
Theses and Dissertations

Summer 2015

Social contexts and motivation: the role of upward and downward comparisons

Patrick E. Downes
University of Iowa

Copyright © 2015 Patrick E. Downes

This dissertation is available at Iowa Research Online: <http://ir.uiowa.edu/etd/5747>

Recommended Citation

Downes, Patrick E.. "Social contexts and motivation: the role of upward and downward comparisons." PhD (Doctor of Philosophy) thesis, University of Iowa, 2015.
<http://ir.uiowa.edu/etd/5747>.

Follow this and additional works at: <http://ir.uiowa.edu/etd>



Part of the [Business Administration, Management, and Operations Commons](#)

SOCIAL CONTEXTS AND MOTIVATION: THE ROLE OF UPWARD AND
DOWNWARD COMPARISONS

by

Patrick E. Downes

A thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Business Administration
in the Graduate College of
The University of Iowa

August 2015

Thesis Supervisors: Assistant Professor Eean Crawford
Professor Scott Seibert

Copyright by
PATRICK E. DOWNES
2015
All Rights Reserved

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Patrick E. Downes

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
degree in Business Administration at the August 2015 graduation.

Thesis Committee: _____
Eean Crawford, Thesis Supervisor

Maria Kraimer

Amy Kristof-Brown

Ning Li

Scott Seibert, Thesis Supervisor

ABSTRACT

The social context has long been recognized as an influence on individual behavior, and research is increasingly recognizing the ways in which social contexts at work play a role in employee performance. In this dissertation, I apply social comparison theory to better understand an understudied aspect of social context: the performance of other people at work. Specifically, I argue that interactions with higher-performing colleagues and lower-performing colleagues provide the referents against which employees compare themselves to evaluate their own performance. These social comparisons are the basis upon which individuals construct an internal norm for performance, influencing their own motivation and performance. I posit that upward comparisons (to better performers) raise normative expectations of performance while downward comparisons (to worse performers) lower normative expectations for performance. I further test whether the relationships between upward and downward comparisons and motivation are moderated by goal orientation, a disposition that describes individuals' propensity to set different kinds of goals in achievement situations. I examine my hypotheses in two studies: students in an introductory management course and corporate staff in a mid-size food processing company. Overall, results suggested that individuals' number of upward comparisons has conditional indirect effects on performance through employee engagement and self-efficacy, with learning goal orientation moderating relationships in a learning context, and performance goal orientation moderating relationships in a performance context.

PUBLIC ABSTRACT

The people with whom individuals work play a key role in determining individuals' attitudes towards their jobs and their experiences at work. In this dissertation, I propose that co-workers' levels of job performance play an important role in the focal individual's at-work motivation. When co-workers are higher performers, individuals feel less confident in their own abilities, and they are likely to disengage from their work. However, having lower-performing co-workers helps individuals feel confident in their own abilities and encourage them to engage fully in their jobs. I further suggest that the reverse occurs for individuals who take an attitude of learning and growth in their work. For these people, who are willing to take on new challenges and try new things in order to improve, having higher-performing co-workers inspires them to believe in themselves and try to achieve a similarly high level of performance. When individuals focus instead on showing off their current abilities, however, these higher-performing co-workers can be threatening and demotivating. My research offers important implications for individuals and managers seeking to maximize employee performance in organizations.

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vi
CHAPTER	
I. INTRODUCTION	1
II. THEORETICAL BACKGROUND AND LITERATURE REVIEW	6
Social Context.....	6
Employee Motivation	15
Social Comparisons	22
Goal Orientation	27
The Present Study	29
III. HYPOTHESIS DEVELOPMENT	30
Upward and Downward Comparisons and Motivation	30
Goal Orientation Moderating Social Comparisons.....	41
Motivation and Performance	53
IV. STUDY I.....	57
Sample and Procedure	57
Measures	57
Results.....	61
Discussion and Limitations.....	67
V. STUDY II	77
Sample and Procedure	70
Measures	78
Results.....	81
Discussion and Limitations.....	86
VI. OVERALL DISCUSSION	94
Summary of Findings	94
Theoretical Contributions	97
Practical Implications	101
Future Research	104
Conclusion	108
REFERENCES	110
APPENDIX: STUDY III SURVEY INSTRUMENT.....	122

LIST OF TABLES

Table

1.	Comparison of Alternative Measurement Models (Study I)	70
2.	Items and Factor Loadings (Study I)	71
3.	Descriptive Statistics and Correlations (Study I).....	72
4.	Regression of Individual Performance on Motivation, Social Comparisons, and GO (Study I).....	73
5.	Conditional Indirect Effects of Number of Upward Comparisons by LGO on Performance through Engagement and Self-Efficacy (Study I)	74
6.	Comparison of Alternative Measurement Models (Study II)	88
7.	Items and Factor Loadings (Study II)	89
8.	Descriptive Statistics and Correlations (Study II)	90
9.	Regression of Individual Performance on Motivation, Social Comparisons, and Interaction (Study II).....	91
10.	Conditional Indirect Effects of Number of Upward Comparisons by PPGO on Performance through Self-Efficacy (Study II).....	92

LIST OF FIGURES

Figure

1.	Conceptual Model of Hypothesized Relationships.....	56
2.	Moderation of Number of Upward Comparisons on Self-Efficacy by LGO (Study I)	75
3.	Moderation of Number of Upward Comparisons on Engagement by LGO (Study I)	76
4.	Moderation of Number of Upward Comparisons on Self-Efficacy by PPGO (Study II).....	93

CHAPTER I

INTRODUCTION

Motivation, a force that directs, energizes, and sustains behavior over time (Diefendorff & Chandler, 2011), is a major determinant of employee performance (Pinder, 2008), and study of the antecedents of motivation is among the most central and practically important areas of inquiry in organizational research. A wealth of studies suggest that individual differences and organizational contexts are major sources of employee motivation (see reviews in Diefendorff & Chandler, 2011; Kanfer, Chen, & Pritchard, 2008). However, much work is still to be done. Scholars have recently called for reinvigorated research on how individuals' social contexts—the other people at work—influence their motivation and subsequent performance (Chiaburu & Harrison, 2008; Grant & Parker, 2009; Kilduff & Brass, 2010a). A core perspective of social contexts and motivation is that social contexts provide resources that influence individuals' perceptions of their jobs. For example, co-workers serve as sources of support that influence how employees view their jobs in terms of its meaningfulness (Humphrey, Nahrgang, & Morgeson, 2007; Morgeson & Humphrey, 2006). In addition, interaction with people who benefit from individuals' efforts shape those individuals' view of their work (Grant, 2007; 2008). Yet social contexts do more than shape how employees view their jobs (Hackman, 1992), social contexts play a key role in shaping employees' beliefs about themselves (Ho, 2005; Sluss & Ashforth, 2007). In addition to helping the individual understand the significance and meaningfulness of his work, social contexts help the individual understand his own ability to contribute to the organization as well as his willingness to expend his energy towards organizational goals.

Researchers have long noted that features of the social context play an important role in individual motivation and behavior (e.g., Homans, 1958). As one example, Roy (1952) noted that production workers on a daily quota system exerted substantial pressure on one another to conform to specific production levels. Workers who produced too many or too few units were socially reprimanded in order to maintain a socially acceptable level of performance. Similarly, social exchange theorists note how other kinds of norms and exchange “rules” create guidelines for employee behavior (Cropanzano & Mitchell, 2005); for instance, the norm of reciprocity exerts pressure on individuals to repay others for their service towards them. These reciprocal exchanges represent one form of social situations that prompt individual motivation and action. More broadly, Hackman (1992) refers to these norms of social influence as examples of *direct* influence because the social context rewards and punishes specific activities, regulating individuals’ motivation and behavior at work. In contrast, *indirect* social influences, according to Hackman, shape “...the member’s informational and affective states” (p. 202), and influence individuals through their role in affecting what people believe or feel. In other words, indirect social influence occurs because individuals internally process stimuli from their social contexts, which informs future behavior.

In this dissertation, I examine an indirect form of social influence by suggesting that the web of interpersonal relationships in which an employee is embedded has implications for motivation because those relationships make up the social context from which social comparison referents are drawn. Social comparisons stem from individuals’ existing patterns of interaction with others (Shah, 1998), and social comparison theory provides a lens for understanding the means through which these interpersonal relationships influence employee motivation (Tesser,

1988). Social comparison theory (Festinger, 1954) argues that individuals come to know about themselves through relative comparisons with salient others. Social psychologists have conducted a great deal of research on how individuals generally experience social comparisons (Wood, 1989), and some of this work has been applied in research on social comparisons in organizations, particularly in the areas of compensation (Berkowitz, Fraser, Treasure, & Cochran, 1987), justice (Greenberg, Ashton-James, & Ashkanasy, 2007), leadership (Hu & Liden, 2013), and promotion decisions (Schaubroeck & Lam, 2004). And although scholars are well aware of the ubiquity of social comparisons in these areas of organizational behavior, there is little research on how comparisons of performance influence employee motivation and task performance (Brown, Ferris, Heller, & Keeping, 2007; Buunk, Zurriaga, Peiró, Nauta, & Gosalvez, 2005; Greenberg et al., 2007). In other words, although much has been made in organizational sciences about how employees' perceptions of justice (and thus motivation) are influenced by social comparisons of employee outputs (i.e., what employees get from their organizations, such as pay or promotions), little research examines social comparisons of what employees give to their organizations (namely performance) in terms of their effects on employee motivation and future performance. Study of employees' comparisons of task performance represents a contribution to existing organizational research on social comparisons by further studying other dimensions upon which people compare one another.

My research also relates to work in education and sociology on peer effects of student outcomes (Sacerdote, 2001; Zimmerman, 2003). Beginning with the Coleman Report (Coleman et al., 1966), this research has demonstrated that students perform better when they are assigned to classrooms with top-performing peers. While many social scientists in this area of research

contest the size of these effects (Lefgren, 2004), few would contend there is no effect—students perform better when they interact with better-performing others than they do when they are placed in classes with low-performing others. However, a great deal of social comparison research suggests that when people compare themselves with lower-performing alters, they generally experience positive emotions and enhanced self-esteem (for recent reviews see Buunk & Gibbons, 2007; Suls, Martin, & Wheeler, 2002). This social comparison research somewhat contradicts the Coleman Report findings in that comparisons with lower-performing peers might elevate individuals' self-concept but reduce their motivation and ultimately performance. These countervailing arguments raise an interesting question: through what mechanisms, and under what conditions, do employees' comparisons with coworkers of varying performance levels influence the focal employee's performance? Several fields of research within educational psychology, sociology, and social psychology suggest that such effects likely exist, yet existing research provides limited understanding about the mechanisms through which peer effects exert influence on behavior. By applying research on social comparisons, I provide a unique perspective on the relationship between the social context and individual job performance that extends research on social work design (Morgeson & Humphrey, 2006), relational job design (Grant, 2007), and the social network perspective on employee performance (Kilduff & Brass, 2010a).

Thus, my research question asks how employees' interactions with better- and worse-performing coworkers influence their own performance, and posits that an effect occurs through changes in the focal employee's motivation. I rely on social comparison theory to inform my hypotheses about how the performance level of those one interacts with influences the focal

individual's motivation and performance, and I focus on two core motivation constructs: engagement and self-efficacy. Finally, I propose that individuals' responses to these co-worker interactions are moderated by goal orientation, an individual disposition for setting goals in achievement situations (Dweck & Leggett, 1988). In the following chapter, I review four relevant literatures that surround these topics, which include: the social context, motivation, goal orientation, and social comparisons.

CHAPTER II

THEORETICAL BACKGROUND AND LITERATURE REVIEW

The purpose of this research is to connect the social context in which individuals are embedded to those individuals' motivation and performance. Relevant research has been conducted in each of these areas, and important perspectives from each line of provide insight into how employee motivation may be influenced by social contexts.

Social Context

The social context has long been recognized as a determinant of individual behavior (Parsons, 1964). Sociologists in particular have noted that individuals' behavior can be predicted from their social contexts (Mayhew, 1980), and a number of theories in management research tout the way the social context influences people at work. Below I highlight four approaches to the study of social contexts in existing research: work design (Morgeson & Campion, 2003), social information processing theory (Salancik & Pfeffer, 1978), relational job design (Grant, 2007), and social networks (e.g., Brass, 1981). The first three perspectives are related to one another in that they focus on how social interactions play a role in perceptions of work. Specifically, these theories argue that the social context plays a role in how individuals perceive meaning in their jobs, which serves as a foundation for motivation. Yet none of these literatures suggest that the social context plays a role in individuals' perceptions of their own ability or their engagement in their work. Because self-efficacy and engagement play a critical role in job performance (Rich, LePine, & Crawford, 2010; Sitzmann & Yeo, 2013; Stajkovic & Luthans, 1998), and because both self-efficacy and engagement are in part formed by features of the social context (Bandura, 1977b; Nahrgang, Morgeson, & Hofmann, 2011), theories of the social

context should consider not only how the social context helps employees know about their jobs, but also how the social context informs employee's perceptions of their own ability and willingness to exert energy into their roles.

The social networks perspective is distinct from these literatures, and focuses on how interactions with others at work provide resources that are important for job performance. Most research on social networks study the direct forms of influence (Hackman, 1992) and leave little room for potential indirect effects of the social network on individual performance through motivation. Yet it is plausible that social networks influence performance through engagement and self-efficacy. It may be that social networks influence performance not only because they provide individuals with resources they need to be effective in their work, but also social networks become sources of individuals' self-efficacy and engagement, leading them to persist towards higher levels of task performance. The consideration of motivation as a mediator of the relationship between social networks and employee performance is novel to the social networks perspective, and represents a key contribution of this dissertation.

Work Design, Social Information Processing, and Relational Job Design

Early work design researchers theorized that social environments played a key role in employee motivation on the job (Turner & Lawrence, 1965), yet interest in the impact of the social context on motivation waned, perhaps due to weak initial evidence of the connection between social contexts and task performance (Humphrey et al., 2007). For example, the two social context variables included in early work on job characteristics research were dealing with others and friendship opportunities. While the two variables positively related to employee satisfaction, initial empirical evidence failed to connect them to motivation or performance

(Hackman & Lawler, 1971). Based on lack of support, the job characteristics model (Hackman & Oldham, 1976) does not emphasize the social context as a predictor of employee motivation and performance.

Shortly after the job characteristics model was introduced, Salancik and Pfeffer (1978) generated a critique of job characteristics theory that they called social information processing. The foundation of their theory was that work was inherently social, and that the social context should inform workers' beliefs about the nature of their jobs. In developing their theory, Salancik and Pfeffer challenged the importance of needs satisfaction, which was central to Hackman and Oldham's (1976) perspective. Hackman and Oldham argued that employees have needs that can be fulfilled through their work, and that certain types of work environments would better satisfy employee needs. Salancik and Pfeffer contended that the work environment is socially constructed, and that socially determined attitudes would predict motivation better than Hackman and Oldham's job characteristics. For example, in Hackman and Oldham's model, employees find their work meaningful to the extent that the job environment meets their needs, such as the need for autonomy or skill variety. In contrast, Salancik and Pfeffer's social information processing theory argues that employees develop their attitudes towards whether work is meaningful through social interaction and social comparisons with others. In other words, social information processing theory argued that people determine the meaningfulness of their work by looking to see how their colleagues view the meaningfulness of the work. In general, research has not supported the notion that social constructions of job characteristics would be more powerful predictors of motivation than the objective job characteristics themselves (Kilduff & Regan, 1988), and modern research has continued to invoke a less radical version of social

information processing theory that generically argues that workers' interpretations of their environments is in part socially influenced (e.g., Ho, 2005; Morgeson & Campion, 2003). Thus, while this dissertation focuses on social influences on motivation, social information processing, as it has been applied in recent research, does not offer a complete framework for studying indirect social influences.

Recent work has reinvigorated interest in social contexts and motivation (Humphrey et al., 2007; Morgeson & Humphrey, 2006). Morgeson and colleagues identified and categorized the work design variables that have been studied in organizational research, and they generated a framework of four broad features on which work environments vary (Morgeson & Campion, 2003). The framework consists of task characteristics, knowledge characteristics, social characteristics, and contextual characteristics as the four kinds of job characteristics that influence employee motivation. Morgeson and colleagues' "social characteristics" category contains four specific social context features that influence employee motivation. These are social support, or the degree to which workers in jobs are surrounded by an environment of advice and assistance from others; interdependence, or the degree to which workers in the job depend on each other to complete work; interaction outside the organization, or the degree to which jobs require communication with people outside the organization; and feedback from others, or the degree to which others provide information about performance in the job.

Humphrey et al. (2007) demonstrated meta-analytically that these specific features of the social environment, when added to statistical models with traditional variables from job characteristics research, add explanatory power to Hackman and Oldham's (1976) job characteristics model. In particular, interdependence, feedback, and social support had weak

positive relationships with subjective performance ratings and employees' intention to stay with their organizations. These social context features had stronger positive relationships with work attitudes such as job satisfaction, organizational commitment, and job involvement. Interaction with others outside the organization had a small positive relationship with job satisfaction, but did not have enough studies to estimate relationships with other outcomes.

A related stream of research on the social characteristics of jobs is referred to as relational job design and is associated with individuals' prosocial motivation, or their desire to make a difference in someone else's life (Grant, 2007). Relational job design suggests that when employees have contact with beneficiaries of their work they experience higher levels of effort, persistence, and helping behaviors (Grant, 2008; Grant & Parker, 2009). Research shows that interaction between the employee and the beneficiary magnifies the employee's perception of the meaningfulness and significance of her work, which leads to motivation and improved performance (Grant, 2008). Thus, while Grant's relational job design diverges from Morgeson and colleagues' perspective on characteristics of social environments, the two perspectives converge in that they both emphasize how the social environments shape individuals' attitudes towards and perceptions of their work. However, neither theory addresses the indirect impact of peers on self-perceptions of ability and motivation.

Social Networks

The social network perspective provides a related line of research in understanding social contexts and individual behavior (Carpenter, Li, & Jiang, 2012). While Morgeson, Grant, and colleagues' work focuses on how much support, feedback, and interaction the focal individual (i.e., ego) receives in his job, the social network approach considers from whom (i.e., alters) ego

receives these resources and to whom ego gives these resources (Kilduff & Brass, 2010b). The flow of these resources is a basic concept in the social network perspective on individual behavior; some individuals have access to more and more diverse resources, enabling them to capitalize and outperform those whose position in the resource flow network inhibits their performance. Burt (1992) contended that individuals will have high levels of performance to the extent that they have access to and control the flow of resources in the network. This emphasis on how the flow of resources affects individual outcomes is the hallmark of the social network perspective, and empirical research indeed suggests that access to resources directly relates to employee performance (Mehra, Kilduff, & Brass, 2001; Sparrowe, Liden, Wayne, & Kraimer, 2001).

Social network scholars are increasingly recognizing that while the flow of resources through a network provides opportunities to some individuals more than others, the patterning of interpersonal relationships also has a mediated influence on performance through the psychology of the individual (Burt, Kilduff, & Tasselli, 2013; Kilduff & Brass, 2010a). Yet little empirical research examines this proposition. To some extent this paradigm represents a resurgence of previous research on social networks and job design, which demonstrated that individuals' job perceptions (e.g., autonomy, task significance) varied according to their location in the organizational workflow network (e.g., Brass, 1985). For example, individuals who are central in the workflow of their immediate work group perceive greater autonomy and task significance than do peripheral members (Brass, 1981). These perceptions about autonomy and task significance, then, should inspire motivated effort towards high levels of task performance through mechanisms described in traditional and contemporary models of work design (i.e.,

Grant, 2007; Hackman & Oldham, 1976; Humphrey et al., 2007). In this dissertation, I extend this research by suggesting that social networks not only influence how individuals perceive their work, but also how they perceive their own abilities and a willingness to engage with their work.

In short, there are two reasons that social networks influence employee performance. The first is resource-access: employees' informal ties provide them with information and instrumental resources that improve their ability to effectively perform their work (Burt, 1992). The second, though less developed, mechanism between social networks and individual performance relates to employees' perceptions of their work: employees' social contexts influence their motivation to persist in pursuit of accomplishing tasks at work. Although the two mechanisms may be related (i.e., having access to more resources may lead to greater motivation), the distinction offers a picture of the ways in which individual performance may be predicted by social networks. For example, Spreitzer (1996) showed that individuals who believe they have access to resources and information rate themselves as more empowered than those who believe they have less resource access. While her study did not explicitly examine the social contexts in which individuals were nested, the findings suggest that having access to diverse resources may result in a sense of empowerment that motivates employees to higher levels of performance. While the distinction between the direct advantage of resources and the indirect advantage of resources through motivation may seem minor, it offers a valuable basis for developing new theory and better understanding the ways in which individuals are affected by their social contexts. Further, the two perspectives are consistent with an emerging topic in social network research. Burt et al. (2013) recently noted that psychology should be more deeply integrated into the study of interpersonal networks and behavior, writing that "...networks do not

act – people act” (p. 540). In a similar vein, Kilduff and Brass (2010a) have also noted that a resources-only perspective on social networks provides a limited view of how social networks influence individual behavior given that individual perceptions of their work can change as a result of their social networks. In this dissertation, I expand this motivational mechanism of social contexts and individual performance by positing that employees’ informal ties shape employees’ motivation through social comparisons, informing individuals’ perceptions of their own competence and willingness to expend high levels of energy in pursuit of their goals. This motivational mechanism of social contexts aligns with social network scholars’ assertion that informal ties provide more than resource access; ties convey meaning and play a role in how employees perceive themselves and the world around them (Krackhardt & Porter, 1985; Podolny, 2001; Podolny & Baron, 1997).

