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## **When and why people engage in different forms of proactive behavior: interactive effects of self-construals and work characteristics**

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**WHEN AND WHY PEOPLE ENGAGE IN DIFFERENT FORMS OF PROACTIVE  
BEHAVIOR: INTERACTIVE EFFECTS OF SELF-CONSTRUALS AND WORK  
CHARACTERISTICS**

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## ABSTRACT

When and why do people engage in different forms of proactive behavior at work? We propose that, as a result of a process of trait activation, employees with different types of self-construal engage in distinct forms of proactive behavior if they work in environments consistent with their self-construals. In an experimental Study 1 (N = 61), we examined the effect of self-construals on proactivity and found that people primed with interdependent self-construals engaged in more work unit-oriented proactive behavior when job interdependence also was manipulated. Priming independent self-construals did not enhance career-oriented proactive behavior, even when we manipulated job autonomy. In a field Study 2 (N = 205), we found that employees with interdependent self-construals working in jobs with high interdependence reported higher work unit commitment and higher work unit-oriented proactive behavior than employees in low interdependent jobs. Employees with independent self-construals working in jobs with high autonomy also exhibited stronger career commitment and more career-oriented proactive behavior than those in jobs with low autonomy. This research offers a theoretical framework to explain how dispositional and situational factors interactively shape people's engagement in different forms of proactive behavior.

**Keywords:** Self-construal, Job design, Proactive behavior, Trait activation, Commitment

**WHEN AND WHY PEOPLE ENGAGE IN DIFFERENT FORMS OF PROACTIVE  
BEHAVIOR: INTERACTIVE EFFECTS OF SELF-CONSTRUALS AND WORK  
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There is a pressing need for proactive behavior in today's global work context (Crant, 2000). It has become increasingly important to anticipate opportunities and initiate actions to operate effectively in complex and uncertain work environments (Campbell, 2000; Griffin, Neal, & Parker, 2007). Consequently, scholars have investigated proactive behavior, defined as "self-initiated and future-oriented action that aims to change and improve the situation or oneself" (Parker, Williams, & Turner, 2006, p. 636). Research shows that behaviors across many domains, such as careers and individual or teamwork, can be enacted more or less proactively (e.g., Grant & Ashford, 2008). For example, people can approach potential employers when hunting for jobs (Brown, Cober, Kane, Levy, & Shalhoop, 2006), seek information from and build relationships with colleagues and supervisors when entering new organizations (Ashford & Black, 1996), actively initiate career plans and approach senior people for guidance (Claes & Ruiz-Quintanilla, 1998), and initiate new procedures to enhance work effectiveness (LePine & Van Dyne, 1998; Morrison & Phelps, 1999). Proactive behavior in various domains produces individual and collective benefits, such as enhanced career and work success (e.g., Fuller & Marler, 2009) and improved organizational effectiveness (e.g., Raub & Liao, 2012).

The importance of different forms of proactivity has led scholars to move away from a domain-specific approach that considers only a single type of proactivity without paying attention to other forms and toward a generalized approach that emphasizes commonalities across different types of proactivity. Recently, researchers have sought to identify core processes and antecedents that facilitate proactivity across multiple domains (e.g., Parker, Bindl, & Strauss,

2010). For example, proactive personality, or a “stable tendency to effect environmental change” (Bateman & Crant, 1993), is a core dispositional antecedent of several forms of proactivity, such as career initiative, taking charge, and making suggestions at work (see Fuller & Marler, 2009; Wu, Parker, & Bindl, 2013, for reviews). Similarly, Parker, Bindl, and Strauss (2010) identify a consistent set of motivational processes (e.g., can do, reason to, energized to) that apply to many forms of proactivity.

Although researchers who focus on core processes and antecedents have identified commonalities across several domains of proactivity, they have not examined differences in distinct forms of proactive behaviors. The scholarly focus on core processes and antecedents has precluded a nuanced consideration of situational factors. Situations shape both the desirability and the capacity to perform particular behaviors (Endler & Parker, 1992; Tett & Guterman, 2000), so to fully understand the prompting of particular forms of proactive behavior, it is essential to take situational factors into account. Some studies have differentiated proactive behaviors on the basis of functions (e.g., improving work environment, person/environment fit, organizational/external environment fit) (Parker & Collins, 2010), levels of work roles (e.g., proactivity for individual, work unit, and organizational tasks) (Griffin et al., 2007), and intended targets (e.g., benefits for self, colleagues, and organizations) (Belschak & Den Hartog, 2010), but unfortunately, we know little about when and why people engage in these distinct forms of proactivity.

