirs study, we found that the U.S. general and flag officers (who experience relationships with positively interdependent goals with their troops, instructors, and family) withheld knowledge from their troops to safeguard effective teamwork or enhance creative problem-solving. This was especially the case in high-risk situations, such as when they were together battling against an enemy. Our findings indicate that the general and flag officers and their troops experienced a strong sense of shared identity. So, the systematic literature review showed that knowledge withholding decreases when actors trust each other, whereas the memoir study described that knowledge withholding increases in cases of strong shared identities. The crucial difference between these findings is that in the latter situation, the knowledge withholding increases because that behavior contributes to the collective goals. In other words, positive outcome interdependence means that parties behave in such a way that their behavior supports the pursuit of their shared interests. Also, this particular relational context in war reflects high-stake situations, whereas regular business contexts tend to have much lower stakes. This means the risks associated with not achieving the shared interests play a moderating role in relationships with positive interdependent goals. As such, the findings of the memoir study add to the findings of the systematic literature review. In sum, strong shared identities contribute to positive interdependence, which in turn leads to knowledge withholding when the risks of not achieving the common goals are perceived as high.

The memoir study also showed that positive outcome interdependence increases knowledge withholding in situations of training and education. As such,

the instructors withheld knowledge from their trainees to support their educational journey and create learning opportunities. In other words, knowledge withholding was in the best interest of both parties because the instructors and trainees both had the common goal to go through a training program in such a way that the trainees would successfully fulfill the program requirements. This is further supported by the results on the interactions between the general and flag officers and their families. In this relational context, the actors aim to have a harmonious life together and withhold knowledge to avoid disrupting that equilibrium. However, the memoir study also supports the finding of the systematic literature review in the sense that the quality of social exchanges quality between people plays a pivotal role. In other words, when trainees do not trust the instructors or when they are uncertain about the outcome of an interaction, they tend to withhold knowledge that supports their individual goals. Hence, the memoir study showed that positive outcome interdependence increases knowledge withholding when this behavior serves to reach the collective goals, more specifically safeguarding the troops, reaching the training goals, or avoiding disruption of harmonious family relationships. In this line, actors who experience a strong social identity with each other tend to further increase their knowledge withholding in high-risk situations.

The findings of the single case study are in line with what we found in the memoirs paper and, as such, also advance beyond the systematic literature review results. That is that knowledge hoarding actually increases in relationships with positively interdependent goals. The data showed that people hoarded knowledge in relational contexts that were characterized by relationships with positively interdependent goals within military units and staffs, from staffs to military units, between military trainers and trainees, and in a situation in which operational security plays a role. In more detail, we found that personnel within a unit or staff hoard knowledge to not only preserve constructive dynamics within their team but also to ensure an effective output of that same team. This finding is in line with what we found in the memoirs study regarding the U.S. general and flag officers and their troops. Units with a strong shared identity tend to withhold more knowledge when achieving their shared interests is at risk. Next, a staff hoards knowledge to avoid distraction and unnecessary influences on their subordinate units' sentiment and focus. That is, people hoard knowledge from their team members or from subordinate teams when they assess that this behavior will benefit their own goal achievement and/or the goal achievement of a subordinate group. As with the U.S. general and flag officers, this study shows that the military teams and staffs experience a strong shared identity that, in turn, drives the pursuit of common goals within their team (Tajfel & Turner, 1986; Tajfel, 1978). In sum, a strong shared identity fuels positive outcome interdependence, which in turn increases knowledge

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hoarding between people when this behavior favors team dynamics, ensures effective output, or avoids sentiment detriments.

In line with the memoirs study, the single case study indicates that positive interdependence also increases knowledge hoarding in situations in which people are in an educational setting. As such, we found that military trainers hoard knowledge to support the education of trainees. Besides the findings regarding educational settings, the data in the single case study also illustrated instances that showed that military organizations hoard knowledge based on a concept called operational security. This operational-security system aims to protect operational success, people's lives, or organizational interests. This means that knowledge, people, and communication means are labeled within a tiered system. In other words, operational security means that when the labels of the knowledge, people, and means are not of equal or higher level in the tiered system, the knowledge is hoarded. The labels essentially represent the risks that are associated with the leakage of the knowledge itself, by people who have it, or through communication means that are used. As such, just as in the memoirs study, risk assessment of the knowledge surfaces as a moderator of knowledge hoarding in relationships with positively interdependent goals.

Taken together, positive interdependence may increase or decrease knowledge withholding and hoarding. This depends on various factors. In more detail, knowledge withholding and hoarding tend to increase in a relationship with positively interdependent goals when people assess that their group or the group for which they are responsible will benefit from it. Instances in which this is the case are when leaders or team members withhold and hoard knowledge from their teams to safeguard effective teamwork, enhance creative problem-solving, favor team dynamics, ensure effective output, or avoid sentiment fluctuations. We found that a strong shared identity among people motivated them even more to contribute to these effects. Furthermore, a moderator that appeared in two of our studies is risk assessment. We observed a further increase in knowledge withholding and hoarding in situations where the risks associated with the knowledge itself or leakage of it were high. Last, the findings also showed that knowledge withholding and hoarding occur in a training and education setting so that trainees and students get the opportunity to solve a challenge and learn from it. In a sense, this means that knowledge withholding and hoarding contribute to an optimal learning environment.