In summary, theories of work design are increasingly recognizing features of the social context as important sources of employee motivation. The social network approach examines the impact of the actual relationships between co-workers in terms of resource access, but empirical research has not considered how the patterning of interpersonal relationships influences employees’ motivation (Burt et al., 2013; Kilduff & Brass, 2010a). In contrast, theories of work design (Humphrey et al., 2007) recognize that the social environment influences employee motivation, yet this perspective hinges on the extent to which the social context as a whole provides resources (such as interaction, support, and feedback) that shape perceptions of work. While these are certainly valuable predictors of employee motivation, they focus not on individuals’ interpersonal relationships with their colleagues but rather how the provision of those resources shape ego’s view of her work. Thus, while scholars have called for the

integration of the social network and relational work design perspectives (Grant & Parker, 2009; Kilduff & Brass, 2010a), this point illustrates the slight but important distinction between the two approaches to understanding motivation. One hinges on how the flow of resources affects the individual's ability and opportunity to perform at a high level (Adler & Kwon, 2002) while the other focuses on how the provision of resources influences the way the individual perceives her job. Finally, although the two perspectives suggest very different reasons the social context should influence performance, neither perspective addresses the possibility that the social environment influences employees' perceptions of their own ability, which can serve as a foundation for motivation (Diefendorff & Chandler, 2011).

In this dissertation, I seek to explore the gap at this intersection of these literatures by examining how social networks in terms of employees' social comparisons influence employee motivation in terms of engagement and self-efficacy. Social contexts provide a set of social contacts against whom employees may compare themselves, and these comparisons should play an important role in understanding employees' own motivation. Specifically, the extent to which social contexts provide better- and worse-performing referents may influence ego's beliefs in his own ability, his willingness to engage in his work, and ultimately his job performance.

Employee Motivation

Motivation is a force that directs, energizes, and sustains behavior over time (Diefendorff & Chandler, 2011). Although there are many representations of this motivation, I examine two constructs that have been actively researched in recent years: engagement and self-efficacy. The two constructs represent distinct psychological processes: self-efficacy refers to individuals' belief about their own capabilities (i.e., "can I do it?"), while engagement refers to individuals'

willingness to exert energy in pursuit of their work (i.e., “will I do it?”). In addition, both constructs are determined in part by individuals’ social contexts (Bandura, 1977b; Nahrgang et al., 2011; Rich et al., 2010), making them particularly relevant in understanding how interpersonal relationships and social comparisons at work relate to motivation.

Self-Efficacy and Its Sources

Self-efficacy is a major construct in motivation research and lies at the heart of social cognitive theory (Bandura, 1986; 2012). Self-efficacy refers to “people’s sense of personal efficacy to exercise some control over events that affect their lives” (Bandura, 1986, p. 391). Self-efficacy is not regarded as the presence of skills or competencies per se, but rather the perception of one’s capabilities to organize skills into a course of action to achieve goals. Self-efficacy is key to individuals’ task accomplishment in several ways; people with a high level of self-efficacy set more challenging goals, more quickly abandon faulty strategies, display more positive emotions and attitudes, and persist in pursuit of achievement beyond people with lower self-efficacy (Bandura, 1986; Stajkovic & Luthans, 1998).

Bandura (1977a) argues that four primary sources contribute to the development of self-efficacy beliefs: 1) mastery experiences, or individuals’ prior first-hand performance of tasks, 2) physiological experiences, or individuals’ felt emotional and physiological states throughout task pursuit, 3) vicarious experiences, or individuals’ observation of social models performing tasks, and 4) verbal persuasion, or individuals’ experiences with others speaking to them in ways to lower or raise the focal individual’s self-efficacy beliefs.

The first two sources of self-efficacy are enactive mastery and physiological states. Enactive mastery is considered the most influential source of self-efficacy (Bandura, 1977a;

1986) in terms of its importance to self-efficacy formation process. Successful task completion raises self-efficacy, as goal accomplishment reinforces individuals' beliefs of their own capabilities. Failure to complete tasks lowers self-efficacy by serving as reminders of poor performance. Over time self-efficacy appraisals stabilize, and occasional successes or failures that deviate from "normal" performance have smaller effects and can be attributed to factors outside the person (Bandura, 1986). The second source of self-efficacy, physiological states, has received less attention in self-efficacy research and is focused on individuals' arousal during task pursuit. Feelings of stress or fear serve as indicators of challenging situations. When individuals experience physical strain in performing a task, it indicates that the performance is difficult and that capabilities may not be sufficient for goal accomplishment. This arousal provokes thoughts of ineptitude and distress, and can inhibit effective performance. Reducing arousal can heighten self-efficacy and correspond with performance improvements (Bandura, 1986).

Because they are rooted in social processes, the latter two sources of self-efficacy, vicarious experiences and verbal persuasion, are particularly relevant to understanding motivation and its social sources. In verbal persuasion, ego receives information from a model or relevant alter which changes ego's perception of his own capabilities. A common example of verbal persuasion is a leader challenging a subordinate to a higher level of performance. The suggestion that the subordinate can achieve more difficult goals will be conducive to the subordinate's greater perceived self-efficacy. In this way, verbal persuasion represents a direct form of social influence. A more indirect form of social influence, vicarious experience occurs when ego observes a model's behavior and evaluates his or her own ability to complete a similar set of tasks. That is, if individuals observe similar-ability alters successfully complete a task,

their self-efficacy that they can accomplish the same task is raised (Bandura, 1986). Bandura (1986) argued that vicarious experiences would have the greatest leverage on self-efficacy when the observer and the model are similar and perform similar tasks. For example, if ego perceives a model to be similar to them, then ego can reasonably believe that similar actions will produce similar results. In contrast, if the model is perceived to have significantly greater ability, ego may recognize that his own efforts may not result in equal performance, and ego's self-efficacy will remain unchanged even after observation of alter's success. This emphasis on similarity is fundamental to both social cognitive and social comparison theories.

Social cognitive theory and social comparison theory also overlap in the way in which scholars have examined comparisons and self-evaluation in daily life. Specifically, both theories are rooted in how individuals engage in a single comparison. Many empirical studies of comparison phenomena isolate the effects of a single comparison at a time (e.g., Lockwood, Jordan, & Kunda, 2002; Lockwood & Kunda, 1997). Yet in many jobs individuals are confronted with comparison stimuli from a number of referent others. Although theoretical models of referent choice exist, (Kulik & Ambrose, 1992) the process by which individuals choose their referents from their social contexts remains under-studied, particularly with respect to how individuals draw multiple comparisons from their social contexts. Because individuals are likely to work around many better- and worse-performing others, they will encounter multiple sources of comparison information. Research on social cognitive and social comparison theories does not address the process through which some comparisons become salient while other comparisons are dismissed. Understanding when different kinds of comparisons impact

individual outcomes is key to applying these theories in organizational life where ego is presented with multiple kinds of comparison information.

Engagement and Its Sources

Engagement has a brief yet varied history; contemporary research on engagement is unsettled with regards to what engagement is and what it adds to existing conceptualizations of motivation (Cole, Walter, Bedeian, & O'Boyle, 2012; Shuck, Ghosh, Zigarmi, & Nimon, 2013). Compounding the controversies in engagement research is that multiple definitions of engagement exist (Nahrgang et al., 2011), and that engagement has seen explosive growth in popularity in consulting and practice (Rich et al., 2010). In this dissertation, I follow Rich et al.'s (2010) lead and apply Kahn's (1990) conceptualization of engagement. Kahn's original conceptualization characterizes employee engagement as the harnessing of employees' full selves in applying their physical, cognitive, and emotional energies to work role performances.

Kahn's (1990) ethnographic study suggested that engagement was predicated on three conditions: meaningfulness, safety, and availability. In Kahn's definition, people experience meaningfulness when they feel "worthwhile, useful, and valuable" (p. 704). Kahn defined safety as an individuals' ability to express one's self "without fear or negative consequences to self image, status, or career" (p. 705). Finally, Kahn defined availability as the "sense of possessing the physical, emotional, and psychological resources necessary" (p. 705) to complete one's tasks. Kahn argued that these three conditions were necessary for employees to be able and willing to express their cognitive, emotional, and physical selves in their work roles.

Empirical evidence of Kahn's (1990) model of engagement antecedents has been promising. Saks (2006) examined the roles of job characteristics, perceived organization support,

and procedural justice as antecedents of engagement and reported positive correlations with engagement. Rich et al. (2010) examined value congruence, perceived organizational support, and core self-evaluations as representations of meaningfulness, safety, and availability, respectively, in a sample of firefighters and their supervisors. The authors reported that each of the three predicted antecedents exhibited positive independent relationships with job engagement. The authors also examined alternative structural models, finding that these relationships held when other job attitudes (i.e., job involvement, job satisfaction, and intrinsic motivation) were controlled. While more research is needed, evidence is supportive of Kahn's model of engagement antecedents.

The overarching perspective on antecedents of engagement in the extant literature is rooted in the job demands-resources model (e.g., Crawford, LePine, & Rich, 2010; Nahrgang et al., 2011; Schaufeli & Bakker, 2004; Schaufeli, Bakker, & Van Rhenen, 2009). In this model, job demands contribute to burnout because they consume energy. In contrast, job resources produce energy and contribute to engagement. Research generally supports the utility of the job demands-resources model in predicting engagement and burnout (Nahrgang et al., 2011), although the negative effects of job demands on engagement are not universal. Specifically, Crawford et al. (2010) divided job demands into challenge and hindrance demands; the former kinds of demands push employees to mastery, growth, and higher levels of achievement, while the latter kinds of demands stand in employees' way of learning, growing, and achieving their goals. Crawford et al. (2010) found that while hindrance demands were negatively related to engagement, challenge demands were positively related to engagement. Their study supports the

proposition that job resources are necessary prerequisites of employee engagement, while job demands have a nuanced relationship with engagement depending on the nature of the demand.

While the job demands-resources model has merit in understanding the sources of employee engagement, its treatment of the social environment surrounding employees does not capture the unique and complex relationships that employees have with their coworkers. Many conceptualizations of the job demands-resources model consider social support as the only social context variable of relevance to engagement (e.g., Nahrgang et al., 2011), and these models isolate social support as a positive resource of the social context. Tests of this model measure social support as the actor's perception of how much support they receive at work. Certainly social support at work has implications for employee motivation and performance (Chiaburu & Harrison, 2008), yet social support is not the only way in which the social context influences individuals. Employees' relationships with one another can be challenging or supportive, they can provide instrumental resources (e.g., access to information, advice), and they can help individuals define their own identities (Podolny & Baron, 1997; Sluss & Ashforth, 2007). The variety in the kinds of relationships individuals maintain at work serves as a foundation for deeper integration of the social environment into the job demands-resources model. Some relationships will provide resources in the job, while other will create demands on the employee. Further, some demanding relationships can be challenging, spurring the employee on to higher levels of motivation and performance, while other relationships can be hindering, preventing the employee from achieving her goals (Labianca & Brass, 2006). Coworkers might do this directly, by undermining individuals' work. However, coworkers could also be hindrances in a more indirect manner. For example, comparing themselves to better-performing coworkers might drain

individuals' personal resources as they strive to attain a higher level of normative performance. In this scenario, coworkers have taken no direct action to prevent the focal individual from reaching his goals. Yet the coworkers' superior performance could still be seen as a hindrance to the employee because it drains his energies as he tries to achieve his goals in the workplace. These examples highlight the complex nature of interpersonal relationships at work, and the inclusion of the social context in understanding employee motivation should account for these complex relationships beyond employees' perceptions of how much social support they receive from their colleagues. Thus, my perspective builds on Crawford et al.'s notion that job demands may be motivating to the extent that they are challenging. Specifically, by applying a social network approach, I theorize that comparisons with better-performing alters serves as a demand that impacts engagement. As I note below, some individuals will interpret upward comparisons as challenge demands, and will experience engagement gains. Other individuals will see upward comparisons as hindrance demands and will experience engagement losses.

Social Comparisons

Social comparisons have been studied at length in psychology (Wood, 1989). In Festinger's (1954) original conceptualization of the theory, individuals compare their own abilities to social referents – salient others with whom comparison provides meaningful information about ones' self. Festinger (1954) emphasized that individuals would choose social referents who are similar to them in ways that were relevant to the domain performance being evaluated. Festinger wrote, for example, that college students would not evaluate their own intelligence based on comparisons with “inmates of an institution for the feeble minded” (p. 120), but rather with other college students. Later theorists argued that actors' similarity,

availability, and relevance would serve as bases for social comparison (Kulik & Ambrose, 1992; Levine & Moreland, 1987). However, this portion of Festinger's theory has been criticized primarily due to the ambiguity of what it means to be "similar" (Suls, Martin, & Wheeler, 2000). Psychologists have noted the value of choosing dissimilar social referents (Suls et al., 2002; Wood, 1989), which contradicts Festinger's focus on similarity as a basis for social referent choice. These scholars argue that individuals make comparisons to positive or negative role models, which I refer to as upward or downward comparisons. Each role model is believed to influence individuals' self-concept and subsequent behavior. Under the right circumstances, better-performing positive role models inspire observers to develop their own skills and improve in order to reduce the discrepancy between themselves and the positive role model (Lockwood & Kunda, 1997). Downward comparisons with lower-performing (i.e., negative) role models influence observers when they see what should be avoided or identify someone who is worse off than them. These comparisons illustrate feared selves which individuals become motivated to avoid (Stapel & Koomen, 2001). In short, research on social comparisons recognizes that comparisons take various forms. Individuals make upward comparisons to positive role models, downward comparisons to negative role models, and lateral comparisons to others at the same level.

In addition to the multiple types of social comparisons, social psychologists have observed three important outcomes or purposes of social comparisons (Wood, 1989): self-improvement, self-enhancement, and self-evaluation. Social comparisons driven by a purpose of self-improvement focus on motivation to improve the self (Suls et al., 2002). Comparisons targeted at self-improvement are future-oriented and inspire the actor to take action to improve

his or her circumstances. Self-improvement is often associated with upward comparisons to positive role models because upward comparisons can make the future possible self more concrete, demonstrating means to improve the self (Markus & Nurius, 1986). Self-enhancement, in contrast, occurs when comparisons enhance or protect individuals' subjective well-being (Wills, 1981). Because self-enhancement makes an individual feel good about his or her current circumstances, it is often linked to downward comparisons to negative or less fortunate role models (Suls et al., 2002). Downward comparisons illustrate that actors' situations could be worse, instilling improved self-esteem and positive affect. Finally, self-evaluation most closely aligns with Festinger's (1954) conceptualization of how individuals use social comparison information, and hinges on individuals accurately understanding their own position relative to referent others. Accurate knowledge of the self is the key component of self-evaluation; individuals engaging in social comparisons for the purpose of self-evaluation gather information in order to assess their own standing on the dimension of interest (Tesser, 1988). Although some jobs provide objective feedback on personal ability, many kinds of work are more ambiguous, and employees come to know about the level of performance that should be considered "adequate" through social comparison. Festinger (1954) offered the example that one could assess their ability to jump over a particular book by simply attempting to do so (p. 119), however, most kinds of work cannot be so concretely evaluated. For example, questions of how many units should be sold, how long certain tasks should take, and how much service should be provided to customers require relative information. In these contexts, employees develop an internal norm about the level at which they "should" perform through social comparisons with others.

Even when objective feedback is available, the information provided by objective reality may not be particularly informative. For example, a person can note how long it takes to run a certain distance, but that information takes on a more significant meaning when placed in context with other runners. To make this point, Festinger (1954) drew from research on “level of aspiration” (p. 119), which can be thought of as individuals’ thresholds that define good performance. People form expectations of how they ought to perform based in part on how others perform. Earlier experimentalists found that people set different levels of aspiration when they receive objective feedback in isolation as compared to receiving objective feedback in the context of peers’ performance (Gardner, 1939; Sears, 1940). This work was further reflected in the frog pond effect (Davis, 1966) when students’ career aspirations varied based on the performance of their peers in university settings. In an organizational setting, whether tasks provide non-objective feedback (e.g., being a good manager) or objective feedback (e.g., selling a number of units), adequate performance takes on meaning through social comparisons because they must look to others to evaluate whether their own performance is adequate. Social comparisons allow individuals to develop an internal norm of what a “good” level of performance is. In this way, the organizational environment “forces” social comparisons on individuals even when they have not “selected” those comparisons. This view was advanced by Wood (1989), who noted that social comparisons are “pervasive and powerful in everyday life” (p. 233), and by Brickman and Bulman (1977), who contended that social comparisons are an “almost inevitable element of social interaction” (p. 150).

Another important feature of social comparisons is the dimension upon which the individual conducts the comparison. Applied research on social comparison has also examined a

number of dimensions upon which individuals compare their circumstances. For example, a prominent area of study is on social comparisons of compensation, often rooted in equity and distributive justice theories (Oldham, Kulik, Stepina, & Ambrose, 1986). The equity theory application of social comparisons in compensation suggests that individuals' ratios of inputs (e.g., effort, performance) to outputs (e.g., pay, recognition) should be proportional to referent others' ratios. That is, if a peer earns more than ego but also has superior performance to ego, ego's comparison to the peer should have a positive effect on ego's motivation, as the organization is properly rewarding employee efforts. Disproportional ratios, however, have a debilitating effect on ego's motivation in equity theory (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Greenberg et al., 2007). Similar applications of social comparison have been made to promotion decisions and leader-member exchange (Greenberg et al., 2007).

These dimensions of comparison are rooted in justice theories, and they emphasize a comparison of outputs (i.e., what employees get from the organization) as the key dimension of the comparison. In this perspective, individuals compare their input-output ratios to determine if they are being treated equitably relative to others (Ho, 2005; Ho & Levesque, 2005). While the perspective offers a useful explanation of many different organizational phenomena, I extend the application of social comparison theory to organizational research by studying the role of comparisons of performance (i.e., an "input") and its relationship with subsequent individual motivation and behavior. Specifically, I argue that individuals come to know about their own performance through comparisons with referent others' performance. In other words, as employees seek to determine how they are performing, they conduct relative comparisons of their own performance to others with whom they interact. Although actors have some volition in

determining who to consider as a referent (Suls, 1986), they are bound to an extent by choosing from the set of alters with whom they interact. Research has shown that actors' social networks make some alters available and reasonable for comparison while other alters make less useful referents (Shah, 1998). A number of factors might determine how people select referents from their social networks (see Kulik & Ambrose, 2002, for a review), and coworkers, because they are performing in a similar context, offer the most direct and meaningful performance comparisons. Thus, whether referents are better or worse performers may have implications for how the focal individual views his own performance, and how the focal individual responds in terms of his motivation for future performance. This perspective represents a novel application of social comparison theory to organizational phenomena; rather than focusing on the perceived equity of employee compensation, benefits, or promotions, I focus on the motivational features of social comparisons of employee performance.

Goal Orientation

Individuals may differ in their responses to social comparisons. One individual difference that should be particularly relevant is goal orientation, which describes individuals' dispositions towards goals in achievement situations (Dweck & Leggett, 1988). Research has identified three distinct dimensions of goal orientation (DeShon & Gillespie, 2005; VandeWalle, 1997): learning goal orientation (LGO), performance-prove goal orientation (PPGO) and performance-avoid goal orientation. Of the three forms of goal orientation, the distinction between LGO and PPGO is core to goal orientation research (Button, Mathieu, & Zajac, 1996). Dweck (1986) noted that people varied in their disposition towards goal achievement contexts. Some individuals set and pursue learning goals, which are characterized by a desire to improve competence or master

something new. Other individuals set performance goals, which are characterized by a desire to gain favorable judgments of competence. A notable, but less critical, distinction has been made between PPGO and performance-avoid goal orientations, although the utility of research on performance-avoid goal orientation has been questioned; Payne, Youngcourt, and Beaubien (2007) refer to performance-avoid goal orientation as the “dysfunctional branch” of motivation (p. 130). All forms of goal orientation are generally referred to as individual traits that are stable over time, although research suggests a state form of goal orientation may also exist (Button et al., 1996; DeShon & Gillespie, 2005). In this dissertation, I focus on the trait conceptualizations of LGO and PPGO.

High-LGO individuals favor an incremental view of ability (Button et al., 1996). They believe that skills can generally be mastered and improved through effort and experience. Because they view ability to be malleable, they are often willing to adopt challenging goals that emphasize increasing competence (Dweck & Leggett, 1988). Individuals with higher LGO are likely to take risks and try new things, reflecting on their performance as they go along in order to find ways to improve themselves over repeated trials (Bell & Kozlowski, 2002a; 2002b; Kozlowski & Bell, 2006). In addition, because they emphasize growth and mastery in their achievement pursuits, high-LGO individuals are likely to take risks and choose difficult goals. High-LGO individuals are not deterred by the possibility that they will fail, because even failure provides an opportunity to reflect, develop, and improve for future performance (VandeWalle, Cron, & Slocum Jr, 2001). Empirical evidence indeed suggests that LGO is positively related to self-set goals and feedback seeking (Payne et al., 2007), and that high-LGO individuals look for

challenging situations (Sujan, Weitz, & Kumar, 1994) and devote more effort to achieving their goals (Fisher & Ford, 1998).

High-PPGO individuals generally hold an entity view of ability (Button et al., 1996), believing that skills are primarily fixed and stable over time. Individuals with higher PPGO are motivated by the desire to display their ability to others, particularly if they believe they are of higher ability. These individuals see mistakes as threats to the valuation of their own ability (Martocchio, 1994), and seek situations where the minimum amount of effort will allow them to display their competence to others (Fisher & Ford, 1998). The empirical evidence surrounding PPGO and academic and job performance is not consistent (Yeo & Neal, 2004). Studies have found positive, negative, and null effects, and meta-analytic evidence suggests that PPGO does not have a main effect on academic, experimental task, or job performance (Payne et al., 2007). In this dissertation, I posit that goal orientation should moderate the relationships between upward and downward comparisons and motivation. My hypotheses are based on fundamental elements of goal orientation, namely individuals' beliefs about ability, willingness to pursue challenging goals, and persistence through difficulty.

The Present Study

In this dissertation, I draw from the above-reviewed literatures on social contexts, social comparisons, engagement, and self-efficacy to examine how individuals' social worlds influence their motivation and performance. Specifically, employees' interaction with co-workers form the set of potential referents from which social comparisons are drawn. In some contexts, people interact with better-performing alters, which presents upward comparison information. In other contexts, employees work closely with lower-performing alters, which present stimuli for

downward comparisons. Individuals vary in the extent to which their social contexts facilitate these upward and downward comparisons, influencing ego's engagement and self-efficacy. These changes in engagement and self-efficacy should lead to changes in the employee's task performance. Finally, not all individuals will respond to their comparison environments equally. Because of their emphasis on mastery and their willingness to take risks, people with higher levels of LGO are likely to exhibit more positive responses to upward comparisons than are people with lower LGO. In contrast, individuals with higher PPGO, because of their desires to prove themselves to their referents, are likely to exhibit more negative responses to upward comparisons than are people with lower PPGO. I expect the opposite relationships to be true for downward comparisons.

