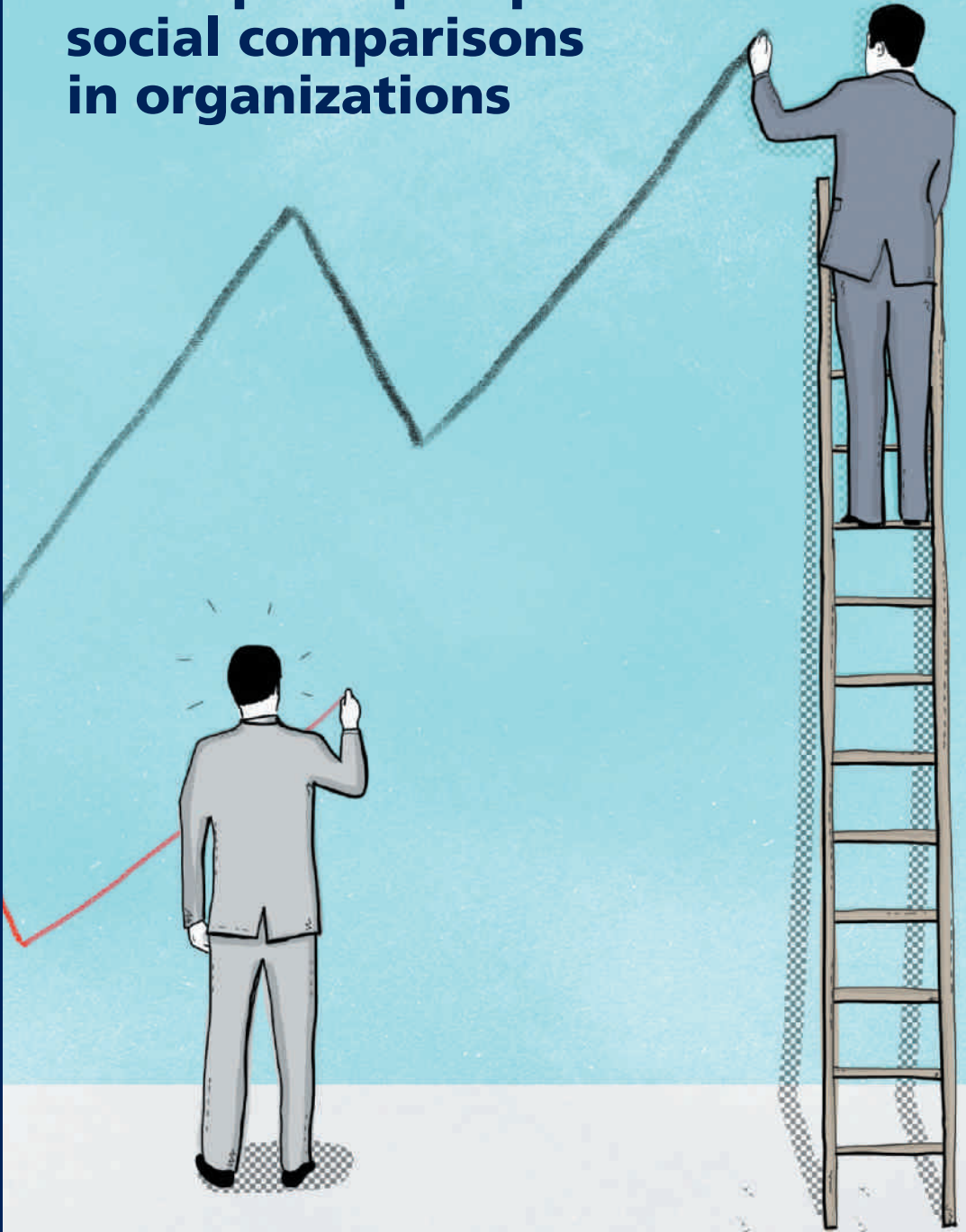


SUSAN REH

A temporal perspective on social comparisons in organizations



**A TEMPORAL PERSPECTIVE ON SOCIAL
COMPARISONS IN ORGANIZATIONS**

A Temporal Perspective on Social Comparisons in Organizations

Een tijdsperspectief op sociale vergelijkingen in organisaties

Thesis

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CHAPTER 1
GENERAL INTRODUCTION

In their everyday lives, people often compare themselves to others to assess their standing in society (Festinger, 1954). They engage in these social comparisons because of their innate need for status (Anderson, Hildreth, & Howland, 2015). Status is “the amount of respect, influence, and prominence each member enjoys in the eyes of the others” (Anderson, John, Keltner, & Kring, 2001, p. 116). As such, status is inherently social, so objective standards are often lacking when it comes to evaluating status. As a consequence, people need others as a reference point to evaluate their status. Social comparisons reduce uncertainty regarding peoples’ status (Festinger, 1954) and thereby affect their self-worth and social identity (Sterling & Labianca, 2015).

Social comparisons make up a considerable share of peoples’ daily thoughts. In more concrete terms, 7% of peoples’ thinking is in fact social comparison (Summerville & Roese, 2008). Importantly, irrespective of whether people at the workplace actively seek social comparisons, they may also unintentionally learn about social comparison information through official performance evaluations or through gossip (Wert & Salovey, 2004). Moreover, social comparisons have been shown to be automatic (Gilbert, Giesler, & Morris, 1995), ubiquitous (Buunk & Gibbons, 2007; Wheeler & Miyake, 1992), and sometimes even unconscious (Mussweiler, Rüter, & Epstude, 2004).

The competitive nature of many workplaces further provides a breeding ground for social comparison as can, for instance, be found in reward systems such as tournaments, forced rankings, or employee-of-the-month awards. Competition is the extent to which “employees perceive organizational rewards to be contingent on comparisons of their performance against that of their peers” (Brown, Cron, & Slocum, 1998, p. 89). In such settings, in order to evaluate their performance, employees need to take into account how well they perform relative to their colleagues. For instance, a focal employee’s sales

might meet his/her target agreement, but other employees might still have achieved higher sales and thus get a larger bonus. Likewise, a promotion to be a team leader can only be given to one employee because it is a winner takes all game.

Given the ubiquity of social comparisons, especially at the workplace, naturally, people will encounter both upward and downward comparisons, that is, comparisons with others who enjoy higher or lower status than they enjoy (Brown, Ferris, Heller, & Keeping, 2007). Upward social comparisons often pose a threat to employees' status and, given the importance of status, envy arises (Crusius & Lange, 2016). Envy describes the feeling that one "lack(s) another's superior quality, achievement, or possession and either desires it or wishes that the other one lacked it" (Parrott & Smith, 1993, p. 906). As the latter part of this definition indicates, envy exists in two qualitatively different forms. On the one hand, people who experience benign envy focus on the object that they desire (i.e., achieving higher status) with the goal to reach the same level as the person they envy. On the other hand, people who experience malicious envy focus more on the person they envy with the goal to bring this person down to their own inferior level (van de Ven, Zeelenberg, & Pieters, 2009). To reduce the painful feeling of envy and restore their status, people take action to close the status gap. Benign envy has been shown to lead to self-improvement related reactions such as higher motivation and effort (van de Ven, Zeelenberg, & Pieters, 2011) whereas malicious envy leads to more destructive outcomes (van de Ven et al., 2015) such as social undermining (Duffy, Scott, Shaw, Tepper, & Aquino, 2012). Social undermining comprises "behavior intended to hinder, over time, the ability to establish and maintain positive interpersonal relationships, work-related success, and favorable reputation" (Duffy, Ganster, & Pagon, 2002, p. 332).

Despite over six decades of research since psychologist Leon Festinger (1954)

started studying social comparisons, questions remain when and why social comparisons elicit positive and negative behaviors among employees in organizations. For instance, extant social comparison theorizing cannot explain why employees would sabotage coworkers with lower status. Relatedly, it is not yet clear when employees react with positive or negative behaviors to status-threatening comparisons, and why they sometimes engage in both types of behaviors. Moreover, not all individuals seem to be equally affected and interested in social comparisons (Gibbons & Buunk, 1999; Van Yperen & Leander, 2014). The question arises what explains individuals' preferences for social comparisons versus other comparison standards.

Common to previous studies in this area is that they treat social comparisons as a static construct (Redersdorff & Guimond, 2006). In other words, they look at two individuals' relative position to each other at one point in time and use this snapshot to predict individuals' cognition, affect, and behavior. Obviously, individuals' current relative position to each other is very relevant and respective research has provided many insights into the relationship between social comparisons and behavior (see Greenberg, Ashton-James, & Ashkanasy, 2006 for a review). However, this static perspective neglects the dynamic nature of social comparisons and limits our ability to explain interpersonal behavior. In this dissertation, I propose that the dynamic nature of social comparisons matters because it informs employees about their future status and, as such, helps them to choose adequate actions to maintain their status.

Individuals fundamentally care about their status (Anderson et al., 2015) and these concerns comprise not only their status in the present but also their status in the future (Pettit, Yong, & Spataro, 2010). Status hierarchies are dynamic with some individuals gaining status and others losing status over time (Marr & Thau, 2014; Pettit,

Sivanathan, Gladstone, & Marr, 2013). Such status changes occur because the dimensions that feed into peoples' status often change over time and they usually do not change at the same pace for everyone. For instance, many employees' climb up the organizational ladder but some employees do so faster than others and show steeper career trajectories. Thus, an upward comparison and can turn into a downward comparison (and vice versa) in the future if two individuals develop differently. Thus, the assessment of the comparison may vary depending on the time point to which one chooses to compare. As a result, individuals face uncertainty with regards to their future status. In order to reduce this uncertainty and predict their future status, individuals need to draw on information that tells them how their status will likely develop in order to take action to defend their status if necessary. It seems reasonable to assume that individuals will use information on their past relative trajectories to extrapolate their status relative to others in the future. Individuals will usually have access to respective information. Given that individuals chose comparison others based on similarity and relevance (Festinger, 1954; Tesser, 1988), comparison others will often be coworkers, friends, or romantic partners (Brown et al., 2007; Lockwood, Dolderman, Sadler, & Gerchak, 2004; Tesser, 1988). Common to these comparison persons is that individuals have longer relationships with them. This implies that they have ample opportunities to compare to them and will likely compare to them more than once. Naturally, they notice when their own or the comparison other's performance on a comparison dimension improves or decreases over time. By accounting for temporal changes in the comparison dimensions in the past, individuals can mentally extrapolate past trajectories and thereby get an idea about their status in the future. Depending on how they developed relative to the comparison, their future status may be different from their present status.

In sum, the above considerations illustrate that the extant static perspective on social comparisons is undertheorized with regards to its temporal complexity. The aim of this dissertation is to account for this temporal complexity with the goal to improve our understanding of the antecedents, the consequences, and the process of social comparison itself. At the core of this dissertation lies the proposition that individuals will account for temporal dynamics in comparison dimensions and compare their past trajectories relative to the trajectories of others to predict their standing in the future. These estimations of future status will already affect individuals' behavior in the present.

Dissertation Overview

The following three chapters focus on different aspects of a temporal perspective on social comparisons. The chapters were written as stand-alone research papers. The first two chapters are empirical ones followed by one theoretical chapter. As I developed all three chapters in close collaboration with the members of my dissertation team, I will use the term “we” rather than “I” to reflect their contributions to the chapters.

In Chapter 2 we test if a focal employee will envy and socially undermine a coworker who is expected to develop higher status than the focal employee in the future irrespective of this coworker's current status. We introduce the concept of temporal social comparison that is the idea that people obtain social comparison information about their own growth in the organization relative to others. We reason that they will extrapolate respective relative growth information to predict their future status. If this temporal social comparison is unfavorable and indicates lower future status, the employee will envy and socially undermine a coworker even if this coworker has lower status at the point of observation. Further, we hypothesize that the relationship between unfavorable temporal social comparison and future status threat is stronger in a competitive than in a less

competitive organizational climate. We tested our model in two experiments and one field study.

Chapter 3 investigates which types of comparisons people prefer and how their respective comparisons affect them in terms of their performance. More specifically, we test peoples' comparison preferences as a function of their goal orientation. Goal orientation describes the goals that individuals hold in achievement situations (Dweck, 1986). A learning orientation that describes the goal to master tasks and improve upon one's abilities is argued to be related to an intrapersonal, temporal comparison standard. A performance orientation that describes the goal to demonstrate one's competence by performing equal to or better than others is argued to be related to an interpersonal, static comparison standard (Elliot & McGregor, 2001). However, the empirical evidence for individuals' comparison preferences as a function of their goal orientation and the effects that respective comparisons have on performance is inconclusive. Moreover, the extant literature confounds a person-related (self vs. others as reference point) with a time-related (static vs. temporal comparison) comparison frame. As a result, individuals have two additional comparison standards available, a static, self-related and a temporal social comparison standard, which we introduce in a 2 x 2-framework. We hypothesize that learning-oriented individuals will prefer self-related comparisons whereas performance-oriented individuals will prefer other-related comparisons. Moreover, we hypothesize that goal orientation and comparison information interactively affect performance. We expect that unfavorable comparison information on a standard that is relevant to individuals with a certain goal orientation will lead to higher performance than favorable comparison information on that standard or comparison information that is not in line with the individuals' goal orientation. We conducted two surveys and one lab experiment to test

these predictions.

In Chapter 4 we zoom in closer into the behavioral effects of social comparisons in organizations to theorize why unfavorable comparisons sometimes lead to positive behaviors such as higher performance and sometimes lead to negative behaviors such as social undermining. We develop a theoretical model in which we introduce the temporal proximity of a status threat as the core underlying process. The temporal proximity of a status threat describes whether employees expect a status threat to occur in the present (i.e. a proximate threat) or in the future (i.e. a distal threat). The more proximate (distal) the status threat, so we argue, the more malicious (benign) envy employees will experience and the more negative (positive) behaviors they will exhibit to reduce their envy. Moreover, we argue that the link between the proximity of the status threat and benign and malicious envy will be amplified by the relevance of the comparison dimension. We propose that employees derive the proximity of the status threat by comparing to their coworkers on five temporal markers. These markers characterize social comparisons over time and comprise their current relative position, their relative velocity, their relative acceleration, their relative mean level, and their relative range of minimum and maximum positions on a comparison dimension. As these temporal markers require information over time that may sometimes be incomplete, we additionally introduce three factors of uncertainty: variability, time span, and interruptions. These factors should reduce the effect of the temporal markers on the status threat because of the ambiguity they induce. Our theoretical model aims to capture social comparisons in its full temporal spectrum to more realistically reflect the dynamic reality in organizations. We discuss implications for both the social comparison literature and for the literature on interpersonal behavior in organizations.

Finally, Chapter 5 summarizes the previous chapters and their contributions and aims to relate and integrate them from a broader perspective. I discuss the theoretical and practical implications that derive from this dissertation accompanied by potential avenues for future research.

Contributions

With this dissertation on a temporal perspective on social comparisons in organizations, I aim to make several contributions to research on social comparisons, interpersonal behavior in organizations, and goal orientation. First, this dissertation extends the literature on the behavioral effects of social comparisons in organizations (Brown et al., 2007; Duffy et al., 2012; Lam, Van der Vegt, Walter, & Huang, 2011; Schaubroeck & Lam, 2004; Spence, Ferris, Brown, & Heller, 2011). More specifically, it investigates how concerns for future status that are derived from past trajectories relative to others shape employees' cognition, affect, and behavior in the present. Previous research relied only on current status differences to explain employees' reactions to social comparisons. In contrast, this dissertation overcomes this static perspective and shows how present status evaluations are the result of past trajectories and future expectations. In particular, this dissertation challenges the prevailing assumption that social comparisons would not lead to negative interpersonal behavior toward coworkers with lower status at present (Lam et al., 2011). Second, this dissertation expands social comparison theory by conceptualizing the inherently dynamic process of social comparisons in its full temporal spectrum. By integrating the temporal dimension of status, our theoretical model of social comparisons over time allows for a more realistic portrayal of individuals within organizations where status changes over time and employees face a joint history with their comparison others. In particular, our model in Chapter 4 provides a fine-grained

framework to understand the underlying cognitive process of social comparison over time. Finally, this dissertation contributes to the question of which comparison standards people prefer to evaluate their performance. Whereas previous theorizing and studies treated social comparisons and temporal (self-) comparisons as alternatives depending on individuals' goal orientation, this dissertation provides a more nuanced 2 x 2 framework of person-related and time-related comparison standards. Thereby this dissertation shows that people differ in whether they prefer social versus self-related comparisons but they do not differ in whether they engage in static or temporal comparisons.

Declaration of Contributors

Multiple authors contributed to the chapters included in this dissertation: Apart from myself, Susan Reh (SR), Christian Tröster (CT), Niels Van Quaquebeke (NVQ), and Steffen R. Giessner (SR) contributed to these chapters. Chapter 2 was written by SR under supervision of CT and NVQ. The first experimental study in Chapter 2 was designed by SR under supervision of CT and NVQ. The second experimental study and the field study in this chapter were designed by SR. SR also constructed some of the measurements in these studies. Data for all three studies were collected via CT's MTurk account. SR analyzed the data under supervision of CT. Chapter 3 was written by SR and supervised by SRG, CT, and NVQ. The studies in Chapter 3 were designed by SR under supervision of SRG, CT, and NVQ. Data for the first study was collected via SRG's Bachelor's course. Data for the second study was collected via CT's MTurk account and the third study was conducted in the behavioral laboratory of RSM. SR analyzed the data in the first two studies and analyzed the data in the third study under supervision of CT. Chapter 4 was written by SR, and supervised by CT, NVQ, and SRG. The theoretical model was developed by SR under supervision of CT, NVQ, and SRG.

The authorship for Chapters 2, 3, and 4 is as follows:

- Chapter 2: Reh, Tröster, Van Quaquebeke
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CHAPTER 2

KEEPING (FUTURE) RIVALS DOWN: TEMPORAL SOCIAL COMPARISON PREDICTS COWORKER SOCIAL UNDERMINING VIA FUTURE STATUS THREAT AND ENVY

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Abstract

The extant social undermining literature suggests that employees envy and, consequently, undermine coworkers when they feel that these coworkers are better off and thus pose a threat to their own current status. With the present research, we draw on the sociofunctional approach to emotions to propose that an anticipated future status threat can similarly incline employees to feel envy toward, and subsequently undermine, their coworkers. We argue that employees pay special attention to coworkers' past development in relation to their own, since faster-rising coworkers may pose a future status threat even if they are still performing worse in absolute terms in the present. With a set of two behavioral experiments ($N = 90$ and $N = 168$), we establish that participants react to faster-rising co-workers with social undermining behavior when the climate is competitive (vs. less competitive). We extended these results with a scenario experiment ($N = 376$) showing that, in these situations, participants extrapolate lower future status than said coworker and thus respond with envy and undermining behavior. A two-wave field study ($N = 252$) replicated the complete moderated serial mediation model. Our findings help to explain why employees sometimes undermine others who present no immediate threat to their status. As such, we extend theorizing on social undermining and social comparison.

Introduction

”One of the most valuable things I learned was to give the appearance of being courteous while withholding just enough information from colleagues to ensure they didn’t get ahead of me on the rankings.”

- A Microsoft engineer in Kurt Eichenwald, *Microsoft’s Lost Decade*, 2012.