Complex Interdependencies

So far, people who withhold or hoard knowledge engage in this behavior because they have either negatively or positively interdependent goals. However, we found another knowledge-withholding mechanism in our research. We noticed that people sometimes have a common goal at one level but conflicting goals at another level. Or, people may just experience multiple goals that occur at various levels. This means that actors experience negative and positive interdependence at the same time. We labeled such a situation as those people having a complex interdependence.

Our systematic literature review found that persons with a strong social identification towards a certain group decrease their knowledge withholding to that group. Although we already described this type of situation in the positive-interdependence section, we also found that the opposite may happen in situations in which actors have positive interdependent goals. When people feel a strong identification with a group that is outside their immediate team, they tend to increase their knowledge withholding to the immediate team. This means that the group interests of a person's important social identity trump the interests of their immediate team. This also shows that actors pursue the goals with which they feel the strongest connection (Tajfel & Turner, 1986; Tajfel, 1978). While such a situation shows that actors may be part of multiple groups, we did not label this as complex interdependencies at the time of writing the systematic literature review. That said, it may be fair to say that the multiplicity of groups with which one identifies leads to a situation in which, at least theoretically, actors may have multiple identities, goals, and interests. In this line, actors decide to withhold knowledge to serve the interests of a particular group. Hence, social identities decrease or increase knowledge withholding. That said, people tend to serve the social identity, thereby the interests of that specific group with which they experience the strongest connection.

The findings in the memoirs paper support what we found in the systematic literature review in the sense that people tend to increase their knowledge withholding to serve the group with which they feel socially most connected or when people experience a low social-exchange quality. The complex interdependencies that we identified in the memoirs study are the relational contexts of the actors' competitors, politicians, media, and foreign leaders. Regarding competitors, when a governmental organization was able to obtain budgets at the disadvantage of competing organizations, they chose to serve their own interests rather than evaluating the overall benefit for a nation. Moreover, it might be well

possible that an alternative budget distribution among governmental organizations could have a greater overall benefit for a nation. This situation shows that organizations may have a negative interdependence at the organizational level but a positive interdependence at the national level. A similar rationale applies to the politicians and media in relation to the general and flag officers, who all tend to serve their organizational rather than the national goals. The explanation for this behavior is found in social identity and social exchange theories. First, as described earlier, actors may have multiple social identities, which in these cases means they identify with an organization and a nation. Social identity theory explains that people pursue the goals of the social identity with which they experience the strongest connection (Tajfel & Turner, 1986; Tajfel, 1978). In the cases of competitors, politicians, and media, the actors seemed to feel more connection with their organization than with the nation and therefore favor the interests of their organization. Second, also described earlier, the exchange quality between people influences their knowledge withholding behavior (Cropanzano & Mitchell, 2016). As such, the exchange quality between the general and flag officers and the foreign leaders was influenced by the involvement of a third party who was the enemy of the general and flag officers. Awareness of this triangulation severed the trust between the parties and heightened the knowledge withholding behavior between the actors. This social exchange mechanism is in line with the findings on social exchange in the systematic literature review. Taken together, actors tend to increase their knowledge withholding in situations in which they experience that one of their identities is stronger than others. In other words, they serve the interests of the strongest identity. Actors will also increase their knowledge withholding in a situation in which they experience a low level of trust and reciprocity towards the other actors.

The findings of the single case study support the findings of the systematic literature review and memoirs study in the sense that people increase their knowledge hoarding to serve the goals that are most important to them or to avoid risks. The complex interdependence structures between the military specialists and the military units and between the human resource department and the military units illustrate this support. Starting with the former, the military specialists hoard knowledge to avoid that knowledge being misinterpreted by the military units. This means that they have positive interdependent goals due to the fact that they both aim to integrate their knowledge to be as effective as possible on the battle and training field without accidents happening. However, the specialists are also afraid to lose their specialist position in the case that the units enhance their skills in such a way that the specialists become redundant. In such a situation, the goals of these two actors have a negative interdependent (Johnson, 2003; Thibaut & Kelley, 1959).

That said, despite the fear, their positions were not challenged. As a result, the specialists were able to focus on their shared interests with the military units rather than focusing on securing their specialist position. Hence, the military specialist behaved in favor of the common interests that they had with the military units and hoarded knowledge to reduce the risks during their work together.