In Chapter 3 I develop and formally hypothesize these concepts in presenting a conceptual model of the key constructs. In Chapters 4 and 5, I conduct two separate studies to examine the hypotheses and model. Chapter 4 examines the theoretical model of upward and downward comparisons in a sample of undergraduate students, and Chapter 5 examines the theoretical model in a field sample of corporate employees. In Chapter 6, I present an overall discussion of the research findings, their limitations, and their implications for future research.

CHAPTER III

HYPOTHESIS DEVELOPMENT

I develop a model where social comparisons influence motivation and subsequent performance, and where individuals' goal orientation moderates the effects of comparisons on motivation. From this conceptual model I draw specific hypotheses that I discuss below. Figure 1 provides a conceptual overview of the research.

Upward and Downward Comparisons and Motivation

Upward comparisons occur when individuals compare their own performance with that of better-performing peers or co-workers. Although people can exercise some volition in choosing their referents (Suls, 1986; Wheeler & Miyake, 1992), social contexts create situations in which comparisons cannot be avoided (Tesser, Millar, & Moore, 1988; Wood, 1989). For example, two retail salespeople can observe one another as they sell goods; some workers will generally interact with outstanding performers while others might interact with average or below-average performers. This phenomenon has been referred to as the "frog pond" effect as people define their own level of performance through a comparison process with others who immediately surround them (Pettigrew, 1967). For example, students who perform well at less competitive universities tend to have higher career aspirations than students who perform equally well (objectively measured) at more competitive universities because they have generally outperformed their immediate referents and thus believe themselves to be highly capable (Davis, 1966). Importantly, students' absolute performance was identical across the universities, yet relative performance differed based on the social context in which the student was embedded. Subsequent research on childhood development has indeed shown that one critical explanation

for the frog pond effect is that the social context forces relative comparisons on actors even if they have not consciously chosen them (Gibbons, 1985; Harter, 1985).

These forced comparisons can influence individuals' self-esteem (Tesser & Collins, 1988) because they form the relative performance level upon which individuals define themselves (Mussweiler, Rüter, & Epstude, 2004; Wood, 1989). Social comparison research, focusing primarily on self-esteem, has shown that upward comparisons are generally negative for individuals' self-concepts. For example, Morse and Gergen (1970) manipulated the referents of college students as they applied for a job by placing them together in a fictitious waiting room. Subjects who were placed with a competing applicant who appeared unkempt and disorganized felt higher levels of self-esteem. In contrast, subjects who were placed with a competing applicant who appeared clean and competent felt lower levels of self-esteem. In a different study, Marsh and Parker (1984) discovered that children of average ability experienced reduced self-esteem when surrounded by others of higher ability. Upward comparisons to seemingly better performers are generally associated with reduced self-esteem because they present negative feedback in the form of relative performance information. Regardless of how people actually perform, upward comparisons highlight that they did not achieve as high a level of performance as others, and generally reduce individuals' sense of self-esteem.

Common across existing social comparison studies is the examination of outcomes of a single social comparison in isolation from a broader social environment. Yet a single alter does not define a social context. Given that employees could theoretically have a number of upward, downward, and total comparisons, it is unclear how an environment of forced comparisons might result in different outcomes than a single, clearly specified, comparison. For this reason, I apply

a social network perspective to evaluate the multiple comparisons employees might have at work. Social network analysis offers a variety of tools that could be used to conceptualize the landscape of social comparisons. For example, having a certain ratio of upward to downward comparisons could shape individual motivation. Although such a structural element could be studied, as a first step in this line of inquiry I focus on the social network concept of degree, or the simple number of upward and downward comparisons ego makes. The advantage of this simple conceptualization of social comparisons is that it allows for the most direct application of existing social comparison research to the study of multiple comparisons. That is, if a single social comparison influences self-esteem, the number of comparisons is a close analog that should have similar theoretical outcomes.

Unlike existing social comparison research that focuses on self-evaluation or self-esteem, the primary interest of this dissertation is employee motivation. A focus of this dissertation is self-efficacy, one of the most central and popular motivation constructs in organizational research (Diefendorff & Chandler, 2011; Sitzmann & Yeo, 2013; Vancouver, 2008). Although self-efficacy and self-esteem are different constructs, they function in such a way that suggests they will have similar relationships with upward comparisons. Self-esteem can be thought of as the overall value one places on oneself as a person (Harter, 1990), while self-efficacy can be thought of as people's belief that they can exercise control over events in their lives (Bandura, 1986). The constructs vary in their breadth, as self-efficacy represents specific beliefs about competencies while self-esteem broadly represents overall self-worth. However, the two constructs both represent aspects of the self-concept (Judge, Locke, & Durham, 1997), and research has demonstrated that people with high general self-esteem also have high perceptions

of their specific abilities (Marsh, 1986). For this reason, I expect the number of upward comparisons made by an individual to have the same deleterious effect on self-efficacy as has been shown for a single comparison on self-esteem.

Specifically, upward comparisons present a relative form of negative performance feedback that should generally be debilitating to self-efficacy. By demonstrating where ego stands in terms of relative performance against a group of co-workers, upward comparisons make the gap between ego and alters' performance salient. This should undermine individuals' confidence that they can achieve adequate performance by relative standards because there are a number of performers better than themselves, raising the relative standard. The more upward comparisons individuals make, the stronger the negative feedback that they are performing below the relative standard. In short, upward comparisons show that ego is outperformed by alters, and this comparative information serves as a foundation for less positive self-evaluations and reduced self-efficacy (Bandura, 1993) for many individuals.

Some experimental research within the socio-cognitive theory framework is consistent with the notion that performance below a peer group is negatively related to individuals' sense of self-efficacy. Bandura and colleagues (Bandura, 1993; Bandura & Jourden, 1991) have conducted a number of experiments and found evidence suggesting that under-performing relative to a referent group is deleterious for self-efficacy. In these experiments, participants complete an experimental task and receive veridical absolute performance information along with relative performance information that is manipulated according to the participants' randomly assigned condition. Participants who believe they have lower relative performance experience self-efficacy losses, while participants who believe they have higher performance

relative to others experience self-efficacy gains (Bandura, 1993). The results are consistent with the notion that comparison with a higher-ability other will reduce perceptions of self-efficacy for many individuals. As I note in developing other hypotheses below, however, I expect that upward comparisons could boost self-efficacy perceptions for certain kinds of individuals. Although the effects of upward comparisons may vary between individuals, on balance I expect the effect to be negative. Thus, I posit that individuals' number of upward comparisons should generally be negatively related to self-efficacy.

Hypothesis 1: The number of upward comparisons are negatively associated with self-efficacy.

I also expect upward comparisons to influence employee engagement. Engagement theory suggests that individuals' perceptions of the work environment influence their willingness to employ and express themselves into their work roles (Crawford et al., 2010). These environmental characteristics can be organized using the job demands-resources framework (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which categorizes working conditions into demands or resources. Job demands are aspects of the job, organization, or social context that require sustained physical or psychological effort. Meeting job demands requires the expenditure of physical, psychological, or emotional resources. Job demands are also related to stress, burnout, and exhaustion (Bakker & Demerouti, 2007; Bakker, Demerouti, De Boer, & Schaufeli, 2003; Bakker, Demerouti, & Euwema, 2005). As such, job demands can deplete energy as employees' exert effort to meet perceived demands of the work (Crawford et al., 2010).

Having a higher number of upward comparisons elevate employees' perception of normative performance by raising the standard for what they consider to be adequate

performance. When individuals make upward comparisons, the differences between their current performance and the referents' better performance becomes salient. These upward comparisons to better performers become the basis upon which ego constructs an internal norm, or expectations for what his own performance should be. This internal construction of normative performance is consistent with social comparison theory (Festinger, 1954; Wood, 1989), in which people evaluate their own performance by comparison with the performance of others. Although social comparison theory is focused on single comparisons in isolation, I also expect an individual's number of upward comparisons to play a role in the psychological construction of his internal norm.

Some people may respond to elevated performance expectations with elevated levels of engagement as individuals recognize that increased expectations can only be achieved by expending more effort and personal resources. If people believe they possess enough resources to meet demands, they are more likely to engage themselves fully in their roles (Kahn, 1990). For these people, upward comparisons sound a call to improve, grow, and master new skills in order to catch up to the relative standard. Performance below a relative standard can push individuals to close the gap between their performance and their referents' performance. This drive to achieve and grow to meet job demands results in increased engagement and a willingness to exert energy in pursuit of improved performance. In short, upward comparisons could give individuals something to aspire to and lead individuals to engage and meet increased demands.

However, by raising normative expectations of performance, upward comparisons could also lead individuals to disengage from their work. The elevated expectations associated with upward comparisons create demands that can only be met at the expense of personal resources

(Bakker & Demerouti, 2007; Karasek Jr, 1979). Because meeting demands requires depleting these resources, individuals might believe they lack the energy, ability, or support required to engage in meeting the demands presented by upward comparisons. Believing that they lack the resources they need to meet higher expectations, individuals are likely to withdraw from their tasks as they are not available to place their selves fully into performance (Kahn, 1990). Further, significant demands can trigger negative emotions (e.g., anxiety or frustration) and a passive style of coping (Crawford et al., 2010; Schaufeli & Bakker, 2004). Passive, emotion-focused coping leads individuals to withdraw in order to preserve the little personal resources they have. Individuals consume personal energies managing the negative emotions that accompany substandard relative performance. This consumption of energy, then, prevents individuals from otherwise applying their personal resources in pursuit of their task goals. Thus, upward comparisons can consume personal resources and make individuals less available to fully express themselves in their roles. For this reason, individuals' number of upward comparisons could negatively relate to engagement.

Although there are reasons that upward comparisons could facilitate or debilitate engagement, I expect the latter to outweigh the former. Having more upward comparisons intensifies the burden of meeting increased normative performance demands. On average, this difficulty of meeting relative levels of performance increases, the likelihood that an individual judges that they have the resources to meet that level of performance decreases. As does the pursuit of other job demands (e.g., demanding clients, difficult physical environments; Bakker & Demerouti, 2007), the pursuit to match levels of performance provided by an increased number of upward comparisons requires sustained cognitive and emotional energy. As individuals judge

that they lack sufficient physical, mental, or emotional resources to meet that demand, they tend to withdraw from or avoid the demand rather than engage their energies (Kahn, 1990). In this way, having many upward comparisons means individuals exhibit less active engagement in task accomplishment because they focus instead on passive management of the negative emotions they experience in the presence of a strong demand they perceive they cannot meet. For this reason, I expect that in many cases having more upward comparisons to negatively relate to engagement.

Hypothesis 2: The number of upward comparisons are negatively associated with engagement.

Although upward comparisons should generally inhibit self-efficacy and engagement, I expect individuals' number of downward comparisons to have the opposite relationships with these motivation constructs. Downward comparisons occur when individuals compare their own performance with that of lower-performing co-workers. A great deal of research in social psychology suggests that downward comparisons are prevalent in everyday life (Wood, 1989) and reduce stress and elevate self-esteem (Gibbons, 1986), particularly in the face of difficulty. A key finding of social comparison research is that downward comparisons are particularly valuable when individuals face threats that cannot be overcome through their own efforts (Wills, 1981). When adverse events occur, it is comforting for people to identify how it could have been worse. For example, Pearlin, Menaghan, Lieberman, and Mullan (1981) showed that people who experience disruptive job events (i.e., being demoted, laid off, or being unable to work) feel stress, but still rate their circumstances as more favorable when they frame their experiences relative to others who are worse off.

That downward comparisons serve this self-enhancing function is fundamental to social comparison research (Wills, 1981; Wood, 1989). Because downward comparisons illustrate to the individual that his situation is better than others, ego experiences elevated self-esteem, affect, and overall well-being. Wood, Taylor, and Lichtman (1985), for example, found that when women undergoing breast cancer treatment compare themselves to women who are less fortunate, they experience reduced stress and they preserve their own self-esteem. Marsh and Parker (1984) revealed that students of average ability had higher self-esteem when they were placed in classrooms alongside students of lower ability. Gibbons (1986) showed that college students experienced elevated positive affect after they reported conducting a downward comparison. This effect was particularly prevalent for subjects who were manipulated to feel a depressed state immediately before the manipulated downward comparison.

As noted above, self-esteem and self-efficacy are distinct, yet function in such a way that they are likely to be similarly influenced by downward comparisons. Having lower-performing coworkers reduces ego's relative expectations of performance. When ego makes more downward comparisons, she can readily identify that her current level of performance is at least acceptable by relative standards. Outperforming others offers evidence that ego is performing at a high level and bolsters ego's belief that he will be able to achieve high levels of performance again in the future. Thus, I expect individuals' number of downward comparisons to be positively related to their self-efficacy.

Hypothesis 3: The number of downward comparisons are positively associated with ego self-efficacy.

There are reasons to believe that downward comparisons could have a positive or negative effect on employee engagement. On the one hand, downward comparisons could negatively relate to engagement. In the same way that upward comparisons place demands on individuals by increasing normative expectations for performance, downward comparisons relieve demands by lowering the relative standard by which employees judge successful performance. Lower standards of adequate performance can be associated with a reduced sense of challenge or value in meeting those standards. When tasks lack challenge, or when less is asked or expected of employees, it is difficult for workers to find meaning in their roles (Kahn, 1990). Hackman and Oldham (1976) shared this view, arguing that employees' perceptions that jobs are meaningful play a critical role in their behaviors, and research has shown that perceived meaning may be one of the most critical psychological states that connects the context of work to employee outcomes (Johns, Xie, & Fang, 1992). Having many downward comparisons can undermine individuals' sense of meaning as they can perform above a relative standard consistently and easily. Downward comparisons lower ego's internal norm for performance expectations, and communicate that ego can disengage from the work and still perform to the relative standard. Over time, the work loses its motivating power because it lacks challenge or importance. This erosion of the perception that work is challenging, meaningful, and important should lead to reduced engagement. Based on this reasoning, the risk of downward comparisons is that they, by lowering the internal norm of adequate performance, reduce the value of excellent performance, and prevent individuals from fully engaging.

On the other hand, downward comparisons could have a positive relationship with engagement because they bolster individuals' beliefs that they possess sufficient personal

resources, enabling them to more easily express themselves in their work. The lower demands that accompany downward comparisons free up personal resources that can be used in further pursuit of task accomplishment. Specifically, individuals with many downward comparisons should be free from anxiety or frustration about their relative standing that could distract them from their tasks. By “maintaining a focus on tasks rather than anxieties” (Kahn, 1990, p. 716), individuals are psychologically available to employ and express themselves in their work roles. This line of reasoning is consistent with social comparison research, which has shown the self-enhancing benefits of downward comparisons (Wills, 1981) such as improved mood, reduced anxiety and optimism (Amoroso & Walters, 1969; Kiesler, 1966). One interesting study (Medvec, Madey, & Gilovich, 1995) found that Olympic bronze medalists, who presumably compared themselves to competitors who did not receive any medal at all, experienced more positive affect than silver medalists, who presumably compared themselves to the gold medalist. According to engagement theory, these positive emotions should serve as personal resources, enhancing ego’s desire and availability to fully express himself in his role (Kahn, 1990), thus elevating engagement.

Although I recognize these competing predictions, I expect to find, on balance, a positive relationship between downward comparisons and engagement. Certainly individuals may interpret downward comparisons differently, yet individuals who make more downward comparisons should generally have resources freed and be able to engage more fully in their roles. Outperforming a number of coworkers substantially reinforces ego’s high level of achievement and offers a boost to ego’s personal resources. A large number of downward comparisons provide clear evidence of individuals’ adequate performance and a clear

reinforcement that such a level of performance can continue without having to expend a considerably greater amount of one's personal resources. Because downward comparisons represent a reduction in resource-consuming job demands, they allow employees to continue to focus their efforts and energies on task accomplishment. Based on this logic, I expect downward comparisons to positively relate to engagement.

Hypothesis 4: The number of downward comparisons are positively associated with ego engagement.

Goal Orientation Moderating Upward and Downward Comparisons

In studying upward social comparisons, researchers have noted that there are certain circumstances when upward comparisons actually lead to increases, rather than decreases, in self-evaluation and self-concept. These contingent outcomes of forced comparisons were theorized by Tesser's (1988) self-evaluation maintenance model. Tesser argued that upward comparisons could positively influence individuals by allowing them to "bask in reflected glory" (Cialdini et al., 1976) of their referents' performance. This "reflection process" makes actors feel good about their referents' great accomplishments. This reflection process is in direct contrast to what Tesser called the "comparison process" that stems from Festinger's (1954) social comparison theory. Tesser theorized that the responses to upward comparisons could be predicted from two moderating variables: closeness and relevance. Closeness refers to the "psychological distance" between ego and the referent. When referents are closer in terms of similarity or friendship, the effects of the comparison are stronger. When referents are more distant or different than the observer it is easier to dismiss the comparison as not meaningful (Tesser et al., 1988). The other moderator, relevance, has to do with the dimension upon which

the comparison is being conducted. For example, if ego observes that alter is a better basketball player than herself, she experiences the comparison process (and thus reduced self-concept) only if being a good basketball player is relevant to her self-definition. If ego does not use basketball performance as a dimension of self-definition, she experiences the reflection process by admiring the referents' performance.

Since Tesser (1988), a large number of moderating variables have been hypothesized to explain when upward comparisons elevate, versus impinge on, self-concept. For example, Lockwood and Kunda (1997) added that the referent's performance level must be perceived as attainable by the focal individual in order for upward comparisons to boost self-concept. If referent's performance is not attainable, the comparison has little effect on ego's self-concept. In a similar line of reasoning, the magnitude of difference has been suggested to moderate the effects of upward comparisons. Mussweiler et al. (2004) conducted five experimental studies to examine the relative difference between ego and referents' performance levels. They found that upward comparisons with only slightly better performers boosted self-concept, and upward comparisons with substantially better performers adversely related to self-concept. In this way the magnitude of performance difference between ego and referent can be considered a moderator. Researchers have also found that ego-referent similarity in dimensions other than performance (e.g., age, race, or attitudes) leads individuals to assimilate the comparison in a way that has a stronger effect (positive or negative) on the self-concept than when ego and referent are dissimilar (Gastorf & Suls, 1978). When the referent is much different than ego, the comparison can be contrasted in a such a way that it does not impact self-concept. Ego-referent

similarity has seen a great deal of attention (Suls et al., 2002), and is conceptually similar, but not identical to, “closeness” as described in Tesser’s self-evaluation model (Wood, 1989).

Common across all these moderators is an emphasis on situational attributes of ego, referent, and their respective performances in determining comparison outcomes. These moderators predict how situational features of social comparisons lead to positive, negative, or null effects on individuals’ self-concepts. I build on this perspective by suggesting an individual difference that offers a dispositional explanation for responses to upward comparisons. Specifically, I focus on trait goal orientation as a moderator of ego’s motivational responses to upward comparisons. Such a perspective is consistent with emerging research in social situations; The social context presents information to actors, yet it is up to the actors to process and integrate that information (Burt et al., 2013). People vary in how they process information from their contexts, and I posit that goal orientation moderates individuals’ responses to relative performance stimuli in terms of their motivation and subsequent performance.

As noted in the theoretical background above, individuals with higher levels of LGO seek out challenge because they value opportunities for growth and mastery. For this reason, LGO should play a key role in individuals’ processing of upward comparisons. High-LGO individuals believe that ability is malleable and skills can be improved. For these individuals, the fact that an alter shows superior performance is not an indictment of their abilities; it is simply an indicator that alter has developed her skills beyond ego’s current skill level. Further, the referent’s better performance should open high-LGO individuals’ eyes to the possibilities of better performance. Higher LGO should make seeing a peer achieve high levels of performance inspire a sense of self-efficacy of the possibility of achieving at a higher level. The higher individuals’s LGO, the

more upward comparisons should have a positive effect on self-efficacy as they see what is possible and believe themselves to be capable of performing at the same level as their referents. For instance, Lockwood and Kunda (1997) showed attainability moderated the effects of upward comparisons such that exposure to upward referents increased self-evaluations for those who believed they too could attain the referent's performance level. And, as noted above, self-efficacy is a specific kind of self-evaluation, suggesting the possibility that, for high-LGO individuals, upward comparisons should be positively related to self-efficacy. Because of their focus on challenge, growth, and mastery, people with higher levels of LGO see upward comparisons' performance as ultimately attainable. The high-LGO individual is willing to take risks to improve performance, and ultimately believes they could one day perform at the same level as the referent. For the high-LGO individual, upward comparisons are not indictments of their own abilities, but rather are salient representations of performance levels that could be achieved in the future.

Hypothesis 5: LGO moderates the negative relationship between the number of upward comparisons and self-efficacy such that a positive relationship exists for high-LGO individuals.

Although social comparison research has not examined moderation of downward comparisons on outcomes, a close examination of goal orientation theory suggest that LGO will also moderate the effects of downward comparison on self-efficacy. High-LGO individuals seek challenge and growth, and downward comparisons present little information regarding opportunities for learning. Thus, high-LGO individuals are likely to dismiss downward comparisons as not useful for their primary goal of mastery. In this sense, it is the low-LGO

individual rather than the high-LGO individual who is more likely to experience self-efficacy gains from downward comparisons. For low-LGO individuals, who are not devoted to learning and improving their skills, downward comparisons enhance self-efficacy in their current abilities. Downward comparisons confirm acceptable performance by a relative standard, showing low-LGO individuals that they achieved a standard of success as defined by the performers of other people in their social context. Successful accomplishment, according to socio-cognitive theory, provides a fundamental basis for self-efficacy (Bandura, 1986), and individuals are likely to see downward comparisons as evidence of successful performance. However, individuals with high levels of LGO will dismiss downward comparisons because they provide no information useful for growth and mastery. Thus, I expect the positive relationship between downward comparisons and self-efficacy to be stronger for individuals with lower, rather than higher, LGO.