Employees sometimes engage in covert and insidious forms of harming—such as spreading rumors or withholding information—that pose serious costs to organizations (Duffy et al., 2012; Larkin, Pierce, & Gino, 2012). One major driver of these social undermining behaviors (Duffy et al., 2002) is employees’ experience of envy towards their coworkers (Cohen-Charash & Mueller, 2007; Duffy, Ganster, Shaw, Johnson, & Pagon, 2006; Duffy et al., 2012; Duffy & Shaw, 2000). According to the literature, envy arises when employees compare themselves with their coworkers and subsequently feel a threat to their own status (Cohen-Charash, 2009; Duffy & Shaw, 2000). In response, employees may strive to sabotage the coworker’s status through social undermining, hoping to improve their own status and alleviate the envious feeling (Duffy et al., 2012; Kim & Glomb, 2014; Lam et al., 2011; Tai, Narayanan, & McAllister, 2012).

These studies commonly assume that employees’ social undermining behaviors are motivated by a perceived threat to their current status, irrespective of past and future developments in status differences. Yet, Albert (1977) critiqued that these social comparisons reflect comparisons at a single point in time, thereby reflecting a *static status comparison*. Indeed, studies in that tradition propose that only comparisons with those who are currently superior will elicit envy and subsequent social undermining (Lam et al., 2011). Lam and colleagues (2011), for instance, stated that they do “not expect pronounced

harming behavior in downward comparison situations” and that “irrespective of the actor’s expected future performance similarity, interpersonal harming should remain limited in downward comparison situations” (p. 590). Potentially, these studies assumed that employees already factor their past trajectories into their assessments of current status, but this has not been explicitly tested or clarified.

However, people also care about maintaining their status into the future (Bothner, Kang, & Stuart, 2007; Pettit et al., 2010; Scheepers & Ellemers, 2005; Scheepers, Ellemers, & Sintemaartensdijk, 2009). The dimensions that underlie these comparisons change over time and at a different pace for each employee (e.g., some employees receive promotions more often, see faster improvements, or get steeper pay raises than others) (Chen & Mathieu, 2008). Thus, it seems theoretically conceivable that employees will compare their past development against their coworkers’ development, using these temporal trajectories to extrapolate their possible future status. We refer to these comparisons as *temporal social comparisons*, which integrate social comparison theory (cf. between subjects; Festinger, 1954) with findings on status momentum (Pettit et al., 2013). Taking a sociofunctional view on emotions (Cottrell & Neuberg, 2005), the current paper advances and tests the prediction that employees will also envy and subsequently undermine coworkers who could potentially threaten their future status, irrespective of whether said coworkers pose a current threat. We further expect the relationship between temporal social comparison and future status threat to be stronger in highly competitive organizations. Our theoretical model is depicted in Figure 1.

With our study, we make three major contributions to previous research. First, we introduce unfavorable temporal social comparisons, and the resultant future status threat, as an additional process that leads to social undermining. As such, we extend the social

undermining literature by arguing that the core mediating process of envy can also be triggered by future status threat, independent of whether coworkers currently compare more or less favorably. In doing so, we fill a gap in previous theorizing—namely, why some employees decide to undermine coworkers who are not presently better off than they are (Lam et al., 2011).

Second, our investigation into temporal social comparisons involves a combination of social comparison theory (Festinger, 1954), which has portrayed comparisons as static, and the temporal notion of status momentum (Pettit et al., 2013). Aside from Albert (1977) introducing the concept of temporal comparison for individuals' intrapersonal comparisons (i.e., how one performs now versus in the past), the literature has largely ignored temporal changes in interpersonal comparison dimensions. By applying a temporal component to the study of social comparison, we account for the dynamic nature of status in organizations and, by extension, can help explain why and when employees socially undermine each other.

Third, we extend research on the negative interpersonal effects of competitive reward systems. Specifically, by showing that employees in competitive organizations can perceive both current and future status threats, we highlight that competition leads to more negative interpersonal behavior than previously assumed. Also, by considering the moderating influence of competition, we follow calls to explain social undermining via the interplay of comparison processes and organizational factors (Duffy et al., 2012; Duffy, Shaw, & Schaubroeck, 2008), and thereby provide a better understanding of the involved processes (Jacoby & Sassenberg, 2011; Spencer, Zanna, & Fong, 2005). On the applied side, the present paper may resonate with many practitioners who observe that rising stars in organizations are hindered not only by their direct competitors, but also by their future

ones—just like the Microsoft employee in the opening quote who tried to prevent coworkers from getting ahead of him (Eichenwald, 2012).

--- FIGURE 1 ---

Theoretical Background

Social Undermining, Envy, and Social Comparison

Social undermining at the workplace comprises “behavior intended to hinder, over time, the ability to establish and maintain positive interpersonal relationships, work-related success, and favorable reputation” (Duffy et al., 2002, p. 332). Employees often undermine when they feel envious toward their coworkers (Duffy et al., 2012) because envy reflects an employee’s feeling that s/he “lack(s) another’s superior quality, achievement, or possession and either desires it or wishes that the other one lacked it” (Parrott & Smith, 1993, p. 906). According to the sociofunctional approach, which refers to psychological mechanisms intended to facilitate “effective and successful social living” (Cottrell & Neuberg, 2005, p. 770), emotions such as envy have evolved partly to “establish and maintain social hierarchy” (Lange & Crusius, 2015b, p. 455). Emotions alert people to immediate threats and subsequently elicit functional cognitions and behaviors that help people to effectively respond to these threats (Neuberg & Cottrell, 2008). In the workplace, envy signals to employees that their place in the social hierarchy is threatened and that action may be needed to eliminate said threat. This often unfolds in a destructive way, with employees undermining the threatening comparison other (Cohen-Charash, 2009; Duffy et al., 2012; Dunn & Schweitzer, 2006; Smith & Kim, 2007; Tesser, 1988). Social undermining is a particularly attractive strategy because it is covert and insidious (Duffy et al., 2002, 2008; Menon & Thompson, 2010): Individuals can spread rumors about a coworker, intentionally delay work to slow a coworker down, or give a coworker

false or misleading information.

Several studies provide evidence for the sociofunctional perspective, showing that threatening social comparisons trigger envy toward more successful coworkers, which then inspires social undermining behaviors (Campbell, Liao, Chuang, Zhou, & Dong, 2017; Duffy et al., 2012; Kim & Glomb, 2014; Lam et al., 2011; Schaubroeck & Lam, 2004). Those studies are grounded in Festinger's (1954) social comparison theory, which holds that individuals compare their abilities and opinions to others in order to reduce uncertainty and evaluate their standing when more objective comparison standards are not available.

Yet, some coworkers may pose more of a threat to a focal employee's future status than to his/her present status. For example, so-called "rising stars" may start at the bottom of the organizational hierarchy, but can pose a threat to the "old dogs" when the latter perceive the former's swift ascension—and, by extension, the prospect of being outperformed in the future. Indeed, people's ranks on relevant comparison dimensions (such as performance, pay grade, hierarchy levels, etc.) usually change over time (Chizhik, Alexander, Chizhik, & Goodman, 2003), but not at the same pace for every employee (Chen & Mathieu, 2008). For example, an employee's task performance could improve over time, enabling him/her to match or even outperform a currently better-performing focal employee in the future. Likewise, some employees are faster than others in gaining managerial responsibilities or building strong relationships with their coworkers and supervisors.

To elucidate the ensuing dynamics, we will first introduce future status threat as a distinct motive leading to envy-based social undermining. We will then explain how concerns for future status threat motivate temporal social comparisons, which form the

basis for individuals' inferences about their future status.

Future Status Threat as Driver of Envy and Social Undermining

Status is considered a fundamental human motive (Anderson et al., 2015). At work, status motivates employees through its many advantages, such as greater influence (Berger, Rosenholtz, & Zelditch, 1980), respect and support from others (Anderson et al., 2001; Anderson, Srivastava, Beer, Spataro, & Chatman, 2006), and even higher mental wellbeing (Adler, Epel, Castellazzo, & Ickovics, 2000). Likewise, the loss of status triggers negative emotions (Kemper, 1991) and impairs performance (Marr & Thau, 2014). The great value that individuals ascribe to status leads them to actively manage it. They attentively scan for cues in their social environment that represent opportunities for status gains or threats to their current status; they engage in impression management, and they react defensively when their own status is at risk (Anderson et al., 2015). Because the status of one employee can reflect on another, members of a workplace monitor signals about the status of coworkers alongside their own (Anderson et al., 2015).

Beyond their evaluations of current status, employees also constantly search for opportunities to improve their status. However, because many opportunities to gain or lose status (e.g., promotions or bonuses) lie in the future, employees' future status is often uncertain. Whether employees will be successful in these situations is a question of their future performance, which cannot be solely deduced from their present status. Thus, these concerns about future status should supplement employees' status cognitions, motivating them to retain their current level of status in the future.

Employees are indeed motivated to avoid status loss (Bothner et al., 2007; Pettit et al., 2010; Scheepers et al., 2009) and respond by trying to avoid the future status loss at the cost of other people (Garcia, Song, & Tesser, 2010; Pettit et al., 2010). However, status

loss in extant studies would have always been the result of a threat to one's *current* status. Some authors even explicitly reject the possibility that employees would harm coworkers whom they currently outperform, even when accounting for how these coworkers might perform in the future (Lam et al., 2011). We challenge this assumption and instead argue that the temporal element of relative past trajectories will be used to extrapolate future status threat. In other words, just the mere expectation that others will have higher future status can be enough to generate a perceived threat and envy. The envy resulting from future status threat may spur social undermining in order to hinder the coworkers' efforts to excel. At the very least, social undermining should be a successful strategy for avoiding even lower future status.

Temporal Social Comparison as Predictor of Future Status Threat

People should be motivated to understand the future trajectory of their status. From a sociofunctional perspective on emotions, people should actively search for information that informs them about threats to their future status. We propose that employees can accomplish this by comparing the perceived development of their relative standing against a coworker's development—a process we refer to as temporal social comparison. Such comparisons should allow employees to extrapolate their relative trajectory into the future. The concept of temporal social comparison is based on social comparison theory (Festinger, 1954) and studies on status momentum (Pettit et al., 2013). According to social comparison principles, employees take others as a reference point when assessing their organizational standing (Festinger, 1954; Greenberg et al., 2006). However, these social comparisons may not simply refer to an employee's standing at one point in time (Albert, 1977): To borrow Redersdorff and Guimond's (2006) summary, "we may keep track of where we stand over time compared to one of our friends" (p. 77).

Employees may formally learn about their own and their coworkers' performance development through regular performance reviews, which are often based on relative performance (Creelman, 2013) or through publicly visible awards in the organization (e.g., employee of the month award, sales tournaments, etc.). Informally, employees may learn about coworkers' status trajectories through conversations with their colleagues or gossip (Wert & Salovey, 2004), or through other publicly available information (e.g., executive compensation, formal job positions on LinkedIn). Even if compensation is officially kept secret, employees are often well informed about their coworkers' pay (Edwards, 2005). Sometimes, employees will actively compare themselves with coworkers on these attributes (Brown et al., 2007); at other times, they are unwillingly or subconsciously confronted with and affected by such comparison information (Mussweiler et al., 2004)—for instance, when a supervisor highlights a coworker's excellent development.

Previous research in social comparison has yet to test the idea of temporal social comparison, but several studies from related fields of research show how temporal changes affect our evaluation of others (Barnes, Reb, & Ang, 2012; Pettit et al., 2013; Reb & Greguras, 2010). For instance, employees receive more favorable performance evaluations when they have shown a positive (as opposed to a negative or stagnating) performance trend in the past (Reb & Greguras, 2010). Likewise, a study by Barnes and colleagues (2012) showed that NBA basketball players' performance trends positively affect changes in their compensation levels. It is important to note that in these studies, the performance trend predicted evaluations (performance rating and compensation decisions) above and beyond mean performance level (Barnes et al., 2012; Reb & Greguras, 2010). Studies by Pettit and colleagues (2013) have likewise shown that individuals at the same rank in a status hierarchy are ascribed higher status when their rank has improved over time

compared to when it had decreased over time. These studies' underlying rationale is that evaluators form expectations of individuals' future status based on their past trajectory (Markman & Guenther, 2007; Pettit et al., 2013; Reb & Greguras, 2010). This argument derives from principles of psychological momentum (Finke & Shyi, 1988; Freyd & Finke, 1984; Markman & Guenther, 2007), which posit that individuals expect past trends of social dimensions (e.g., status or performance) to continue in the future (Markman & Guenther, 2007; Pettit et al., 2013). In other words, a positive (negative) trajectory in the past would suggest higher (lower) future status.

We transfer this principle of momentum to the context of social comparisons: If a focal employee's standing showed a steeper trajectory in the past compared to a coworker's standing, this would suggest that the focal employee can expect higher status than said coworker in the future. Likewise, a weaker trajectory should point to lower future status expectations. With these temporal social comparisons, so we argue, employees can extrapolate their future status relative to a comparison target. Unfavorable comparisons—meaning the focal employee expects the coworker to have higher future status—should elicit envy and social undermining. Hence, our approach implies that employees can envy and socially undermine coworkers independent of their current relative standing.

Moderating Role of Competition

Competition refers to “the degree to which employees perceive organizational rewards to be contingent on comparisons of their performance against that of their peers” (Brown et al., 1998, p. 89). In competitive organizations, status is a scarce resource and employees can only achieve higher status or avoid lower status at the cost of their coworkers (Cohen-Charash, 2009). Unsurprisingly, then, scholars have argued that competitive organizational climates induce envy and social undermining (Duffy et al.,

2008; Dunn & Schweitzer, 2006; Vecchio, 2000). This is the result of emphasizing employees' differences and shortcomings relative to coworkers (Dunn & Schweitzer, 2006; Lam et al., 2011; Vecchio, 2000), which creates uncertainty for employees regarding their standing (Brown et al., 2007; Dunn & Schweitzer, 2006). The envy arising from such uncertainty alarms employees about potential threats and spurs them to manage their social environment. We argue that the same holds for temporal social comparisons, but even more so in competitive (than in cooperative) environments because of the aforementioned uncertainty (Pettit et al., 2010; Scheepers et al., 2009).

By the same token, the organizational practices that accompany a competitive climate may make comparisons among coworkers more salient. For instance, firms may readily provide information about employees' relative performance, perhaps in the form of sales tournament rankings or public promotion announcements, all of which becomes hard to ignore (Greenberg et al., 2006). In fact, competition may serve as a catalyst for comparison processes (Duffy & Shaw, 2000), with employees extrapolating their future status simply because the comparison information is so salient. This would also make accompanying emotions like envy more salient and accessible. In sum, we expect that the relationship between temporal social comparison and future status threat will be stronger for competitive organizations. As a consequence, unfavorable temporal social comparisons should lead to more future status threat, envy, and social undermining in competitive organizations compared to non-competitive organizations (see Figure 1). Together, this leads to the following integrative hypothesis:

Hypothesis 1: The positive relationship between temporal social comparison and social undermining will be stronger when competition in the organization is high than when competition in the organization is low and this relationship is mediated by future

status threat and envy.

Overview of Studies

To test our hypothesis, we conducted three studies with complementary methods. In Study 1a and 1b, we manipulated temporal social comparison and competition to establish the basic rationale that negative temporal social comparison can lead to actual and meaningful social undermining behaviors under high competition. To keep study realism high and demand characteristics low, we refrained from separately measuring the psychological processes of future status threat and envy. We saved that measurement for Study 2, using a vignette to manipulate static and temporal social comparison, as well as competition. Specifically, we asked participants for their reaction to the vignette and how they would behave (cf. Robinson & Clore, 2001, who argue that imagined experiences are a reasonably proxy for actual experiences). Study 3, finally, was a two-wave field study in which we asked participants to think of a real coworker and then measured our constructs of interest.

Data were collected using Amazon Mechanical Turk (MTurk)¹. We followed recommendations to improve data quality when using MTurk samples by only recruiting workers from the U.S. with a high reputation (i.e., those who have at least 50 completed tasks and a high ratio (95%) of approved-versus-submitted tasks), as well as including instructional manipulation checks (IMCs) in Studies 2 and 3 (Meade & Craig, 2012; Oppenheimer, Meyvis, & Davidenko, 2009). If participants failed to correctly answer the manipulation checks, they could still finish the survey, but were excluded from subsequent

¹ The university where this research was conducted does not have an Institutional Review Board; however, the authors were aware of and in compliance with APA's ethical guidelines during the study's data collection.

analyses. To check the robustness of our results, we ran our analyses for both Study 2 and 3 with and without these screenouts, but found the same results. We also checked for nonsense response patterns and outliers in terms of completion time², but the results did not change significantly (i.e., our hypothesis would still be supported).

Study 1

Study 1 examined the joint effect of temporal social comparison and competition on social undermining in a realistic setting. Two separate samples were acquired, yielding Study 1a and 1b, which were almost identical in their procedures, but each of them captured a different aspect of social undermining. Moreover, Study 1a employed a mixed design, with temporal social comparison as a within-subjects factor and competition as a between-subjects factor, while Study 1b had a between-subjects design.

Study 1a

Method

Sample. We recruited $N = 108$ participants from MTurk and randomly assigned them to one of two conditions (high versus low competition). Of these participants, $n = 18$ (17%) indicated at the end of the experiment (before debriefing) that they had at least some doubts about the realism of the procedure. As our measurement of undermining depended on participants believing our instructions, we excluded these participants for the subsequent analysis, leading to a final sample of $N = 90$ participants (53% females, $M_{age} =$

²To test for nonsense response patterns, we ran the analysis in Study 3 with and without participants who strongly agreed (disagreed) on the item “If I want to learn more about something, I try to find out what others think about it” and strongly disagreed (agreed) on the item “I always like to know what others in a similar situation would do” from the social comparison orientation scale (Gibbons & Buunk, 1999). To test for outliers in completion time, we ran the analysis for both studies but excluded participants whose completion time fell above or below two standard deviations from the final sample’s mean response time.

37 years, $SD = 10$ years).

Procedure. Participants on MTurk were invited to a study called “Intellectual performance in the presence of a co-actor”. We used this title to give MTurkers a credible reason for why they would be matched and compared with another participant in the study. Upon entering the study, participants had to first sign into a virtual group chat that was designed for this study. This virtual group chat was described as a virtual waiting room where participants allegedly had to wait until they could be matched to another participant. To increase realism, we designed the chat so that people could see other participants entering, leaving or waiting in the group chat because people had to sign in with a name. Participants stayed during the entire study in the chat room because at some point during the study they would be matched with another participant. The number of participants was always visible on the screen, newcomers or leavers were announced, and the entire list of participants in the chat room could be viewed by clicking on an included symbol. We did not allow participants to communicate via the chat or directly with each other (unseen from us). When people entered the chat room, they were then redirected to the actual study. We employed the virtual waiting room to increase realism because our design made it theoretically possible that someone could not be matched right away. We reason that this design is similar to lab studies where respondents first meet in a waiting room before entering a cubicle, at which point they are told that they will allegedly be working with the other respondents via computer-mediated communication.

In the actual study, participants had to first perform five rounds of a verbal ability test before they were told that they would be matched with another participant and then have to complete a final round of the test. We also told them that they could earn a bonus of \$1.00 depending on their performance in the final round. After the first five rounds,

participants received bogus temporal social comparison feedback on their test performance relative to two potential matching partners (other participants; more on this later). Then we asked them to “Please indicate how much you want to be matched with this participant?” (1 = *I do not want to be matched with this participant at all*, 7 = *I very much want to be matched with this participant*) for both potential matching partners. Because the competition for status and recognition constitutes one behavioral indicator of social undermining (Duffy et al., 2002), we used their answers on this item as our measure of undermining. We reasoned that respondents who chose to exclude someone who had developed favorably over time would seek to maximize their chance of winning the bonus while hindering the other participant’s chances. After indicating their matching preference, participants answered some questions about the credibility of the procedure. Finally, they were debriefed about the real purpose of the study and were rewarded with \$2.00 on MTurk.