In the case of the human resources department, the complex interdependence arose because they had to serve the organizational goals and the goals of the individual employees. While they tried to balance these interests to optimize the organizational output, this was not always possible. In other words, when the organizational and individual interests are aligned with each other, the goals are positively interdependent (Johnson, 2003; Thibaut & Kelley, 1959). In these situations, the human resources department executes its role in the job rotation process, and both parties achieve their goal. However, when the interests are not aligned, the department has to choose one over the other, which means that they have to choose a side. This results in a positive interdependence with one actor and a negative interdependence with the other one (Johnson, 2003; Thibaut & Kelley, 1959). In the latter situation, it seems that the department leans towards prioritization of the organizational interests. The reason is that the department probably experiences a higher level of shared interests with the organization than with an individual employee, which is aligned with social identity theory (Tajfel & Turner, 1986; Tajfel, 1978). Hence, complex interdependence structures increase knowledge hoarding when a human resources department has to prioritize between organizational and individual interests. Taken together, in the single case study, complex interdependencies occurred between military units and military specialists or between military personnel and a functional department. As such, knowledge hoarding increased to serve the goals closest to an actor or avoid risks.

Taken together, we conclude that knowledge withholding and hoarding can either increase or decrease in situations with complex interdependence structures. In general, actors tend to engage in this behavior to serve the interests with which they feel the strongest connection or serve the interests of a trusted party, thereby ignoring the interests of actors with whom they experience a low level of trust or reciprocity.

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An Integrated Framework

By integrating the three studies, we can develop a framework that explains these results in light of the theories of interdependence, social identity, and social exchange (Figure 9). As such, we have put two actors in the center of the framework who represent a knowledge hoarder (Actor 1) and a potential knowledge recipient (Actor 2) in a social situation. The double-headed arrow between the actors illustrates the negative theoretical interdependence that may occur between them. Then, the rectangular box around the actors represents the possibility that the actors have a relationship with positively interdependent goals. As described, these two interdependencies may occur simultaneously in social situations that we label as complex interdependencies. Hence, the boxes in the middle of the framework illustrate the various types of interdependence that have been observed between two actors in the phenomenon of knowledge withholding.

Furthermore, the framework shows lines between the boxes of actors 1 and 2 and the ovals of the social identities 1 and 2. These lines represent the interaction between the goals and social identity of a respective actor. That said, actors 1 and 2 may also have a shared social identity, which is illustrated by the large oval around the two smaller social-identity ovals. This shared-identity oval has a line connection with the large rectangular box that represents positive interdependence. In other words, this line represents the fact that actors who have a shared identity also have positively interdependent goals. This means that this identity is for both actors their strongest, or there is no stronger identity that conflicts with this one. The framework also shows a potential third actor with whom one of the actors may identify. Hence, the oval circles on the left side of the framework represent the various social identities that the actors may have.

Next, the relationships with negatively interdependent goals tend to promote knowledge withholding or hoarding between actors. This highly consistent finding comes with the nuance that this seems to be even more the case when one of the actors have a weaker or disadvantaged position compared to the other party. That said, the knowledge-withholding behavior of the actors may also be fueled by strong social identities. Furthermore, relationships with positively interdependent goals may decrease knowledge withholding or hoarding but can lead to an increase when the involved people assess that it benefits their group, especially in situations in which they experience a strong social identification with their group. Knowledge withholding or hoarding may also increase when people assess the risks of knowledge leakage or associated with the knowledge itself as high. Or, knowledge withholding or hoarding increases when it contributes to the learning journey of

trainees and students. Last, in the case of complex interdependencies, knowledge withholding and hoarding may increase or decrease between actors, depending on whom they experienced the strongest connection or trusted relationship.
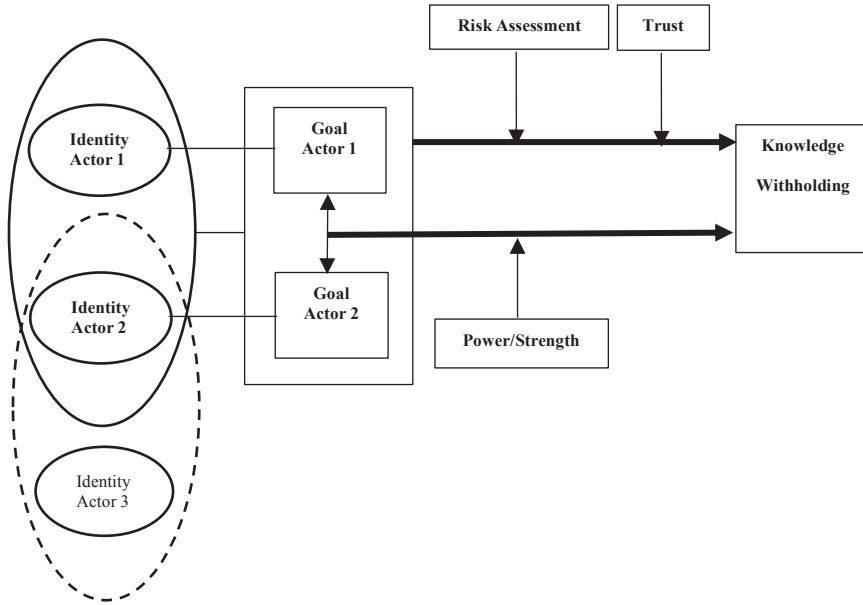
Figure 9