Hypothesis 6: LGO moderates the positive relationship between the number of downward comparisons and self-efficacy such that a weaker positive relationship exists for high-LGO individuals than for low-LGO individuals.

I also expect LGO to moderate the relationships between comparisons and engagement. One of the key developments in engagement theory has been the recognition that not all job demands adversely relate to motivation. If all demands induced disengagement and withdrawal, individuals would not enter into challenging situations such as graduate school, difficult work assignments, or prolonged training programs. Cavanaugh, Boswell, Roehling, and Boudreau (2000) noted this issue and further classified job demands into two different types: challenge demands and hindrance demands. Challenge demands are those job demands which, although

they induce stress, promote mastery, future gains, and personal growth. In contrast, hindrance demands thwart growth and place constraints on effective performance. Engagement scholars have adopted this distinction in better understanding how job demands affect engagement; employees find challenge demands desirable because they promote future gains, and individuals are thus willing to invest themselves in response. Hindrance demands produce frustration and anxiety that prevents individuals from fully engaging in their roles. For this reason, challenge demands are positively, and hindrance demands negatively, associated with engagement (Crawford et al., 2010).

A more recent development in research on challenge and hindrance demands has been that the cognitive appraisal of a demand as either a challenge or hindrance is the functional mechanism which predicts individuals' responses to challenge or hindrance demands (LePine, Zhang, Rich, & Crawford, in press). The challenge-hindrance framework was developed in such a way that the environmental demands themselves could be classified as either challenging or hindering. However, this does not necessarily guarantee that employees will perceive those demands as challenging or hindering. Certainly individuals are likely to appraise many kinds of environmental challenge and hindrance demands as either challenges or hindrances (LePine, Podsakoff, & LePine, 2005), but not all demands will be viewed the same way by all employees. Further, the effects of job demands on engagement are likely to be contingent upon the extent to which individuals appraise those demands as presenting a challenge with opportunities for personal growth and future gain. In this way, it is important to understand whether people actually see environmental demands as either challenges or hindrances.

As I note above, there are reasons to expect a positive relationship between upward comparisons and engagement, and there are reasons to expect a negative relationship between upward comparisons and engagement. Linking engagement and goal orientation theories, I expect LGO to moderate the effects of upward comparisons on engagement because high-LGO individuals will appraise upward comparisons as challenges. Individuals with high levels of LGO have a dispositional tendency to seek challenge and opportunities for mastery. Given that they are looking for ways to better themselves, they are likely to appraise upward comparisons as challenge demands and opportunities for growth. For this reason, they should accept an increased expectation for performance as a chance to improve themselves and master their skills. Unlike individuals with lower levels of LGO, individuals with higher levels of LGO are likely to see upward comparisons as invigorating because they represent a situation that is concordant with their dispositional desire. That is, high-LGO individuals seek to grow and improve, and comparing themselves to better performers offers them a context where they can clearly see the routes that will lead to skill improvement. Based on appraising upward comparisons as challenge demands, individuals with higher levels of LGO will invest themselves into their roles in order to improve their skills. For this reason, I expect LGO to moderate the effects of upward comparisons on engagement.

Hypothesis 7: LGO moderates the negative main effect of the number of upward comparisons on engagement such that a positive relationship exists for high-LGO individuals.

Relying again on the challenge demands framework, I argue that LGO will moderate the effects of downward comparisons on engagement. Above I argue that downward comparisons

should positively relate to engagement because it reduces demands and enables individuals to express themselves fully in their work roles. However, given that LGO should influence how individuals appraise demands, I expect that the positive relationship between downward comparisons and engagement will be weaker for individuals with higher levels of LGO. High-LGO individuals prefer environments that offer challenge because it is conducive to their desire to take risks and improve their skills. Because downward comparisons provide evidence that the environment lacks challenge, individuals with higher levels of LGO will not find the pursuit of high levels of performance to be engaging. Without the perception that the work context provides potential for future personal growth, high-LGO individuals will be less willing to exert energy and employ their full selves in their roles.

Hypothesis 8: LGO moderates the positive relationship between the number of downward comparisons and self-efficacy such that a weaker positive relationship exists for high-LGO individuals than for low-LGO individuals.

Individuals with higher levels of LGO value learning and growth. In contrast, individuals with higher levels of PPGO value demonstrating their competence to others. High-PPGO individuals should experience stronger negative motivational consequences from upward comparisons than should low-PPGO individuals, and high-PPGO individuals should experience stronger positive motivational consequences from downward comparisons than should low-PPGO individuals. Such a view corresponds with existing research on PPGO which suggests that high-PPGO individuals rely heavily on external referents in determining their own sense of self-efficacy (Dweck, 1986). That is, individuals with higher levels of PPGO seek to gain favorable

judgements of their abilities from others (Button et al., 1996). In order to gain others' approval, individuals must outperform their peers, because an average performance cannot prove that the individual possesses superior abilities. Thus, individuals with higher levels of PPGO are particularly in tune with the performance of their peers (Elliot, Shell, Henry, & Maier, 2005), and peer performance plays a critical role in evaluating whether a given performance level is adequate.

For this reason, individuals with higher levels of PPGO are particularly likely to see upward comparisons as threats to their self-concepts. High-PPGO individuals are particularly sensitive to relative, rather than absolute, performance feedback when they evaluate their own competence (VandeWalle, Brown, Cron, & Slocum Jr, 1999; VandeWalle et al., 2001). For these individuals, social comparisons are the primary means through which they understand their own ability (Dweck & Leggett, 1988), and being outperformed by referents is particularly likely to carry a great deal of weight (Dweck, 1986). The failure to achieve another's level of performance should undermine self-efficacy because the achieved level of performance is considered inadequate. Individuals with higher levels of PPGO have a predisposition to use this relative information in evaluating their own ability level, amplifying the negative effect of upward comparisons on self-efficacy. For individuals with lower levels of PPGO, however, the upward comparison presents less of a threat to his self-efficacy. Because the low-PPGO individual does not set performance goals with a desire to display his competence to his peers, he does not experience a loss of self-efficacy when he fails to outperform his peers. That his alter outperformed him has a smaller effect on his own self-efficacy. Thus, the negative relationship

between upward comparisons and self-efficacy should be stronger for high-PPGO individuals than for low-PPGO individuals.

Hypothesis 9: PPGO moderates the negative relationship between the number of upward comparisons and self-efficacy such that a stronger negative relationship exists for high-PPGO individuals than for low-PPGO individuals.

PPGO should also moderate the relationship between downward comparisons and self-efficacy such that the positive relationship will be amplified for high-PPGO individuals relative to low-PPGO individuals. Because they rely heavily on comparisons with others to determine their own competence, downward comparisons will be particularly conducive to high levels of self-efficacy. Downward comparisons present individuals with positive discrepancies and suggest that the individual is a superior performer. Because of their dispositional tendency to lean on this relative information in determining their own ability level, high-PPGO individuals are likely to have high self-efficacy perceptions as a result of downward comparisons. In contrast, low-PPGO individuals will be less sensitive to the relative performance information presented by downward comparisons, and may not experience self-efficacy gains to the same extent as high-PPGO individuals. For this reason, the positive effect of downward comparisons on self-efficacy should be stronger for high-PPGO individuals than for low-PPGO individuals.

Hypothesis 10: PPGO moderates the positive relationship between the number of downward comparisons and self-efficacy such that a stronger positive relationship exists for high-PPGO individuals than for low-PPGO individuals.

While I expect PPGO to amplify the effects of comparisons on ego self-efficacy, I expect slightly different effects with respect to engagement. High PPGO leads individuals to seek out situations where they can demonstrate their competence relative to others, and upward comparisons serve as evidence that high-PPGO individuals have failed to display their performance and have underperformed relative to their peers. Such a situation is likely to be disengaging for high-PPGO individuals—if they cannot win, and thereby display competence by outperforming their peers, high-PPGO individuals prefer to limit their effort to avoid being seen as a failure (Dweck, 1986). One could build an argument that upward comparisons offer an opportunity for individuals with higher levels of PPGO to catch up to their referents and thereby demonstrate their competence. This line of reasoning would suggest that high-PPGO individuals should respond more positively to upward comparisons than should low-PPGO individuals. However, research shows that high-PPGO individuals rarely accept such challenges. For example, Steele-Johnson, Beauregard, Hoover, and Schmidt (2000) manipulated the difficulty of their experimental task, performance-goal oriented individuals reported lower, rather than higher, levels of intrinsic motivation. Such a finding corroborates goal orientation theory in suggesting that high-PPGO individuals will withdraw when the task seems difficult. The low-PPGO individual, who is less averse to failing in a challenging situation, will have a weaker negative reaction to the higher levels of task difficulty associated with having a number of upward comparisons. In short, PPGO should amplify the negative effects of upward comparisons on engagement.

Hypothesis 11: PPGO moderates the negative relationship between the number of upward comparisons and engagement such that a stronger negative

relationship exists for high-PPGO individuals than for low-PPGO individuals.

Although upward comparisons lead high-PPGO individuals to withdraw because they make demonstrating competence difficult, downward comparisons lead high-PPGO people to feel engaged because they offer an opportunity for individuals to highlight their superior performance. Outperforming others signals that ego can withhold effort from tasks without deleterious implications, and this should affect high- and low-PPGO individuals differently. For the high-PPGO individual, some meaning is found in outperforming peers, regardless of how easy it may be. The high-PPGO recognizes the opportunity to be seen as competent and is likely to more fully invest himself even when it is clear that he will outperform his alter. This enhanced sense of meaning, according to engagement theory, should positively influence ego's willingness to employ himself fully in his role (Kahn, 1990; Rich et al., 2010). However, low-PPGO individuals are unlikely to find meaning easily outperforming their peers. Outperforming others is unlikely to engage low-PPGO people as it does their high-PPGO counterparts. Because high-PPGO individuals are likely to experience an enhanced sense of meaning by outperforming others, and thus conducting downward comparisons, they are poised to experience engagement gains through their downward comparisons.

Hypothesis 12: PPGO moderates the positive relationship between the number of downward comparisons and engagement such that a stronger positive relationship exists for high-PPGO individuals than for low-PPGO individuals.

Motivation and Performance

Much research is driven by the premise that individual motivation will lead to successful task performance. In fact, most definitions of motivation identify it as a force that guides and directs individuals' energy towards achievement (Diefendorff & Chandler, 2011; Kanfer, 1990; Kanfer et al., 2008). In this dissertation I conceptualize performance in terms of task performance, or activities that are directly involved in accomplishing core tasks (Borman & Motowidlo, 1993). Performance and motivation have been inextricably connected in a great deal of organizational research (Locke & Latham, 2002), and research is clear that motivation is positively related to task performance (Diefendorff & Chandler, 2011). Motivation leads individuals to set more challenging goals and directs individuals' effort toward task performance because it pushes individuals to persist through challenges over time and accomplish their goals (Kanfer & Ackerman, 1989).

I expect self-efficacy to positively relate to task performance. Individuals who are more confident in their abilities are likely to persist to higher levels achievement long after low-self-efficacy individuals have satisfied in their level of goal accomplishment (Bandura, 2012). Because they have greater expectancy about their ability to perform successfully, individuals with high levels of self-efficacy display higher levels of effort and persistence through obstacles. Thus, self-efficacy should positively relate to performance (Bandura, 1997; Locke & Latham, 2002).

Although at first glance the relationship between self-efficacy and task performance would appear straightforward, the role of self-efficacy in task performance has a controversial history in research. While meta-analytic estimates demonstrate the significant relationship

between self-efficacy and task performance (Stajkovic & Luthans, 1998), the role of self-efficacy in predicting performance has been questioned in several ways (Heggstad & Kanfer, 2005; Vancouver, 2012; Vancouver, Thompson, & Williams, 2001). One important conclusion of this dissenting research is that in learning tasks (i.e., practicing the same task repetitively), the within-person effects of self-efficacy over repeated trials do not universally operate as social cognitive theory originally conceptualized. Specifically, control theory (Powers, 1973) approaches to self-efficacy and effort allocation have suggested that individuals will reduce their effort towards specific goals as their self-efficacy is manipulated upward over time (Vancouver, 2012; Vancouver, Thompson, Tischner, & Putka, 2002). This research has provided important evidence challenging the notion that self-efficacy is universally positive for performance by noting specific circumstances under which self-efficacy exhibits a null or negative relationship with performance. For example, in repeated learning trials where people perform specific tasks and get specific feedback, individuals can get overconfident in their abilities and withhold effort in such a way that it eventually harms their performance. However, a wealth of research on self-efficacy and performance suggests that the between-person effect between self-efficacy and job performance in the field is positive: those with higher self-efficacy on average outperform those with lower self-efficacy (Bandura, 2012; Sitzmann & Yeo, 2013).

I also expect engagement to positively relate to performance. Engaged individuals by definition fully invest their cognitive, physical, and emotional energy towards performance in their work roles (Kahn, 1990). The expenditure of energy is reflected in individuals' increased levels of effort towards task accomplishment; engaged individuals are likely to spend more energy on tasks. In addition to exerting greater effort, engaged individuals should also be more

cognitively attentive to the needs of the job (Rich et al., 2010). This means that engaged individuals should be focused on their work, reducing errors and anticipating problems as they arise throughout task completion, improving overall performance. The expenditure of energy and the attentiveness of engaged individuals should thus be positively related to task performance. Empirical research indeed suggests that engagement has positive relationships with task performance and negative relationships with errors (Christian, Garza, & Slaughter, 2011; Nahrgang et al., 2011; Rich et al., 2010). Based on the theoretical and empirical connections between engagement and performance, I expect engagement to positively relate to performance.

Hypothesis 13: Individual self-efficacy positively relates to task performance.

Hypothesis 14: Individual engagement positively relates to task performance

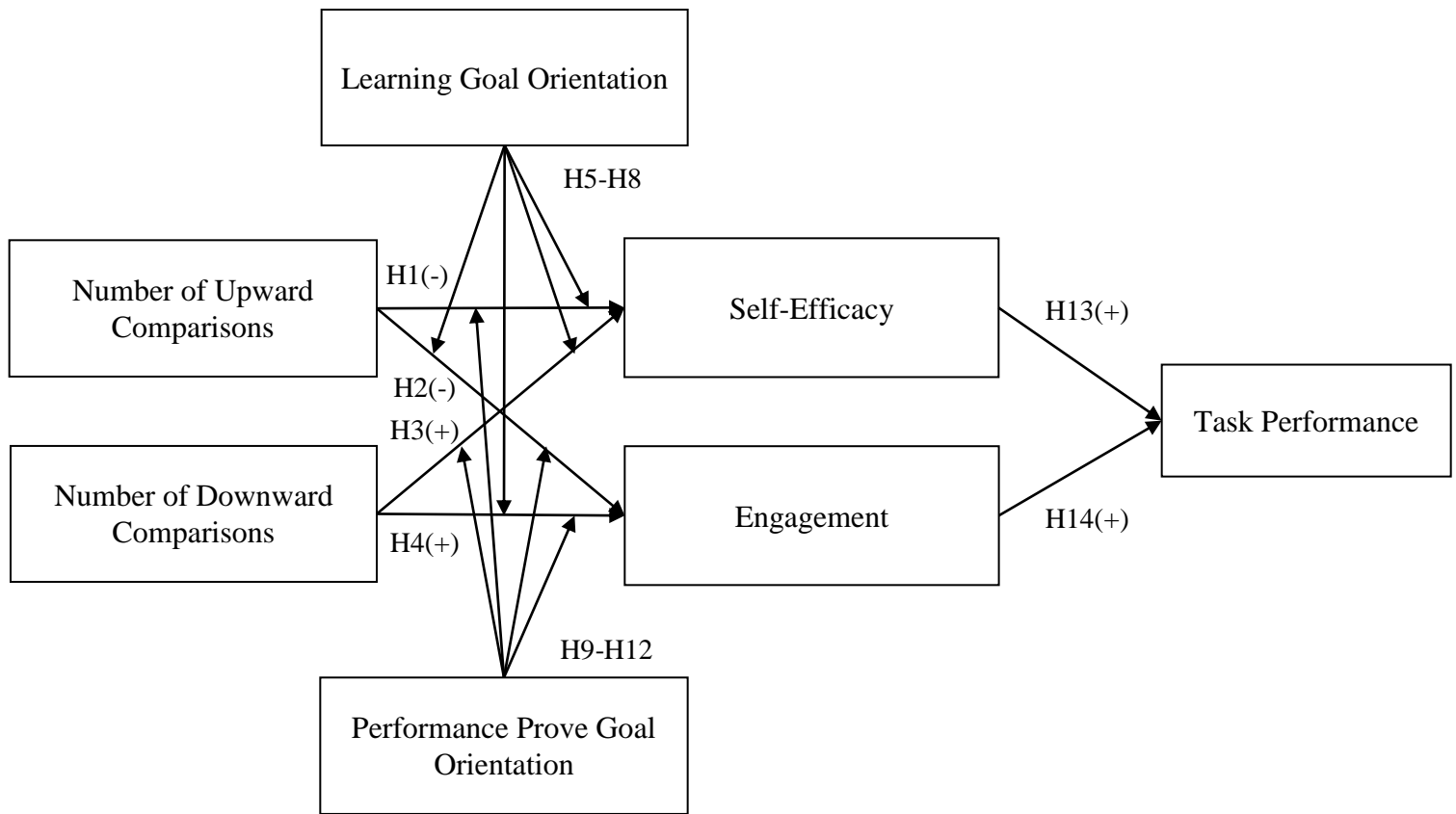


Figure 1. Conceptual Model of Hypothesized Relationships

CHAPTER IV

STUDY I

Sample and Procedure

For Study I, data were collected from undergraduate students in an introductory management course at a large public university. 584 students were eligible to participate. As part of the course, students were randomly assigned to three- and four-person teams to complete project work throughout the semester. These randomly assigned teammates formed the referent group for participants' ratings of comparison with better- and worse-performing alters. Three surveys were administered throughout the semester, and the measurement of constructs of interest was separated across the surveys in order to minimize the effects of common-method bias. Survey 1 was administered approximately halfway through the semester and assessed demographic individual differences and goal orientation. Survey 2 was administered approximately four weeks after Survey 1, and assessed social comparisons and alter performance. Survey 3 was administered one week after Survey 2, and assessed engagement and self-efficacy. Survey 4 occurred one week after Survey 3, and assessed individual performance as rated by other team members. Only students who completed all four surveys were included in analysis, as missing values were handled through listwise deletion. The final sample included 186 participants, for a usable response rate of 32%.

Measures

Dependent Variable

Individual Performance was assessed with students' ratings of their team members on the last project of the semester. Respondents rated each teammate on three items: "knowledge of

course material,” “effort exerted to help complete the assignment,” and “ability to function in a team environment, working as a team player.” Each item was assessed on a five-point scale (1 = Very Poor, 5 = Excellent). Although the three-item scale has not been formally developed and validated, alpha reliability was .95, indicating that the three items closely correlated with one another in representing an internally consistent construct. I computed the average performance score across each item, then I computed the average rating across each teammate for each focal individual. Inter-rater agreement (ICC[2]) was .77.

Independent Variables

Engagement was measured using a 9-item short form developed by Crawford, LePine, and Buckman (2013) and adapted from Rich, LePine, and Crawford (2010). Stems were modified to reflect the academic context; a sample item is “I devote a lot of my energy to my schoolwork.” Respondents rated their engagement on a 5-anchor scale (1 = Strongly Disagree, 5 = Strongly Agree), and alpha reliability was .95. *Generalized Self-Efficacy* was measured using Chen, Gully, and Eden’s (2001) 8-item scale. A sample item is, “I will be able to achieve most of the goals that I have set for myself.” Respondents used a 5-anchor scale (1 = Strongly Disagree, 5 = Strongly Agree) to rate their self-efficacy. Alpha reliability was .93.

Upward and downward comparisons were measured by applying techniques traditionally employed in social network analysis. Specifically, I used a full roster method where surveys were populated with each teammate’s name in the question displayed on the survey. I collected valued relational data using single items. Single items are common in network analysis because they help to reduce the likelihood that survey fatigue adversely impacts responses. Upward and downward comparisons were measured through a two-step procedure. In the first step, each

respondent rated the extent to which he or she compared himself or herself with each team member. The survey instrument was constructed so that the names of each respondent's team members were populated next to each question. Respondents were asked, "Please indicate the extent to which you compare yourself to this person in terms of their performance as a group member (i.e., you evaluate your own performance relative to this person's performance)" on a 7-point scale (1= "To a Very Small Extent", 2 = "To a Small Extent", 3 = "To Some Extent", 4 = "To a Regular Extent", 5 = "To a Good Extent", 6 = "To a Great Extent", 7 = "To a Very Great Extent"). Each respondent's teammates' names were piped into the survey. This item was adapted from previous research (Kulik & Ambrose, 1992; Shah, 1998). The mean response to this item was 4.03 and the standard deviation was 1.57.

In the second step of measuring upward and downward comparisons, I asked each respondent to rate each alter's performance relative to their own. Participants rated each teammate on two items: "Please indicate this person's effort as a group member relative to yours" (1 = this person puts in much more effort than me, 3 = we put in about the same effort, 5 = I put in much more effort than this person), and "Please indicate this person's ability as a group member relative to your ability" (1 = this person has more ability as a group member than me, 3 = we have about the same ability, 5 = I have more ability as a group member than this person). These two items were averaged to represent ego's perceptions of each alter's relative performance; alpha reliability was .76.

I used the comparison and relative performance perception networks to compute upward and downward comparison variables for each respondent. I first created a categorical variable from the comparison item to indicate whether the respondent actually conducted a comparison

by dichotomizing the comparison data at values above versus below 4. Specifically, comparison ratings of 5, 6, or 7 (“To a good extent”, “To a great extent”, or “To a very great extent”, respectively) were recoded to 1 to indicate the presence of a comparison, and all other values were recoded to 0. After completing the analysis, I conducted two robustness checks by dichotomizing at values above versus below 5 and 3; substantive conclusions were identical.