Manipulations. Temporal social comparison (TSC) was manipulated as a within-subjects factor by giving participants bogus performance feedback on a verbal ability test (solving anagrams) relative to two potential matching partners. An anagram is a string of letters that needs to be unscrambled into a real word or a different word using the letters in the string (e.g., the solution to the anagram “being” would be “begin”, and “omon” would become “moon”). Using anagrams to manipulate relative performance feedback is a common procedure in studies on comparisons and/or unethical behavior (Flynn & Amanatullah, 2012; Gino & Pierce, 2009; Pierce, Kilduff, Galinsky, & Sivanathan, 2013). To make the comparison more relevant and engaging, we framed the anagram test as a measure of analytic reasoning, which is an important skill in many domains (academic work, professional life, etc.), and told them that people with high scores in this test usually

have more successful careers. To minimize their ability to track their performance and their suspicion about the feedback, we told participants that their scores would be based on the number of anagrams they correctly solved, as well as the length and difficulty of these anagrams. Furthermore, we only presented them with their rank relative to other participants, rather than their absolute scores.

For each of the two potential matching partners, participants received bogus feedback on both their own performance and that of their potential matching partner across the five rounds. The performance feedback was presented graphically (Figure 2) and we randomized the order in which participants were presented with each of the two TSC figures. The favorable TSC showed a potential matching partner whose performance slightly decreased over the five rounds of the anagram task. The unfavorable TSC showed a potential matching partner whose performance strongly increased over the five rounds. The participant's performance in both comparisons stayed relatively constant over the five rounds with some slight fluctuations to make it look realistic. In both comparisons, we held the current static comparison (SSC) in round 5 constant to rule out the possibility that SSC could explain the results. The difference in round five between the participant and each of the two potential matching partners was five ranks, with the participant holding rank 90 and the potential matching partners holding rank 85 (out of 100, which represented the best performance in the task).

For competition, which we treated as a between-subjects factor, we embedded the manipulation into the instruction for the anagram task. Participants in the high competition condition were told that they could earn an additional \$1.00 if they outperformed their matching partner in the final round of the anagram task. Participants in the low competition condition were told that they could earn an additional \$1.00 if their individual

performance in the final round exceeded a certain threshold independent of how well they performed relative to their matching partner. Regardless of the condition, all participants received the additional \$1.00 at the end.

---FIGURE 2---

Results

We tested the joint effect of TSC and competition on social undermining, measured as the unwillingness to be matched to the other participants, using multilevel ordered logistic regression. An ordered logistic regression is used when the outcome is measured on an ordinal scale, such as in our study. We applied the multilevel version of it (i.e., the MELOGIT command in Stata) because TSC was manipulated as a within-subjects factor and observations were therefore nested within individuals. The interpretation of the logit coefficients in the model follows the same rationale as the interpretation of coefficients in logistic or multinomial regression: It shows the increase in the log-odds of choosing a higher category in the order of the dependent variable for a one-unit increase in the independent variable, while the other variables in the model remain constant.

The main effects of both TSC ($b = -.03, p = .933, 95\% \text{ CI } [-.81, .74]$) and competition ($b = .38, p = .412, 95\% \text{ CI } [-.52, 1.28]$) on social undermining were not significant. The logit coefficient for the TSC X competition interaction was $-.95, p = .086, 90\% \text{ CI } [-1.86, -0.04], 95\% \text{ CI } [-2.04, .14]$, and thus significant on a two-tailed 10% level as indicated by our directed hypothesis. An analysis of this interaction effect showed that, under high competition, participants were more likely to prefer to be matched to the other participant when the TSC was favorable compared to unfavorable. Specifically, contrasts revealed that under high competition, the log-odds for expressing a higher matching

preference for the potential matching partner in the favorable TSC condition ($b = 4.20$) were higher than the log-odds for expressing a higher matching preference for the potential matching partner in the unfavorable TSC condition ($b = 3.22$), contrast = $-.98$, $p = .012$, 90% CI [-1.63, -0.34], 95% CI [-1.75, -.22]. Under low competition, the difference in expressing a higher matching preference for the potential matching partner in the favorable TSC condition ($b = 3.82$) and the unfavorable TSC condition ($b = 3.79$) was not significant, contrast = $-.03$, $p = .932$, 90% CI [-0.68, 0.62], 95% CI [-.81, .74]. Importantly, as indicated by the significant interaction effect, the difference in expressing a higher matching preference between the favorable and the unfavorable TSC condition was larger under high competition than the same difference under low competition, contrast = $-.95$, $p = .086$, 90% CI = [-1.86, -0.04], 95% CI [-2.03, .14], and thus significant on a two-tailed 10% level as indicated by our directed hypothesis. In short, we found support for our hypothesis that unfavorable temporal social comparisons (TSC) would increase social undermining, particularly in a competitive context.

Study 1b

Method

Sample. We recruited $N = 205$ MTurkers and randomly assigned them to one of four conditions (high versus low competition, unfavourable vs. favourable TSC). Of these participants, $n = 37$ (18%) indicated at the end of the study (before debriefing) that they had at least some doubts about the realism of the procedure. As in Study 1a, we excluded these participants for the subsequent analysis, leading to a final sample of $N = 168$ participants (53% females, $M_{age} = 37$ years, $SD = 10$ years).

Procedure and manipulation. The procedures and manipulations were almost identical to Study 1a. The only difference in the procedure was that participants were given

TSC information for only one other participant (their matching partner), so both competition and TSC were manipulated as between-subject factors.

Measure. After the TSC manipulation, we told participants that “we are conducting this experiment as a first of many and therefore we are curious how to optimize it. In particular, we are trying to differentiate honest players from those who might have cheated. In order for us to better detect cheaters, we count on your opinion. Before we start we like to get to know your honest opinion of P81. Your answer will help us to develop better algorithms to detect cheating in anagram solving tasks.” P81 was the comparison person. We then asked participants whether they would agree with the statement “I would not recommend to invite P81 to such an experiment again” (1 = Strongly disagree, 7 = Strongly agree). Thus, higher values measured a reluctance to recommend Alter. This behavior draws on the question “Talked bad about you behind your back” from the social undermining scale (Duffy et al., 2002).

Results

We used ordered logistic regression to test the interactive effect of TSC and competition on social undermining, which was measured as the reluctance to recommend Alter for another experiment. In support of our hypothesis, the ordered logistic regression model revealed a significant interaction effect of TSC X competition, $b = 1.32$, $p = .027$, 95% CI [.15, 2.48]. The main effects were $.73$, $p = .066$, 95% CI [-.05, 1.51] for TSC and $-.77$, $p = .083$, 95% CI [-1.64, .10] for competition. Contrasts showed that, under high competition, participants were more reluctant to recommend Alter for another experiment when TSC was unfavorable compared to when TSC was favorable. Specifically, the log-odds for expressing a greater reluctance to recommend Alter in the unfavorable TSC ($b = 1.82$) condition were higher than in the favorable TSC condition ($b = -.23$), contrast = 2.05,

$p = .001$, 95% CI [1.15, 2.95]. Under low competition, the difference in the log-odds between the favorable TSC ($b = .53$) and the unfavorable TSC condition ($b = 1.27$) was .73, $p = .066$, 95% CI [-.05, 1.51]), and thus significant on a 10% level. In other words, when competition was low, participants were more reluctant to recommend Alter for another experiment when TSC was unfavorable compared to favorable. Meanwhile, the difference between the unfavorable TSC and the favorable TSC condition under high competition was larger than the difference between the same conditions under low competition, contrast = 1.32, $p = .027$, 95% CI [.15, 2.48]. This supports our hypothesis that unfavorable TSC leads to social undermining under high competition.

Discussion

Studies 1a and 1b tested the joint effect of temporal social comparison and competition on social undermining toward a comparison person. In two independent samples that used different designs (within-subjects design in Study 1a; between-subjects design in Study 1b) and different behavioral indicators of social undermining, we found that an unfavorable temporal social comparison (versus a favorable one) led to more social undermining, but only when participants competed with the comparison person. Study 1 provides first evidence that people undermine a comparison person when their relative development is unfavorable. In addition, and complementary to previous studies on negative interpersonal behavior (e.g., Lam et al., 2011), this study measured actual undermining behavior in a realistic, yet controlled setting in which participants were highly involved. As temporal social comparison information was presented separately for the participant and Alter, Study 1 also suggests that people naturally pick up on patterns of relative trajectory and engage in temporal social comparisons.

To keep realism high and demand character low, Studies 1a and 1b did not

include psychometric measures of the assumed mediating variables. Study 2 complements Studies 1a and 1b by testing the full model in a controlled environment using a different method (scenario experiment). Whereas Studies 1a and 1b held static social comparison constant, Study 2 manipulated static social comparison to test whether temporal social comparison and competition explain social undermining irrespective of one's current standing.

Study 2

Method

Sample

We recruited $N = 401$ participants from MTurk and randomly assigned them to a 2 (TSC: performance trend better than coworker, performance trend worse than coworker) by 2 (Competition: high, low) by 2 (Static Social Comparison (SSC): current performance better than coworker, current performance worse than coworker) between-subjects factorial design. Of these participants, 25 (6%) failed to correctly answer the IMC. We also compared completion times, finding that those who failed the IMC completed the survey faster (mean completion time = 3.2 minutes) than those who passed the IMC (mean completion time = 4.8 minutes). This difference was significant at a 10% level, suggesting that participants who failed the IMC paid less attention to the survey. We therefore removed them for the analysis, leaving a final sample of $N = 376$ (40% females, $M_{age} = 35$ years, $SD = 9.65$).

Manipulations. To manipulate TSC, SSC and competition, we used a vignette that asked participants to imagine the situation as vividly as possible. Such vignette studies have been shown to elicit responses that are comparable to actual lab designs (Robinson & Clore, 2001). Participants first read that they have been working in a company for several

years alongside a particular colleague, the fictitious comparison person Alex, who has the same position with similar tasks, responsibilities, and company tenure (to avoid gender effects, we chose a name that could belong to either a female or male person). Next, participants read about whether their performance evaluation was a) better (vs. worse) than Alex's performance in the current year (SSC) and b) better (vs. worse) than Alex's performance development in the last two years (TSC). At the end of the scenario, participants read about the competitive (vs. non-competitive) nature of the organization. We derived the sentences for this manipulation from the competitive climate scale by Brown and colleagues (1998). This scale measures competition in terms of the degree to which employees' recognition depends on their performance relative to others.

After the manipulation, participants rated their future status threat, whether they would envy Alex, and how much they would socially undermine Alex. At the end of the survey, participants provided us with some demographic variables and were rewarded with \$1.00.

Measures

Future Status Threat. To assess future status threat, we asked participants for their expected future status relative to the comparison person. We adapted the four-item expected future status scale by Pettit and colleagues (2013) that asks for an individual's status, prestige, recognition, and admiration in an organization. A sample item is "Soon, Alex will have higher status in the company than I will have." We used a 7-point scale ranging from "1 = *strongly disagree*" to "7 = *strongly agree*" ($\alpha = .96$).

Envy. We measured envy with the five-item scale by Vecchio (2000) and reformulated the items so that they referred to the fictitious colleague Alex. A sample item

is “My supervisor values the efforts of Alex more than she/he values my efforts.” We used a 7-point scale ranging from “1 = *strongly disagree*” to “7 = *strongly agree*” ($\alpha = .89$).

Social Undermining. We used the coworker undermining scale by Duffy and colleagues (2002), but reformulated all 13 items so that they directly referred to Alex instead of a general other. Sample items include: “Give Alex incorrect or misleading information about the job,” and “Talk badly about Alex behind Alex’s back.” Respondents answered each item on a 7-point scale ($\alpha = .93$, 1 = *never*, 7 = *everyday*).

Results

With Hypothesis 1, we predicted that the positive indirect relationship between TSC and social undermining via future status threat and envy is stronger when competition in the organization is high (compared to when it is low). In other words, we expected competition to moderate the first stage between TSC and future status threat (see Figure 1). To test this hypothesis, we applied a serial moderated mediation model (Hayes, 2015; Taylor, MacKinnon, & Tein, 2007). In order for moderated serial moderation to be supported, the serial indirect effect—which is the effect of the independent variable (IV) on the dependent variable (DV) passing through two mediators (M1 and M2) in series—has to vary at high and low levels of the moderator (Mod). Thus, for our hypothesis to be supported, the indirect effect of TSC on social undermining via future status threat and envy has to be positive and significant at high levels of competition, as well as significantly stronger at high compared to low levels of competition.

To calculate the serial indirect effect, we estimated three multiple regression models. In the first model, the first mediator was regressed on the independent variable, the moderator, and their interaction term. In the second model, the second mediator was regressed on the independent variable, the moderator, their interaction, and the first

mediator. In the third model, the dependent variable was regressed on the independent variable, the moderator, their interaction, and the two mediators. The coefficient for the conditional serial indirect effect was calculated as the product of three coefficients (IV X Mod \rightarrow M1, M1 \rightarrow M2, M2 \rightarrow DV) at high (+1 *SD*) and low (-1 *SD*) levels of the moderator (Hayes, 2015).

In the first mediator model, the coefficient for the TSC X competition interaction on future status threat was significant ($\beta = .26$ $p < .001$) (Figure 3). In the second mediator model, only the effect of future status threat on envy was significant ($\beta = .93$ $p < .001$). In the third model, the effect of envy on social undermining was significant ($\beta = .54$ $p < .001$). In all three models, we controlled for SSC and the interaction between SSC and competition. Table 1 depicts the results of these three regression models.

---FIGURE 3---

---TABLE 1---

Following Taylor and colleagues (2007), we calculated the coefficient for the serial indirect effect as the product of these three coefficients (TSC X competition \rightarrow Future Status Threat, Expected Status \rightarrow Envy, Envy \rightarrow Social Undermining) at high and low levels of competition. Next, we used a bootstrap procedure with 10,000 samples to check whether these conditional indirect effects were significant. Bootstrapped results provide more accurate estimates than the Sobel test because the former account for the fact that indirect effects and their standard errors are not normally distributed (Hayes, 2015; Preacher, Rucker, & Hayes, 2007). In line with Hypothesis 1, the conditional indirect effect of TSC on social undermining via future status threat and envy was more positive when competition (+1 *SD*) was high (estimate = 0.36, 95% CI [0.246; 0.501]) than when competition was low (-1 *SD*) (estimate = 0.13, 95% CI [0.045; 0.237]). This difference

was significant (difference = .22, 95% CI [0.105; 0.376]). Thus, Study 2 supports Hypothesis 1.

Discussion

Study 2 indicates that unfavorable temporal social comparison can lead to future status threat, which then motivates envy and the intent to socially undermine a coworker. As expected, the indirect effect of temporal social comparison on social undermining via future status threat and envy was stronger under high competition. Thus, Study 2 adds to Study 1 by establishing the psychological process in the relationship between unfavorable temporal social comparison and social undermining in competitive contexts. Specifically, the study showed that envy can also be elicited by future threats, and that unfavorable temporal social comparisons inform individuals about such threats. Moreover, by controlling for static social comparison, we showed that future status threat motivates envy and social undermining above and beyond that resulting from a currently unfavorable standing relative to a coworker.

Our experimental design allowed us to draw causal inferences with a high degree of internal validity, albeit with drawbacks regarding the generalizability (external validity) of our findings. Our manipulation was a hypothetical scenario and did not allow us to test whether unfavorable temporal social comparisons lead employees to engage in social undermining at their real jobs. Also, employees in reality can assess their standing in organizations on more dimensions than just performance. Study 3 addresses those limitations. First, we used a field sample to increase the external validity of our findings. Second, we measured temporal and static social comparison more broadly by including other dimensions, such as the quality of interpersonal relationships, employees' pay level, or their benefits.

Study 3

Method

Sample and Procedures

We conducted two surveys via MTurk that occurred at two different time points, two weeks apart. Registered MTurkers could participate in the study at Time 1 if they were at least 18 years old, presently employed at an organization with a minimum tenure of two years, and willing and able to participate at both time points. At Time 1, the survey asked participants to think of a colleague who has been working in the company for at least two years and then type in the first name of that colleague. To avoid having participants think of a friend and thereby obtaining a broad range of performance trends, we randomly asked them to think of a colleague with either a below-average, an average, or an above-average performance development in the past few years. We personalized all items via dynamic programming so that they directly referred to the indicated colleague (in the measures below, “Alter” is a placeholder name for the comparison other). We then assessed all variables except for our dependent variable, social undermining. At Time 2, participants were reminded of the name of the coworker (Alter) they provided at Time 1 and then filled out the social undermining measure.

At Time 1, $N = 640$ participants completed the survey, 62 of which (10%) failed to pass one or more of the Time 1 IMCs. A total of 283 participants (44% of Time 1) completed the Time 2 survey, 17 of which (6%) failed to pass the respective IMC. Again, we compared the T1 completion times of participants who passed all attention checks ($n = 252$) or failed at least one attention check item ($n = 31$). We found a marginally significant difference in the mean duration time, which was 11.14 minutes for those who passed all IMCs and 8.87 minutes for those who failed at least one IMC. Thus, we only included

participants who passed all IMCs at Time 1 and Time 2 (Meade & Craig, 2012; Oppenheimer et al., 2009), leading to a final sample of $N = 252$ participants, who were between 21 and 69 years old ($M = 36.95$ years, $SD = 9.89$) and from the United States. Of this sample, 47% ($n = 118$) were female and 80% ($n = 202$) were Caucasian. Participants came from various industries, but the largest clusters were in services (16%), retail trade (14%), or finance, insurance, and real estate (12%). On average, participants had been working for their company for 6.83 years ($SD = 4.62$) and had 17 years ($SD = 9.37$) of total work experience.

Measures

Temporal social comparison (Time 1). To measure TSC, we adapted Brown and colleagues' (2007) 8-item social comparison scale, which covers eight comparison dimensions that relate to employees' workplace standing: performance, salary, working conditions, quality of relationship to supervisor, quality of relationship to coworkers, career progression, benefits, and prestige (Buunk, Zurriaga, Gonzalez-Roma, & Subirats, 2003; Geurts, Buunk, & Schaufeli, 1994). To assess TSC, we used the same eight dimensions but asked participants "[...] to think how your development over the last two years compares to the development of Alter" and "[...] how much better or how much worse Alter's development was in comparison to your's." A sample item is "In the last two years, how did Alter develop relative to you in terms of performance?" Participants responded using a 7-point scale ($\alpha = .86$, 1 = *much worse*, 7 = *much better*).

Static social comparison (Time 1). It was important for us to statistically control for the effects of static social comparison, as we want to show that TSC explains variance in social undermining above and beyond SSC. Therefore, we adapted our 8-item measure of temporal social comparison to measure respondents' assessments of their current

relative standing compared to Alter. We told participants “[...] we are interested in how you compare to Alter at the moment” and “[...] to indicate the extent to which Alter is currently better/worse off than you on the following dimensions.” As the dimension of career progression is inherently dynamic, we asked for a formal job position (the “static” equivalent) instead. A sample item of the scale is “Currently, Alter's salary in comparison to my salary is [...]” Again, participants responded using a 7-point scale (1 = *much worse*, 7 = *much better*, $\alpha = .87$).

Competition (Time 1). We measured competitive climate in terms of low cooperation among team members, using the same items from Lam and colleagues’ (2011) studies on social comparison and interpersonal harming. The three items stem from the cooperative goal scale by Tjosvold, Yu, and Hui (2004). The items were “Our team members ‘swim or sink’ together,” “Our team members’ goals go together,” and “Our team members seek compatible goals.” We used a 7-point scale for each item (1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .83$).