Our aim in this research is to develop and test a theoretical approach for understanding when and why distinct forms of proactive behavior arise. Unlike other scholarly considerations of core processes and antecedents that underpin multiple forms of proactivity (Parker et al., 2010), our emphasis is on specific forms of proactivity. By considering differing forms of

proactive behavior at the same time, our study goes beyond narrower, domain-specific approaches to draw on the idea that proactive behavior involves individuals seeking personal change (changing the self) or situational change and improvement (Parker et al., 2006). We focus on two types of proactivity: proactivity to develop one's own career (i.e., career-oriented proactive behavior) and proactivity to improve one's work unit (i.e., work unit-oriented proactive behavior). These two types differ according to their function (Parker & Collins, 2010) and intended target (Belschak & Den Hartog, 2010; Grant & Ashford, 2008). Career-oriented proactive behavior relates to individual career behavior that seeks personal benefit by facilitating a better fit between personal career interests and the work environment. Work unit-oriented proactive behavior relates to work unit-oriented tasks that aim to benefit the work unit as a whole by introducing constructive changes. These contrasting types of proactive behavior provide a solid basis to test a differential approach. Moreover, a focus on these two types of proactive behavior has practical meaning, because each type helps promote individual and work unit success (e.g., Hornung, Rousseau, & Glaser, 2009; Liu, Lee, Hui, Kwan, & Wu, 2013; Whiting, Podsakoff, & Pierce, 2008). Both behaviors are relevant throughout a person's organizational life; they differ from other forms of proactive behavior that focus only on specific periods such as job search or newcomer socialization.

To understand why and when people engage in career-oriented or work unit-oriented proactive behavior, we integrate self-construal theory (Markus & Kitayama, 1991) and trait activation theory (Tett & Guterman, 2000) to offer a theoretical account for the joint impacts of dispositional and situational factors on shaping behavior. Self-construal relates to one's idea of individuality, that is, to what extent a person sees him- or herself as independent of or interdependent on others. Self-construal theorists (Markus & Kitayama, 1991) argue that

self-construal influences goal regulation by directing people to focus on specific goals and behaviors, consistent with the idea of individuality. Trait activation theorists suggest that “personality traits are expressed as responses to trait-relevant situational cues” (Tett & Burnett, 2003: 502); they emphasize situation-trait relevance in inducing trait-related behaviors. By integrating these two theories, we propose that, though independent self-construal drives career-oriented proactive behavior, and interdependent self-construal drives work unit-oriented proactive behavior, both paths apply only when the work environment provides a platform that activates the relevant self-construal. Specifically, we propose that an independent self-construal enhances career-oriented proactive behavior when job autonomy or individual job discretion is granted to support independent individuality. We also propose that an interdependent self-construal drives work unit-oriented proactive behavior when job interdependence is emphasized to encourage interdependent individuality.

We also examine the goal regulation process suggested by self-construal theory, to understand the mechanism that underlies the joint effects of self-construals and work characteristics on the two types of proactive behaviors. An independent self-construal should strengthen personal career commitment when job autonomy is high, thereby driving career-oriented proactive behavior. Furthermore, we suggest that an interdependent self-construal strengthens personal work unit commitment when interdependence is high, thereby enhancing work unit-oriented proactive behavior. We conduct an experimental study and a field study to test our hypotheses.