For each respondent’s comparisons, I then used the mean of the 2-item relative performance scale to determine whether the comparison was upward or downward. I recoded mean relative ratings of less than 3 (i.e., “this person puts in much more effort [ability] than me”) to represent upward comparisons. I recoded mean relative ratings of greater than 3 (i.e., “I put in much more effort [ability] than this person”) to represent downward comparisons. In other words, an upward comparison occurred if ego reported both that he compared himself to alter and that alter showed more ability or effort. Likewise, a downward comparison occurred if ego reported both that he compared himself to alter and that alter showed less ability or effort. I summed the number of upward and downward comparisons across each alter for each respondent. Thus, *number of upward comparisons* were computed as the number of comparisons the focal individual made to alters he or she perceived were better performers. The mean number of upward comparisons was .22 with a standard deviation of .46. In contrast, *number of downward comparisons* represented the number of comparisons the focal individual made to alters he or she perceived were lower performers. The mean number of downward comparisons was .28 with a standard deviation of .54.

Goal orientation was measured using VandeWalle’s (1997) scale. Specifically, *learning goal orientation* was assessed with 6 items on a 5-anchor scale (1=Strongly Disagree, 5 =

Strongly Agree). A sample item is “I often read materials related to my work to improve my ability.” Alpha reliability was .84. *Performance-prove goal orientation* was assessed with 5 items on the same scale. A sample item is, “I would rather prove my ability on a task that I can do well at than to try a new task.” Alpha reliability was .72.

Control Variables

Observations from the instructional team suggested that international students experienced exams and course content differently than did domestic US students. As such, a dummy code was created to represent focal individual international student status (1 = domestic student, 2 = international student). I also controlled for gender (1= Male, 2 = Female). Because the course was offered by the management department, I also controlled for whether the student was a management major (1 = Management Major, 2 = Non-Management Major). Because students in larger teams had more teammates to rate, I controlled for team size throughout all analyses. Additionally, there is some disagreement about whether previous performance should be controlled in analyses of self-efficacy and future performance (Heggstad & Kanfer, 2005). In order to account for this debate, I conducted analyses with and without the inclusion of performance on the previous project, following identical measurement procedures as the dependent variable, performance on the current projects. Substantive results did not change across analyses, and results without prior performance are reported for clarity.

Results

Before examining descriptive statistics, I conducted a CFA of my proposed measurement model. I entered the four psychometric variables (engagement, self-efficacy, LGO, and PPGO) with their respective scale item. Because the Crawford et al. (2013) scale theorizes engagement

as a three-dimensional construct, I formed parcels of out the physical, cognitive, and emotional subscales and entered the parcels as observed variables in the CFA. I compared this hypothesized factor model with four alternative measurement models. The alternative models included a model with engagement and self-efficacy combined, a model with LGO and PPGO combined, a model with engagement and self-efficacy combined and LGO and PPGO combined, and a model with all four constructs combined. As indicated in Table 1, the hypothesized factor model exhibited superior fit ($\chi^2 = 344.61$, $df = 203$, CFI = .93, RMSEA = .06, SRMR = .06) than any of the hypothesized models. In addition, all factor loadings in the hypothesized model were statistically significant (see Table 2). In order to determine the first-order factor loadings of the 9-item engagement scale, I conducted a separate CFA of the engagement construct, modeling the nine items as indicators of the three sub-factors, with engagement as a second-order latent variable. Engagement factor loadings in Table 2 are based on this CFA.

Descriptive statistics and correlations for Study I are presented in Table 3. Bivariate correlations indicated that upward and downward comparisons were not significantly related to peer-rated individual performance ($r = -.03$ and $.01$, respectively). Generalized self-efficacy was positively correlated with individual performance ($r = .15$, $p < .05$), as was engagement ($r = .21$; $p < .05$). Table 4 displays the results of ordinary least squares regression analyses predicting peer-rated individual performance, generalized self-efficacy and engagement.

Hypotheses 1-4: Direct effects of social comparisons on motivation

Hypothesis 1 suggested that upward comparisons would be negatively related to self-efficacy. As Table 4 shows, upward comparisons were not significantly related to generalized self-efficacy (Model 5 $\beta = .02$, *n.s.*). Hypothesis 1 was not supported.

Hypothesis 2 contended that upward comparisons would negatively relate to focal individuals' engagement. Table 4 shows that the main effect of upward comparisons on engagement was not significant (Model 2 $\beta = -.07, n.s.$). Hypothesis 2 was not supported.

Hypothesis 3 was that downward comparisons would be positively related to self-efficacy. Regression results in Table 4 show that downward comparisons were not significantly related to generalized self-efficacy (Model 5 $\beta = -.04, n.s.$). Hypothesis 3 was therefore not supported.

Hypothesis 4 was that downward comparisons would be positively related to engagement. Table 4 shows that the main effect of downward comparisons on engagement was not significant (Model 2 $\beta = -.07, n.s.$). Hypothesis 4 was not supported.

Hypotheses 5-8: LGO moderates social comparisons

Hypothesis 5 argued that LGO would moderate the negative effects of upward comparisons on ego self-efficacy such that a positive relationship would exist for high-LGO individuals. As Table 4 demonstrates, the interaction term of LGO and upward comparisons was significantly related to generalized self-efficacy (Model 6 $\beta = .15, p < .05$). Figure 2 displays the nature of this interaction, which appears consistent with Hypothesis 5. Specifically, upward comparisons were negatively related to generalized self-efficacy for individuals low in LGO, and positively related to generalized self-efficacy for individuals with high LGO. Although the simple slopes were not statistically significant (high-LGO: $\beta = .21, n.s.$; low-LGO: $\beta = -.16, n.s.$), the pattern is in the expected direction. Hypothesis 5 was supported.

Hypothesis 6 was that LGO would moderate the effects of downward comparisons on self-efficacy such that a weaker positive relationship would exist for high-LGO individuals than

for low-LGO individuals. As Table 4 demonstrates, the interaction between downward comparisons and LGO on self-efficacy was not statistically significant (Model 6 $\beta = -.06$, *n.s.*). Hypothesis 6 was not supported.

Hypothesis 7 contended that LGO would moderate the negative effect of upward comparisons on ego engagement such that a positive relationship would exist for high-LGO individuals. Table 4 shows that the interaction term of LGO and upward interactions was significantly related to engagement (Model 3 $\beta = .17$, $p < .05$). The nature of the interaction (Figure 3) was consistent with Hypothesis 7; upward comparisons exhibited a negative relationship with engagement for low-LGO individuals, and a positive relationships for high-LGO individuals. Simple slopes were consistent with this conclusion, with a negative simple slope for low-LGO individuals ($\beta = -.34$, $p < .05$). Although the simple slope was not significant for high-LGO individuals ($\beta = .13$, *n.s.*), the slope is in the expected direction. Hypothesis 7 was supported.

Hypothesis 8 suggested that LGO would moderate the effects of downward comparisons on ego engagement such that a stronger negative relationship would exist for high-LGO individuals than for low-LGO individuals. As Table 4 displays, the interaction between downward comparisons and LGO on engagement was not statistically significant (Model 8 $\beta = .00$, *n.s.*). Hypothesis 8 was not supported.

Hypotheses 9-12: PPGO moderates social comparisons

Hypothesis 9 argued that PPGO would moderate the effect of upward comparisons on self-efficacy such that a stronger negative relationship would exist for high-PPGO individuals than for low-PPGO individuals. As Table 4 illustrates, the interaction term of PPGO and upward

comparisons was not a significant predictor of generalized self-efficacy (Model 6 $\beta = .08$, *n.s.*). Hypothesis 9 was not supported.

Hypothesis 10 was that PPGO would moderate the effect of downward comparisons on self-efficacy such that a stronger positive relationship would exist for high-PPGO individuals than for low-PPGO individuals. As Table 4 demonstrates, the interaction term of PPGO and downward comparisons did not significantly predict generalized self-efficacy (Model 6 $\beta = -.06$, *n.s.*). Hypothesis 10 was not supported.

Hypothesis 11 contended that PPGO would moderate the effect of upward comparisons on focal individual engagement such that a weaker positive relationship would exist for high-PPGO individuals than for low-PPGO individuals. In Table 4, the interaction term of PPGO and upward comparisons was not significantly related to engagement (Model 3 $\beta = .00$, *n.s.*). Thus, Hypothesis 11 was not supported.

Hypothesis 12 predicted that PPGO would moderate the effect of downward comparisons on focal individual engagement such that a weaker negative relationship would exist for high-PPGO individuals than for low-PPGO individuals. Table 4 demonstrates that the interaction term of PPGO and downward comparisons was not significantly related to engagement (Model 3 $\beta = .01$, *n.s.*). Hypothesis 12 was not supported.

Hypotheses 13 and 14: Motivation's effect on performance

Hypothesis 13 suggested that self-efficacy would positively relate to performance. Regression results in Table 4 show that generalized self-efficacy was not a significant predictor of peer-rated individual performance (Model 10 $\beta = -.01$, *n.s.*). Hypothesis 13 was not supported.

Hypothesis 14 theorized that engagement would positively predict performance; Table 4 shows engagement positively and significantly predicted individual performance (Model 10 $\beta = .23, p < .05$). Hypothesis 14 was supported.

Supplementary Analyses

The fourteen hypotheses, taken as a whole, imply a mediated moderation model. That is, I hypothesized that the interactive effects of social comparisons and goal orientation would influence self-efficacy and engagement, which would then influence individual performance. Convention for testing such a hypothesized model applies mediated moderation analysis (Edwards & Lambert, 2007). The Edwards and Lambert approach to combining moderation and mediation allows for a test of the direct, indirect, and total effects of the independent variable on the dependent variable at theoretically specified levels of the moderator. Because Hypothesis 5 and Hypothesis 7 were supported in a piecemeal analysis, I conducted further mediated moderation analysis on these relationships to highlight the combination of moderation and mediation implied by my conceptual model.

The results of this analysis are presented in Table 5 with high-LGO and low-LGO defined by convention as a z-score of positive or negative one. As Table 5 demonstrates, the model exhibits first-stage moderation in that the effect of upward comparisons on engagement is positive for high-LGO individuals ($.30, p < .05$) and negative for low-LGO individuals ($-.47, p < .05$). Table 5 displays a similar effect for upward comparisons on generalized self-efficacy, as high-LGO individuals reported a positive effect ($.22, p < .05$), while low-LGO individuals reported a negative effect ($-.19, p < .05$). In both the cases of engagement ($.76, p < .05$) and

generalized self-efficacy (.41, $p < .05$), the effects for high- and low-LGO individuals were statistically different.

Additionally, for engagement, the indirect effect was positive and significant only for high-LGO individuals. Upward comparisons were positively related to performance through engagement for high-LGO individuals (.09, $p < .05$). Although Table 5 demonstrates first-stage moderation for upward comparisons by LGO (high-LGO: .22, $p < .05$; low-LGO: -.19, $p < .05$; difference: .41, $p < .05$), the second stage effect of self-efficacy on performance was not significant (.17, *n.s.*) and the conditional indirect effect was not significant (high-LGO: .04, *n.s.*; low-LGO: -.03, *n.s.*; difference: .07, *n.s.*). Thus, although first stage moderation suggested a negative effect of upward comparisons on self-efficacy for low-LGO individuals, the effects did not carry through to performance in this sample.

Discussion and Limitations

Results from Study I demonstrated that LGO moderated the relationships of upward comparisons with engagement and self-efficacy. For high-LGO individuals, upward comparisons were positively related to engagement, self-efficacy, and ultimately performance. For low-LGO individuals, upward comparisons were negatively related to engagement and self-efficacy. In short, the data suggest that high-LGO individuals will experience motivational gains from comparing themselves to better performers, while low-LGO individuals will experience motivational losses from the same upward comparisons. These motivational gains, in turn, relate to higher levels of performance for individuals with higher levels of LGO.

There are three key limitations of Study I. First, data were collected from undergraduate students in an academic context. This is problematic because it limits external validity; results

from this sample may or may not generalize to organizational settings with more heterogeneous workers. In addition, participants in this study worked on a contrived academic task in randomly assigned teams. Research has demonstrated that goal orientation has a different relationship with academic performance than with task performance (Payne et al., 2007), limiting the generalizability of these findings to performance across other tasks.

The second key limitation of Study I is the small number of comparisons that participants were able to make as part of the data collection. The survey asked each respondent the extent to which he compared himself to three team members. This may have been an arbitrary boundary on individuals' social comparison processes. It may have been that participants did not compare themselves to team members at all, and that the survey introduced a condition that would not have otherwise naturally occurred. However, participants did compare themselves with their teammates, they simply saw them as about equal performers as themselves, resulting in a low mean for both upward (.22) and downward (.28) comparisons. Alternatively, it may have been that participants had other referents outside the group to whom they compared themselves. Since the survey did not allow participants to enter referents outside the team or the course, the design may have artificially limited the natural comparison processes that were occurring among participants.

Third, I measured self-efficacy in Study I using a scale from Chen et al. (2001) which is intended to measure generalized, rather than situation-specific, self-efficacy. Generalized self-efficacy manifests as a stable trait of individuals' beliefs in their own abilities across many life situations (Judge et al., 1997). Because this scale measures a trait-like form of self-efficacy, it may be unreasonable to believe that social context would play a role in influence individuals'

level of generalized self-efficacy. For this reason, I measured a narrower form of self-efficacy, job self-efficacy, in Study II.

Table 1. Comparison of Alternative Measurement Models (Study I)

	χ^2	df	$\Delta \chi^2 (\Delta df)$	CFI	RMSEA	SRMR
1. 4-factor model	344.61	203		.93	.06	.06
2. 3-factor model: Eng & Eff combined	510.95	206	166.34 (3)*	.84	.09	.08
3. 3-factor model: LGO & PPGO combined	488.08	206	143.47 (3)*	.86	.09	.08
4. 2-factor model: LGO & PPGO and Eng & Eff combined	653.81	208	309.20 (5)*	.77	.11	.10
5. 1-factor model	1044.57	209	699.96 (6)*	.57	.15	.15

* $p < .05$ (one-tailed)

N = 186

Notes. Eng. = Engagement; Eff. = Generalized Self-efficacy; LGO = Learning Goal Orientation; PPGO = Performance Prove Goal

Orientation. All $\Delta \chi^2$ compare with Model 1.

Table 2. Items and Factor Loadings (Study I)

Scale	Factor Loading
Engagement	
Physical Engagement	.83
I work with high intensity.	.92
I exert my full effort.	.90
I devote a lot of my energy.	.86
Emotional Engagement	.82
I put my emotions into what I do.	.79
I am emotionally connected.	.80
I put my feelings into my work.	.80
Cognitive Engagement	.78
I give my full attention to my job.	.81
I concentrate completely.	.87
My mind is focused on the work that I do.	.94
Generalized Self-Efficacy	
I will be able to achieve most of the goals that I have set for myself.	.82
When facing difficult tasks, I am certain that I will accomplish them.	.83
In general, I think that I can obtain outcomes that are important to me.	.82
I believe I can succeed at most any endeavor to which I set my mind.	.78
I will be able to successfully overcome many challenges.	.85
I am confident that I can perform effectively on many different tasks.	.76
Compared to other people, I can do most tasks very well.	.68
Even when things are tough, I can perform quite well.	.80
Learning Goal Orientation	
I often read materials related to my work to improve my work ability.	.51
I am willing to select a challenging work assignment that I can learn a lot from.	.73
I often look for opportunities to develop new skills and knowledge.	.76
I enjoy challenging and difficult tasks at work where I'll learn new skills.	.81
For me, development of my work ability is important enough to take risks.	.72
I prefer to work in situations that require a high level of ability and talent.	.64
Performance Prove Goal Orientation	
I would rather prove my ability on a task that I can do well at than to try a new task.	.22
I'm concerned with showing that I can perform better than my peers.	.41
I try to figure out what it takes to prove my ability to others at work.	.52
I enjoy it when others at work are aware of how well I am doing.	.78
I prefer to work on projects where I can prove my ability to others.	.80

Table 3. Descriptive Statistics and Correlations (Study I)

	mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Age ^a	2.94	.62											
2. Gender ^b	1.37	.48	-.11										
3. Management Major ^c	1.84	.36	.08	.06									
4. International Student ^d	1.13	.34	.20*	.17*	.17*								
5. Team Size	3.97	.16	.10	.14	-.08	.07							
6. No. of Upward Comparisons	.22	.46	-.04	.19*	-.01	.06	.01						
7. No. of Downward Comparisons	.28	.54	.07	.01	.06	.10	.09	-.11					
8. LGO	3.65	.61	-.02	-.16*	.04	.01	-.03	-.02	.07				
9. PPGO	3.49	.58	.12	-.07	.01	-.01	-.11	.04	.09	.12			
10. Engagement	3.79	.60	-.06	.01	-.01	-.12	-.08	-.04	-.04	.21*	.01		
11. Generalized Self-Efficacy	4.01	.55	-.16	-.03	-.19*	-.34*	.05	.03	.00	.23*	.10	.48*	
12. Individual Performance	4.09	.77	-.05	.16	-.05	-.13	-.08	-.03	.01	-.02	.08	.21*	.15*

* $p < .05$ (one-tailed)

N = 186.

^a 1 = < 18, 2 = 18-19, 3 = 20-21, 4 = >21; ^b 1 = male, 2 = female; ^c 1 = management major, 2 = non-management major; ^d 1 = domestic, 2 = international.

Notes. LGO = Learning Goal Orientation. PPGO = Performance Prove Goal Orientation. No. = Number.

Table 4. Regression of Individual Performance on Motivation, Social Comparisons, and GO (Study I)

	DV: Engagement			DV: Generalized Self-Efficacy			DV: Performance		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age	.00	-.01	-.04	-.10	-.10	-.14*	.01	.01	.02
Gender ^a	.08	.09	.07	.05	.02	.02	.19*	.19*	.20*
Management Major ^b	-.01	-.01	-.02	-.14*	-.14*	-.14*	-.05	-.05	.04
International Student ^c	-.11	-.09	-.07	-.29*	-.29*	-.27*	-.13	-.14	-.15
Team Size	-.09	-.08	-.06	.09	.09	.12	-.12	-.12	-.12
LGO	.22*	.23*	.23*	.18*	.18*	.20*	-.12	-.12	-.12
PPGO	-.08	-.07	-.04	.07	.08	.09	.01	.01	.02
No. of Upward Comparisons		-.07	-.08		.02	.01		.01	.02
No. of Downward Comparisons		-.07	-.07		-.04	.02		.06	.04
No. of Upward Comp. X LGO			.17*			.15*			
No. of Downward Comp. X PPGO			.01			-.07			
No. of Downward Comp. X LGO			.00			-.06			
No. of Upward Comp. X PPGO			.00			.08			
Engagement									.27*
Generalized Self-Efficacy									.03
R^2	.07	.08	.10	.41*	.41*	.45*	.08	.08	.12
ΔR^2		.01	.02		.00	.03			.04

* $p < .05$ (one-tailed)

N = 186.

Note. Coefficients are standardized. ^a 1 = male, 2 = female; ^b 1 = management major, 2 = non-management major; ^c 1 = domestic, 2 = international. LGO = Learning Goal Orientation. PPGO = Performance Prove Goal Orientation. No. = Number.

Table 5. Conditional Indirect Effects of Number of Upward Comparisons by LGO on Performance through Engagement and Self-Efficacy (Study I)

	First Stage	Second Stage	Direct Effect	Indirect Effect	Total Effect
Through Engagement					
High-LGO	.30*	.30*	.03	.09*	.11*
Low-LGO	-.47*	.30*	.03	-.14*	-.11*
Difference	.76*	.00	.00	.22*	.22*
Through Generalized Self-Efficacy					
High-LGO	.22*	.17	-.01	.04	.02
Low-LGO	-.19*	.17	-.01	-.03	-.05
Difference	.41*	.00	.00	.07	.07

* $p < .05$ (one-tailed)

N = 186.

Note. LGO = Learning Goal Orientation. PPGO = Performance Prove Goal Orientation.

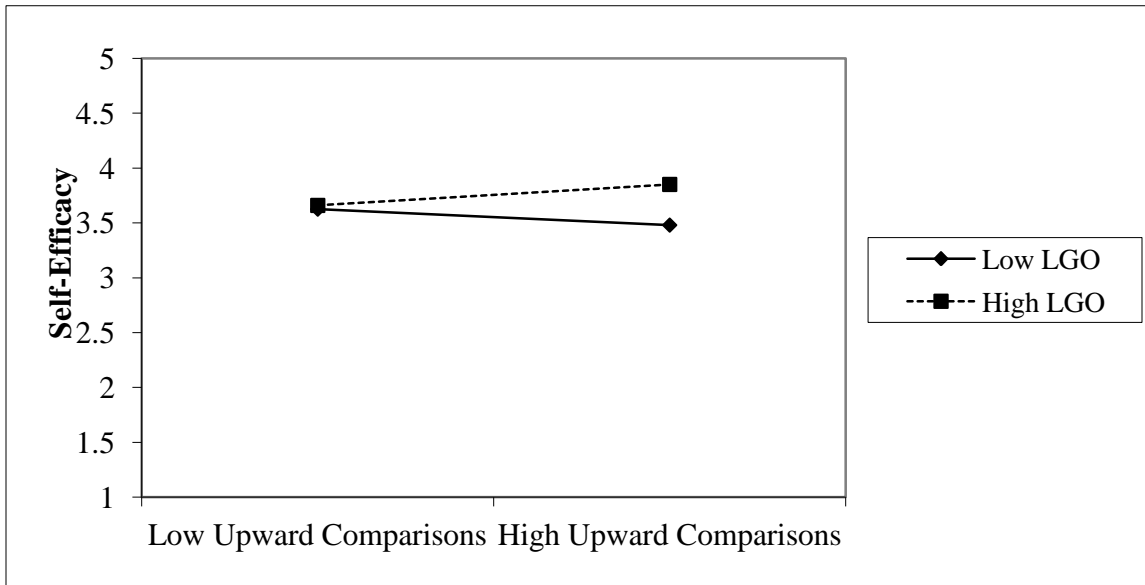


Figure 2. Moderation of Number of Upward Comparisons on Self-Efficacy by LGO (Study I)

Note. Simple slopes are not statistically significant (high LGO: $\beta = .21, n.s.$; low LGO: $\beta = -.16, n.s.$).