Future Status Threat (Time 1). Like in Study 1, we measured future status threat in terms of participants’ expected status relative to Alter in the future. We again used the four items adapted from Pettit and colleagues (2013) (1 = *strongly disagree*, “7 = *strongly agree*, $\alpha = .95$).

Envy (Time 1). We again measured envy with the five-item envy scale by Vecchio (2000) and reformulated the items so that they referred to Alter instead of coworkers in general. We used a 7-point response scale (1 = *strongly disagree*, 7 = *strongly agree*, $\alpha = .89$).

Social undermining (Time 2). We again used the coworker undermining scale by Duffy and colleagues (2002), reformulating all 13 items so that they directly referred to

Alter instead of a general other. We measured participants' actual undermining behavior toward Alter and asked them "How do you behave toward Alter? Please indicate how often you have shown the behavior described in the statements below in the last two weeks." A sample item is "Spread rumors about Alter." We used a 7-point scale ranging from "1 = never" to "7 = everyday" ($\alpha = .85$).

Control variables (Time 1). Based on recent recommendations (Berneth & Aguinis, 2015) to only include control variables if there are statistical and/or theoretical reasons to include them, we controlled for the participants' gender (0 = *female*, 1 = *male*), age, and company tenure (both in years), which is consistent with previous research on social undermining (e.g., Duffy et al., 2012). Indeed, these demographic variables may influence negative behavior toward others at the workplace (Barling, Dupré, & Kelloway, 2009). Because some people have a stronger tendency to engage in social comparisons than others, and subsequently place more importance on these comparisons (Buunk et al., 2003), we controlled for participants' social comparison orientation using Gibbons and Buunk's (1999) 11-item scale ($\alpha = .91$, 1 = *strongly disagree*, 7 = *strongly agree*). A sample item is "I am not the type of person who compares often with others." Finally, we controlled for participants' trait competitiveness because competitive employees might aim to undermine coworkers more often (Houston, McIntire, Kinnie, & Terry, 2002). We measured trait competitiveness using Helmreich and Spence's (1978) 4-item scale ($\alpha = .90$, 1 = *strongly disagree*, 7 = *strongly agree*). A sample item is "I enjoy working in situations involving competition with others." We tested our model with and without these five control variables, and the results remained virtually unchanged (i.e., our model still holds).

Results

Response Bias Checks and Measurement Issues

In order to test whether participants in our final sample ($N = 252$) differed from those who only completed the Time 1 survey ($N = 316$), we compared them using the control and study variables collected at Time 1: namely, the participants' gender, age, tenure, social comparison orientation, trait competitiveness, static and temporal social comparison, competition in the organization, future status threat, and envy. These variables were not significantly related to Time 2 participation, suggesting that our final sample did not differ significantly from those participants who only completed the Time 1 survey.

As temporal social comparison is a construct that has not, to the best of our knowledge, been measured before, and because of the high correlation between TSC and SSC in our sample ($r = .71$), we tested whether our participants cognitively differentiated between static and temporal social comparison. In other words, we assessed their discriminant validity. First, we used confirmatory factor analysis (CFA) to compare the fit of a two-factor model with SSC and TSC as separate latent factors against a model with all 16 items loaded on a single factor. Given that some fit indices are sensitive to sample size (Hu & Bentler, 1999), we performed the analysis on the full sample at Time 1 ($N = 581$ participants who completed the T1 survey and passed all attention checks at T1). We permitted the error terms of items measuring the same comparison dimension (e.g., current performance as an indicator of static social comparison and performance development as an indicator of temporal social comparison) to correlate. This is recommended when there are similarities in the item content and/or wording, as it is with the indicators of our two measures (Brown, 2015). CFA results show that the two-factor model explained the data better ($\chi^2(95) = 572.80, p < .001, CFI = 0.91, TLI = 0.89, RMSEA = 0.09; SRMR = 0.07$) than a one-factor model ($\chi^2(96) = 1256.41, p < .001, CFI = 0.78, TLI = 0.73, RMSEA = 0.14; SRMR = 0.08$). The difference between the two-factor and the one-factor model in

terms of model fit was significant ($\chi^2(2) = 683.60, p < .001$). Hence, participants in our sample apparently distinguished between static and temporal social comparison.

To further assess discriminant validity, we tested whether TSC explains unique variance above and beyond SSC (Ng & Feldman, 2015; Pierce, Gardner, Cummings, & Dunham, 1989). If TSC is significantly related to a relevant outcome variable after controlling for SSC, this would provide evidence that TSC has incremental validity (Ng & Feldman, 2015; Pierce et al., 1989). Thus, we regressed our first mediator, future status threat, on our control and study variables, as well as on the two relevant interaction terms (SSC X competition, TSC X competition). Multiple regression analysis revealed a significant coefficient for TSC ($\beta = .46, p < .001$), as well as for the interaction between TSC and competition ($\beta = -.28, p < .003$). Further, there was a significant difference in explained variance between the regression models with and without TSC and the TSC X competition interaction, $\Delta R^2 = .04, F(2, 241) = 13.07, p < .001$. This suggests that TSC has incremental validity above and beyond SSC. Taken together, these tests provide convergent evidence for the discriminant validity of TSC and SSC.

Hypothesis Tests

---TABLE 2---

Table 2 shows the descriptive statistics and bivariate correlations for all study variables. To test our hypothesis, we used the same moderated serial mediation model (Hayes, 2015; Preacher & Hayes, 2008) as in Study 1. In all three multiple regression models, we controlled for SSC, the SSC X competition interaction, and participants' gender, age, tenure, social comparison orientation, and trait competitiveness. Table 3 depicts the results of the three regression models.

---TABLE 3---

The results show that the TSC X competition interaction significantly predicted future status threat ($\beta = -.28, p = .003$) (Model 1); that future status threat significantly predicted envy ($\beta = .50, p < .001$) (Model 2), and that envy significantly predicted social undermining ($\beta = .07, p < .028$) (Model 3). Figure 4 depicts the interaction of TSC and competition on future status threat. To test the indirect and moderated effect of TSC on social undermining via future status threat and envy, we used a bootstrap procedure with 10,000 samples. In support of Hypothesis 1, the indirect effect of TSC on social undermining via future status threat and envy was more positive when cooperative team goals were low (i.e., competition was high) (-1 *SD*) (estimate = 0.023, 95% CI [0.003; 0.056]) than when cooperative team goals were high (i.e., competition was low) (-1 *SD*) (estimate = 0.005, 95% CI [-0.002; 0.023]). These indirect effects were also significantly different from each other (difference = .017, 95% CI [0.002; 0.052]). Based on recent recommendations regarding the use of control variables (Bernerth & Aguinis, 2015), we conducted the same analysis and excluded all controls except for SSC and SSC X competition interaction; the results were virtually the same, however. Thus, Study 3 supports Hypothesis 1.

---FIGURE 4---

Discussion

Study 3 complements Study 2 by replicating the serial indirect effect of temporal social comparison on social undermining under high competition, albeit in a field setting with actual rather than hypothetical measures (future status threat, envy, social undermining); thus, the study strengthens the external validity of our results. Moreover, Study 3 complements both Studies 1 and 2 by using a measure for temporal social comparisons that includes various aspects of workplace status. Additionally, we tested for

and show the discriminant and incremental validity of temporal social comparison above and beyond static social comparison.

General Discussion

The present paper proposed that employees' envy and social undermining toward coworkers arises not only from perceptions of current status threat (i.e., being presently worse off than a coworker), but also via an anticipated future status threat (i.e., being potentially worse off than a coworker in the future irrespective of current relative standing). Across three experiments and a field study, we confirmed that employees anticipate future status threat when they perceive that their own past development trajectory is less favorable than a coworker's. In response, the respective employees feel envy and subsequently undermine the coworker. As expected, competitive scenarios exacerbated the outcomes of such temporal social comparisons. These dynamics exceeded employees' social comparisons regarding their current status.

This study contributes to the envy and social undermining literature by introducing future status threat as an additional motivation for employees' undermining behavior. Previous research in this domain suggested that employees only envy and undermine coworkers who are already better off and, thus, threaten their present status. Consequently, scholars did not expect undermining in situations where a coworker is currently worse off than the focal employee (Lam et al., 2011). While this notion is both logically sound and empirically supported, the temporal perspective reveals that other comparisons can be equally threatening. Because individuals are concerned with how their status will develop in the future (Pettit et al., 2010; Scheepers et al., 2009), they are sensitive to signals of potentially lower future status. This anticipated lower status then drives their feelings and behavior toward the comparison person in the present. This may

explain why employees would harm coworkers with lower current standing. Previous research assumed that these low performers experience hostility and victimization as a punishment for their inferior contributions toward joint goals (Jensen, Patel, & Raver, 2014). There is empirical support for this argument, yet we contend that envy could also prompt harming behaviors if an employee feels that a coworker's future status poses a threat.

Moreover, our studies represent a first step in disentangling the cognitions that underlie employee comparisons. In their studies, Lam and colleagues (2011) told participants to compare their last two weeks of personal performance against a colleague's; Kim and Glomb (2014) asked participants to think of the performance feedback they received from their supervisor in the past year, and Jensen and colleagues (2014) used the overall performance ratings that their participants had received. While the employee and/or supervisor ratings in these studies do cover a time frame, and could have been informed by the participants' personal and/or relative performance development, the respective measures did not distinguish participants' relative development from their current relative performance. As a consequence, it was not clear how participants construed the comparison information, which aspects of performance they considered (i.e., current relative performance, relative performance trend, or some combination thereof), and which of them finally drove their negative interpersonal behavior. By considering past, present, and future status assessments simultaneously, we provide a more nuanced picture of how different types of status threat (current/actual vs. future/potential) elicit the same functional emotions (envy) and behaviors (social undermining) to defend one's status.

Our studies also raise a question: Would classically "upward comparisons" still be experienced as threatening when individuals also consider their relative development

(Exline & Lobel, 1999, 2001; Wills, 1981)? Upward comparisons might be less threatening if the comparison target's standing shows a weaker relative trajectory, which would suggest that the focal person may quickly surpass the comparison other. As such, future studies may want to account for the temporal nature of status at the workplace by considering the net effects of static and temporal social comparisons (Chizhik et al., 2003; Pettit et al., 2013).

More generally, our studies contribute to the question of how individuals evaluate their current status and which comparisons they use to predict their future status. Interestingly, both Study 2 and 3 found that employees' comparisons of current relative standing also predict future status threat. While we did not present any *a priori* hypothesis on this relationship, this does make sense. If individuals currently enjoy a much higher standing than the comparison person, they may expect to have higher status in the (near) future as well, because it may simply take a while until the comparison person "catches up" and reaches the same level in terms of standing.

In this context, there is a question about which organizational situations spur people to consider their past status development, their present status, or their expected future status. At this time, we speculate that past status developments (and the resulting expectations for future status) should be particularly relevant when employees work together with the same coworkers for longer periods of time, have the chance to observe their own and others' trajectories, and potentially compete with these coworkers for future awards and promotions. In contrast, current status assessments will likely be more important in short-term-oriented work relationships—for instance, project teams in consultancies, where employees' direct colleagues (and hence their potential comparison persons) frequently change.

Finally, our study established that inter-organizational competition significantly moderates the impact of temporal social comparisons: Specifically, a highly competitive climate exacerbates the social undermining that follows from such comparisons. Competing with coworkers for status and recognition increases employees' uncertainty regarding their future status (Dunn & Schweitzer, 2006; Festinger, 1954), which makes comparisons with coworkers more salient. Contrast this with more cooperative contexts, where employees' successes and shortcomings are less visible and have less impact on their rewards. Thus, our findings coherently extend research on the negative side effects of competitive reward systems (Larkin et al., 2012) by showing that competition also leads to higher future status threat.

Taking a broader perspective, we think that comparisons of relative trajectory might prove interesting for organizational topics beyond social undermining—for example, pay comparisons or employees' relationships with their leader(s) (Thau, Tröster, Aquino, Pillutla, & De Cremer, 2012; Tse, Lam, Lawrence, & Huang, 2013; Vidyarathi, Liden, Anand, Erdogan, & Ghosh, 2010). Building on Messersmith, Guthrie, Ji, and Lee's (2011) study, which strived to predict executives' turnover based on their average salaries, one could speculate that executives who receive higher (vs. lower) pay raises than their same-level colleagues might be more (vs. less) willing to stay with the company. As both pay raises and turnover entail costs for the organization, whether from maintaining or replacing personnel, organizations may benefit from knowing how pay comparisons over time affect turnover (Messersmith et al., 2011; Tröster, Van Quaquebeke, & Aquino, 2017). Similarly, one could investigate how temporal social comparisons of leader-member exchange (LMX) influence job satisfaction (Tse et al., 2013; Vidyarathi et al., 2010) or organizational citizenship behavior. LMX is assumed to be inherently dynamic and develop over time

(Graen & Uhl-Bien, 1995), so some employees may cultivate a better relationship quality with their leader more quickly. The subsequent perceptions of such differences might affect on-the-job behavior and performance.

Limitations and Directions for Future Research

Although we used a mixed-method design to test our model and replicated the effect in four different samples, the present research has some limitations. While it is now common practice to conduct behavioral research with online panels such as MTurk (Goodman, Cryder, & Cheema, 2012; Hauser & Schwarz, 2015; Mason & Suri, 2012; Paolacci & Chandler, 2014), these venues still provide limited control over participants' honesty and attention. It is possible that participants were distracted with other tasks or simply not focused on the survey (e.g., from tiredness). To limit this concern, we employed several recommended measures for increasing data quality (IMCs; inclusion of MTurkers with high approval rate and experience) (Hauser & Schwarz, 2015) and designed Studies 1a and 1b to be highly engaging for participants (Greenberg & Eskew, 1993). Furthermore, any distractions should occur randomly and thus not negate our findings. Moreover, MTurk offered us the advantage of a diverse sample that was not company- or industry-specific, which increases the generalizability of our findings. To be fair, participants on MTurk tend to have lower-paying jobs (Bartel Sheehan & Pittman, 2016), so future research may want to investigate the effects of future status threat in higher-paying professions, such as in the finance industry. In sum, an increasing body of literature continues to investigate the MTurk population with respect to data quality and generalizability, suggesting that MTurk samples are suitable for behavioral research so long as one takes steps to ensure high data quality (Goodman et al., 2012; Mason & Suri, 2012; Paolacci & Chandler, 2014).

Another possible limitation is the use of self-ratings in Study 3, which invites common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To somewhat alleviate such concerns, we assessed social undermining two weeks after we assessed all other variables. Moreover, common method bias cannot create artifactual interactions between variables; rather, it attenuates the variance explained by existing interactions, which ultimately makes it more difficult to detect them (Evans, 1985; McClelland & Judd, 1993). Further, social undermining is a rather covert form of harming another person, making it difficult to use other-ratings. Given previous research, we felt comfortable assessing social undermining in the form of self-reports in Study 3 (e.g., Duffy et al., 2012). In addition, we assessed two different aspects of undermining behavior in Studies 1a and 1b (behavioral experiments in a realistic setting). Nevertheless, future research could utilize more objective measures for employees' relative standing and how their standing has developed: for instance, their actual salary, formal job position, or objective performance data (e.g., sales or customer satisfaction).

In this regard, we must note that our test of mediation in Studies 2 and 3 was mediation via measurement rather than via an experimental causal chain (Spencer et al., 2005). Also, we simultaneously measured the psychological process via future status threat and envy, which could have created some demand character. Our decision to still measure these constructs partly stemmed from the number of experimental conditions that we already had in Studies 1a and 1b (2x2) and in Study 2 (2x2x2). Manipulating an additional two variables (future status threat and envy) would have resulted in a large number of experimental conditions and made it more difficult to establish a realistic context. Further, measuring future status threat in Study 2, rather than manipulating it, allowed us to test whether people mentally extrapolate their past relative trajectories to predict their future

status.

For future research, scholars could determine when individuals rely on temporal versus static social comparisons, and investigate contextual factors beyond competition, like career stage or social motivations. For example, employees who are fresh in their career, and who are uncertain as to whether they will be able to meet their future targets, might particularly rely on temporal social comparisons to predict whether they will be able to keep up with their coworkers (self-evaluation motive). In contrast, employees at later stages in their career, who have limited opportunities for growth (e.g., because they already occupy a high-status position), might prefer static social comparisons to reassure themselves of their high status (self-enhancement motive) (cf. Tröster et al., 2017). In terms of individual difference variables, individuals' temporal focus (Shipp, Edwards, & Lambert, 2009) could influence the extent to which they engage in temporal social comparisons vis-à-vis other types of comparisons, but so could the accessibility of such information in their memory. Individuals with a strong future focus might rely more on temporal than static social comparisons to extrapolate their future status, while the opposite may be true for present-focused individuals. Meanwhile, those with a strong past focus may derive their self-evaluations from past status levels and the associated trajectory.

Practical Implications

Social undermining among employees negatively affects employee outcomes (e.g., Duffy et al., 2002) and thereby creates social costs for organizations (Cole, Shipp, & Taylor, 2016). Further, recent research suggests that being undermined can lead employees to reciprocate (i.e., engage in undermining themselves; Lee, Kim, Bhave, & Duffy, 2016), thus initiating a vicious cycle of ever-broader levels of social undermining. Clearly,

organizations have a vested interest in minimizing such behavior. Our study offers suggestions as to what managers could do to circumvent social undermining at the workplace. Given that comparisons among coworkers are ubiquitous in organizations (Greenberg et al., 2006) and comprise a rich source for employees' self-evaluations, simply trying to reduce the frequency of such comparisons seems improbable. However, managers can help make comparisons less threatening to employees—for instance, by assigning different spheres of influence to employees who compete for status. They can, for example, give these employees different tasks or assign them to different projects to invite less comparison among them. Additionally, managers may give employees opportunities to improve their standing in these domains through mentoring and training. If employees are able to improve their performance over time, they can make more favorable inferences about their expected status, particularly when they are not in direct competition with their coworkers. As the need to defend one's standing becomes less salient, employees may abstain from social undermining. On this point, managers should note that unfavorable temporal social comparisons are particularly salient in a competitive (Study 1 and 2) or uncooperative (Study 3) climate. In practice, such dynamics may be fueled by organizational practices, such as highly competitive reward systems or forced rankings (Creelman, 2013; Eichenwald, 2012). Thus, our findings clearly suggest that managers should try to reduce interpersonal competition and instead foster a cooperative climate.

Granted, the above may be easier said than done. For organizations, there is a central question about whether the benefits of competition and comparison still outweigh their social costs (Larkin et al., 2012; Lazear & Rosen, 1981; Peterson, 2013). Managers in organizations thus face a dilemma: They have to motivate their workforce to work hard and develop their full potential, which might be accomplished by competitive reward

systems that induce comparisons (and envy). Yet, this comes at the cost of potentially lower performance among those who are being undermined. To add to this, our study indicates that employees engage in both “upward” (i.e., toward those who are better off; Lam et al., 2011) and “downward” undermining (i.e., toward those who represent a future threat). Thus, the field may be underestimating the social costs of undermining at work.

Practitioners may also consider these dynamics in light of other organizational areas, like talent management. For instance, supervisors with stagnating performance might refuse to support “rising stars” because of the future threat they present. As such, they may reduce their support and mentoring, or actively undermine new talent in order to avoid being outperformed in the future. Going one step further, supervisors with weak past performance might even abstain from hiring potential employees who could pose a future threat to their position (Garcia et al., 2010). As Pfeffer and Sutton (2006) put it, “[...] A players hire other A players. B players hire C players. C players hire F players” (p. 89). In the so-called “war for talent” (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels, 1998), companies may encounter serious difficulties in attracting and retaining high-potential employees simply because the old guard is afraid of being outpaced by younger workers.