An integrated framework of knowledge withholding and hoarding

Future research

In these research projects, we aimed to build on the work that we conducted, which means that we investigated the phenomenon in such a way that we filled the research gaps that we identified in earlier research. For example, in the systematic literature review, we noted that we synthesized a total of 42 papers. Moreover, 24 of these papers were based on quantitative methods and had used self-reported questionnaire data. To overcome the attributes of self-reported data, we called for qualitative research of other reliable sources or research with an observational component to study the phenomenon in specific relational contexts. That is what we did. We studied the five memoirs and conducted a single case study. Also, in the systematic literature review, we described that we suspected that social identities fuel knowledge withholding through the various interdependencies between actors. We took this suggestion and incorporated it into the research projects of the memoirs study and the single case study. Another example is that we noted in the systematic literature review that we observed a disbalance in research attention between knowledge withholding, hiding, and hoarding. We, thereby, called for research on the specific topic of knowledge hoarding. That said, we took this suggestion into our own hands and focused the single case study on knowledge hoarding.

However, while we have taken a step forward and addressed some of the suggestions that we presented in the research agenda of the systematic literature review, we also notice that there are still other valid research suggestions that are open for further investigation. In brief, we propose that future research addresses these valid suggestions such as the conceptual overlap between knowledge withholding and hoarding, incorporation of the cultural influences on the behavior, and further demarcation of the antecedents of the knowledge-withholding behavior. Besides these suggestions, we also offer two additional avenues for future research which regard to the potential difference in moral judgement between knowledge hoarding and hiding and the seeming differences in nuances between the frameworks of knowledge withholding and hoarding. We now discuss these suggestions in more details.

Firstly, although we have investigated knowledge withholding and hoarding in separate research projects, we did not study the conceptual overlap between them and their potentially different causes, as we suggested in the systematic literature review. While our research projects led to the development of

various frameworks, which seem to suggest that the theoretical mechanisms are relatively similar, we did not examine the overlap between labels' scope. Hence, this leaves us to suggest that future research may address these open questions of identifying potential conceptual overlap and describing more precise and distinct definitions of the various antecedents.

Secondly, in the systematic literature review, we also described that only one out of the 42 studies was conducted in Oceania (Gagné et al., 2019), and none of the studies were done in South and Latin America, while 29 studies were conducted in China. This geographical disbalance within the studies may represent a similar cultural disbalance, such as the differences between individualism-collectivism. This may be of importance because these attributes are closely aligned with identification and group-based behavior. We did not incorporate the cultural dimension in our frameworks, which means that this observation is still valid and deserves a substantial research effort. Hence, knowledge-withholding behavior in social situations may be influenced by national cultures. We advise researchers to consider incorporating this research suggestion into their future study designs.

Thirdly, in this line, the research suggestion to further investigate and demarcate the antecedents of the three types of knowledge-withholding behaviors is also still open. Therefore, we suggested that knowledge hiding and hoarding may have different causes in the sense that they might be based on differences in individuals' awareness of knowledge existence. Moreover, in the case of knowledge hiding, an actor may be aware of the knowledge existence, a potential knowledge holder, and ask for it, upon which the knowledge hider denies to have the knowledge. The data that we gathered in our systematic literature review seems to suggest that knowledge-hiding behavior increases in situations in which people experience feelings such as fear, injustice, or competitiveness (Butt & Ahmad, 2019; Hernaus et al., 2019; Kumar Jha & Varkkey, 2019). As such, at first sight, it may be that a knowledge holder feels it is morally justified to deny a knowledge request because the implicit assumption in these cases seems to be that the actors experience negatively interdependent goals. However, it is also plausible that these feelings occur within teams which means that it happens in a context of positive interdependent goals. Despite the fact that a knowledge holder with these feelings takes an understandable decision to deny a knowledge request, it may not only have an effect on him or herself but also on other people such as team members. Therefore, we suggest that future research investigates the drivers of knowledge hiding and, thereby, focusses on the occurrence in situations of positive interdependence.