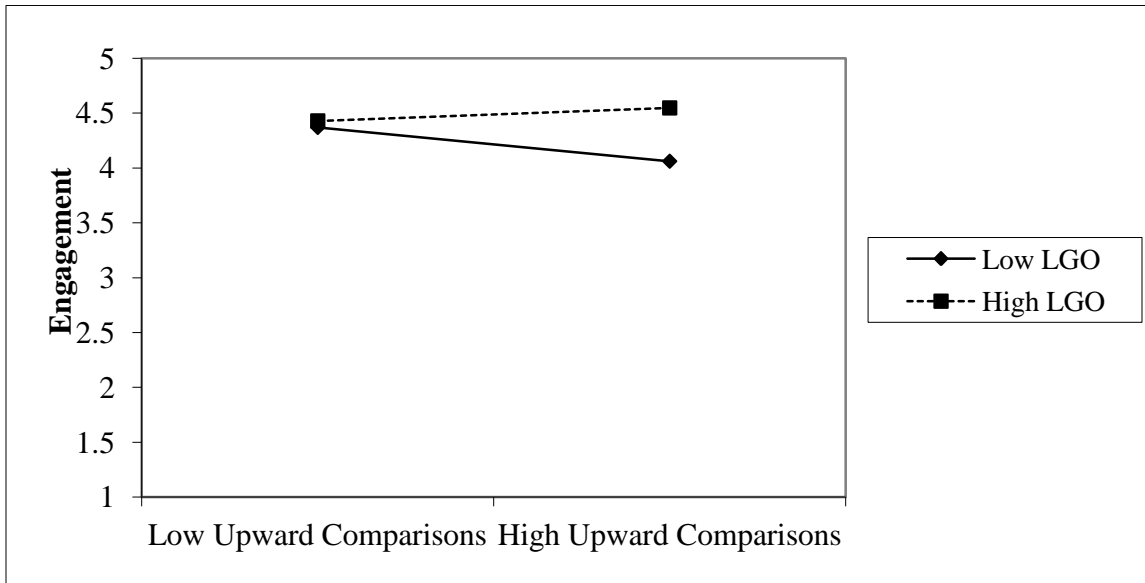


Figure 3. Moderation of Number of Upward Comparisons on Engagement by LGO (Study I)

Note. Simple slopes are statistically significant for low LGO ($\beta = -.34, p < .05$); simple slope is not significant for high LGO ($\beta = .13, n.s.$).

CHAPTER V

STUDY II

Study II was designed to capitalize on the strengths of Study I by testing the theoretical model in a field setting. Specifically, I collected data from a mid-size organization, and I allowed participants to note up to twenty individuals in the company with whom they compare themselves. These procedures build on Study I by examining a larger number of comparisons, and by examining social comparison processes in an ongoing organization where individuals have longer-standing relationships with one another than the semester-long teams of Study I.

Sample and Procedure

Study II data were collected from employees at a food production company located in the Midwest US. Two hundred fifty six individuals in supervisory, corporate, and clerical roles were eligible to participate in the study. Two surveys were administered online using Qualtrics survey software. The first survey asked respondents to indicate their comparison and relative performance networks as described below. The second survey was administered approximately one month after the first survey. On the second survey, respondents indicated their engagement, self-efficacy, goal orientation, and demographic information. Eligible employees' direct supervisors were asked to rate the performance of individual employees on a separate survey approximately one week after the second survey was administered to employees. All three collection instruments are included as Appendix A.

Of the 256 eligible participants, 139 employees responded to Survey 1, for a response rate of 54.3%. About one month later, these 139 individuals received an email inviting them to respond to the second survey, and 120 individuals completed Survey 2, for a Survey 2 response

rate of 86.3%. I obtained performance ratings from supervisors for 110 respondents, for a final usable response rate of 43.0%.

Measures

Dependent Variable

Individual performance was rated by direct supervisors using the 7-item performance scale from Williams and Anderson (1991). A sample item is “this person meets the formal performance requirements of his/her job” (1 = Strongly Disagree, 5 = Strongly Agree). The scale exhibited high reliability ($\alpha = .94$). Because all supervisors rated more than one participant, I conducted an ANOVA to determine whether respondent performance differed by supervisor conducting the rating; results suggested participants’ performance did not differ across supervisors ($F = .58, n.s.$). Multilevel techniques accounting for the potential nesting of supervisory performance ratings were therefore not necessary.

Independent Variables

Engagement was measured using a 9-item short form developed by Crawford, LePine, and Buckman (2013) and adapted from Rich, LePine, and Crawford (2010). A sample item is “While I’m at work, I devote a lot of my energy to my work.” Respondents rated their engagement on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree), and alpha reliability was .89. *Self-Efficacy* was measured using the 3-item job self-efficacy scale (Wilk & Moynihan, 2005). This scale is designed to measure individuals’ self-efficacy, or beliefs in their own abilities, to meet ongoing job demands. A sample item is, “I am certain I can meet the performance standards of this job.” Alpha reliability for self-efficacy was .92.

Upward and downward comparisons were computed using a two-step procedure as in Study I. However, in Study II, each respondent first defined his or her comparison network by generating their own network of referents from the company. This technique differs from Study I, where I asked each individual about the extent to which she compared herself to each of her teammates. By allowing respondents to list their own referents I capture individuals' most salient comparisons rather than constraining comparisons to specific coworkers as I did in Study I. The Study II survey asked individuals to indicate up to 20 individuals with whom they compared themselves when they evaluate their own level of effort and performance at work (full items in Appendix A). The mean number of names listed was 11.86, with a standard deviation of 6.39.

In addition to the comparison network, respondents' indicated their perceptions of the relative performance of each person in their comparison network. For each referent in the comparison network, respondents were asked to rate each person's performance relative to their own (full items in Appendix A). The item was evaluated on a 5-point Likert scale, where 1 = "This person is generally a higher performer than me", 3 = "We are generally similar in our performance", and 5 = "I am generally a higher performer than this person."

From these relational data, I summed each respondent's comparisons with better- and worse-performing alters based on the ego's perception of his alters' performance. Specifically, *number of upward comparisons* was computed by summing the number of people to whom ego compares himself whom ego also perceived to be superior performers. In contrast, *number of downward comparisons* was computed by summing the number of people to whom ego compares himself who had lower performance.

Goal orientation was measured using VandeWalle's (1997) scale. Specifically, *learning goal orientation* was assessed with 6 items ($\alpha = .87$) on a 5-point scale (1=Strongly Disagree, 5 = Strongly Agree). A sample item is "I often read materials related to my work to improve my ability." *Performance-prove goal orientation* was assessed with 5 items ($\alpha = .70$) on the same scale. A sample item is, "I would rather prove my ability on a task that I can do well at than to try a new task."

Control Variables

The traditional social network approach to employee performance emphasizes that interaction with diverse others provides the focal individual with information and resources that enable him to better complete his tasks. In order to control for this as a possible alternative explanation of my findings, I measured information and resource access using two 3-item scales from Spreitzer (1996). A sample item for resource access ($\alpha = .89$) is "I have access to the resources I need to do my job well" (1 = Strongly Disagree, 5 = Strongly Agree). A sample item for information access ($\alpha = .91$) is "I have access to the strategic information I need to do my job well" (1 = Strongly Disagree, 5 = Strongly Agree). Because social comparisons, engagement, and self-efficacy are likely to vary across levels of organizational tenure, I controlled for the number of years for which ego had worked for the company. Finally, I controlled for level of education (1 = Did not complete high school, 2 = High school graduate/GED, 3 = Some college, 4 = Associate degree, 5 = 4-year college degree, 6 = Some graduate school, 7 = Graduate degree) and gender (1=Male, 2=Female) throughout analysis.

As in Study I, because scholars have debated whether self-efficacy studies should control for prior performance (Heggestad & Kanfer, 2005), I conducted analyses including and

excluding previous performance. Specifically, I retrieved archival records from the company's performance appraisal process that occurred approximately 10 months before the inception of the present study. The inclusion of this variable as a control had no effect on the substantive conclusions of this study. Therefore, to preserve power and to avoid other problems inherent in controlling for previous performance (Ployhart & Vandenberg, 2010), I report only the results without controlling for previous archival ratings of job performance.

Analysis

Data were analyzed using hierarchical regression analysis. I computed each variable using the methods described above, and I examined descriptive statistics and bivariate correlations. I conducted confirmatory factor analysis to assess the fit of the measurement model. I also examined the distributions of study variables for non-linearity and outliers. One case was removed based on an extreme value in which the respondent reported downward comparisons of 6.4 standard deviations above the mean. For the remaining analyses, pairwise deletion was used to examine as much usable data as possible (Newman, 2014).

Results

Before examining descriptive statistics, I conducted a CFA of my proposed measurement model. I entered the four psychometric variables (engagement, self-efficacy, LGO, and PPGO) with their respective scale item. Because the Crawford et al. (2013) scale theorizes engagement as a three-dimensional construct, I formed parcels based on the physical, cognitive, and emotional subscales and entered the parcels as observed variables in the CFA. As in Study I, I tested the fit of the hypothesized model against four alternative models combining the latent constructs. Results from these comparisons are presented in Table 6, and indeed demonstrate that

the hypothesized model exhibited superior fit ($\chi^2 = 280.20$, $df = 113$, $CFI = .84$, $RMSEA = .11$, $SRMR = .11$) to any alternative models. In addition, all factor loadings were statistically significant, as reported in Table 7. As in Study I, engagement factor loadings are based on a separate CFA conducted on the engagement measurement model by itself.

Table 8 reports the descriptive statistics and correlations from the data. Bivariate correlations showed that upward and downward comparisons were not associated with performance in the zero-order correlations. Upward comparisons were negatively associated with engagement ($r = -.24$; $p < .05$), although they were not associated with self-efficacy ($r = -.01$; $n.s.$). Downward comparisons did not have statistically significant relationships with engagement ($r = .11$; $n.s.$) or self-efficacy ($r = .08$; $n.s.$). Although self-efficacy was positively related to performance ($r = .41$; $p < .05$), engagement was not significantly related to individual performance ($r = .08$; $n.s.$).

Hypotheses 1-4: Direct effects of social comparisons on motivation

Hypothesis 1 contended that upward comparisons would be negatively related to ego self-efficacy. As Table 9 indicates, upward comparisons were not related to self-efficacy (Model 5 $\beta = -.04$, $n.s.$). Hypothesis 1 was not supported.

Hypothesis 2 was that upward comparisons would be negatively related to ego engagement. Table 9 shows that upward comparisons were negatively related to engagement (Model 2 $\beta = -.29$, $p < .05$). Hypothesis 2 was supported.

Hypothesis 3 argued that downward comparisons would be positively related to ego self-efficacy. As Table 9 shows, downward comparisons were positively and significantly related to ego self-efficacy (Model 5 $\beta = .15$, $p < .05$). Hypothesis 3 was supported.

Hypothesis 4 was that downward comparisons would be positively related to ego engagement. Table 9 reveals that downward comparisons were positively related to ego engagement (Model 2 $\beta = .17, p < .05$); Hypothesis 4 was supported.

Hypotheses 5-8: LGO moderates social comparisons

Hypothesis 5 was that LGO would moderate the negative effect of upward comparisons on ego self-efficacy such that a positive relationship would exist for high-LGO individuals. As Table 9 demonstrates, the interaction term of LGO and upward comparisons was not significantly related to self-efficacy (Model 6 $\beta = -.06, n.s.$); Hypothesis 5 was not supported.

Hypothesis 6 argued that LGO would moderate the effects of downward comparisons on self-efficacy such that a weaker positive relationship would exist for high-LGO individuals than for low-LGO individuals. As Table 9 shows, the interaction between downward comparisons and LGO on self-efficacy was not significantly related to self-efficacy (Model 6 $\beta = .00, n.s.$); Hypothesis 6 was not supported.

Hypothesis 7 contended that LGO would moderate the negative effect of upward comparisons on ego engagement such that a positive relationship would exist for high-LGO individuals. Table 9 shows that the interaction term of upward interactions and LGO was not significantly related to engagement (Model 3 $\beta = .09, n.s.$); Hypothesis 7 was not supported.

Hypothesis 8 suggested that LGO would moderate the effects of downward comparisons on ego engagement such that a stronger negative relationship would exist for high-LGO individuals than for low-LGO individuals. As Table 9 demonstrates, the interaction between downward comparisons and LGO was not significantly related to engagement (Model 3 $\beta = .05, n.s.$); Hypothesis 8 was not supported.

Hypotheses 9-12: PPGO moderates social comparisons

Hypothesis 9 argued that PPGO would moderate the effect of upward comparisons on self-efficacy such that a stronger negative relationship would exist for high-PPGO individuals than for low-PPGO individuals. As found in Table 9, the interaction term of PPGO and upward comparisons was significantly related to ego self-efficacy (Model 6 $\beta = -.23, p < .05$). Figure 4 displays the nature of this interaction, which was consistent with Hypothesis 9. Specifically, based on simple slopes analysis, upward comparisons were negatively related to self-efficacy for individuals high in PPGO ($\beta = -.19, p < .05$). Simple slopes analysis revealed that the relationship was positive for low-PPGO individuals ($\beta = .31, p < .05$), suggesting that upward comparisons are associated with higher self-efficacy for low-PPGO individuals. Hypothesis 9 was supported.

Hypothesis 10 was that PPGO would moderate the effect of downward comparisons on self-efficacy such that a stronger positive relationship would exist for high-PPGO individuals than for low-PPGO individuals. As Table 9 demonstrates, the interaction term of PPGO and downward comparisons did not significantly predict self-efficacy (Model 6 $\beta = -.03, n.s.$);. Hypothesis 10 was not supported.

Hypothesis 11 contended that PPGO would moderate the effect of upward comparisons on focal individual engagement such that a weaker positive relationship would exist for high-PPGO individuals than for low-PPGO individuals. In Table 9, the interaction term of PPGO and upward comparisons was not significantly related to ego engagement (Model 3 $\beta = .09, n.s.$);. Thus, Hypothesis 11 was not supported.

Hypothesis 12 predicted that PPGO would moderate the effect of downward comparisons on focal individual engagement such that a weaker negative relationship would exist for high-PPGO individuals than for low-PPGO individuals. Table 9 demonstrates that the interaction term of PPGO and downward comparisons was not significantly related to engagement (Model 3 $\beta = -.06, n.s.$); Hypothesis 12 was not supported.

Hypotheses 13 and 14: Motivation's effect on performance

Hypothesis 13 suggested that self-efficacy would positively relate to performance. As results from Table 9 show, self-efficacy was positively and significantly related to individual performance (Model 10 $\beta = .51, p < .05$). Hypothesis 13 is supported.

Hypothesis 14 theorized that engagement would positively predict performance. Table 9 shows that engagement was not significantly related to focal individual performance (Model 10 $\beta = .02, n.s.$); Hypothesis 14 was not supported.

Supplementary Analyses

As noted in the results of Study I, the fourteen hypotheses imply a mediated moderation model because I hypothesized that the interactive effects of social comparisons and goal orientation would influence self-efficacy and engagement, which would in turn influence individual performance. Again, I examined the statistically significant interaction by applying Edwards' and Lambert's mediated moderation procedures (Edwards & Lambert, 2007). Specifically, because Hypothesis 9 was supported in a piecemeal analysis, I conducted further mediated moderation analysis on these relationships. The results of this analysis are presented in Table 10. As Table 10 demonstrates, the effect of upward comparisons on self-efficacy exhibits first-stage moderation in that the effect is positive for low-PPGO individuals ($\beta = .32, p < .05$)

and negative for high-PPGO individuals ($\beta = -.17, p < .05$). For both high- and low-PPGO individuals, self-efficacy is positively related to performance ($\beta = .54, p < .05$). The indirect effects, then, reflect the first stage moderation. The indirect effect of upward comparisons on performance through self-efficacy is negative for high-PPGO individuals ($\beta = -.09, p < .05$), but positive for low-PPGO individuals ($\beta = .17, p < .05$).

The results in Table 9 also provide evidence that self-efficacy mediates a positive indirect relationship between downward comparisons and focal individual performance. Specifically, in Model 5, downward comparisons positively predicted self-efficacy ($\beta = .15, p < .05$). In Model 10, self-efficacy is positively and statistically significantly related to performance ($\beta = .51, p < .05$). Although downward comparisons were not significantly related to performance directly (i.e., without self-efficacy in the model: Model 8, $\beta = .04, n.s.$), this pattern suggests mediation was present in the data (Baron & Kenny, 1986). Bootstrap mediation analyses (Imai, Keele, & Tingley, 2010) supported mediation, with an average causal mediation effect (mean δ) of .07 (95% CI = [.01; .13]).

Discussion and Limitations

The purpose of Study II was to understand how social comparisons impact motivation in an ongoing organization. Results indicated a positive main effect of downward comparisons on self-efficacy, which then had a positive effect on performance. With respect to upward comparisons, the effect was moderated by PPGO such that upward comparisons had a positive effect, through self-efficacy, on performance for low-PPGO individuals. For high-PPGO individuals, upward comparisons were negatively related to performance, through self-efficacy. These findings suggest that only certain individuals, namely those low in PPGO, will benefit

from working with better performers, and that such effects occur through changes in focal individual self-efficacy.

Study II has several limitations that merit consideration. First, although the data were time-lagged in the measurement of the variables, the measures were not collected longitudinally. Although time-lagging the collection of the data reduces the likelihood of alternative causal relationships in the conceptual model, it does not allow for a test of causal ordering. It may be, for example, that top performers tend to concurrently conduct more downward comparisons and have a higher sense of self-efficacy than lower performers. I examined this possibility by controlling for archival performance appraisal ratings provided by the company, and results did not differ. However, this does not fully negate the possibility that alternative causal orderings might surface in longitudinal data.

Second, because these data come from a convenience sample of employees from a single organization, I cannot rule out the possibility that selection biases and range restriction limit the generalizability of the data. The data were collected at a fairly homogenous organization in the rural Midwest, meaning that findings could be an artifact of the nature of the workers and the kinds of tasks on which they work. I attempted to mitigate this possibility by including employees from a wide range of jobs requiring low-level supervision, clerical, and administrative work. However, the sample remains somewhat narrow in terms of the kinds of work roles required of participants. For this reason, results may be limited in their ability to generalize to workers in other contexts.

Table 6. Comparison of Alternative Measurement Models (Study II)

	χ^2	df	$\Delta \chi^2 (\Delta df)$	CFI	RMSEA	SRMR
1. 4-factor model	280.20	113		.84	.11	.11
2. 3-factor model: Eng & Eff combined	411.97	116	131.77 (3)*	.72	.15	.15
3. 3-factor model: LGO & PPGO combined	372.50	116	92.30 (3)*	.75	.14	.12
4. 2-factor model: LGO & PPGO and Eng & Eff combined	504.76	118	224.56 (5)*	.63	.17	.16
5. 1-factor model	641.03	119	360.83 (6)*	.50	.19	.14

* $p < .05$ (one-tailed)

N = 119

Notes. Eng. = Engagement; Eff. = Self-efficacy; LGO = Learning Goal Orientation; PPGO = Performance Prove Goal Orientation. All

$\Delta \chi^2$ compare with Model 1.

Table 7. Items and Factor Loadings (Study II)

Scale	Factor Loading
Engagement	
Physical Engagement	.82
I work with high intensity.	.78
I exert my full effort.	.82
I devote a lot of my energy.	.72
Emotional Engagement	.77
I put my emotions into what I do.	.89
I am emotionally connected.	.89
I put my feelings into my work.	.87
Cognitive Engagement	.77
I give my full attention to my job.	.73
I concentrate completely.	.82
My mind is focused on the work that I do.	.77
Self-Efficacy	
I am certain that I can meet the performance standards of my job.	.79
I feel I have the skills and knowledge necessary to complete my job effectively.	.91
I am confident that I am able to successfully perform my job.	.96
Learning Goal Orientation	
I often read materials related to my work to improve my work ability.	.69
I am willing to select a challenging work assignment that I can learn a lot from.	.80
I often look for opportunities to develop new skills and knowledge.	.82
I enjoy challenging and difficult tasks at work where I'll learn new skills.	.75
For me, development of my work ability is important enough to take risks.	.70
I prefer to work in situations that require a high level of ability and talent.	.59
Performance Prove Goal Orientation	
I would rather prove my ability on a task that I can do well at than to try a new task.	.22
I'm concerned with showing that I can perform better than my peers.	.46
I try to figure out what it takes to prove my ability to others at work.	.97
I enjoy it when others at work are aware of how well I am doing.	.56
I prefer to work on projects where I can prove my ability to others.	.53

Table 8. Descriptive Statistics and Correlations (Study II)

	mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Organization Tenure	11.32	11.38											
2. Gender ^a	1.60	.49	.12										
3. Education Level	4.25	1.59	.36*	.02									
4. Information Access	3.63	.84	.00	-.04	.18								
5. Resource Access	3.94	.63	-.06	-.20*	-.03	.50*							
6. No. of Upward Comparisons	2.71	3.29	.02	-.05	.12	-.10	-.06						
7. No. of Downward Comparisons	1.69	2.36	.04	.05	.04	-.23*	-.12	.13					
8. LGO	3.97	.60	-.31*	-.16	-.25*	.28*	.40*	.09	-.03				
9. PPGO	3.30	.49	-.31*	-.09	-.08	-.01	-.07	.10	.02	.10			
10. Engagement	4.11	.46	-.14	.13	-.12	.19*	.20*	-.24*	.11	.45*	.11		
11. Self-Efficacy	4.38	.53	-.25*	-.18	-.25*	.20*	.40*	-.01	.08	.46*	.19*	.29*	
12. Performance ^b	3.06	1.05	-.02	.12	-.18	.22*	.19*	-.13	-.03	-.05	.09	.08	.41*

* $p < .05$ (one-tailed)

N = 119; ^b N = 110

^a 1 = male, 2 = female;

Notes. LGO = Learning Goal Orientation. PPGO = Performance Prove Goal Orientation. No. = Number.