Conclusion

Previous studies, which were predominantly conceptual, have repeatedly argued that static time perspectives in organizational behavior research may oversimplify reality (Cole et al., 2016; Sonnentag, 2012). Instead, they advocated for considering time dynamics, which may pertain to the past and/or future (Redersdorff & Guimond, 2006; Shipp et al., 2009). In this vein, our study provides a case-in-point that using broader time perspectives can meaningfully extend a prolific research domain such as social

undermining. In short, it is about time to consider time.

Table 1

Study 2 Regressions for Moderated Serial Mediation

	Future Status Threat				Envy				Social Undermining									
	β	SE	z	p	LLCI	ULCI	β	SE	z	p	LLCI	ULCI	β	SE	z	p	LLCI	ULCI
Constant	4.01	0.07	59.73	.000	3.88	4.14	3.37	0.05	63.67	.000	3.27	3.48	2.07	0.05	43.44	.000	1.98	2.16
SSC	0.50	0.07	7.45	.000	0.37	0.63	0.18	0.06	3.12	.002	0.07	0.29	-0.05	0.05	-0.91	.364	-0.15	0.05
TSC	0.56	0.07	8.27	.000	0.43	0.69	-0.19	0.06	-3.24	.001	-0.30	-0.07	-0.05	0.05	-0.95	.343	-0.15	0.05
Competition	0.40	0.07	6.00	.000	0.27	0.53	-0.08	0.06	-1.47	.140	-0.19	0.03	0.03	0.05	0.55	.584	-0.07	0.13
SSC X	0.30	0.07	4.47	.000	0.17	0.43	0.06	0.05	1.01	.311	-0.05	0.16	0.00	0.05	0.02	.984	-0.10	0.10
Competition	0.26	0.07	3.82	.000	0.13	0.39	0.02	0.05	0.45	.654	-0.08	0.13	0.02	0.05	0.36	.723	-0.08	0.11
Future Status Threat							0.93	0.07	14.08	.000	0.80	1.06	-0.16	0.07	-2.17	.030	-0.30	-0.02
Envy													0.54	0.07	8.21	.000	0.41	0.67
R^2			.34						.45						.18			
F			40.46						52.85						12.06			

Notes: $N = 376$. LLCI = 95% confidence interval lower limit, ULCI = 95% confidence interval upper limit, TSC = Temporal Social Comparison, SSC = Static Social Comparison, two-tailed.

Table 2

Means, Standard Deviations, Intercorrelations, and Reliability Estimates in Study 3.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Gender	0.53	0.50	-										
2. Age	36.95	9.89	-0.09	-									
3. Tenure	6.83	4.62	-0.07	.49***	-								
4. Trait Competitiveness	4.55	1.54	.11	-.18**	-.15* (.90)								
5. SCO	4.22	0.85	-0.01	-.17**	-.09	.35*** (.91)							
6. SSC	3.92	0.91	-.10†	-.10	-.18**	.03	.16* (.87)						
7. TSC	4.11	0.97	-.12†	.05	-.04	.04	.13*	.71*** (.88)					
8. Competition	5.31	1.24	.01	.06	.03	.03	-.02	-.02	.06	.83)			
9. Future Status Threat	3.38	1.67	-.05	-.02	-.15*	.03	.13*	.74***	.63***	-.08	.95		
10. Envy	2.34	1.15	-.01	-.08	-.15*	.07	.18**	.62***	.42***	-.17**	.66*** (.89)		
11. Social Undermining (T2)	1.26	0.35	.12†	-.05	-.07	.23***	.23***	.11†	.06	-.12†	.15*	.26* (.85)	

Note. $N = 252$. Alpha coefficients are presented on the diagonal, and intercorrelations are presented below the diagonal. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$, two-tailed. Variables were assessed at time 1 except where noted. Gender: 0 = female, 1 = male, SCO = Social Comparison Orientation, SSC = Static Social Comparison, TSC = Temporal Social Comparison.

Table 3

Study 3 Regressions for Moderated Serial Mediation.

	Future Status Threat					Envy					Social Undermining							
	β	SE	z	p	LLCI	ULCI	β	SE	z	p	LLCI	ULCI	β	SE	z	p	LLCI	ULCI
Constant	3.34	0.10	33.81	.000	3.15	3.54	2.32	0.08	30.83	.000	2.17	2.47	1.23	0.03	40.84	.000	1.17	1.29
Gender	0.12	0.14	0.89	.373	-0.15	0.39	0.06	0.10	0.57	.566	-0.14	0.26	0.06	0.04	1.36	.173	-0.02	0.14
Age	0.14	0.08	1.86	.063	-0.01	0.30	-0.03	0.06	-0.46	.648	-0.14	0.09	-0.00	0.02	-0.04	.970	-0.05	0.05
Tenure	-0.12	0.08	-1.49	.136	-0.27	0.04	0.00	0.06	0.06	.950	-0.11	0.12	-0.02	0.02	-1.00	.318	-0.07	0.02
SCO	0.04	0.07	0.58	.560	-0.10	0.18	0.08	0.06	1.53	.127	-0.02	0.19	0.05	0.02	2.43	.015	0.01	0.10
Trait																		
Competitiveness	-0.01	0.07	-0.16	.875	-0.15	0.13	0.04	0.06	0.66	.512	-0.07	0.15	0.06	0.02	2.58	.010	0.01	0.10
SSC	0.91	0.10	9.28	.000	0.72	1.10	0.41	0.09	4.78	.000	0.24	0.58	-0.02	0.04	-0.48	.632	-0.09	0.05
TSC	0.44	0.10	4.58	.000	0.25	0.63	-0.12	0.08	-1.56	.118	-0.27	0.03	0.00	0.03	0.07	.942	-0.06	0.06
Competition	-0.18	0.07	-2.63	.008	-0.32	-0.05	-0.15	0.05	-2.82	.005	-0.25	-0.05	-0.05	0.02	-2.35	.019	-0.09	-.01
SSC X Competition	-0.28	0.10	2.72	.007	0.08	0.48	0.08	0.08	0.98	.325	-0.08	0.23	0.02	0.03	0.47	.638	-0.05	0.08
TSC X Competition	-0.28	0.09	-2.98	.003	-0.45	-0.09	-0.11	0.07	-1.54	.124	-0.25	0.03	-0.05	0.03	-1.63	.103	-0.10	0.01
Future Status Threat							0.50	0.08	6.22	.000	0.34	0.66	0.01	0.03	0.23	.818	-0.06	0.08
Envy													0.07	0.03	2.19	.028	0.01	0.12
R^2																		
F																		

Notes. $N = 252$. *LLCI* = 95% confidence interval lower limit, *ULCI* = 95% confidence interval upper limit. SCO = Social Comparison Orientation, TSC = Temporal Social Comparison, SSC = Static Social Comparison, two-tailed.

Figure 1

The hypothesized research model.

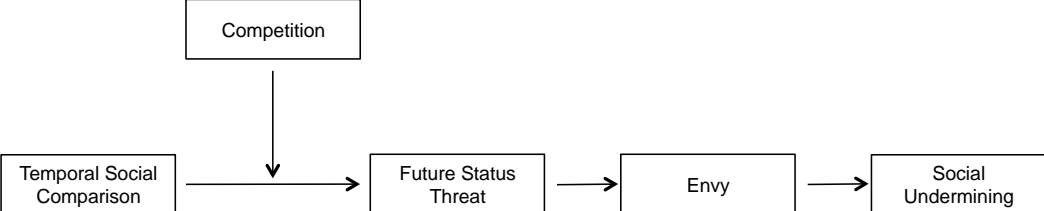


Figure 2

Study 1, manipulation of Temporal Social Comparison. The first upper graphic shows the favorable TSC condition, the graph at the bottom shows the unfavorable TSC condition.

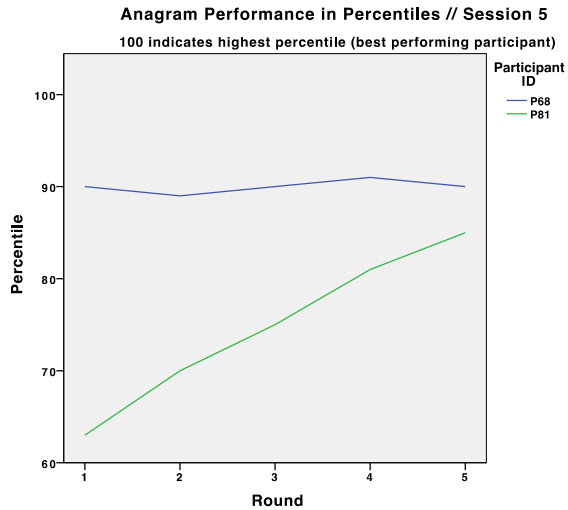
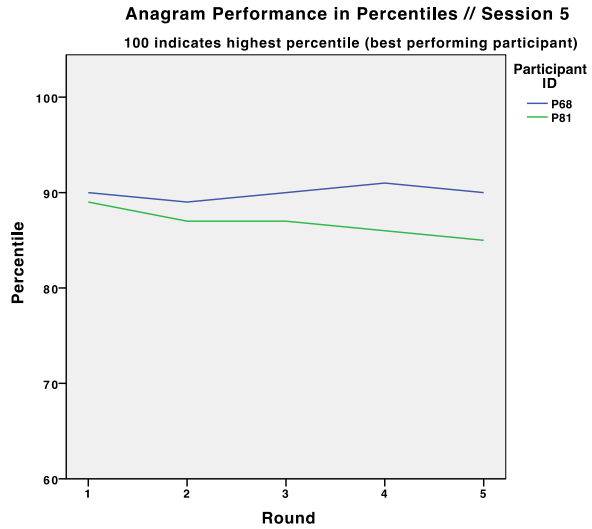


Figure 3

Study 2, Mean future status ratings under high and low competition in the organization as a function of temporal social comparison (Ego's performance development (PD) better over time vs. Alter's performance development better over time). Error bars denote 95% upper and lower limit confidence intervals.

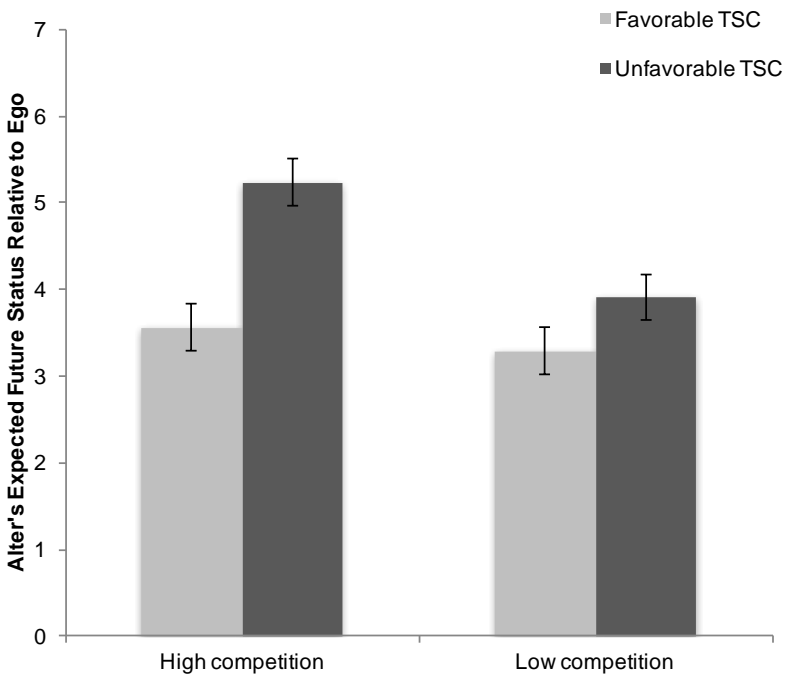
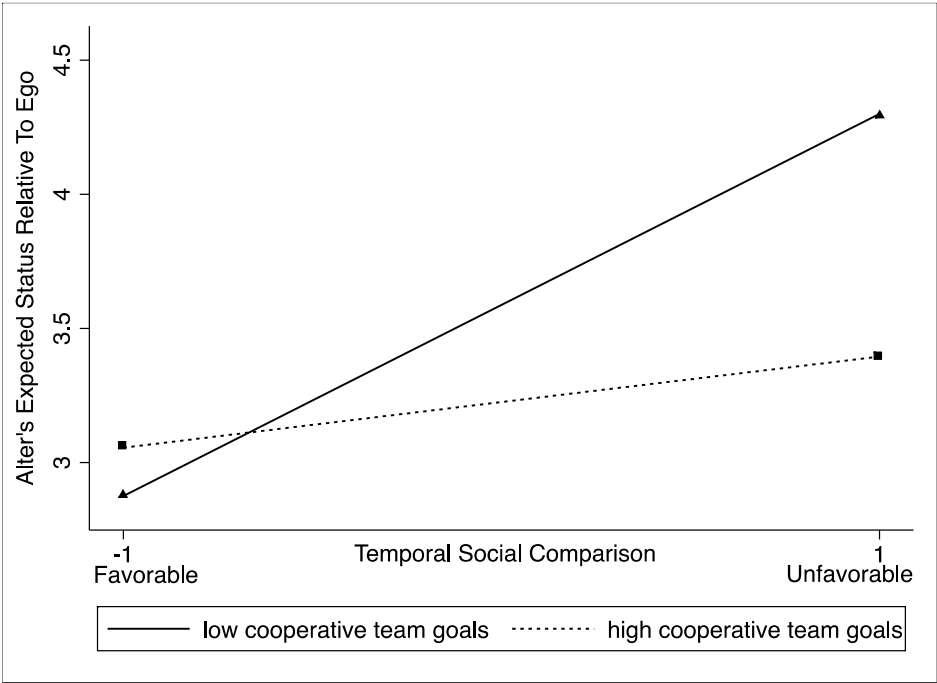


Figure 4

Study 3, two-way interactive effects of temporal social comparison and cooperative team goals on expected future status of the comparison person.



CHAPTER 3

WHICH COMPARISON DO I PREFER? THE RELATIONSHIP BETWEEN GOAL ORIENTATION AND COMPARISON PREFERENCES IN A 2X2 FRAMEWORK AND THEIR INTERACTIVE EFFECTS ON PERFORMANCE

Abstract

Within goal orientation research, learning orientation is consistently argued to be related to an intrapersonal, temporal comparison standard while performance orientation is conceptually linked to an interpersonal, static comparison standard. Yet, empirical evidence as to whether differently orientated individuals actually prefer and are affected by these different types of comparisons standards remains surprisingly sparse and ambiguous. Moreover, beyond these two comparison standards, individuals have logically two more available (static self-related and temporal social) that we delineate via a 2 x 2-structure of person-related (self vs. social) and time-related (static vs. temporal) comparisons. Across four studies, we find that learning-oriented individuals prefer self-related comparisons while performance-oriented individuals prefer other-related (social) comparisons. However, we find no support for the claim that goal orientations differ with regard to the temporal dimensions. Moreover, we do not find any effect of comparison standards on performance. This raises questions regarding the role that comparison standards play in goal orientation theorizing because the comparison standards that people prefer for performance evaluation seem to not affect their performance. We discuss implications for goal orientation and comparisons research.

CHAPTER 4

HOW CLOSE IS MY COMPETITOR? A THEORETICAL FRAMEWORK ON HOW THE TEMPORAL PROXIMITY OF A STATUS THREAT LEADS TO POSITIVE AND NEGATIVE EMPLOYEE BEHAVIOR

Abstract

This paper takes a temporal perspective social comparisons to advance the understanding of when and why unfavorable social comparisons elicit positive behaviors such as higher performance versus negative ones such as social undermining. In a nutshell, we argue that people will compare their temporal trajectories on relevant social comparison dimension to assess whether they have to expect a threat to their status in the future. Depending on the proximity of the status threat and motivated by envy they will then engage in more harmful interpersonal behaviors or self-improvement oriented behaviors to alleviate this potential future status threat. In particular, we introduce five temporal markers that characterize social comparisons over time and three factors of uncertainty that jointly predict the temporal proximity of potential status threats. We further argue that the proximity of the status threat influences employees' affective reaction to the status threat. More distal status threat elicits more benign envy whereas more proximate status threat will elicit more malicious envy. This link is amplified by the relevance of the comparison dimension for organizational status. Employees' degree of benign and malicious then leads to varying degrees of positive and negative behaviors to alleviate the status threat. Overall, our model provides a significant extension of current social comparison theorizing, which has so far portrayed comparisons mainly as a static issue instead of acknowledging their dynamic nature.

CHAPTER 5
GENERAL DISCUSSION

Social comparison is an inevitable element of human functioning (Festinger, 1954) because it informs individuals about their standing in society. From the comparer's perspective, social comparisons can inspire both positive and negative behaviors. From the comparison target's perspective, the fear of being envied may even prevent people from performing at their highest level (Exline & Lobel, 1999). Therefore, an important question for organizations is when and why social comparisons elicit the best and the worst in people. To shed light on this question, this dissertation adds a temporal dimension to the study of social comparisons in organizations.

Extant social comparison research has portrayed social comparisons as a single snapshot in time. To explain the consequences of these comparisons, respective research has relied on the comparison direction (who outperforms whom at the present moment) and various situational and individual difference variables as boundary conditions (Collins, 1996; Tai et al., 2012). Based on this static view on social comparisons, several assumptions prevailed and open questions remained regarding the antecedents and consequences of social comparisons. For instance, past research has assumed that negative interpersonal behavior intended to defend one's status will only occur toward those with higher status but not toward those with presently lower status (Lam et al., 2011). By the same token, despite more than six decades of social comparison research, there is still a lively debate on when and why comparisons elicit positive and negative behaviors, and sometimes both (Crusius & Lange, 2016). Moreover, research on goal orientation assumed that individuals prefer either static social comparisons or temporal self-comparisons depending on the goals they hold, neglecting the possibility that individuals can compare with others over time.

In this dissertation, I questioned the underlying assumption that social comparison

only refers to one point in time. In daily life as opposed to lab experiments, social comparisons are always events in a series of consecutive comparisons. How two employees compare to each other today can be quite different from how they compared to each other in the past and how they will compare to each other in the future. Thus, social comparisons can only be meaningfully interpreted in light of their intertemporal context. A number of organizational scholars have called for more dynamic perspectives on organizational phenomena in the last years (Sonnentag, 2012) and this call is well-justified for research on social comparisons. Accordingly, this dissertation examined different questions that arise from a temporal perspective on social comparison. The following section outlines the main findings of this dissertation and the contributions that they make to the respective literatures. Again, I will use the term “we” rather than “I” to reflect the contributions of my co-authors.

Overview of Main Findings and Contributions

In Chapter 2, we tested whether future status concerns that derive from an unfavorable status development relative to a coworker motivate envy and social undermining in competitive organizations. In two experiments and one field study we found that employees expect to have lower future status than a coworker when the coworker’s status has developed more favorably than their own status in the past. These temporal social comparisons explain expected future status above and beyond static social comparisons of employees’ current status. Lower expected status in the future triggers envy and social undermining in order to alleviate the future status threat. Furthermore, a competitive organizational climate exacerbates the effect of unfavorable temporal social comparison on expected future status and subsequent envy and social undermining (Reh et al., 2018).