Our investigation contributes to proactivity research in several ways. First, in contrast with a core process approach to proactivity, our differential approach provides an understanding of why and when people engage in different forms of proactive behaviors. Second, we deepen

theoretical understanding of various forms of proactivity. To date, most research has focused on the classification of different forms of proactive behaviors (Belschak & Den Hartog, 2010; Griffin et al., 2007; Parker & Collins, 2010); our research extends this approach by theorizing that distinct dispositional and situational factors operate together to shape the occurrence of the different forms. Our examination advances understanding of why employees differ according to targeted proactivity and identifies what organizations can do to promote specific forms of proactive behavior. Third, by examining the impact of self-construals on proactive behavior, we suggest that individual engagement in specific forms of proactive behavior can be realized through goal processes that are regulated by personal conceptions of individuality—a new perspective for understanding motives for proactivity. Fourth, with our focus on the role of work characteristics in activating the impact of self-construals, we extend theories about work design and proactive behavior. Existing perspectives (Grant, 2007; Parker et al., 2006) focus mainly on the direct effect of work design on proactive behavior; we propose that work design can be used to support, express, and achieve personal conceptions of individuality and thus to prompt specific forms of proactive behavior. Our work also suggests a developmental process in which work design shapes individuality—a process that has been rarely explored (Parker, 2014).

### **THEORETICAL BACKGROUND AND HYPOTHESES**

Drawing on trait activation theory (Tett & Guterman, 2000), we suggest that the situation determines the desirability of and capacity for individual expressions of self-construal through action. We thus propose that work characteristics (situation) and self-construals interact to motivate different forms of proactive behavior.

#### **Interaction Effect of Self-Construal and Work Characteristics**



Self-construal defines personal conceptions of individuality (i.e., what people believe they should be) and directs personal attention to specific goals and behaviors (Markus & Kitayama, 1991). Markus and Kitayama (1991) identify two types of self-construal: independent and interdependent. An independent self-construal refers to a self-definition based on “a belief in the wholeness and uniqueness of each person’s configuration of internal attributes” (Markus & Kitayama, 1991: 226); it involves internal abilities, thoughts, and feelings and emphasizes uniqueness. In contrast, an interdependent self-construal refers to a self-definition based on the idea of “the person not as separate from the social context but as more connected and less differentiated from others” (Markus & Kitayama, 1991: 227). Interdependent self-construals reflect self-definitions involving relationships to others; they emphasize belonging. People can experience both independent and interdependent self-construals as different self-schemas (Cross, Hardin, & Gercek-swing, 2011; Trafimow, Silverman, Fan, & Law, 1997; Trafimow, Triandis, & Goto, 1991). All people therefore have varying levels of independent/interdependent self-construals (Lu & Gilmour, 2007; Singelis, 1994), and the relative strength of each depends on personal social/cultural experiences and situations (Markus & Kitayama, 1991; Trafimow et al., 1991).

We focus on independent/interdependent self-construals rather than similar concepts<sup>1</sup> such as self-orientation/other-orientation (De Dreu & Nauta, 2009) and achievement orientation/duty

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<sup>1</sup> We did not focus on individualism/collectivism because of confusion surrounding this concept. Scholars have conflicting views regarding whether individualism/collectivism should be conceptualized as a single bipolar construct or as orthogonal constructs; this conflict leads to different assessment approaches. For example, Oyserman, Coon, & Kimmelmeier (2002) reviewed scales measuring the construct of individualism/collectivism and found that 11 scales measured a single concept and 16 scales measured separate constructs. They also found that “scales vary widely in what other content components they regard as relevant to the measurement of IND [individualism] and COL [collectivism]” (Oyserman et al., 2002: 10). In contrast to such diversity, the concepts of independent and interdependent self-construals have been

orientation (Tangirala, Kamdar, Venkataramani, & Parke, 2013). Independent/interdependent self-construals are more theoretically comprehensive, in that they relate to self-focus or other-focus across multiple facets, including associations with others (being independent vs. belonging and fitting in), behavioral preferences (expressing oneself vs. occupying one's proper place), self-understanding (realizing internal attributes vs. engaging in appropriate action), goal pursuit (promoting personal goals vs. promoting others' goals), and communication style (being direct vs. being indirect). Each of these facets is more specific, and collectively more comprehensive, than the concept of self-orientation versus other-orientation described by De Dreu and Nauta (2009). Furthermore, independent/interdependent self-construals (promoting personal goals vs. promoting others' goals) encapsulate the concepts of achievement orientation and duty orientation addressed by Tangirala et al. (2013) and Grant and Wrzesniewski (2010).