Table 9. Regression of Individual Performance on Motivation, Social Comparisons, and Interaction (Study II)

	<u>DV: Engagement</u>			<u>DV: Self-Efficacy</u>			<u>DV: Performance</u> ^a		
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>	<u>Model 5</u>	<u>Model 6</u>	<u>Model 7</u>	<u>Model 8</u>	<u>Model 9</u>
	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>	<u>Beta</u>
Organization Tenure	.00	.01	.03	-.05	-.05	-.04	.03	.03	.03
Gender	.23*	.21*	.22*	-.06	-.06	-.09	.16*	.16*	.17*
Education Level	-.02	.02	.01	-.14	-.15	-.14	-.30*	-.30*	.19*
Information Access	.05	.05*	.01	.00	.04	.05	.25*	.25*	.25*
Resource Access	.07	.05	.07	.28*	.28*	.26*	.19*	.19*	.19*
LGO	.42*	.47*	.50*	.26*	.25*	.21*	-.23*	-.23*	-.35*
PPGO	.09	.11	.14	.15*	.15*	.11	.14	.14	.14
No. of Upward Comparisons		-.29*	-.38*		-.04	.07		-.01	-.01
No. of Downward Comparisons		.17*	.20*		.15*	.09		.04	-.03
No. of Upward Comp. X LGO			.09			-.06			
No. of Upward Comp. X PPGO			.09			-.23*			
No. of Downward Comp. X LGO			.05			.00			
No. of Downward Comp. X PPGO			-.06			-.03			
Engagement									-.01
Self-Efficacy									.51*
R^2	.25*	.35*	.36*	.32*	.34*	.38*	.19*	.19*	.35*
ΔR^2		.10*	.01		.02	.04		.00	.16*

* $p < .05$ (one-tailed)

N = 119; ^a N = 110

Note: Comp. = Comparisons. Standardized effects reported. LGO = Learning Goal Orientation. PPGO = Performance Prove Goal Orientation. No. = Number.

Table 10. Conditional Indirect Effects of Number of Upward Comparisons by PPGO on Performance through Self-Efficacy (Study II)

	First Stage	Second Stage	Direct Effect	Indirect Effect	Total Effect
High-PPGO	-.17*	.54*	-.03	-.09*	-.12*
Low-PPGO	.32*	.54*	-.03	.17*	.14*
Difference	.49*	.00	.00	.27*	.27*

* $p < .05$ (one-tailed)

N = 110.

Note. PPGO = Performance Prove Goal Orientation. All control variables from regression analyses are entered.

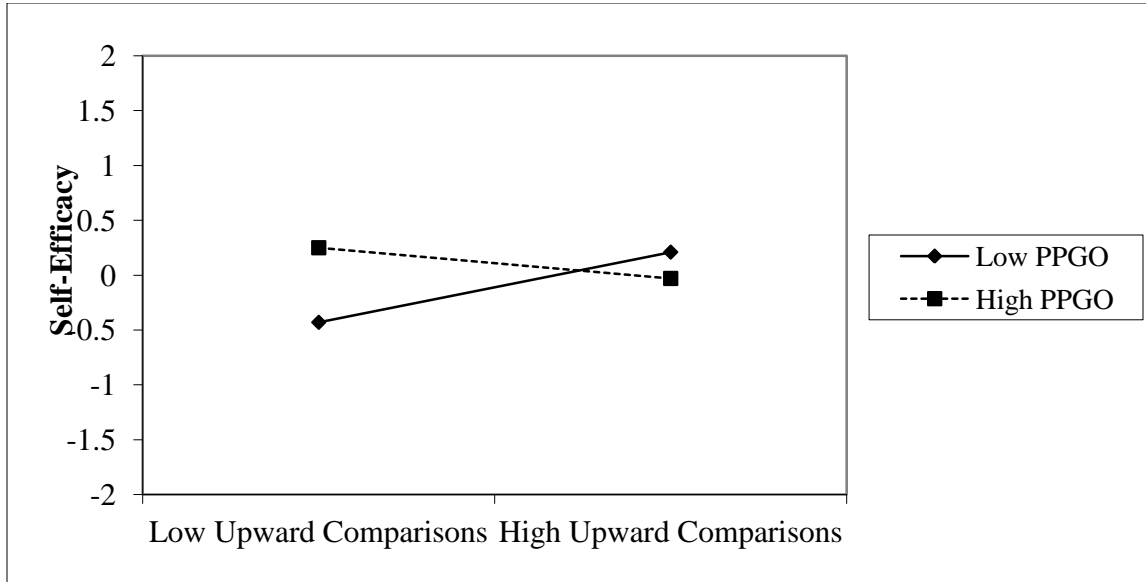


Figure 4. Moderation of Number of Upward Comparisons on Self-Efficacy by PPGO (Study II)

Note. Simple slopes are significant for low PPGO ($\beta = .31, p < .05$) and high PPGO ($\beta = -.19, p < .05$).

CHAPTER VI

OVERALL DISCUSSION

The central research question of this dissertation asks for whom and through what mechanisms employees' comparisons with better- and worse-performing coworkers influence their own performance. I theorized that individuals' comparisons with better and worse performers would impact focal individual performance, and I examined this question in a sample of undergraduate students working in teams as well as a sample of employees at a mid-size food processing company in the Midwest US. I posited that the effects of upward and downward comparisons on performance would occur through motivation in terms of engagement and self-efficacy, and that these effects would vary depending on individuals' dispositional LGO and PPGO. In the following sections, I summarize my findings. I then discuss theoretical and practical implications, and I offer a number of future questions that might extend this line of inquiry.

Summary of Findings

Studies I and II supported the theoretical proposition that social comparisons relate to motivation differently for certain individuals depending on their goal orientation. Specifically, results demonstrated that upward comparisons were positively related to self-efficacy for high-LGO individuals (Study I) and low-PPGO individuals (Study II). In contrast, for high-PPGO individuals (Study II) and low-LGO individuals (Study I), upward comparisons were associated with lower levels of self-efficacy and performance (Study II). In terms of downward comparisons, only Study II exhibited a main effect of downward comparisons on self-efficacy. In Study II, as hypothesized, drawing comparisons with a lower-performing colleague can increase self-efficacy that is in turn

conducive to higher levels of performance. However, the finding did not manifest in Study I as I expected.

Although I hypothesized moderation of the effects of downward comparisons on motivation by goal orientation, I found no evidence for such moderation. In Study II, respondents with more downward comparisons reported higher levels of engagement and self-efficacy, but this effect was consistent across levels of goal orientation. My finding that downward comparisons had a main, rather than moderated, effect on self-efficacy is consistent with existing research that suggests that self-concept and self-esteem are generally enhanced through downward social comparisons (Medvec et al., 1995; Wills, 1981). This effect appears to be consistent across levels of goal orientation.

In contrast, the effects of upward comparisons were generally moderated by goal orientation, as expected. In Study I, I found that upward comparisons were positively associated with engagement and self-efficacy only for those high in LGO. Students low in LGO reported lower levels of engagement and self-efficacy after making upward comparisons with better performing peers. In Study II, I again found that motivational responses to upward comparisons were contingent on employees' goal orientations. However, in Study II, it was PPGO (rather than LGO) that moderated individuals' responses to upward comparisons. For low-PPGO individuals, upward comparisons were positively related to self-efficacy. In contrast, for high-PPGO individuals, upward comparisons were negatively related to self-efficacy.

That no hypotheses were supported regarding the moderation of comparisons on motivation by PPGO in Study I is somewhat surprising. It is possible that the failure to find an effect is an artifact of the study limitations noted above, such as limiting the

number of comparisons participants could draw by focusing on their small team or using a generalized, rather than situation-specific, self-efficacy measure. Beyond the study design limitations, one possible reason that the data did not support PPGO as a moderator could be due PPGO having a smaller impact in learning and academic settings than LGO. Although LGO has been established as important for performance in academic settings, PPGO has been shown to play a weaker role in learning and classroom performance (Payne et al., 2007) than in task or job performance. Further, because students worked in small, collaborative teams, it may have been that students were not motivated to match or outperform their peers to demonstrate their own ability. Because of team outcome interdependence, it could be that PPGO would not lead individuals to think about their peers as partners rather than as referents. Outcome interdependence could have triggered collective, rather than individualistic thinking that would lead to comparisons.

Although Study I offered support for the hypotheses that LGO moderated the effects of upward comparisons, Study II found that PPGO, and not LGO, moderated the effect of upward comparisons. One possible explanation for this finding is that PPGO, rather than LGO, plays a more important role in determining responses to social comparisons in the field. Because organizations encourage and reward individuals for achievement, employees are attuned to performance goals. In these evaluative contexts, PPGO could be more salient than LGO and thus a more potent moderator of social comparison effects. Future research is necessary to test the contingencies of LGO and PPGO in field versus academic settings.

Theoretical Contributions

The purpose of this dissertation was to broaden our understanding of the social antecedents of motivation using social comparison theory. My perspective builds on existing motivation research by considering not only how the social context shapes individuals' views of their jobs (e.g., Humphrey et al., 2007), but also how the social context shapes individuals' views of themselves in terms of self-efficacy in their own ability and their willingness to exert themselves in pursuit of high levels of performance. This proposition offers a novel theoretical perspective to research on social contexts and motivation by drawing from social comparisons theory. Further, by applying social comparison theory to comparisons of peer performance, an input provided by the employee to the organization, this research supplements applied social comparison research on pay, promotions, and involuntary turnover, which are outcomes distributed to employees (e.g., Buunk & Gibbons, 2007; Greenberg et al., 2007). Thus, this research offers a novel application of social comparison theory in organizational science.

My research also offers substantive contributions to social comparison theory. First, although existing social comparison research has identified a number of contingencies in understanding people's responses to social comparisons, I am among the first to show that an individual difference variable, in the form of goal orientation, moderates the effects of social comparisons on personal outcomes. That is, instead of testing situational characteristics of the comparison, such as attainability or referent similarity, I focus on a dispositional trait in order to better understand how individuals respond to social comparisons. Second, I operationalize social comparisons as the number of upward and downward comparisons an individual makes at work. This is a

notable departure from existing social comparison research, which often experimentally manipulates a single social comparison. By computing the number of comparisons workers make, I recognize that people can simultaneously make multiple comparisons based on their social contexts. Finally, I build on social comparison theory by testing unique outcomes of upward and downward comparisons, and by linking social comparisons to employee job performance. A great deal of research on social comparisons has examined self-concept, self-esteem, and affect as outcomes of social comparisons, making it difficult to apply social comparison research to organizationally relevant outcomes. My research resolves this issue by linking comparisons to job performance through the motivational mechanisms of engagement and self-efficacy, offering a motivational perspective on how social comparisons influence job performance.

This dissertation also contributes to socio-cognitive theory, which identifies the antecedents of self-efficacy. A fundamental tenet of socio-cognitive theory is that observational learning plays a key role in the development of self-efficacy. When people observe role models, they often see new ways of approaching tasks and feel more confident that they can perform as well as the role model. Although observational learning and social comparison are different cognitive processes, they stem from a similar social situation in which an individual interacts with someone with who displays behaviors worth emulating. Although socio-cognitive theory focuses on the efficacy gains that accompany the observation of better performers, I develop an argument, based on social comparison theory, that upward comparisons debilitate self-efficacy. In Bandura's (1986) words, "In general, modeled successes by similar others raise, and

modeled failures lower, self-appraisals of efficacy” (p. 403). The socio-cognitive reasoning is based on the notion that seeing better performers offers opportunities for observational learning through which individuals could be endowed with a sense that they themselves could achieve that level of performance. However, seeing better performers is also intertwined with ego’s own recognition of his relative underperformance, which can produce negative emotions, decreased self-esteem, and demoralization. With few exceptions (Bandura & Jourden, 1991; Brown & Inouye, 1978) this negative outcome of upward comparisons on self-efficacy has been neglected in research on socio-cognitive theory as scholars have argued that observational learning should lead to efficacy gains. By focusing on social comparisons, I illustrate how interactions with better performers, even though they may serve as role models, can adversely influence self-efficacy.

I also add to socio-cognitive theory by demonstrating the role of goal orientation in determining the outcomes of working with better performers. Like social comparison theory, socio-cognitive theory has argued for situational moderators in people’s responses to role models, such as perceived role model competence or role model similarity (Bandura, 1986, p. 404). I extend this line of reasoning through the inclusion of goal orientation as an individual difference, which builds on the existing moderators that represent situational features. I demonstrate that observing the performance of others is only efficacy-building for certain kinds of observers—namely those with higher LGO or lower PPGO. For high-PPGO and low-LGO individuals, the comparison process is likely to dominate (Tesser, 1988), leading people to feel less efficacious after interacting with better performers. The inclusion of goal orientation as a moderator of social interaction

represents a notable departure from socio-cognitive theory, which argues that role modeling will lead to self-efficacy gains for the majority of individuals (Bandura, 1986).

With respect to engagement theory, my research conceptualizes upward comparisons as a form of job demand, which represents a key antecedent of engagement (Crawford et al., 2010). My research contributes to this area by identifying a new category of job demand: the relative performance comparisons that comprise individuals' internal norms for performance. This representation of a job demand differs from existing demands, even job demands that are focused on the social environment (i.e., job responsibilities, organizational politics, or direct relational hindrances). Upward comparisons represent the social environment in a new way by capturing the relative performance level of one's colleagues. Most importantly, I find that goal orientation moderates whether people actually react to upward comparisons as they would challenge or hindrance demands. Recent research has shown that not all demands are appraised the same way (LePine et al., in press), and I extend this line of reasoning by showing that only high-LGO individuals (Study I) report increased engagement associated with upward comparisons. In sum, my research extends the demands-resources framework by theorizing about how the social context presents demands, and I build on the framework by testing how goal orientation operates as an individual difference predicting engagement levels in response to job demands.

This dissertation also makes contributions to goal orientation theory. First, I examine how goal orientation influences people's responses to their social worlds. Although goal orientation research suggests that LGO and PPGO are important factors in how people interpret their context in terms of rewards and constraints (Elliot et al., 2005),

no research explicitly describes goal orientation's role in how people's behavior is shaped by their social context. My work shows that goal orientation plays a role in how different social settings, with better- and worse- performers, influence people with different goal orientations. Further, in my two studies, LGO predicted responses to upward comparisons in a learning context, and PPGO predicted responses to upward comparisons in a performance context. Although I did not hypothesize these differences, they coincide with what we might expect given that LGO should be more important in learning contexts, while PPGO should be more important in performance contexts (Payne et al., 2007). Such a finding offers a springboard for future research on how LGO and PPGO manifest in different kinds of learning and performance settings.

Practical Implications

Understanding motivation is of key importance to practitioners and researchers given that nearly all behavior is, at least in part, a function of individual motivation (Pinder, 2008), and that motivation has been linked to important organizational outcomes (Gagné & Deci, 2005). For this reason, understanding the organizational context factors that inhibit or promote motivation is of utmost concern to organizations seeking to capitalize on their human resource investment by having a highly motivated workforce (Diefendorff & Chandler, 2011). Because employees' social environments are related to their motivation (Humphrey et al., 2007; Morgeson & Humphrey, 2006), examination of the motivational outcomes of social context can have meaningful practical implications for individuals and organizations.

Based on these studies, there are a few key implications for individuals at work—particularly because individuals can exercise some volition in who they choose as

referents (Kulik & Ambrose, 1992). Study II results showed that conducting downward comparisons was positively associated with self-efficacy. Thus, individuals should identify people in the organization with lower performance than themselves, reassuring them of their own skills and giving them self-efficacy to set challenging goals for future performance. Additionally, individuals should take care when comparing themselves to better performers. If ego is high in PPGO, and thus seeks to display his current ability by outperforming peers, such upward comparisons are likely to deflate ego's own sense of self-efficacy. To the extent possible, high-PPGO individuals should avoid upward comparisons to preserve their own self-efficacy. In contrast, low-PPGO individuals—or high-LGO individuals, based on Study I results—should seek out upward comparisons with better performers as potential catalysts for higher self-efficacy and performance.

There are also implications for organizations managing employees' motivation, though recommendations differ slightly between learning and performance contexts. In learning and training contexts, encouraging upward comparisons is likely to be an effective motivational tool. Because goal orientation is malleable, a learning context should induce higher levels of LGO, which help to make upward comparisons conducive to building self-efficacy and engagement. Managers seeking to capitalize on this phenomenon should focus employees on their own potential for growth and mastery, helping them see that they too could improve their skills and achieve higher levels of performance. When determining how employees participate in training programs, managers should also ensure that top performers are visible and accessible to as many employees as possible. When people have a chance to interact with better performers,

they can more readily form comparisons that will facilitate their own self-efficacy and engagement, particularly when they have an LGO mindset.

In performance contexts, managers should tamp down performance-prove goal mindsets in situations where individuals are likely to make upward comparisons. Managers should take care, for example, to avoid presenting relative performance feedback, or at least to present relative performance feedback in a way that does not threaten or undermine employees' desires to be seen as competent. Because negative relative performance feedback can be particularly detrimental to high-PPGO individuals, managers should consider simultaneously delivering additional information that would boost those individuals' self-efficacy. This might include jointly presenting a review of goals they have achieved or ways in which they exceeded expectations. Another strategy to manage high-PPGO individuals' self-efficacy would be to rely on absolute, rather than relative, performance information when delivering feedback. Absolute feedback could focus on how actual performance deviated from expected performance. For example, a manager might report that the employee achieved a 2 out of 5, and would need to meet specific expectations to turn that into a 3. Importantly, in delivering this feedback to high-PPGO individuals, the manager should avoid relative performance information that might adversely affect employees' self-efficacy judgments. By focusing on individuals' achievement without engaging in relative comparisons, managers may be able to identify opportunities for improvement without substantially decreasing employees' self-efficacy.

Finally, this research offers a potentially valuable opportunity for organizations to design staffing plans that capitalize on these effects, provided they remain cognizant of individuals' dispositional or primed goal orientations. A number of processes could be

designed that should be effective for high-LGO or low-PPGO individuals. For example, organizations could schedule shiftwork in such a way as to allow employees to co-work with as many top performers as possible to broadly expose underperformers to the best employees. The findings could also be applied in the areas of team composition, rotational training programs, and the layout of physical spaces in optimizing opportunities for upward and downward comparisons at work. Of course, organizations should be sensitive to individual differences and employees' self-efficacy when designing such plans for optimal performance. Specifically, those individuals with low-PPGO or high-LGO are most likely to benefit from comparisons with better performers. Organizations and departments with primarily high-PPGO individuals (e.g., sales organizations) should tread lightly when planning opportunities that encourage employees to compare themselves to the very top performers. In this context, the average performer, because of her performance goal orientation, is likely to experience a reduced sense of self-efficacy and motivation from such comparisons.

Future Research

There are several opportunities for future research that stem from this dissertation. For example, scholars might further explore alternative mechanisms of upward and downward comparison. In this work I focus on engagement and self-efficacy as the mediating variables between social comparisons and performance, but other variables also make sense. Affective reactions could be one such mediator. Given the wealth of research on emotional outcomes of social comparison (see Wood, 1989 for a review), and research suggesting that emotional arousal can lead to greater activation and exertion of energy in goal-directed behavior (see Diefendorff & Chandler, 2010, for a review). It

seems reasonable to posit that upward and downward comparisons trigger affective responses which in turn lead actors to modify their behavior. In this dissertation I did not measure positive or negative affect as a mediator of the relationship between social comparisons and performance, although I encourage future research to consider this model as one possibility.

In developing my hypotheses, I presented some other concepts that warrant attention in future research. For example, I describe how social comparisons allow individuals to construct an internal norm of what adequate performance looks like in their contexts. Although this concept is consistent with existing social comparison theory (Festinger, 1954), I did not measure individuals' norms of acceptable performance. This represents an opportunity for future research focused specifically on how social comparisons influence the level and strength of individuals' constructed norms for performance. Additionally, I theorize that LGO and PPGO influence how people view upward comparisons as potential challenge or hindrance demands, yet I did not measure these appraisals in either study. Future research might directly assess whether goal orientation plays a role in perceptions (in terms of challenges or hindrances) of upward comparisons specifically.

Future research on social comparisons in organizations might also offer alternative conceptualizations of comparison network structures. In this dissertation, I focused solely on the number of upward and downward comparisons as antecedents of motivation and performance. However, future theorists could focus on specific patterns of comparisons networks that might effect focal individual motivation. One potential way to represent an individual's pattern of comparisons would be to measure the proportion of

total comparisons represented by upward comparisons plays a role in ego's engagement and self-efficacy. For example, it may be that having a large proportion of upward comparisons is negatively associated with self-efficacy, because ego is consistently bombarded with only upward comparisons information without being reassured through downward comparisons that he is performing at a relatively acceptable level. Perhaps making a more balanced set of comparisons (i.e., some upward comparisons and some downward comparisons) would better facilitate self-efficacy. Alternative conceptualizations of comparison network structure are of course possible, including the reciprocity of comparisons (i.e., the extent to which individuals' referents also compare themselves to the focal individual) or the transitivity of comparisons (i.e., the presence of closed triads where ego compares herself to two alters who also compare themselves to each other). Furthermore, it may be that some comparisons with specific individuals carry more influence than other comparisons. For example, it may be that individuals' other types of relationships (e.g., rivals, friends, advisors) may serve as weights of social comparisons. It could be that for certain individuals the number of downward comparisons carries less importance than the fact that a specific alter is a downward comparison. More generally, future research might identify theoretically relevant ways to understand and operationalize individuals' set of social comparisons, to better understand how this network, as a whole, influences motivation and performance.

In addition to patterns of upward and downward comparisons in comparisons networks, a valuable avenue for future research might focus on lateral comparisons as predictors of individual motivation and performance. Having a competitor performing at about the same level might enhance ego's sense of engagement and willingness to exert

effort in his work. Because lateral comparisons are conducted against alters with similar performance level, ego's effort will play a substantial role in determining whether ego is a better or worse performer in a given performance episode. This should enhance ego's sense of meaning and thus his willingness to exert energy in order to outperform the lateral comparison. Lateral comparisons may also be moderated by goal orientation or other individual differences, and could be further examined in future research.