Chapter 2's main contribution is to show that envy and social undermining is motivated by future status threats irrespective of whether a focal employee's status is threatened at present. In this way we diverged from previous research that negated the possibility that employees would feel threatened and undermine coworkers with lower status at the present moment (Lam et al., 2011). Moreover, we introduced competition as an important boundary condition for the threatening effects of temporal social comparisons and contribute to a better understanding of situational factors that contribute to social undermining. Moreover, we contribute to the discussion on the social costs of competitive reward systems and whether their benefits of increased motivation and performance still outweigh their negative (interpersonal) effects (Larkin et al., 2012). Competition amplifies both current and future status threat which leads to more social undermining than previously assumed. Thus, the social costs of competition could be greater than expected which further questions the usefulness of competitive reward systems. In terms of methodologies, our behavioral experiment in Study 1 introduced a new paradigm to measure social undermining in controlled lab settings. Whereas previous research has mainly relied on survey research with self-reports (Duffy et al., 2012; Lee et al., 2016), future research could benefit from our paradigm to strengthen the internal validity of such studies. Our study also extends classic social comparison theory by introducing temporal social comparison as a new construct that explains individuals' status expectations above and beyond static social comparisons. Past research only accounted for temporal changes in the comparison dimension in intra-personal comparisons, so-called temporal self-comparisons (Albert, 1977). Temporal social comparisons account for the dynamic nature of status and most other comparison dimension and thereby more realistically reflect the comparisons that employees in organizations engage in.

In Chapter 3, we took a closer look at the antecedents of individuals' comparison preferences. Goal orientation theory relates a learning orientation, the goal to build competence and to master tasks, with a preference for temporal self-comparisons. And it relates a performance orientation, the goal to demonstrate competence by outperforming others or not performing worse than others, to social comparisons (Elliot & McGregor, 2001). However, the empirical evidence for these relationships is inconclusive because extant studies did not measure preferences for temporal comparisons and, more importantly, confounded a person-related (the self versus others as reference point) with a time-related (static versus temporal) comparison frame. We introduce a 2 x 2-framework of person-related (self vs. social) and time-related (static vs. temporal) comparisons which reveals two more comparison standards: temporal social comparisons and comparisons to an absolute standard. We find that learning-oriented individuals prefer temporal-self comparisons whereas performance-oriented individuals prefer static as well as temporal social comparisons. However, we do not find any effects of goal orientation and comparison feedback on performance.

Chapter 3 contributes to the goal orientation literature by specifying individuals' comparison preferences as a function of their goals. In contrast to previous research that neglected the role of temporal comparisons (e.g., Butler, 1992, 1993), our study constituted a more systematic test of individuals' comparison preferences. More specifically, our studies showed that the difference between learning- and performance-oriented individuals is whether they engage in self-related or social comparison and not whether they make social versus temporal comparisons. In fact, both goal orientations are related to a preference for temporal comparisons. Thus, for future studies on goal orientation in an organizational context (that is inherently dynamic) it is important to account for temporal

comparisons (both self-related and social) to accurately capture individuals' comparison preferences.

In Chapter 4, we developed a broader theoretical model to capture social comparisons in its full temporal spectrum and zoom in onto the cognitive mechanism how employees evaluate status threats and the behaviors they choose to alleviate these threats. We introduced five temporal markers that characterize social comparisons over time: employees' relative position, velocity, acceleration, mean level over time, and range of minimum and maximum position. Based on these markers, employees determine the temporal proximity of the status threat. Three factors of uncertainty attenuate the effects of the temporal markers on employees' inferences. These factors are fluctuations, time span, and interruptions. The more proximate (distal) employees perceive the status threat, the more malicious (benign) envy they experience. This relationship is amplified by the relevance of the comparison dimension so that benign and malicious envy will be stronger the more relevant the comparison dimension is. Finally, we argue that higher degrees of benign envy lead to more positive behaviors such as increased effort and help seeking while higher degrees of malicious envy lead to more negative behaviors such as social undermining or cheating to restore one's current and future status.

Chapter 4 contributes to the literatures on positive and negative interpersonal behavior in organizations as well as to the literature on social comparison. First, our model provides a framework that enables researchers to understand positive and negative workplace behaviors beyond considerations of the status quo, and situational or individual difference variables (Crusius & Lange, 2016). In particular, we introduce the temporal proximity of a status threat as a new dimension that predicts the type of individuals' reaction to status threat. Whereas previous research often focused on one outcome

variable, e.g., interpersonal harming (Lam et al., 2011) and predicted the strength (i.e., the *quantity*, how much interpersonal harming people show) of this variable, our model around the temporal proximity of status threat also predicts what kind of reaction people will show (i.e., the *type*). Thereby, our model simultaneously accounts for both positive and negative behavioral reactions as ways to alleviate status threat.

Moreover, our model contributes and significantly extends social comparison theory (Festinger, 1954) and models that followed from Festinger's (1954) initial hypotheses. Classic social comparison studies distinguish between upward and downward comparisons (Collins, 1996; Wood, Michela, & Giordano, 2000), that is, comparisons with those who are better or worse off than oneself, and relate them to different antecedents (e.g., motives) and outcomes (e.g., self-evaluation). Being better or worse off always referred to individuals' current position on the comparison dimension. According to our model, current position is only one out of five markers that individuals use to evaluate potential status threats. Thus, the distinction into upward and downward comparisons seems unfortunate as soon as status is expected to change in the future. In terms of terminology, it would be better to specify comparisons of current relative position separately from expectations of future relative positions. In sum, adding the temporal proximity of status threat to the study of social comparison leads to a more precise understanding of the cognitive mechanisms at play because it allows researchers to consider individuals' expectations for the future.

Avenues for Future Research

Several avenues for future research arise from the temporal perspective on social comparisons. One methodological implication concerns the measurement of comparisons in future studies, especially in field studies that capture people's comparisons in contexts

where they work together for longer periods of time. Extant studies often measured the comparison at one point in time or conflated comparisons of relative position with comparisons of mean level over time (Kim & Glomb, 2014; Lam et al., 2011). In doing so, these studies lacked indicators for the proximity of a potential status threat which limited the ability to predict the amount of desirable and undesirable behaviors people will show as a response to the comparison. Future studies could include measures of the temporal markers that were introduced in Chapter 4. One starting point for such measures could be the static and temporal social comparison scales that were developed in Chapter 2. These measures could be extended to additionally reflect employees' relative acceleration on the different status dimensions, their relative mean level and their range of minimum and maximum position.

Besides adapting and improving extant retrospective social comparison measures, longitudinal studies and experience sampling studies provide another fruitful avenue to investigate social comparisons. Such study designs would allow researchers to literally track social comparisons as they happen in real-time and better understand the micro dynamics of peoples' mental calculus of assessing status threat. Big Data provides another potentially rich data source for social comparison information over time. Especially social media platforms such as Twitter, Facebook, or Instagram could be an interesting context in this regard because they provide ample opportunities for social comparison (Vogel, Rose, Roberts, & Eckles, 2014). People with whom individuals connect and interact on social media, for instance, followers on Instagram, represent potential social comparison targets. Frequent interactions between two accounts would suggest that these individuals likely compare with each other. On the one hand, individuals can compare the content of their posts that often contain status-relevant information. For instance, people often post to boast

about achievements like landing a new job or to show off their status symbols. On the other hand, popularity on social media represents another comparison dimension. Individuals can compare the number of their followers, how many people liked their pictures, or how often their tweets were retweeted. Individuals' reactions to social comparisons on social media can be investigated by how often individuals like each other's posts or whether they retweet these posts. Of course, such analyses of Big Data need to be carefully interpreted (see Wenzel & Van Quaquebeke, 2017 for a review on the prospects and risks of Big Data) but can be a valuable data source.

For future experimental studies it will be a challenge to model social comparisons in a way that realistically reflects people's cognition in the real world, that is, considerations of current and future status that are based partly on past trajectories. This will be important to be able to draw accurate conclusions from such experiments. Again, the studies in Chapter 2 (Study 1a and 1b) provide a starting point for such experiments. Designs in which participants complete multiple rounds of, for instance, performance tests or multi-part lab studies in which participants continuously interact with each other offer opportunities to derive the temporal markers introduced in Chapter 4 and strengthen the external validity of future studies.

Another avenue for future research concerns the possibilities that individuals and organizations have to unleash the positive side of social comparisons. At present, the extant scientific literature and media reports in particular emphasize the detrimental effects of social comparison and resulting envy on peoples' feelings, cognition, and behavior (Tai et al., 2012; van de Ven et al., 2009 for exceptions). However, social comparisons become increasingly inevitable in times of digitalization with plenty of information about almost everyone at any time on social media and with competitive workplaces that enforce

comparisons with coworkers. After all, they serve an important function, namely to accurately evaluate one's position in society and people would risk losing their competitive edge if they would simply stop comparing themselves to relevant others. Moreover, as Chapter 4 described, unfavorable comparisons can lead to desirable outcomes when the status threat is perceived to be in the future and there is still time left to catch up. Thus, for future research it would be interesting to show how comparisons with coworkers can initiate upward spirals where employees motivate and inspire each other, learn from each other, and help each other.

As indicated earlier, in today's society in which competition and social media are omnipresent and enforce social comparisons, threatening comparisons can sometimes simply not be avoided. In this realm, studying the interactive effects of social comparison and mindfulness on individuals' cognitive, affective, and behavioral reactions might be interesting. Whereas social comparison focuses individuals' attention on others, the idea of mindfulness and meditation practices is to focus one's attention on the self, practice self-compassion, acceptance, and gratitude (Good et al., 2015). On the one hand, regular meditation could reduce the frequency of comparison because it shifts individuals' attention toward the self and away from others. On the other hand, accepting oneself and being grateful for the things that one already has seems to be somewhat the opposite of experiencing envy. In other words, it seems hard to imagine that someone is grateful and envious at the same time. Thus, mindfulness and meditation could be an effective way to reduce envy. While social media and mindfulness are two somewhat opposing contemporary trends in terms of shifting peoples' attention, the one could be a promising antidote for the at times poisonous byproduct of the other.

Practical Implications

A better understanding of social comparisons at the workplace and how they unfold has several practical implications for individuals, managers, teams, and organizations as a whole. Social comparisons are very prevalent in organizations for two main reasons. First, they allow employees to assess their standing at work, and, by extension, evaluate their career progress. In the long run, this helps employees to navigate their careers because social comparisons help them to identify areas in which they fall short relative to others and in which they need to take action to improve. Second, the organizational context emphasizes social comparisons through performance evaluation systems, reward structures, and a competitive culture. All these practices make employees' standing relative to others salient.

On the individual level that is for employees and managers in organizations, the temporal perspective on social comparisons allows them to better understand the interpersonal dynamics at the workplace. In particular, it helps employees and managers to understand cooperative and competitive behaviors among coworkers. Both high and low performers can become targets of negative interpersonal behavior (Jensen et al., 2014) and the reason why an employee supports one colleague but undermines another one are not always obvious. Investigating who poses a current or a future status threat to others based on employees' temporal trajectories helps to understand their interpersonal behavior. Based on a better understanding of employees' behavior, managers can assign employees to projects and tasks that give (future) competitors different spheres of influence, enabling them to achieve high status independent from each other. When status is attainable, comparisons with coworkers become less threatening (Lockwood & Kunda, 1997). With regards to talent management, alleviating negative behaviors resulting from envy and social comparisons might also help organizations to retain talented employees because the

so-called star performers and rising stars do not need to fear that their colleagues hold them back and, as a consequence, change the organization.

On the broader organizational level, the studies from this dissertation have two main implications. The first one concerns the organizational culture and raises the question whether organizations still want to instill competition among their workforce and choose respective reward systems. In light of the findings in Chapter 2 that social undermining is directed both at employees with higher and with lower status than a focal employee, this practice becomes increasingly questionable. Apart from the direct social costs of undermining (i.e., diminished performance of the undermined employees), organizations might risk losing their future high performers when these rising stars are held back through social undermining and ultimately leave the company. Organizations can change their reward structure to less competitive ones in order to reduce the threat of unfavorable comparisons. At the same time, organizations can encourage and incentivize cooperative behaviors that make behaviors like social undermining a less attractive path to pursue.

Second, the findings from Chapter 3 suggest that individuals use different types of comparison information to evaluate their performance depending on their goal orientation. Organizations employ different kinds of performance evaluation systems (Connelly, Tihanyi, Crook, & Gangloff, 2013), for instance, target agreements that resemble comparisons to an absolute standard or tournaments that resemble social comparisons (Oreilly, Main, & Crystal, 1988). These standards may match or mismatch with the comparison standards that employees prefer. A mismatch, for instance, when a learning-oriented employee has improved over time but has not reached the same performance level as coworkers and subsequently receives an unfavorable evaluation, might lead to feelings of injustice (Barr, Brief, & Fulk, 1981; Dipboye & de Pontbriand, 1981) and lower job

satisfaction. To circumvent that, supervisors could give their subordinates social as well as self-related performance feedback in order to cover the two comparison frames that differentiate learning- and performance-oriented individuals.

Conclusion

My core motivation to enter academia and write a dissertation in organizational behavior was to understand why people sometimes support and cooperate with each other but undermine and harm each other at other times. Studying social comparisons helps to answer this question because much of our interpersonal behavior is motivated by status concerns. Adding a temporal dimension to the study of social comparison helps to understand why the same snapshot of two individuals standing relative to each other may elicit very different reactions. To understand individuals' reaction to social comparisons, we need to take their past trajectories and future expectations into account that jointly shape their present thoughts, feelings, and behaviors. I hope this dissertation inspires future research to investigate social comparisons in an intertemporal context and shed further light on the interpersonal dynamics between employees at the workplace.

References

- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19*(6), 586–592.
- Albert, S. (1977). Temporal comparison theory. *Psychological Review, 84*, 485–503.
- Anderson, C., Hildreth, J. A. D., & Howland, L. (2015). Is the desire for status a fundamental human motive? A review of the empirical literature. *Psychological Bulletin, 141*(3), 574–601.
- Anderson, C., John, O. P., Keltner, D., & Kring, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of Personality and Social Psychology, 81*(1), 116–132.
- Anderson, C., Srivastava, S., Beer, J. S., Spataro, S. E., & Chatman, J. A. (2006). Knowing your place: Self-perceptions of status in face-to-face groups. *Journal of Personality and Social Psychology, 91*(6), 1094–1110.
- Anseel, F., Van Yperen, N. W., Janssen, O., & Duyck, W. (2011). Feedback type as a moderator of the relationship between achievement goals and feedback reactions. *Journal of Occupational and Organizational Psychology, 84*(4), 703–722.
- Ariely, D., Gneezy, U., Loewenstein, G., & Mazar, N. (2009). Large stakes and big mistakes. *Review of Economic Studies, 76*(2), 451–469.
- Barling, J., Dupré, K. E., & Kelloway, E. K. (2009). Predicting workplace aggression and violence. *Annual Review of Psychology, 60*, 671–692.
- Barnes, C. M., Reb, J., & Ang, D. (2012). More than just the mean: Moving to a dynamic view of performance-based compensation. *Journal of Applied Psychology, 97*(3),

711–718.

- Barr, S. H., Brief, A. P., & Fulk, J. L. (1978). Correlates of perceived fairness and accuracy of performance. *Journal of Applied Psychology, 63*(6), 751-754.
- Bartel Sheehan, K., & Pittman, M. (2016). *Amazon's Mechanical Turk for academics. The HIT handbook for social science research*. Irvine, CA: Melvin & Leigh, Publishers.
- Bates, M. E., & Lemay, E. P. (2004). The d2 Test of attention: Construct validity and extensions in scoring techniques. *Journal of the International Neuropsychological Society, 10*(3), 392–400.
- Berger, J., Rosenholtz, S. J., & Zelditch, M. (1980). Status organizing processes. *Annual Review of Sociology, 6*, 479–508.
- Bernerth, J. B., & Aguinis, H. (2015). A critical review and best-practice recommendations for control variable usage. *Personell Psychology, 1–55*.
- Blader, S. L., & Tyler, T. R. (2009). Testing and extending the group engagement model: Linkages between social identity, procedural justice, economic outcomes, and extrarole behavior. *Journal of Applied Psychology, 94*(2), 445–64.
- Bothner, M., Kang, J., & Stuart, T. (2007). Competitive crowding and risk taking in a tournament: Evidence from NASCAR racing. *Administrative Science Quarterly, 52*(2), 208–247.
- Bouffard, T., Bouchard, M., Goulet, G., Denoncourt, I., & Couture, N. (2005). Influence of achievement goals and self-efficacy on students' self-regulation and performance. *International Journal of Psychology, 40*(6), 373–384.
- Bounoua, L., Cury, F., Regner, I., Huguet, P., Barron, K. E., & Elliot, A. J. (2011). Motivated use of information about others: Linking the 2 x 2 achievement goal model to social comparison propensities and processes. *British Journal of Social*

Psychology, 51(4), 626–641.

- Brendl, C. M., & Higgins, E. T. (1996). Principles of judging valence: What makes events positive or negative? *Advances in Experimental Social Psychology*, 28(C), 95–160.
- Brickenkamp, R. (1981). *Test d2* (7th ed.). Göttingen, Germany, Germany: Hogrefe.
- Brown, D. J., Ferris, D. L., Heller, D., & Keeping, L. M. (2007). Antecedents and consequences of the frequency of upward and downward social comparisons at work. *Organizational Behavior and Human Decision Processes*, 102(1), 59–75.
- Brown, S. P., Cron, W. L., & Slocum, J. W. J. (1998). Effects of trait competitiveness and perceived intraorganizational competition on salesperson goal setting and performance. *Journal of Marketing*, 62(October), 88–98.
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford Publications.
- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, 6(1), 3–5.
- Butler, R. (1992). What young people want to know when: Effects of mastery and ability goals on interest in different kinds of social comparisons. *Journal of Personality and Social Psychology*, 62(6), 934–943.
- Butler, R. (1993). Effects of task- and ego-achievement goals on information seeking during task engagement. *Journal of Personality and Social Psychology*, 65(1), 18–31.
- Butler, R. (1995). Motivational and informational functions and consequences of children's attention to peers' work. *Journal of Educational Psychology*, 87(3), 347–360.

- Buunk, A. P., Cohen-Schotanus, J., & van Nek, R. H. (2007). Why and how people engage in social comparison while learning social skills in groups. *Group Dynamics: Theory, Research, and Practice*, *11*(3), 140–152.
- Buunk, A. P., & Gibbons, F. X. (2007). Social comparison: The end of a theory and the emergence of a field. *Organizational Behavior and Human Decision Processes*, *102*(1), 3–21.
- Buunk, B. P., Zurriaga, R., Gonzalez-Roma, V., & Subirats, M. (2003). Engaging in upward and downward comparisons as a determinant of relative deprivation at work: A longitudinal study. *Journal of Vocational Behavior*, *62*(2), 370–388.
- Campbell, E. M., Liao, H., Chuang, A., Zhou, J., & Dong, Y. (2017). Hot shots and cool reception? An expanded view of social consequences for high performers. *Journal of Applied Psychology*, *102*(5), 845–866.
- Chalabaev, A., Major, B., Sarrazin, P., & Cury, F. (2012). When avoiding failure improves performance: Stereotype threat and the impact of performance goals. *Motivation and Emotion*, *36*(2), 130–142.
- Chambers, E. G., Foulon, M., Handfield-Jones, H., Hankin, S. M., & Michaels, E. G. (1998). The war for talent. *McKinsey Quarterly*, *3*, 44–57.
- Chen, G., & Mathieu, J. E. (2008). Goal orientation dispositions and performance trajectories: The roles of supplementary and complementary situational inducements. *Organizational Behavior and Human Decision Processes*, *106*(1), 21–38.
- Chizhik, A. W., Alexander, M. G., Chizhik, E. W., & Goodman, J. A. (2003). The rise and fall of power and prestige orders: Influence of task structure. *Social Psychology Quarterly*, *66*(3), 303–317.
- Cohen-Charash, Y. (2009). Episodic envy. *Journal of Applied Social Psychology*, *39*(9),

2128–2173.