Because self-construals direct people to focus on specific goals and behaviors, they are more likely to engage in proactive behavior that features their type of self-construal. The role of self-construals in promoting proactive behavior may be especially important because proactivity is, by definition, self-initiated. That is, it is not specified in a given job description and not tied to formal reward and punishment systems (Van Dyne & Le Pine, 1998). Consequently, because self-construals shape values, interests, beliefs, and direct actions (Markus & Kitayama, 1991), we expect them to influence proactivity. However, we do not expect them to inevitably trigger proactive behavior; rather, we draw on trait activation theory to argue that self-construals induce self-construal-consistent proactive behavior only when the people are in environments that have features related to their self-construal. In other words, such behavior results when the situation

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clearly defined in Markus and Kitayama's study, and a measure based on their definitions has been developed (Lu & Gilmour, 2007), providing a solid basis for capturing self-focused or other-focused dispositional attributes.

provides a platform that encourages and enables people to express those aspects of themselves. In this research, we focus on job autonomy and job interdependence as two situational factors that reflect how people are likely to relate to others in the work setting and that interact with self-construals to affect individual engagement in particular forms of proactive behavior.

First, we suggest that job autonomy encourages expressions of independent self-construals at work and enables people with independent self-construals to engage in career-oriented proactive behavior. Job autonomy means that workers can make decisions about their work (Hackman & Oldham, 1976) and provides opportunities to exercise discretion over work tasks (Parker & Wall, 1998). With job autonomy, individual action is less constrained by formal rules or procedures (Meyer, Dalal, & Hermida, 2010). Accordingly, job autonomy provides more scope for employees to express their ideas, show their uniqueness, and pursue goals based on their personal values and needs (Sheldon & Elliot, 1999). In turn, it encourages people with independent self-construals to take actions that express their independent conceptions of their individuality. As summarized by Erez (2010: 393), job autonomy “is congruent with individualistic values, emphasizing freedom of choice and providing the opportunity to influence and to attribute the behavioral outcomes to oneself.” Accordingly, we argue that job autonomy enables those with higher, rather than lower, independent self-construals to initiate career-oriented proactive behavior, because it allows them to “think about and plan for their future tasks and career while at work ... to make independent decisions and take responsibility for their actions ... to explore their surroundings and look for opportunities for personal growth ... and to perform their tasks efficiently, learn new skills, and solve problems” (Zacher, 2016: 106). We suggest that workers with higher levels of independent self-construal engage in more career-oriented proactive behavior when they also have been granted job autonomy.

Second, we suggest that job interdependence encourages the expression of interdependent self-construals at work and helps people with higher interdependent self-construals to engage in work unit-oriented proactive behavior. Job interdependence refers to the extent to which employees must depend on others' work and interact with others to complete their jobs (Bishop & Scott, 2000; Kiggundu, 1983). High job interdependence provides strong signals to employees that they should be aware of both colleagues at work and their own contributions to the group (Morris & Steers, 1980). It also enhances their feelings of responsibility for others, because they can see how their actions influence collective outcomes (Kiggundu, 1983; Pearce & Gregersen, 1991; Vegt, Emans, & Vliert, 1998). When job interdependence is low, employees experience weaker links between their own and others' work and a less clear sense of work unit membership. We propose that job interdependence enables those with higher interdependent self-construals to engage in more work unit-oriented proactive behavior, because it encourages them to express their concern for others and pay more attention to their relationships with others.

*Hypothesis 1: An independent self-construal relates positively to career proactive behavior when there is a high level of job autonomy.*

*Hypothesis 2: An interdependent self-construal relates positively to work unit-oriented proactive behavior when there is high level of job interdependence.*

Because trait activation theory indicates that the situation enhances the effects of individual traits only if the situation is trait relevant, we do not expect to find alternative interaction effects. In other words, because of situational trait irrelevance, we do not expect that interaction effects between job interdependence and independent self-construals or between job autonomy and interdependent self-construals can predict either form of proactive behavior. Moreover, because situational trait-relevance cues activate the functions of particular traits in inducing

trait-expressive behavior, we propose that the situation has an enhancer effect (autonomy/job interdependence), such that there is a positive interaction effect between work characteristics and self-construals, rather than a compensatory effect (i.e., negative interaction effect).