That Study I suggested that the timing of the comparison and the measurement of performance play a role in the outcomes of social comparisons raises interesting questions for future longitudinal research in this area. For example, what happens when ego finally achieves alter's level of performance? It would seem that an upward comparison becoming a downward comparisons should have major motivational implications for ego as it would represent one form of goal accomplishment, building efficacy and challenging ego to set even higher goals for the future (Bandura, 1997). Alternatively, were ego to note that an alter who was once believed to be a downward comparison had become an upward comparison, it might have substantial deleterious effects on ego's motivation. For example, consider a situation in which ego believes himself to be a better performer than a specific peer who receives an award or company recognition for outstanding performance. Such a circumstance would create significant cognitive dissonance for ego, potentially causing ego to reevaluate his own efficacy and his willingness to exert effort to perform at a higher level. Future research might consider discontinuous events (i.e., shocks) in social comparisons, and how the directions of such shocks influence future actor behavior.

This point raises another interesting issue with respect to the discrepancies between ego's perceptions of alters' performance and the reality of their performance. One limitation in Study I is that employees did not have access to their peers' objective performance metrics, leaving them to estimate who the top performers were based on their own perceptions. Future research might consider the antecedents and outcomes of actors' accurate perceptions of peer performance. Could it be, for example, that actors who have wildly off-base perceptions about their peers' performance also fail to set achievable goals and appropriately allocate their efforts to those goals? It may be the case that actors who view their relative performance inaccurately struggle to achieve normative levels of performance as compared to actors who can more accurately identify what an acceptable level of performance is. Future research might identify how actors' perceptions about the relative performance of peers in their workgroups shape their own behaviors as well as their relationships with coworkers.

Conclusion

The social context plays a key role in understanding individual behavior. In this research, I expanded on existing social-motivational perspectives by applying social comparison theory to understand how comparisons with better-performing colleagues (upward comparisons) and interactions with lower-performing colleagues (downward comparisons) influence individual performance through focal individual engagement and self-efficacy. I examined my hypotheses in two samples: a survey of undergraduate students and corporate employees in a mid-size food processing company. I found that the number of upward comparisons had a positive indirect relationship with employee performance through its association with inflated engagement (Study I) and self-efficacy

(Study II). Notably, these relationships respectively held for high-LGO individuals in a learning context (Study I) and low-PPGO individuals in a performance context (Study II). I also found evidence of a positive indirect effect of downward comparisons on performance through self-efficacy (Study II), but this effect was not moderated by goal orientation. . Overall, my research suggests that not only does the social context of work influence employees through direct influences (Hackman, 1992), but also through indirect influences in shaping how employees think, feel, and, ultimately, behave.

REFERENCES

- Adler, P. S., & Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review, 27*, 17-40.
- Amoroso, D. M., & Walters, R. H. (1969). Effects of anxiety and socially mediated anxiety reduction on paired-associate learning. *Journal of Personality and Social Psychology, 11*, 388-396.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology, 22*, 309-328.
- Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior, 62*, 341-356.
- Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of occupational health psychology, 10*, 170.
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191.
- Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, N.J.: Prentice Hall.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational psychologist, 28*, 117-148.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*, 9-44.
- Bandura, A., & Jourden, F. J. (1991). Self-regulatory mechanisms governing the impact of social comparison on complex decision making. *Journal of Personality and Social Psychology, 60*, 941.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bell, B. S., & Kozlowski, S. W. (2002a). Adaptive guidance: Enhancing self - regulation, knowledge, and performance in technology - based training. *Personnel Psychology, 55*, 267-306.

- Bell, B. S., & Kozlowski, S. W. (2002b). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology, 87*, 497.
- Berkowitz, L., Fraser, C., Treasure, F. P., & Cochran, S. (1987). Pay, equity, job gratifications, and comparisons in pay satisfaction. *Journal of Applied Psychology, 72*, 544.
- Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. *Personnel Selection in Organizations, 71*, 98.
- Brass, D. J. (1981). Structural relationships, job characteristics, and worker satisfaction and performance. *Administrative Science Quarterly, 26*, 331-348.
- Brass, D. J. (1985). Technology and the structuring of jobs: Employee satisfaction, performance, and influence. *Organizational Behavior and Human Decision Processes, 35*, 216-240.
- 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*, 59-75.
- Brown, I., & Inouye, D. K. (1978). Learned helplessness through modeling: The role of perceived similarity in competence. *Journal of Personality and Social Psychology, 36*, 900-908.
- Burt, R., Kilduff, M., & Tasselli, S. (2013). Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology, 64*, 527-547.
- Burt, R. S. (1992). The social structure of competition. *Networks and Organizations: Structure, Form, and Action, 57-91*.
- Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes, 67*, 26-48.
- 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*, 3-21.
- Buunk, B. P., Zurriaga, R., Peiró, J. M., Nauta, A., & Gosalvez, I. (2005). Social comparisons at work as related to a cooperative social climate and to individual differences in social comparison orientation. *Applied Psychology, 54*, 61-80.
- Carpenter, M. A., Li, M., & Jiang, H. (2012). Social network research in organizational contexts a systematic review of methodological issues and choices. *Journal of Management, 38*, 1328-1361.

- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among us managers. *Journal of Applied Psychology, 85*, 65-74.
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*, 62-83.
- Chiaburu, D. S., & Harrison, D. A. (2008). Do peers make the place? Conceptual synthesis and meta-analysis of coworker effects on perceptions, attitudes, ocbs, and performance. *Journal of Applied Psychology, 93*, 1082.
- Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology, 64*, 89-136.
- Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology, 34*, 366-375.
- Cole, M. S., Walter, F., Bedeian, A. G., & O'Boyle, E. H. (2012). Job burnout and employee engagement a meta-analytic examination of construct proliferation. *Journal of Management, 38*, 1550-1581.
- Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. (1966). Equality of educational opportunity. Washington, DC.
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology, 86*, 425.
- Crawford, E. R., LePine, J. A., & Buckman, B. R. (2013). *Job engagement scale short form items*.
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95*, 834.
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management, 31*, 874-900.
- Davis, J. A. (1966). The campus as a frog pond: An application of the theory of relative deprivation to career decisions of college men. *American Journal of Sociology, 72*, 17-31.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.

- DeShon, R. P., & Gillespie, J. Z. (2005). A motivated action theory account of goal orientation. *Journal of Applied Psychology, 90*, 1096.
- Diefendorff, J. M., & Chandler, M. M. (2011). Motivating employees. In S. Zedeck (Ed.), *Apa handbook of industrial and organizational psychology* (Vol. 3, pp. 65-135). Washington, DC: American Psychological Association.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256.
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods, 12*, 1-22.
- Elliot, A. J., Shell, M. M., Henry, K. B., & Maier, M. A. (2005). Achievement goals, performance contingencies, and performance attainment: An experimental test. *Journal of Educational Psychology, 97*, 630.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.
- Fisher, S. L., & Ford, J. K. (1998). Differential effects of learner effort and goal orientation on two learning outcomes. *Personnel Psychology, 51*, 397-420.
- Gagné, M., & Deci, E. L. (2005). Self - determination theory and work motivation. *Journal of Organizational Behavior, 26*, 331-362.
- Gardner, J. W. (1939). Level of aspiration in response to a prearranged sequence of scores. *Journal of Experimental Psychology, 25*, 601-621.
- Gastorf, J. W., & Suls, J. (1978). Performance evaluation via social comparison: Performance similarity versus related-attribute similarity. *Social Psychology, 10*, 1-10.
- Gibbons, F. X. (1985). A social-psychological perspective on developmental disabilities. *Journal of Social and Clinical Psychology, 3*, 391-404.
- Gibbons, F. X. (1986). Social comparison and depression: Company's effect on misery. *Journal of Personality and Social Psychology, 51*, 140.
- Grant, A. M. (2007). Relational job design and the motivation to make a prosocial difference. *Academy of Management Review, 32*, 393-417.
- Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology, 93*, 108.

- Grant, A. M., & Parker, S. K. (2009). Redesigning work design theories: The rise of relational and proactive perspectives. *The Academy of Management Annals*, 3, 317-375.
- Greenberg, J., Ashton-James, C. E., & Ashkanasy, N. M. (2007). Social comparison processes in organizations. *Organizational Behavior and Human Decision Processes*, 102, 22-41.
- Hackman, J. (1992). Group influences on individuals in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 199-267). Palo Alto, CA: Consulting Psychologists Press.
- Hackman, J. R., & Lawler, E. E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology*, 55, 259.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16, 250-279.
- Harter, S. (1985). Commentary: On the need for a developmental perspective in understanding child and adolescent disorders. *Journal of Social and Clinical Psychology*, 3, 484-499.
- Harter, S. (1990). Causes, correlates, and the functional role of global self-worth: A life-span perspective. In R. J. Sternberg & J. Kolligan (Eds.), *Competence considered* (pp. 67-97). New Haven, CT: Yale University Press.
- Heggestad, E. D., & Kanfer, R. (2005). The predictive validity of self-efficacy in training performance: Little more than past performance. *Journal of Experimental Psychology: Applied*, 11, 84.
- Ho, V. T. (2005). Social influence on evaluations of psychological contract fulfillment. *Academy of Management Review*, 30, 113-128.
- Ho, V. T., & Levesque, L. L. (2005). With a little help from my friends (and substitutes): Social referents and influence in psychological contract fulfillment. *Organization Science*, 16, 275-289.
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 597-606.
- Hu, J., & Liden, R. C. (2013). Relative leader-member exchange within team contexts: How and when social comparison impacts individual effectiveness. *Personnel Psychology*, 66, 127-172.
- Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology*, 92, 1332-1356.

- Imai, K., Keele, L., & Tingley, D. (2010). A general approach to causal mediation analysis. *Psychological Methods, 15*, 309-334.
- Johns, G., Xie, J. L., & Fang, Y. (1992). Mediating and moderating effects in job design. *Journal of Management, 18*, 657-676.
- Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behavior, 19*, 151-188.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692-724.
- Kanfer, R. (1990). Motivation theory and industrial and organizational psychology.
- Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74*, 657.
- Kanfer, R., Chen, G., & Pritchard, R. D. (2008). *Work motivation: Past, present and future*: CRC Press.
- Karasek Jr, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24*, 285-308.
- Kiesler, D. J. (1966). Some myths of psychotherapy research and the search for a paradigm. *Psychological Bulletin, 65*, 110-136.
- Kilduff, M., & Brass, D. J. (2010a). Job design: A social network perspective. *Journal of Organizational Behavior, 31*, 309-318.
- Kilduff, M., & Brass, D. J. (2010b). Organizational social network research: Core ideas and key debates. *The Academy of Management Annals, 4*, 317-357.
- Kilduff, M., & Regan, D. T. (1988). What people say and what they do: The differential effects of informational cues and task design. *Organizational Behavior and Human Decision Processes, 41*, 83-97.
- Kozlowski, S. W., & Bell, B. S. (2006). Disentangling achievement orientation and goal setting: Effects on self-regulatory processes. *Journal of Applied Psychology, 91*, 900.
- Krackhardt, D., & Porter, L. W. (1985). When friends leave: A structural analysis of the relationship between turnover and stayers' attitudes. *Administrative Science Quarterly, 242-261*.
- Kulik, C. T., & Ambrose, M. L. (1992). Personal and situational determinants of referent choice. *Academy of Management Review, 17*, 212-237.

- Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of Management Review*, *31*, 596-614.
- Lefgren, L. (2004). Educational peer effects and the Chicago public schools. *Journal of Urban Economics*, *56*, 169-191.
- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*, 764-775.
- LePine, M. A., Zhang, Y., Rich, B. L., & Crawford, E. R. (in press). Turning their pain to gain: Charismatic leader influence on follower stress appraisal and job performance. *Academy of Management Journal*.
- Levine, J. M., & Moreland, R. L. (1987). Social comparison and outcome evaluation in group contexts.
- 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*, 705.
- Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, *83*, 854.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, *73*, 91.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954.
- Marsh, H. W. (1986). Global self-esteem: Its relation to specific facets of self-concept and their importance. *Journal of Personality and Social Psychology*, *51*, 1224-1236.
- Marsh, H. W., & Parker, J. W. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well? *Journal of Personality and Social Psychology*, *47*, 213.
- Martocchio, J. J. (1994). Effects of conceptions of ability on anxiety, self-efficacy, and learning in training. *Journal of Applied Psychology*, *79*, 819.
- Mayhew, B. H. (1980). Structuralism versus individualism: Part 1, shadowboxing in the dark. *Social Forces*, *59*, 335-375.
- Medvec, V. H., Madey, S. F., & Gilovich, T. (1995). When less is more: Counterfactual thinking and satisfaction among Olympic medalists. *Journal of Personality and Social Psychology*, *69*, 603-610.

- Mehra, A., Kilduff, M., & Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, *46*, 121-146.
- Morgeson, F. P., & Campion, M. A. (2003). Work design. In W. C. Borman, D. R. Ilgen & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 423-452). Hoboken, NJ: Wiley.
- Morgeson, F. P., & Humphrey, S. E. (2006). The work design questionnaire (wdq): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, *91*, 1321.
- Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of self. *Journal of Personality and Social Psychology*, *16*, 148.
- 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*, 832.
- Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*, 71-94.
- Newman, D. A. (2014). Missing data five practical guidelines. *Organizational Research Methods*, *17*, 372-411.
- Oldham, G. R., Kulik, C. T., Stepina, L. P., & Ambrose, M. L. (1986). Relations between situational factors and the comparative referents used by employees. *Academy of Management Journal*, *29*, 599-608.
- Parsons, T. (1964). *Social structure and personality*: New York Free Press of Glencoe.
- 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*, 128.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of health and social behavior*, 337-356.
- Pettigrew, T. F. (1967). Social evaluation theory: Convergences and applications. In D. Levine (Ed.), *Nebraska symposium on motivation* (Vol. 15, pp. 241-311). Lincoln: University of Nebraska Press.
- Pinder, C. C. (2008). *Work motivation in organizational behavior*: Psychology Press.
- Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, *36*, 94-120.

- Podolny, J. M. (2001). Networks as the pipes and prisms of the market. *American Journal of Sociology, 107*, 33-60.
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review, 62*, 673-693.
- Powers, W. T. (1973). Behavior: The control of perception. *New York, NY: Hawthorne.*
- Rich, B. L., LePine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal, 53*, 617-635.
- Roy, D. (1952). Quota restriction and goldbricking in a machine shop. *American Journal of Sociology, 57*, 427-442.
- Sacerdote, B. (2001). Peer effects with random assignment: Results for dartmouth roommates. *The Quarterly Journal of Economics, 116*, 681-704.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*, 600-619.
- Salancik, G. R., & Pfeffer, J. (1978). Social information-processing approach to job attitudes and task design. *Administrative Science Quarterly, 23*, 224-253.
- Schaubroeck, J., & Lam, S. S. (2004). Comparing lots before and after: Promotion rejectees' invidious reactions to promotees. *Organizational Behavior and Human Decision Processes, 94*, 33-47.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi - sample study. *Journal of Organizational Behavior, 25*, 293-315.
- Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior, 30*, 893-917.
- Sears, P. S. (1940). Levels of aspiration in academically successful and unsuccessful children. *The Journal of Abnormal and Social Psychology, 35*, 498-536.
- Shah, P. P. (1998). Who are employees' social referents? Using a network perspective to determine referent others. *Academy of Management Journal, 41*, 249-268.
- Shuck, B., Ghosh, R., Zigarmi, D., & Nimon, K. (2013). The jingle jangle of employee engagement: Further exploration of the emerging construct and implications for workplace learning and performance. *Human Resource Development Review, 12*, 11-35.

- Sitzmann, T., & Yeo, G. (2013). A meta-analytic investigation of the within-person self-efficacy domain: Is self-efficacy a product of past performance or a driver of future performance? *Personnel Psychology, 66*, 531-568.
- Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: Defining ourselves through work relationships. *Academy of Management Review, 32*, 9-32.
- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal, 44*, 316-325.
- Spreitzer, G. M. (1996). Social structural characteristics of psychological empowerment. *Academy of Management Journal, 39*, 483-504.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*, 240.
- Stapel, D. A., & Koomen, W. (2001). I, we, and the effects of others on me: How self-construal level moderates social comparison effects. *Journal of Personality and Social Psychology, 80*, 766.
- Steele-Johnson, D., Beaugard, R. S., Hoover, P. B., & Schmidt, A. M. (2000). Goal orientation and task demand effects on motivation, affect, and performance. *Journal of Applied Psychology, 85*, 724-738.
- Sujan, H., Weitz, B. A., & Kumar, N. (1994). Learning orientation, working smart, and effective selling. *The Journal of Marketing, 39*-52.
- Suls, J. (1986). *Notes on the occasion of social comparison theory's thirtieth birthday*. Paper presented at the American Psychological Association Convention (1984, Toronto, Canada).
- Suls, J., Martin, R., & Wheeler, L. (2000). Three kinds of opinion comparison: The triadic model. *Personality and Social Psychology Review, 4*, 219-237.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science, 11*, 159-163.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. *Advances in Experimental Social Psychology, 21*, 181-227.
- Tesser, A., & Collins, J. E. (1988). Emotion in social reflection and comparison situations: Intuitive, systematic, and exploratory approaches. *Journal of Personality and Social Psychology, 55*, 695-709.
- 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*, 49.

- Turner, A. N., & Lawrence, P. R. (1965). *Industrial jobs and the worker*. Boston: Harvard University Press.
- Vancouver, J. B. (2008). Integrating self-regulation theories of work motivation into a dynamic process theory. *Human Resource Management Review, 18*, 1-18.
- Vancouver, J. B. (2012). Rhetorical reckoning a response to bandura. *Journal of Management, 38*, 465-474.
- Vancouver, J. B., Thompson, C. M., Tischner, E. C., & Putka, D. J. (2002). Two studies examining the negative effect of self-efficacy on performance. *Journal of Applied Psychology, 87*, 506.
- Vancouver, J. B., Thompson, C. M., & Williams, A. A. (2001). The changing signs in the relationships among self-efficacy, personal goals, and performance. *Journal of Applied Psychology, 86*, 605.
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57*, 995-1015.
- VandeWalle, D., Brown, S. P., Cron, W. L., & Slocum Jr, J. W. (1999). The influence of goal orientation and self-regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology, 84*, 249.
- VandeWalle, D., Cron, W. L., & Slocum Jr, J. W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology, 86*, 629.
- Wheeler, L., & Miyake, K. (1992). Social-comparison in everyday life. *Journal of Personality and Social Psychology, 62*, 760-773.
- Wilk, S. L., & Moynihan, L. M. (2005). Display rule" regulators": The relationship between supervisors and worker emotional exhaustion. *Journal of Applied Psychology, 90*, 917.
- Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management, 17*, 601-617.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*, 245.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin, 106*, 231.
- Wood, J. V., Taylor, S. E., & Lichtman, R. R. (1985). Social comparison in adjustment to breast cancer. *Journal of Personality and Social Psychology, 49*, 1169.

- Yeo, G. B., & Neal, A. (2004). A multilevel analysis of effort, practice, and performance: Effects; of ability, conscientiousness, and goal orientation. *Journal of Applied Psychology*, 89, 231.
- Zimmerman, D. J. (2003). Peer effects in academic outcomes: Evidence from a natural experiment. *The Review of Economics and Statistics*, 85, 9-23.

APPENDIX

STUDY II SURVEY ITEMS

Social Comparisons

1. Sometimes, when we think about our own level of effort or level of performance at work, we compare ourselves to other people in the company to evaluate how well we are doing. These people might be coworkers we look up to or aspire to be like, coworkers at about our same level, or coworkers who are newer or more junior than ourselves. Please list below the people at work with whom you compare yourself when you evaluate your own level of effort and performance at work.
 - a. [list up to 20 names]
2. For each name that you entered earlier, please indicate this person's performance relative to yours. Please remember that this information will be kept confidential, and I will not share your responses with anyone at your company.
 - a. [rate up to 20 names from step 1]

Engagement

DIRECTIONS: Following are a number of statements regarding how you invest your energies at work. Please read each statement carefully. Then, indicate your level of agreement with each statement. While I'm at work...

1. ...I work with high intensity.
2. ...I exert my full effort.
3. ...I devote a lot of my energy.
4. ...I put my emotions into what I do.
5. ...I am emotionally connected.
6. ...I put my feelings into my work.
7. ...I give my full attention to my work.
8. ...I concentrate completely.
9. ...My mind is focused on the work that I do.

Self-Efficacy

DIRECTIONS: Please indicate your expectations about your ability to perform at a high level in your work.

1. I am certain that I can meet the performance standards of my job.
2. I feel I have the skills and knowledge necessary to complete my job effectively.
3. I am confident that I am able to successfully perform my current job.

Information and Resource Access

DIRECTIONS: The following questions ask you about the resources (e.g., financial resources, tools, or support) you can access to do your job well. Please indicate your agreement with each statement.

1. I can obtain the resources necessary to support new ideas.
2. When I need additional resources to do my job, I can usually get them.
3. I have access to the resources I need to do my job well.
4. I understand the strategies and goals of the organization.
5. I understand top management's vision of the organization.
6. I have access to the strategic information I need to do my job well.

Goal Orientation

DIRECTIONS: The following sets of questions ask about the kinds of goals you set for yourself at work. For each set of questions, please read the statement carefully and respond as honestly as possible.

1. I often read materials related to my work to improve my ability.
2. I am willing to select a challenging work assignment that I can learn a lot from.
3. I often look for opportunities to develop new skills and knowledge.
4. I enjoy challenging and difficult tasks at work where I'll learn new skills.
5. For me, development of my work ability is important enough to take risks.
6. I prefer to work in situations that require a high level of ability and talent.
7. I would rather prove my ability on a task that I can do well at than to try a new task.
8. I'm concerned with showing that I can perform better than my peers.
9. I try to figure out what it takes to prove my ability to others at work.
10. I enjoy it when others at work are aware of how well I am doing.
11. I prefer to work on projects where I can prove my ability to others.

Demographics

1. What is your highest level of education completed?
 - a. Did not complete high school (1)
 - b. High school graduate/GED (2)
 - c. Some college (3)
 - d. Associate degree (4)
 - e. 4-year college degree (5)
 - f. Some graduate school (6)
 - g. Graduate degree (7)
2. What is your gender?
 - a. Male (1)
 - b. Female (2)
3. How long have you worked at the company (in number of years; for less than 1 year enter 0)?