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Fourthly, while we just made a case for future research to focus on the drivers of knowledge hiding, we also want to illuminate another potential future research track on knowledge hoarding. The reason being is that in the case of knowledge hoarding, an actor might not be aware of the existence of knowledge, which implies that the knowledge hoarder will not necessarily be required to do anything to retain the knowledge. In other words, in such situation a knowledge holder can just leave the situation as it is. The single-case study described relational contexts in which knowledge holders did nothing and retained their knowledge from other teams or team members. This is fundamentally different from a knowledge-hiding situation in which a knowledge holder has to actively deny a request. Moreover, by leaving the situation as it is, a knowledge holder in a knowledge-hoarding situation also evades the potential moral judgement of his or her decision (Yeung et al., 2021). This may also be in stark contrast with the judgement that a knowledge holder might face in a knowledge-hiding situation. Therefore, we suggest that future research should investigate the causes of knowledge hoarding to enable further differentiation and demarcation of the potential causal differences between knowledge hiding and hoarding. Such an increased understanding might subsequently be fertile research ground to investigate the differences in moral pressure that a knowledge holder may experience.

Fifthly, the framework that we developed in the memoirs study seems to consist of more complexity and nuances than the framework of the single case study. An explanation might be that the memoirs study revealed that most of the relational contexts of the U.S. general and flag officers include actors outside their organization. In contrast, the single case study focused on the personnel and groups inside an organization. This would mean that the apparent lower complexity of the framework of the single case study might be caused by the fact that the research focused on the inside rather than the outside of an organization. A logical explanation may be that the single-case study collected data from personnel who worked in the case organization for extended periods of time. This could mean that they had a clear picture of how and why people inside the organization behave as they did which subsequently resulted in a framework with apparently lower complexity. Another explanation might be that the number of external stakeholders is a multitude of internal stakeholders. One could argue that the internal stakeholders generally work towards the same goals whereas the external stakeholders tend to have vastly different goals. This might explain the apparent higher complexity of the framework that resulted from the memoirs study. Despite potential explanations, they are only of speculative logic that has to be further investigated. Therefore, we suggest that future research compares the complexities of the various frameworks and investigates any clues this provide for further

research.

Practical Implications

Modern businesses try to keep up with the rapidly expanding technological frontiers by innovating continuously and aggressively so that they maintain their competitive advantage and avoid that they may be overtaken by competitors. That said, in this constant drumbeat of technological advancements, the call for openness and transparency such as provided by open-source protocols and decentralized organizations becomes louder and louder. This reality places businesses in a challenging position in which they need to maneuver through largely uncharted waters and consider what knowledge they keep for themselves and what knowledge they share. Teams within these businesses seem to experience a similar dilemma. The balancing act that these actors perform appears to be one between the competitively withholding of knowledge and the transparently sharing of knowledge. However, our research on the antecedents of knowledge withholding and hoarding revealed more nuance to this undertaking.

To take this one step further, one might consider a business in which its personnel have to sift through and coordinate themselves by using large volumes of knowledge. In general, a benefit of knowledge withholding by individual actors in such a situation is that it saves huge amounts of time for their colleagues. Moreover, as we have seen in the data, some knowledge may even be considered to have a negative impact on the sentiment of a group. As such, the withholding of knowledge has the intention to help the group to achieve their aims. That said, the sharing of knowledge in this situation could have resulted in an overload of knowledge or in negativity within the group. This may subsequently lead to the group being distracted and achieving their aims at a later moment compared to a situation in which knowledge was withheld from them. Hence, this example signals that the competitively withholding of knowledge may also be constructively intended while the transparent sharing of knowledge may have led to damaging consequence at the same time. Leaders who want to manage knowledge withholding effectively in such a situation might consider our findings.

The research presented in this dissertation provides an understanding of the antecedents of knowledge withholding and hoarding and of the reasons of why people engage in this behavior. The integrated framework subsequently explains the theoretical mechanisms that play a role in the knowledge-withholding or hoarding

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behavior of people. We now make an attempt to bridge these insights into current, real-life situations to illustrate some of the practical implications of the research. The framework that we developed in this dissertation is built on the theories of interdependence, social exchange, and social identity. As such, we distilled three questions from the framework that leaders may ask themselves or discuss in the teams that they lead to reflect upon the reality they are in regarding knowledge withholding or hoarding. While we are aware that these questions seem to neglect some of the nuances, we believe that they are a good starting point to raise awareness on the phenomena. Moreover, the insights that these questions generate may be linked to various options for leaders to take action. In other words, in effectively managing knowledge withholding or hoarding, leaders may take a conscious decision to do nothing and leave a situation as it is while, in other situations, they may decide to intervene so that the actors' behavior contribute to the goal that the leader aims to achieve.

The first question is: "Do these people have competing or collaborative goals?" As the data showed, competing goals increase while collaborative goals decrease knowledge withholding or hoarding. When leaders want to effectively manage knowledge withholding or hoarding, this first question makes them aware of the various aims that the involved actors may have. In the case that "these people" means that the actors represent competing businesses, it almost automatically means that they also have competing goals and that knowledge withholding or hoarding increases between them. As such, it would be effective for leaders to leave the knowledge-withholding behavior intact so that the competitive advantage of the business is maintained. A similar rationale exists for the collaborative goals. When "these people" refer to team members who have collaborative goals and, thereby, a low level of knowledge withholding or hoarding, it would be effective for leaders to keep the situation as such. So far, leaders could apply the insights and consciously decide to take no action, because either the competing actors had competing goals or the team members had collaborative goals. In other words, leaders can leave the situations as it is because the structure of the goals matches with the type of relationship that the actors have with each other.