- Cohen-Charash, Y., & Larson, E. C. (2017). An emotion divided: Studying envy is better than studying “benign” and “malicious” envy. *Current Directions in Psychological Science*, 26(2), 174–183.
- Cohen-Charash, Y., & Mueller, J. S. (2007). Does perceived unfairness exacerbate or mitigate interpersonal counterproductive work behaviors related to envy? *Journal of Applied Psychology*, 92(3), 666–80.
- Cole, M. S., Shipp, A. J., & Taylor, S. G. (2016). Viewing the interpersonal mistreatment literature through a temporal lens. *Organizational Psychology Review*, 6(3), 273–302.
- Collins, R. L. (1996). For better or worse: The impact of upward social comparison on self-evaluations. *Psychological Bulletin*, 119(1), 51–69.
- Connelly, B. L., Tihanyi, L., Crook, T. R., & Gangloff, K. A. (2013). *Tournament theory: Thirty years of contests and competitions*. *Journal of Management* (Vol. 40).
- Cottrell, C. A., & Neuberg, S. L. (2005). Different emotional reactions to different groups: a sociofunctional threat-based approach to “prejudice”. *Journal of Personality and Social Psychology*, 88(5), 770–89.
- Creelman, D. (2013). Forced ranking at Microsoft: When HR programs cause company woes. Retrieved from <https://www.saba.com/blog/forced-ranking-at-microsoft-when-hr-programs-cause-company-woes>
- Crusius, J., & Lange, J. (2016). How do people respond to threatened social status? Moderators of benign versus malicious envy. In R. H. Smith, U. Merlone, & M. K. Duffy (Eds.), *Envy at work and in organizations: Research, theory, and applications*. New York, NY: Oxford Press.

- Dalal, R. S., Bhawe, D. P., & Fiset, J. (2014). Within-person variability in job performance: A theoretical review and research agenda. *Journal of Management*, *40*(5), 1396–1436.
- Darnon, C., Dompnier, B., Gilliéron, O., & Butera, F. (2010). The interplay of mastery and performance goals in social comparison: A multiple-goal perspective. *Journal of Educational Psychology*, *102*(1), 212–222.
- Dineen, B. R., Duffy, M., Henle, C., & Lee, K. (2017). Green by comparison: Deviant and normative transmutations of job search envy in a temporal context. *Academy of Management Journal*, *60*(1), 295–320.
- Dipboye, R. L., & de Pontbriand, R. (1981). Correlates of employee reactions to performance appraisals and appraisal systems. *Journal of Applied Psychology*, *66*(2), 248–251.
- Doyle, S., Lount, R. B. J., Wilk, S. L., & Pettit, N. C. (2016). Helping others most when they are not too close: Status distance as a determinant of interpersonal helping in organizations. *Academy of Management Discoveries*, *2*(2), 155–174.
- Duffy, M. K., Ganster, D. C., & Pagon, M. (2002). Social undermining in the workplace. *Academy of Management Journal*, *45*(2), 331.351.
- Duffy, M. K., Ganster, D. C., Shaw, J. D., Johnson, J. L., & Pagon, M. (2006). The social context of undermining behavior at work. *Organizational Behavior and Human Decision Processes*, *101*(1), 105–126.
- Duffy, M. K., Scott, K. L., Shaw, J. D., Tepper, B. J., & Aquino, K. (2012). A social context model of envy and social undermining. *Academy of Management Journal*, *55*(3), 643–666.
- Duffy, M. K., & Shaw, J. D. (2000). The Salieri Syndrome: Consequences of envy in

- groups. *Small Group Research*, 31(1), 3–23.
- Duffy, M. K., Shaw, J. D., & Schaubroeck, J. M. (2008). Envy in organizational life. In R. H. Smith (Ed.), *Envy: Theory and research* (pp. 167–189). Oxford Press.
- Dunn, J. R., Ruedy, N. E., & Schweitzer, M. E. (2012). It hurts both ways: How social comparisons harm affective and cognitive trust. *Organizational Behavior and Human Decision Processes*, 117(1), 2–14.
- Dunn, J. R., & Schweitzer, M. E. (2006). Green and mean: Envy and social undermining in organizations. *Research on Managing Groups and Teams*, 8, 177–197.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040–1048.
- Dweck, C. S., & Leggett, E. L. (1988). A social cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256–273.
- Edwards, M. A. (2005). The law and social norms of pay secrecy. *Berkeley Journal of Employment & Labor Law*, 26(1), 41–63.
- Eichenwald, K. (2012). Microsoft's lost decade. Retrieved September 4, 2015, from <http://www.vanityfair.com/news/business/2012/08/microsoft-lost-mojo-steve-ballmer>
- Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In *Handbook of Competence and Motivation* (pp. 52–72).
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality & Social Psychology*, 72(1), 218–232.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80(3), 501–519.

- Evans, M. G. (1985). A Monte Carlo study of the effects of correlated method variance in moderated multiple regression analysis. *Organizational Behavior and Human Decision Processes*, 36(3), 305–323.
- Evans, J. S. B. T. (2003). In two minds: Dual-process accounts of reasoning. *Trends in Cognitive Sciences*, 7(10), 454–459.
- Evans, J. S. B. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59(1), 255–278.
- Exline, J. J., & Lobel, M. (1999). The perils of outperformance: Sensitivity about being the target of a threatening upward comparison. *Psychological Bulletin*, 125(3), 307–337.
- Exline, J. J., & Lobel, M. (2001). Private gain, social strain: Do relationship factors shape responses to outperformance? *European Journal of Social Psychology*, 31(5), 593–607.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140.
- Finke, R. A., & Shyi, G. C. (1988). Mental extrapolation and representational momentum for complex implied motions. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14(1), 112–20.
- Fischer, A. H., & Manstead, A. S. R. (2008). Social functions of emotion. In M. Lewis, J. Haviland, & L. Feldman Barrett (Eds.), *Handbook of emotion* (pp. 456–470). New York, NY: Guilford Press.
- Fiske, S. T. (2010). Interpersonal stratification: Status, power, and subordination. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., pp. 941–982). New York, NY: Wiley.
- Flynn, F. J., & Amanatullah, E. T. (2012). Psyched up or psyched out? The influence of

- coactor status on individual performance. *Organization Science*, 23(2), 402–415.
- Fox, S., Bizman, A., Hoffman, M., & Oren, L. (1995). The impact of variability in candidate profiles on rater confidence and judgements regarding stability and job suitability. *Journal of Occupational and Organizational Psychology*, 68(1), 13–23.
- Freyd, J. J., & Finke, R. A. (1984). Representational momentum. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 10(1), 126–132.
- Garcia, S. M., Song, H., & Tesser, A. (2010). Tainted recommendations: The social comparison bias. *Organizational Behavior and Human Decision Processes*, 113(2), 97–101.
- Garcia, S. M., Tor, A., & Gonzalez, R. (2006). Ranks and rivals: A theory of competition. *Personality and Social Psychology Bulletin*, 32(7), 970–82.
- Garcia, S. M., Tor, A., & Schiff, T. M. (2013). The psychology of competition: A social comparison perspective. *Perspectives on Psychological Science*, 8(6), 634–650.
- George, J. M., & Jones, G. R. (2000). The role of time in theory and theory building. *Journal of Management*, 26(4), 657–684.
- Geurts, S. A., Buunk, B. P., & Schaufeli, W. B. (1994). Health complaints, social comparisons, and absenteeism. *Work & Stress*, 8(3), 220–234.
- Giannini, J. M., Weinberg, R. S., & Jackson, A. J. (1988). The effects of mastery, competitive, and cooperative goals on the performance of simple and complex basketball skills. *Journal of Sport & Exercise Psychology*, 10(4), 408–417.
- Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology*, 76(1), 129–142.
- Gilbert, D. T., Giesler, B. R., & Morris, K. A. (1995). When Comparisons Arise. *Journal*

- of Personality and Social Psychology*, 69(2), 227–236.
- Gino, F., & Pierce, L. (2009). The abundance effect: Unethical behavior in the presence of wealth. *Organizational Behavior and Human Decision Processes*, 109(2), 142–155.
- Good, D. J., Lyddy, C. J., Glomb, T. M., Bono, J. E., Brown, K. W., Duffy, M. K., ... Lazar, S. W. (2015). Contemplating mindfulness at work: An integrative review. *Journal of Management*, 42(1), 114–142.
- Goodman, J. K., Cryder, C. E., & Cheema, A. (2012). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making*, 26(3), 213–224.
- Goodman, P. S., & Haisley, E. (2007). Social comparison processes in an organizational context: New directions. *Organizational Behavior and Human Decision Processes*, 102(1), 109–125.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6(2), 219–247.
- Greenberg, J., Ashton-James, C. E., & Ashkanasy, N. M. (2006). Social comparison processes in organizations. *Organizational Behavior and Human Decision Processes*, 102(1), 22–41.
- Greenberg, J., & Eskew, D. E. (1993). The role of playing in organizational research. *Journal of Management*, 19(2), 221–241.
- Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliot, A. J. (1997). Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade. *Journal of Personality and Social*

- Psychology*, 73(6), 1284–1295.
- Hardy, C. L., & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin*, 32(10), 1402–1413.
- Hauser, D. J., & Schwarz, N. (2016). Attentive turkers: MTurk participants perform better on online attention checks than subject pool participants. *Behavior Research Methods*, 48(1), 400–407.
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50, 1–22.
- Helmreich, R. L., & Spence, J. T. (1978). The work and family orientation questionnaire: An objective instrument to assess components of achievement motivation and attitudes toward family and career. *JSAS Catalog of Selected Documents in Psychology*, 8, 35.
- Houston, J. M., McIntire, S. A., Kinnie, J., & Terry, C. (2002). A factorial analysis of scales measuring competitiveness. *Educational and Psychological Measurement*, 62, 284–298.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.
- Jacoby, J., & Sassenberg, K. (2011). Interactions do not only tell us when, but can also tell us how: Testing process hypotheses by interaction. *European Journal of Social Psychology*, 41(2), 180–190.
- Jensen, A. R., & Rohwer, W. J. (1966). The Stroop Color-Word Test: A review. *Acta Psychologica*, 25, 36–93.
- Jensen, J. M., Patel, P. C., & Raver, J. L. (2014). Is it better to be average? High and low

- performance as predictors of employee victimization. *Journal of Applied Psychology*, 99(2), 296–309.
- Johnson, R. E., Howe, M., & Chang, C.-H. (Daisy). (2013). The importance of velocity, or why speed may matter more than distance. *Organizational Psychology Review*, 3(1), 62–85.
- Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39(4), 341–350.
- Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition & Emotion*, 13(5), 505–522.
- Kemper, T. D. (1991). Predicting emotions from social relations. *Social Psychology Quarterly*, 54(4), 330–342.
- Kim, E., & Glomb, T. M. (2014). Victimization of high performers: The roles of envy and work group identification. *Journal of Applied Psychology*, 99(4), 619–634.
- Kozhevnikov, M., & Hegarty, M. (2001). Impetus beliefs as default heuristics: Dissociation between explicit and implicit knowledge about motion. *Psychonomic Bulletin & Review*, 8(3), 439–453.
- Lam, C. K., Van der Vegt, G. S., Walter, F., & Huang, X. (2011). Harming high performers: A social comparison perspective on interpersonal harming in work teams. *Journal of Applied Psychology*, 96(3), 588–601.
- Lange, J., & Crusius, J. (2015b). Dispositional envy revisited: Unraveling the motivational dynamics of benign and malicious envy. *Personality and Social Psychology Bulletin*, 41(2), 284–294.
- Lange, J., & Crusius, J. (2015c). The tango of two deadly sins: The social-functional relation of envy and pride. *Journal of Personality and Social Psychology*, 109(3),

453–472.

- Larkin, I., Pierce, L., & Gino, F. (2012). The psychological costs of pay-for-performance: Implications for the strategic compensation of employees. *Strategic Management Journal*, 33(10), 1194–1214.
- Latham, G. P., & Locke, E. A. (1991). Self-regulation through goal setting. *Organizational Behavior and Human Decision Processes*, 50, 212–247.
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, 46(8), 819–834.
- Lazear, E. P., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy*, 89(5), 841–864.
- Lee, K., Kim, E., Bhave, D. P., & Duffy, M. K. (2016). Why victims of undermining at work become perpetrators of undermining: An integrative model. *Journal of Applied Psychology*.
- Locke, E. A., Cartledge, N., & Knerr, C. S. (1970). Studies of the relationship between satisfaction, goal-setting, and performance. *Organizational Behavior and Human Performance*, 5, 135–158.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717.
- Lockwood, P., Dolderman, D., Sadler, P., & Gerchak, E. (2004). Feeling better about doing worse: social comparisons within romantic relationships. *Journal of Personality and Social Psychology*, 87(1), 80–95.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, 73(1), 91–103.
- MacKenzie, S. B. (2003). The dangers of poor construct conceptualization. *Journal of the*

- Academy of Marketing Science*, 31(3), 323–326.
- Markman, K. D., & Guenther, C. L. (2007). Psychological momentum: Intuitive physics and naive beliefs. *Personality and Social Psychology Bulletin*, 33, 800–812.
- Marr, J. C., & Thau, S. (2014). Falling from great (and not so great) heights: How initial status position influences performance after status loss. *Academy of Management Journal*, 57(1), 223–248.
- Mason, W., & Suri, S. (2012). Conducting behavioral research on Amazon’s Mechanical Turk. *Behavior Research Methods*, 44(1), 1–23.
- McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin*, 114(2), 376–390.
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437–455.
- Menon, T., & Thompson, L. (2010). Envy at work. *Harvard Business Review*, 74–79.
- Messersmith, J. G., Guthrie, J. P., Ji, Y.-Y., & Lee, J.-Y. (2011). Executive turnover: The influence of dispersion and other pay system characteristics. *The Journal of Applied Psychology*, 96(3), 457–69.
- Michinov, N. (2005). Social comparison, perceived control, and occupational burnout. *Applied Psychology*, 54(1), 99–118.
- Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin*, 128(4), 638–662.
- Morewedge, C. K., & Kahneman, D. (2000). Associative processes in intuitive judgment. *Trends in Cognitive Sciences*, 14(10), 435–440.
- Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, 110(3), 472–489.

- Mussweiler, T., Rüter, K., & Epstude, K. (2004). The ups and downs of social comparison: Mechanisms of assimilation and contrast. *Journal of Personality and Social Psychology, 87*(6), 832–844.
- Mussweiler, T., Rüter, K., & Epstude, K. (2004). The man who wasn't there: Subliminal social comparison standards influence self-evaluation. *Journal of Experimental Social Psychology, 40*(5), 689–696.
- Neuberg, S. L., & Cottrell, C. A. (2008). Managing the threats and opportunities afforded by human sociality. *Group Dynamics: Theory, Research, and Practice, 12*(1), 63–72.
- Ng, T. W. H., & Feldman, D. C. (2015). Ethical leadership: Meta-analytic evidence of criterion-related and incremental validity. *Journal of Applied Psychology, 100*(3), 948–965.
- O'Reilly, C. A., Main, B. G., & Crystal, G. S. (1988). CEO compensation as tournament and social comparison: A tale of two theories. *Administrative Science Quarterly, 33*(2), 257–274.
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology, 45*(4), 867–872.
- Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding Mechanical Turk as a Participant Pool. *Current Directions in Psychological Science, 23*(3), 184–188.
- Paolacci, G., Chandler, J., & Ipeirotis, P. (2010). Running experiments on amazon mechanical turk. *Judgment and Decision Making, 5*(5), 411–419.
- Parducci, A. (1965). Category judgment: A range-frequency model. *Psychological Review, 72*(6), 407–418. h
- Parks, C. D., Rumble, A. C., & Posey, D. C. (2002). The effects of envy on reciprocation

- in a social dilemma. *Personality & Social Psychology Bulletin*, 28(4), 509–520.
- Parrott, G. W., & Smith, R. H. (1993). Distinguishing the experiences of envy and jealousy. *Journal of Personality and Social Psychology*, 64(6), 906–920.
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, 92(1), 128–150.
- Peer, E., Vosgerau, J., & Acquisti, A. (2013). Reputation as a sufficient condition for data quality on Amazon Mechanical Turk. *Behavior Research Methods*, 46(4), 1023–1031.
- Peterson, A. (2013). Yahoo is ranking employees. When Microsoft did that, it was a disaster. Retrieved from https://www.washingtonpost.com/news/the-switch/wp/2013/11/12/yahoos-employee-ranking-system-sounds-suspiciously-like-the-one-blamed-for-microsofts-decline/?noredirect=on&utm_term=.6313342dda33
- Pettit, N. C., Doyle, S. P., Lount Jr., R. B., & To, C. (2016). Cheating to get ahead or to avoid falling behind? The effect of potential negative versus positive status change on unethical behavior. *Organizational Behavior and Human Decision Processes*, 137, 172–183.
- Pettit, N. C., Sivanathan, N., Gladstone, E., & Marr, J. C. (2013). Rising stars and sinking ships: Consequences of status momentum. *Psychological Science*, 24(8), 1579–84.
- Pettit, N. C., Yong, K., & Spataro, S. E. (2010). Holding your place: Reactions to the prospect of status gains and losses. *Journal of Experimental Social Psychology*, 46(2), 396–401.
- Pfeffer, J., & Sutton, R. I. (2006). *Hard facts, dangerous half-truths, and total nonsense: Profiting from evidence-based management*. Boston, MA: Harvard Business School

Press.

- Pierce, J. L., Gardner, D. G., Cummings, L. L., & Dunham, R. B. (1989). Organization-based self-esteem: Construct definition, measurement, and validation. *Academy of Management Journal*, *32*(3), 622–648.
- Pierce, J. R., Kilduff, G. J., Galinsky, A. D., & Sivanathan, N. (2013). From glue to gasoline: How competition turns perspective takers unethical. *Psychological Science*, *24*(August), 1986–94.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903.
- Porath, C. L., Overbeck, J. R., & Pearson, C. M. (2008). Picking up the gauntlet: How individuals respond to status challenges. *Journal of Applied Social Psychology*, *38*(7), 1945–1980.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185–227.
- Reb, J., & Greguras, G. J. (2010). Understanding performance ratings: Dynamic performance, attributions, and rating purpose. *Journal of Applied Psychology*, *95*(1), 213–20.
- Redersdorff, S., & Guimond, S. (2006). Comparing oneself over time: The temporal dimension in social comparison. In *Social comparison and social psychology*:

Understanding cognition, intergroup relations and culture (pp. 76–96).