Empirically, De Dreu and Nauta (2009) report a positive interaction effect between job autonomy and self-orientation at work (a concept related to independent self-construals) in predicting personal initiative (a general form of proactive behavior) but a null interaction effect between job autonomy and other-orientation at work (a concept related to interdependent self-construals). In contrast, they find a positive interaction effect between perceived justice climate (i.e., how fairly employees within the work unit are treated) and other-orientation at work in predicting personal initiative but a null interaction effect between perceived justice climate and self-orientation at work. Their findings suggest that consistency between situational factors (i.e., job autonomy/perceived justice climate) and type of orientation (self/other) helps motivate people to be more proactive. Such results are in line with our theory and in accordance with trait activation theory. However, because De Dreu and Nauta focus on only one form of proactivity, they do not provide direct evidence for testing our hypotheses. Moreover, their focus on individual task characteristics (e.g., job autonomy) and work unit context (e.g., perceived justice climate at work unit level) confounds the level (i.e., individual/work unit) and feature (i.e., individual-focus/collective-focus) of work attributes; these factors should be differentiated to demonstrate the role of situation trait-relevance in activating trait-related behavior.

We next propose that self-construals and work characteristics jointly shape employees' proactive behavior through a goal-regulation process that is manifested in commitment.

### **Mediating Effect of Career/Work Unit Commitment**

Self-construals direct personal attention to specific goals and thus support those goals (Markus & Kitayama, 1991). It is important to apply this goal regulation process to proactive behavior, because proactivity is effortful and challenging (Frese & Fay, 2001); a person needs a strong internal motivation to devote effort to the sometimes risky behavior of proactivity and to persist in attaining proactive goals even in the face of obstacles (Parker et al., 2010). Self-construal-led goal regulation, activated in relevant work situations, represents an internal motivation process that sustains individual proactivity by prompting people to commit to goals relevant to their conceptions of individuality.

Specifically, we propose that when job autonomy is high, people higher in independent self-construals, rather than lower, are more likely to commit to the goal of advancing their personal careers, which leads to more career-oriented proactive behavior. According to Markus and Kitayama (1991), people higher in independent self-construals define themselves in terms of internal attributes such as traits, abilities, values, and interests; they also value personal goals (Gardner, Gabriel, & Lee, 1999) and personal growth (Kitayama & Markus, 2000). Because career development is a process of self-concept implementation (Super, 1980) in which workers express their interests, values, and uniqueness through their occupational preferences and choices, people high in independent self-construals are more likely to commit to the goal of advancing their personal careers (i.e., career commitment). The pursuit of goals based on individual values and interests is possible when job autonomy is high; therefore, we expect that when employees have high autonomy, with control over their work activities, those with higher independent self-construals have stronger career commitment. High levels of career commitment lead these employees to engage in career-oriented proactive behaviors, because the commitment denotes an intrinsic reason to direct personal actions to approach career goals (Parker et al., 2010). Belschak

and Den Hartog (2010) report a positive link between career commitment and career-oriented proactive behavior. Therefore,

*Hypothesis 3: The interaction of an independent self-construal and job autonomy positively relates to career commitment, which in turn positively relates to career-oriented proactive behavior. The association of an independent self-construal with career commitment and thus career-oriented proactive behavior is positive only when job autonomy is high.*

In other words, we propose a first-stage moderated mediation process in which career commitment has a mediating effect on the association between independent self-construal and career-oriented proactive behavior when job autonomy is high.