However, when, for example, this question leads to the insight that team members have competing rather than collaborative goals and, as a result, the team experiences a high level of knowledge withholding, the leader may be wise to intervene. Assuming that the team functions at its best with collaborative goals, leaders may want to focus on aligning the aims within the team by providing a clear strategy, discussing their purpose, or coaching team dynamics. These interventions may help the team to unite and work towards a common goal. Again, a similar

rational may also apply to actors from competing organizations who experience that they have collaborative goals. In this case, leaders may want to instill a sense of contest in which the two organizations strive to obtain a goal in a zero-sum game. As such, leaders may explain to their people the necessity of winning and competition, install incentive structures that promote competition, or impose non-disclosure agreements to avoid knowledge leakages. In these two cases, the answer on the first question gives leaders the insight that team members seem to have competing rather than collaborative goals that could subsequently lead to the unhelpful withholding or hoarding of knowledge from each other. Or, that people from competing businesses seem to have collaborative goals while they should have competing goals which leads to a decrease rather than an increase of knowledge withholding or hoarding. In other words, the insights reveal a mismatch between the goal relationship and the actual situation between two actors which is a sign for leaders that they need to act so that the mismatch could be transformed into a matching combination. Hence, leaders effectively manage knowledge withholding or hoarding by applying the insights of this first question in such a way that they choose a (non)-intervention in which they stir towards a situation of competitors having competing goals and teams having collaborative goals.

The second question is: "Do these people trust each other?" Based on the data, we know that trust between people decreases knowledge withholding or hoarding, whereas a lack of trust has the opposite effect. While trying to effectively manage knowledge withholding or hoarding, leaders may use the insights of this question in combination with the insights of the first question. As such, when the involved actors do not trust each other and, as a result, withhold or hoard knowledge from one another, a leader may consider this as an optimal situation in the case that the actors are competitors. In this situation, a leader effectively manages knowledge withholding or hoarding by at least maintaining or even strengthening the non-trusting stance towards the competing party. Similarly, when the involved actors trust each other, have a low level of knowledge withholding or hoarding, and have collaborative goals, a leader is probably also most effective in managing knowledge withholding or hoarding by leaving the situation as it is. As such, this means that the response to the first question serves as context for the second question. Moreover, trust between actors and collaborative goals both decrease knowledge withholding or hoarding while a lack of trust or competing goals increase this behavior. Leaders who notice that they are in such a situation are best off to be consciously passive and leave the situation as it is.

However, the answering of the questions one and two may also lead to the insight that people trust each other in a situation in which they have competing goals

and, as a result, they decrease knowledge withholding or hoarding towards each other. Or, that team members do not trust each other and, despite having collaborative goals, experience a high level of knowledge withholding or hoarding between them. In these instances, leaders may need to intervene in such a way that non-trusting or trusting relationship align with the competitive or collaborative goals. This means that leaders may need to focus on enhancing trust between team members when they aim to decrease knowledge withholding or hoarding between the actors so that they are better able to integrate all relevant knowledge and work towards their collaborative goals. Or, leaders need to intervene in situations in which actors trust each other while they have competing goals. To be more precise, these actors trust each other in situations in which they *should* have competing goals. The data illustrated an instance where soldiers used and dealt in drugs and, at the same time, refused to conduct their duties and adhere to the military standards. This signals that the soldiers trusted and sympathized with drug criminals rather than with the military organization of which they were part of. The officer in this case had to invest heavily in building trust among them and degrade trust between the soldiers and the criminals. As such, the trust degradation increases knowledge withholding or hoarding which may be a better fit for the situation in which the actors find themselves. Hence, leaders can effectively manage knowledge withholding or hoarding by either doing nothing and leave the situation as it is or by influencing (a lack of) trust between people in situations of competing or collaborative goals in such a way that it results in the desired level of knowledge withholding or hoarding.

The third question is: "Do these people represent a larger group?" The data showed that people may withhold or hoard knowledge to serve their group's goals rather than their own goals in situations in which they strongly identify with that particular group. That said, the larger the group gets, the weaker the association tends to be. The insights that the answers to this question generate matter for leaders who intend to effectively manage knowledge withholding or hoarding because the data showed many examples in which people withheld or hoarded knowledge in the name of other people rather than for themselves. It is essential for a leader to know whether and who an actor represents. Consider a business with multiple teams. We, thereby, assume that the business is able to deliver the most value when all personnel work towards a single business goal. In the case that these people identify strongly with the business as a whole and less with the individual teams, this may be an indication that they withhold or hoard knowledge to serve the organization's goals. In such an instance, leaders may assess the knowledge-withholding or hoarding behavior between their people as optimal and, as a result, decide to leave the situation as it is.