- Régner, I., Escribe, C., & Dupeyrat, C. (2007). Evidence of social comparison in mastery goals in natural academic settings. *Journal of Educational Psychology, 99*(3), 575–583.
- Reh, S., Tröster, C., & Van Quaquebeke, N. (2018). Keeping (future) rivals down: Temporal social comparison predicts coworker social undermining via future status threat and envy. *Journal of Applied Psychology, 103*(4), 399–415.
- Rijsman, J. B. (1974). Factors in social comparison of performance influencing actual performance. *European Journal of Social Psychology, 4*(3), 279–311.
- Robinson, M. D., & Clore, G. L. (2001). Simulation, scenarios, and emotional appraisal: Testing the convergence of real and imagined reactions to emotional stimuli. *Personality and Social Psychology Bulletin, 27*(11), 1520–1532.
- Salovey, P., & Rodin, J. (1984). Some antecedents and consequences of social-comparison jealousy. *Journal of Personality and Social Psychology, 47*(4), 780–792.
- Schaubroeck, J. M., & Lam, S. S. K. (2004). Comparing lots before and after: Promotion rejectees' invidious reactions to promotees. *Organizational Behavior and Human Decision Processes, 94*(1), 33–47.
- Scheepers, D., & Ellemers, N. (2005). When the pressure is up: The assessment of social identity threat in low and high status groups. *Journal of Experimental Social Psychology, 41*(2), 192–200.
- Scheepers, D., Ellemers, N., & Sintemaartensdijk, N. (2009). Suffering from the possibility of status loss: Physiological responses to social identity threat in high status groups. *European Journal of Social Psychology, 39*(June 2009), 1075–1092.
- Shen, L., & Hsee, C. K. (2017). Numerical nudging: Using an acceleration score to

- enhance performance. *Psychological Science*, 28(8), 1077–1086.
- Shipp, A. J., Edwards, J. R., & Lambert, L. S. (2009). Conceptualization and measurement of temporal focus: The subjective experience of the past, present, and future. *Organizational Behavior and Human Decision Processes*, 110(1), 1–22.
- Smith, R. H., & Kim, S. H. (2007). Comprehending envy. *Psychological Bulletin*, 133(1), 46–64.
- Sonnentag, S. (2012). Time in organizational research: Catching up on a long neglected topic in order to improve theory. *Organizational Psychology Review*, 2(4), 361–368.
- Soto, C. J., & John, O. P. (2011). Development of Big Five domains and facets in adulthood: Mean-level age trends and broadly versus narrowly acting mechanisms. *Journal of Personality*, 881–914.
- Spence, J. R., Ferris, D. L., Brown, D. J., & Heller, D. (2011). Understanding daily citizenship behaviors: A social comparison perspective. *Journal of Organizational Behavior*, 571(March), 547–571.
- Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology*, 89(6), 845–851.
- Sterling, C. M., & Labianca, G. J. (2015). Costly comparisons: Managing envy in the workplace. *Organizational Dynamics*, 44(4), 296–305.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science*, 11(5), 159–163.
- Suls, J., & Wheeler, L. (2000). *Handbook of social comparison: Theory and research*. The Springer series in social/clinical psychology. Berlin: Springer Verlag.

- Summerville, A., & Roese, N. J. (2008). Dare to compare: Fact-based versus simulation-based comparison in daily life. *Journal of Experimental Social Psychology, 44*(3), 664–671.
- Tai, K., Narayanan, J., & McAllister, D. J. (2012). Envy as pain: Rethinking the nature of envy and its implications for employees and organizations. *Academy of Management Review, 37*(1), 107–129.
- Taylor, A. B., MacKinnon, D. P., & Tein, J.-Y. (2007). Tests of the three-path mediated effect. *Organizational Research Methods, 11*(2), 241–269.
- Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review, 96*(4), 569–75.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. *Advances in Experimental Social Psychology, 21*, 181–227.
- Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: the pain and pleasure of being close. *Journal of Personality and Social Psychology, 54*(1), 49–61.
- Thau, S., Tröster, C., Aquino, K., Pillutla, M., & De Cremer, D. (2012). Satisfying individual desires or moral standards? Preferential treatment and group members' self-worth, affect, and behavior. *Journal of Business Ethics, 113*(1), 133–145.
- Tian, L., Yu, T., & Huebner, E. S. (2017). Achievement goal orientations and adolescents' subjective well-being in school: The mediating roles of academic social comparison directions. *Frontiers in Psychology, 8*, 37.
- Tjosvold, D., Yu, Z., & Hui, C. (2004). Team learning from mistakes: The contribution of cooperative goals and problem-solving. *Journal of Management Studies, 41*(7), 1223–1245.

- Tripp, T. M., Bies, R. J., & Aquino, K. (2002). Poetic justice or petty jealousy? The aesthetics of revenge. *Organizational Behavior and Human Decision Processes*, 89(1), 966–984.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110(3), 403–421.
- Tröster, C., Van Quaquebeke, N., & Aquino, K. (2018). Worse than others but better than before: Integrating social and temporal comparison perspectives to explain executive turnover via pay standing and pay growth. *Human Resource Management*, 57(2), 471–481.
- Tse, H. H. M., Lam, C. C. K., Lawrence, S. A., & Huang, X. (2013). When my supervisor dislikes you more than me: The effect of dissimilarity in leader-member exchange on coworkers' interpersonal emotion and perceived help. *Journal of Applied Psychology*, 98(6), 974–988.
- van de Ven, N., Hoogland, C. E., Smith, R. H., van Dijk, W. W., Breugelmans, S. M., & Zeelenberg, M. (2015). When envy leads to schadenfreude. *Cognition and Emotion*, 29(6), 1007–1025.
- van de Ven, N., Zeelenberg, M., & Pieters, R. (2009). Leveling up and down: The experiences of benign and malicious envy. *Emotion*, 9(3), 419–429.
- van de Ven, N., Zeelenberg, M., & Pieters, R. (2011). Why envy outperforms admiration. *Personality and Social Psychology Bulletin*, 37(6), 784–795.
- Van Yperen, N. W., Blaga, M., & Postmes, T. (2015). A meta-analysis of the impact of situationally induced achievement goals on task performance. *Human Performance*, 28(2), 165–182.
- Van Yperen, N. W., & Leander, N. P. (2014). The overpowering effect of social

- comparison information: On the misalignment between mastery-based goals and self-evaluation criteria. *Personality and Social Psychology Bulletin*, 40(5), 676–88.
- Van Yperen, N. W., & Orehek, E. (2013). Achievement goals in the workplace: Conceptualization, prevalence, profiles, and outcomes. *Journal of Economic Psychology*, 38, 71–79.
- Vandewalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, 57(6), 995–1015.
- Vandewalle, D. (2003). A goal orientation model of feedback-seeking behavior. *Human Resource Management Review*, 13(4), 581–604.
- Vecchio, R. P. (2000). Negative emotion in the workplace: Employee jealousy and envy. *International Journal of Stress Management*, 7(3), 161–179.
- Vidyardhi, P. R., Liden, R. C., Anand, S., Erdogan, B., & Ghosh, S. (2010). Where do I stand? Examining the effects of leader-member exchange social comparison on employee work behaviors. *Journal of Applied Psychology*, 95(5), 849–861.
- Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, 3(4), 206–222.
- Wang, X. T., & Johnson, J. G. (2012). A tri-reference point theory of decision making under risk. *Journal of Experimental Psychology: General*, 141(4), 743–756.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. *Research in Organizational Behavior*, 18(1), 1–74.
- Wenzel, R., & Van Quaquebeke, N. (2017). The double-edged sword of Big Data in organizational research: A SWOT analysis and some recommendations on wielding it well. *Organizational Research Methods*, 1–44.

- Wert, S. R., & Salovey, P. (2004). A social comparison account of gossip. *Review of General Psychology, 8*(2), 122–137.
- Wheeler, L., & Miyake, K. (1992). Social Comparison in Everyday Life. *Journal of Personality and Social Psychology, 62*(5), 760–773.
- Wheeler, L., Shaver, K. G., Jones, R. A., Goethals, G. R., Cooper, J., Robinson, J. E., ... Butzine, K. W. (1969). Factors determining choice of a comparison other. *Journal of Experimental Social Psychology, 5*(2), 219–232.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*(2), 245–271.
- Wood, R. E., Mento, A. J., & Locke, E. A. (1987). Task complexity as a moderator of goal effects: A meta-analysis. *Journal of Applied Psychology, 72*(3), 416–425.
- Wood, J. V., Michela, J. L., & Giordano, C. (2000). Downward comparison in everyday life: Reconciling self-enhancement models with the mood-cognition priming model. *Journal of Personality and Social Psychology, 79*(4), 563–579.

SUMMARY

Individuals evaluate their social standing through comparisons with others. These social comparisons affect individuals' thoughts, feelings, and behavior at the workplace. This dissertation aims to advance our knowledge of the effects of these comparisons by taking a temporal perspective on the social comparison process. Contrary to previous research that looked at social comparisons as a single snapshot in time, this dissertation acknowledges the dynamic nature of social comparisons, in particular, that individuals' standing may change over time. In three chapters, this dissertation examines how considerations of future status are derived from past relative trajectories and lead to positive and negative interpersonal behavior (chapter 2 and 4) as well the role of individuals' goal orientation in their preferences for different temporal and static comparisons (chapter 3).

The first chapter tests if employees in competitive organizations react with envy and social undermining when they face an unfavorable temporal social comparison, that is when their status developed less favorably than a coworker's status. Findings from three studies show that under high competition, employees expect to have lower status in the future following an unfavorable temporal social comparison, and, as a consequence, experience envy and socially undermine the respective coworker to alleviate the future status threat. The second chapter zooms in on individuals' preferences for different comparison standards and their performance following comparison feedback as a function of their goal orientation. Using a 2 x 2 framework of person-related (self vs. social) and time-related (static vs. temporal) comparison standards, two studies find that the distinguishing factor between learning and performance oriented individuals is whether they prefer social versus self-related comparisons and not whether they compare socially versus temporally. However, goal orientation and comparison feedback did not interactively predict

performance in a concentration task. The third chapter introduced a theoretical model that seeks to explain why unfavorable social comparisons among employees sometimes lead to positive behaviors and at other times lead to negative behaviors. It is argued that the temporal proximity of a status threat plays a key role here in that more proximate status threats lead to malicious envy which results in more challenge-oriented behaviors whereas more distal status threats should elicit more benign envy resulting in more challenge-oriented behaviors. This link is amplified by the relevance of the comparison dimension for employees' status. Employees find out about the proximity of the status threat by comparing on five temporal markers (current position, velocity, acceleration, mean level, and minimum and maximum position) that characterize social comparisons over time. These conclusions are attenuated by three factors of uncertainty (fluctuations, time span, interruptions).

SAMENVATTING

Individueen evalueren hun sociale status door middel van vergelijkingen met anderen. Deze sociale vergelijkingen beïnvloeden de gedachten, gevoelens en het gedrag van individuen op de werkplek. Dit proefschrift beoogt onze kennis van de effecten van deze vergelijkingen te vergroten door een oog te hebben voor het tijdsperspectief in het sociale vergelijkingsproces, in tegenstelling tot eerder onderzoek waarin sociale vergelijkingen als één momentopname in de tijd werden beschouwd. Dit proefschrift focust op de dynamische aard van sociale vergelijkingen, en specifiek op het gegeven dat de positie van individuen in de loop der tijd kan veranderen. In drie hoofdstukken onderzoekt dit proefschrift hoe verwachtingen van toekomstige status worden afgeleid van eerdere relatieve trajecten en leiden tot positief en negatief interpersoonlijk gedrag (hoofdstuk 2 en 4). Ook wordt er gekeken naar de rol van doeloriëntatie van individuen in hun voorkeuren voor verschillende temporele en statische vergelijkingen (hoofdstuk 3).

In het eerste hoofdstuk wordt getest of werknemers in competitieve organisaties jaloers en sociaal ondermijnd reageren wanneer ze geconfronteerd worden met een ongunstige temporele sociale vergelijking, namelijk wanneer hun status zich minder gunstig ontwikkelt dan die van een collega. Uit drie onderzoeken blijkt dat, bij hevige concurrentie, werknemers na een ongunstige tijdelijke sociale vergelijking verwachten in de toekomst een lagere status te hebben, en als gevolg daarvan jaloers zijn op de betreffende collega en deze sociaal ondermijnen om de toekomstige statusdreiging te verlichten. In het tweede hoofdstuk wordt ingezoomd op de voorkeuren van individuen voor verschillende vergelijkingsstandaarden alsook hun prestaties na vergelijkingsfeedback, afhankelijk van hun doeloriëntatie. Hierbij wordt gebruik gemaakt van een 2 x 2-kader van persoonsgerelateerde (zelf versus sociaal) en tijdgerelateerde

(statisch versus temporeel) vergelijkingsstandaarden. Twee studies komen daarmee tot de conclusie dat het onderscheid tussen leer- en prestatiegerichte individuen ontstaat door de vraag of men de voorkeur geeft aan sociale vergelijkingen boven zelf-gerelateerde vergelijkingen en niet door de vraag of men sociaal versus temporeel vergelijkt. Doelgerichtheid en vergelijkingsfeedback voorspelden echter niet op interactieve wijze de prestaties bij een concentratietaak. Het derde hoofdstuk introduceert een theoretisch model dat beoogt te verklaren waarom ongunstige sociale vergelijkingen onder werknemers soms leiden tot positief gedrag en soms tot negatief gedrag. Er wordt geargumenteed dat de tijdelijke nabijheid van een statusdreiging hierbij een sleutelrol speelt: meer directe statusdreigingen leiden tot kwaadaardige afgunst en resulteren in meer uitdagingsgericht gedrag, meer indirecte statusdreigingen lokken goedaardige afgunst uit en resulteren in meer uitdagingsgericht gedrag. Dit verband wordt nog versterkt door de relevantie van de vergelijkingsdimensie voor de status van de werknemers. Werknemers achterhalen de nabijheid van de statusdreiging door het vergelijken van vijf temporele indicatoren (huidige positie, snelheid, versnelling, gemiddeld niveau en minimum- en maximumpositie) welke sociale vergelijkingen in de tijd kenmerken. Deze conclusies worden afgezwakt door drie onzekere factoren (fluctuaties, tijdspanne, onderbrekingen).

ABOUT THE AUTHOR

Susan Reh received her Master of Science in Management from the Kühne Logistics University in Hamburg, Germany in 2013 and a Bachelor of Science in Psychology from the University of Hamburg in 2011. She started her PhD at the Kühne Logistics University in 2014 and joined the Rotterdam School of Management at Erasmus University in the Netherlands as an external PhD student in 2014. Since end of 2017, she is a post-doctoral researcher in organizational psychology at the University of Groningen.



Susan's research interests revolve around (1) the effects of social comparisons on peoples' affect, cognition, and behavior (2) individuals' comparison preferences in relation to their personality, and (3) the mental calculus of comparing oneself over time. Her dissertation seeks to understand social comparisons among employees and their behavioral consequences by taking a temporal perspective on the comparison processes in organizations. Her work has been published in the Journal of Applied Psychology and The Leadership Quarterly. Susan also presents here work regularly at international management and psychology conferences such as the Annual Meeting of the Academy of Management or the congress of the European Association of Work and Organizational Psychology. Susan is a member of the Academy of Management and the European Association of Work and Organizational Psychology.

PORTFOLIO

Publications

- Reh, S., Troester, C. & Van Quaquebeke, N. (2018). Keeping (future) rivals down: Temporal social comparison predicts coworker social undermining via future status threat and envy. *Journal of Applied Psychology*, 103(4), 399-415. .
- Reh, S., Van Quaquebeke, N., & Giessner, S. R. (2017). The aura of charisma: A review on the embodiment perspective as signalling. *The Leadership Quarterly*, 28(4), 486-507.
- Pöttgen, J., Dziobek, I., Reh, S., Heesen, C., & Gold, S. M. (2013). Impaired social cognition in multiple sclerosis. *Journal of Neurology, Neurosurgery & Psychiatry*, 84(5), 523-528.

Research Projects in Progress

- Reh, S., Giessner, S. R., Troester, C., & Van Quaquebeke, N. *Goal orientation predicts preferences for four comparison standards.*
- Reh, S., Troester, C., Van Quaquebeke, N., & Giessner, S. R. *Introducing a temporal perspective on social comparison: A conceptual account of when, how, and for what it matters in organizations.*
- Reh, S., Wieck, C., & Scheibe, S. *Do occupational role demands influence age-related trajectories of emotional functioning?*
- Wieck, C., Reh, S., Moghimi, D., Faber, M., Feyel, N., Seidel, L. & Scheibe, S. *A meta-analysis on the relationships between empathy and work outcomes*
- Reh, S., & Scheibe, S. *A social comparison perspective on challenges and opportunities evolving from age differences among workers and the moderating role of goal orientation in this process.*

Reh, S. & Scheibe, S. *The moderating role of goal orientation in the relationship between emotional job demands and negative affective experience.*

Conference presentations

Reh, S., Wieck, C., & Scheibe, S. 2018. How do occupational role demands influence age-related trajectories of emotional well-being? Talk at Conference of the German Society for Psychology, Frankfurt am Main, Germany.

Reh, S., Tröster, C., Van Quaquebeke, N., & Giessner, S.R. 2018. *A temporal perspective on social comparison and its behavioral consequences in organizations.* Talk at Academy of Management, Chicago, IL, USA.

Reh, S., Giessner, S.R., Tröster, C., & Van Quaquebeke, N. 2017. *Which comparison do I seek? Goal orientation predicts preference for four comparison standards.* Talk at European Association of Work and Organizational Psychology (EAWOP), Dublin, Ireland.

Reh, S., Giessner, S.R., Tröster, C., & Van Quaquebeke, N. 2016. *Which comparison do I seek? Goal orientation predicts preferences for four comparison standards.* Poster at EAWOP Early Career Summer School, Birmingham, United Kingdom.

Reh, S., Giessner, S.R., Tröster, C., & Van Quaquebeke, N. 2016. *Which comparison do I seek? Goal orientation predicts preferences for four comparison standards.* Talk at Academy of Management, Anaheim, CA, USA.

Reh, S., Tröster, C., & Van Quaquebeke, N. 2015. *Temporal social comparison predicts coworker social undermining.* Talk at EAWOP small group meeting on studying work as it is: Capturing dynamics on workplace relationships, Brussels, Belgium.

Reh, S., Van Quaquebeke, N., & Giessner, S. R. 2015. *Leader charisma: An embodiment perspective.* Talk at Academy of Management, Vancouver, Canada.

Reh, S., Tröster, C., & Van Quaquebeke, N. 2015. *Keeping rivals down: The effect of dynamic social comparisons on employee interpersonal helping.* Talk at European Association of Work and Organizational Psychology (EAWOP), Oslo, Norway.

- Reh, S., Van Quaquebeke, N., & Giessner, S. R. 2015. *Leader charisma: An embodiment perspective*. Poster at European Association of Work and Organizational Psychology (EAWOP), Oslo, Norway.
- Reh, S., Tröster, C., & Van Quaquebeke, N. 2014. *Keeping rivals down: The effect of social comparison dynamics on workplace behavior*. Talk at Academy of Management Annual, Philadelphia, PA, USA.
- Reh, S., Tröster, C., & Van Quaquebeke, N. 2014. *The effect of social comparison dynamics on interpersonal organizational citizenship behavior and social undermining*. Poster at European Association of Social Psychology (EASP), Amsterdam, Netherlands.
- Reh, S., Tröster, C., & Van Quaquebeke, N. 2014. *Keeping rivals down: The effect of dynamic social comparisons on employee interpersonal helping*. Talk at the Workshop on Research Advances in Organizational Behavior and Human Resources Management, Paris, France.

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Individuals evaluate their status through social comparisons with relevant others such as their coworkers. These social comparisons affect individuals' thoughts, feelings, and behavior at the workplace. Unfavorable comparisons with those who have higher status often elicit envy and lead to negative behaviors such as social undermining toward more successful coworkers. This dissertation aims to advance our knowledge of the effects of these comparisons by taking a temporal perspective on the social comparison process. Contrary to previous research that looked at social comparisons as a single snapshot in time, this dissertation acknowledges the dynamic nature of social comparisons, in particular, that individuals' standing may change over time and it may change at a different pace for different individuals. Someone who does not pose a status threat in the present might become a competitor in the future and someone who is a threat right now might not be threatening anymore in the future. In three chapters, this dissertation examines how considerations of future status and the proximity of these future status threats are derived from past relative trajectories and lead to positive and negative interpersonal behavior. In addition, this dissertation also investigates the role of individuals' goal orientation in their preferences for different temporal and static comparisons.

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