However, when the answer to this question reveals that people identify the most with their immediate team, this might mean that they withhold or hoard knowledge from other teams to serve their goal rather than the business's goal. This may serve as an indicator for leaders that they need to act. In this case, leaders may want to clarify why all of teams need to collaborate in achieving the overall goal, organizing social events to strengthen the people's identification with the business's identity, or systematize cross-team collaboration to enhance inter-team connections. Hence, insight in the identity that people feel connected to enables leaders to effectively manage knowledge withholding or hoarding. Leaders may leave a situation intact when the business goals are best served by personnel who experience a stronger connection with the overall organization than with individual teams. Or, they seem to be better off by intervening in situations where people feel a strong connection to their immediate team rather than the organization.

Taken together, we propose that leaders start raising awareness and effectively manage the knowledge withholding or hoarding that they encounter in their daily work by centering around three questions. The insights that they may gain with these answers position them to take decisions to either do nothing and leave the situation as it is or to intervene and influence the knowledge-withholding or hoarding behavior in such a way that they deemed it optimal.

Conclusion

In this dissertation, we have taken a relational perspective on the knowledge withholding and hoarding between actors. This led to the development of an integrated framework that explains knowledge-withholding behavior in various relational contexts. Despite the negative stance in the literature towards this behavior, we found that it actually may have adverse and beneficial effects. We propose that leaders investigate what the optimal mix of these effects is for their organization so that it maximizes the contribution to the organizational competitive advantage. The conclusion is that a common goal, trust, reciprocity, and shared social identity are the key ingredients of an optimal level of knowledge withholding within military organizations.

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CHAPTER 6

Valorization Addendum

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Once there were coffee specialists from Starbucks committed to developing an instant coffee that would adhere to the high standards of their company. Every day, they worked diligently to perfect the product they coined as VIA, an abbreviation of ValencIA. They had to iterate secretly because many Starbucks coffee shop owners regarded instant coffee as an inferior product that did not fit into their core values. But at some point, VIA was perfect. The CEO of Starbucks, Howard Schultz, was convinced that VIA would perform. However, he had to find a way to overcome the bias among the store owners and launch the high-quality instant coffee that his specialists developed. He decided that the best way to do this was to keep the knowledge about VIA for himself and invite some of his coffee-shop owners to taste "new brewed coffees." While the owners were sipping coffee and discussing flavors, none of them imagined that they were drinking instant beverages. Until finally, Mr. Schultz revealed that these were actually the new instant coffees of Starbucks. This led to an immediate acceptance among the store owners, that have stayed with them ever since. Mr. Schultz repeated these private tastings repeatedly to increase support for the product within his company. After gardening enough support for the coffee, Mr. Schultz decided to launch VIA into the market, after which it became a very successful product of Starbucks (Schultz & Gordon, 2011).

What the CEO of Starbucks actually did is that he withheld knowledge from his store owners to achieve his goal, which was to overcome their prejudice about instant coffees and let them experience the high quality that it could have. In other words, he wanted to convince them that instant coffee could be tasteful and enjoyable. Just like the CEO of Starbucks, many other leaders in different types of organizations also have the responsibility to decide on how much knowledge they withhold at what moment in time to achieve their goal. A challenge with such considerations is that they may be taken intuitively and based on earlier experiences rather than on rationales provided by scientific research. Looking at the potential consequences of an inadequate withholding of knowledge, the study of the reasons for this behavior is of utmost societal importance.

Scientific Relevance

Not only in the world of coffee, knowledge-withholding behavior is used to reach goals. Our studies, including a literature review across different settings and two qualitative studies in the military context, revealed numerous reasons to

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withhold knowledge. With these three studies, we aim to fill in the gaps we observed at our project's start. As such, we noticed that extant research tended to approach the phenomenon from the angle of knowledge sharing, which gave the subject a negative connotation. In this line, knowledge-withholding behavior was often studied in competitive settings in which one of the actors had to achieve their goal at the cost of the other. Also, the extant research yielded numerous antecedents that were individually explained by various theories, but they painted a picture of scattered explanations over the theoretical landscape.

Given the scatteredness of former research results on antecedents of knowledge withholding, we aimed to develop an integrated framework supporting researchers and practitioners to understand in a comprehensive way why people withhold knowledge. Moreover, instead of narrowing our studies to competitive situations in which individuals withhold knowledge within an organization, we studied this behavior individually and in groups, in competitive and collaborative cases, and within and between organizations. Due to the fact that we regarded this behavior as a phenomenon between humans, we took the standpoint that it occurred in a relationship, and, as such, we constructed the framework using the relational theories of interdependence, social identity, and social exchange.

The main findings of our research are that people with competitive goals tend to increase their knowledge withholding or hoarding towards each other, especially in situations where people experience strong social identities (intergroup conflict) or have a power difference between them. In more detail, the research illustrated that a weaker party tends to withhold or hoard knowledge from a stronger party. The data also showed that people with collective goals tend to decrease their knowledge withholding or hoarding. Note that this may not be the case in a few particular circumstances. Moreover, despite that people may have collaborative goals, people seem to increase their knowledge withholding or hoarding when the behavior may benefit their social group with which they have a strong connection, when they assess the costs of knowledge (leakage) as high, or when they are in a teaching role. Despite these clearly bordered categories, people may also experience competitive and collaborative goals with various other people at the same time. The data showed that people in these circumstances might increase or decrease knowledge withholding or hoarding, depending on the strength of connection or trust they may experience with the involved people.

Implications for Practice

Based on the findings of our studies and the developed framework of antecedents of knowledge-withholding behavior, we provide persons holding important knowledge in organizations with a deeper understanding of reasons for determining whether to decide for transparency and sharing the knowledge they have at that moment or to decide to withhold knowledge as they perceive it as beneficial rather than harmful. Throughout this dissertation, we focussed on the practical implications of our research on those people who are in leadership positions. They have the formal power to influence their people and, to some extent, their surroundings in such a way that they consciously consider and decide to act or not in knowledge-withholding situations.

Looking at the practical relevance from a broader scope, this leadership category might include not only frontline leaders but also people in leadership positions that may be slightly more distant from people. For example, this might consist of people who work in a human resources department because they tend to support leaders in their daily work. Or this category may also include executives and policymakers who decide on processes, procedures, and policies that directly affect how people behave. Knowing why people conduct in knowledge-withholding behavior might help them integrate this into their advice towards leaders or craft policies that incorporate the factors that influence this behavior.

Dissemination of the findings

The findings of this dissertation may be disseminated in various ways. The first channel through which the results could be offered to a broader audience is education. Academic programs in, for example, leadership and business administration tend to focus on the need for organizational transparency or the benefits of knowledge sharing. While the Starbucks example illustrates the practical usage of knowledge withholding, the research so far provides a thorough understanding of why people withhold, hoard, or hide knowledge. In this line, academic programs and their students may benefit from raising their awareness of knowledge-withholding behavior and incorporating these insights into their considerations and decisions regarding handling knowledge in relational contexts. Moreover, it is essential for leaders to have an understanding of how goals, social identities, trust, and reciprocity affect the knowledge-withholding behavior of people.

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The second channel through which the content may be disseminated is social media, traditional media, or publications. In the case of social media, leaders tend to have a LinkedIn and Twitter account for their professional network and, in some cases, a Facebook or Instagram account for personal purposes. We propose to use the strategy of post-repost-post-repost on these channels. Also, the social media channels of the university and journals may be used to distribute the content to leaders. Next, regarding traditional media, it might be an option to submit a media proposal to online and newspaper publishers. These can be reposted on social media channels when this may lead to a publication. In this line, it might be worth considering submitting these proposals to local cities' newspapers with many students or businesses. Last, concerning publications, we may need to consider submitting papers to journals that are read by various categories of people. This would widen the audience and raise the research's impact. When a paper is published, it can be posted on social media channels and referred to in traditional media postings. All in all, this may positively impact the people in knowledge-withholding situations.

The third channel for research dissemination is the research process itself. For example, in the single-case study, we conducted interviews, participant observations, and studied archival records. At some point in the process, we went back to the respondents to conduct member-check interviews to get a sense of whether our thoughts, rationales, and arguments on the topic resonated with them. Looking back, this is one of the first interactions with potential users of the findings and one of the steps in dissemination to a wider audience. Another way of dissemination through the process itself is that a substantial part of the research is conducted in the United States at the U.S. Naval Postgraduate School. The primary researcher conducted a master's program for military leaders at that school and, as such, used the Ph.D. research to contribute to a master's thesis that was necessary for fulfilling the requirements. The thesis process was supervised by a professor for the U.S. Naval Postgraduate School and a professor from Cornell University. This brought attention to this research in other countries, different universities, and other disciplines. Taken together, the multi-disciplinary and multi-nationality of the whole team of Ph.D. and master supervisors not only brought fruitful and insightful collaborations but also a way to increase exposure to a broader audience.

Conclusion

The research presented in this dissertation has been conducted comprehensively to understand why people withhold knowledge, broadening the settings for research from individualistic to team settings, from competitive to collaborative environments, and from within to between organizations. This has resulted in new insights that leaders or persons who hold knowledge for other actors can use to make well-informed decisions on whether or not to withhold knowledge. By conducting our studies in interaction with leaders and collaboration with teachers in an international leadership program, the first steps in valorizing our findings have been taken. The following steps in valorization can be taken by disseminating our research results among persons in leadership positions and those responsible for leadership programs.

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