We also propose that when job interdependence is emphasized, people with higher levels of interdependent self-construals are more likely to commit to the goals of contributing to collective welfare in work units and more likely to engage in work unit-oriented proactive behavior. As suggested by Markus and Kitayama (1991), the significant features of interdependent self-construals are that the self and others are molded by the context, and senses of self and others are intertwined. For example, people who emphasize interdependent self-construals value collective goals (Gardner et al., 1999). Because a work team can be a unit within which the person builds a social identity (Ashforth & Mael, 1989), those higher in interdependent self-construals are more likely to develop high work unit commitment when job interdependence is emphasized; in this condition, the pursuit of goals that bring collective benefits is appreciated and encouraged. Work unit commitment in turn leads employees to engage in work unit-oriented proactive behavior, because it provides an intrinsic reason to engage in actions to enhance collective welfare (Parker et al., 2010). Strauss, Griffin, and Rafferty (2009) report a positive link between work unit commitment and work unit-oriented proactive behavior. We propose:

*Hypothesis 4: The interaction of an interdependent self-construal and job interdependence relates positively to work unit commitment, which in turn relates positively to work unit-oriented proactive behavior. The association of an interdependent self-construal with work unit commitment and thus work unit-oriented proactive behavior is positive only when job interdependence is high.*

Again, we propose a first-stage moderated mediation process in which work unit commitment has a mediating effect on the association between interdependent self-construal and career-oriented proactive behavior only if job interdependence is high.

### **RESEARCH OVERVIEW**

We conducted two studies to test our hypotheses. Study 1 was an experimental study designed to examine Hypotheses 1 and 2 with regard to the interaction effects of self-construals and work characteristics on the two forms of proactive behavior. Specifically, we used a priming technique to make a specific type of self-construal salient (e.g., Gardner et al., 1999; Suh, Diener, & Updegraff, 2008; Trafimow et al., 1991). We also manipulated work characteristics to examine whether an independent self-construal triggered career-oriented proactive behavior when job autonomy was emphasized and an interdependent self-construal triggered work unit-oriented proactive behavior when job interdependence was emphasized.

Building on Study 1, we conducted a field study (Study 2) to examine our hypotheses regarding the mediating effect of commitment in explaining these interactions. We examined whether chronic self-construals and two work design characteristics (job autonomy and interdependence) interactively predicted career and work unit commitment; we also investigated their mediating effects on career and work unit-oriented proactive behavior. To enhance generalizability of our research findings across different cultural settings, we conducted Study 1



in the United States and Study 2 in China.

## **STUDY 1: METHODS**

### **Participants and Procedure**

From Amazon Mechanical Turk, we recruited 215 U.S. participants who had full-time jobs or work experience for at least three years. After screening out those who had part-time jobs or work experience of less than three years and those who provided inattentive responses in rating scales, we obtained useable data from 188 participants. We asked participants to complete an online study after reading assurances of confidentiality and anonymity. We informed participants that the study was a research project to understand employees' attitudes and behaviors at work. Each participant received US\$3 for their participation. The sample included 114 men and 74 women, with ages ranging from 20 to 64 years ( $M = 32.56$ ,  $SD = 8.33$ ). Most (73.4%) had work experience of more than seven years. A total of 75 participants (39.9%) had managerial responsibility. Most (72.8%) had a bachelor's degree or more. In terms of ethnicity, most of the participants (74.5%) were white.

The experiment used a 2 (independent/interdependent self-construal)  $\times$  2 (job autonomy/job interdependent) between-subjects design with two outcome variables: career-oriented proactive behavior and work unit-oriented proactive behavior. After the participants provided demographic information, we randomly assigned them to one of the self-construal priming conditions. We primed participants' self-construal types by asking them to construct ten sentences using a set of provided words. Specifically, in the independent self-construal condition, we asked participants to construct ten sentences that included the words "I," "me," "mine," "individual," "own," "different," "unique," and "assertive." In the interdependent self-construal condition, we asked participants to construct ten sentences including the words "we," "us," "ours," "together,"

“share,” “integrate,” “alliance,” and “harmony.” These words have been used in other self-construal priming tasks (see Oyserman & Lee, 2008).

Next, we randomly assigned participants to one job characteristic condition. In the job autonomy condition, we asked participants to describe their work experiences to provide five examples of when they had autonomy at work, such as being able to make decisions on their own. In the job interdependence condition, we asked participants to recall their work experiences and provide five examples of when they needed to coordinate and communicate with colleagues in order to complete their work. Finally, we used two situational judgment tests to measure participants’ levels of engagement in career-oriented proactive behavior and work unit-oriented proactive behavior, respectively.

## **Materials**

*Self-construal manipulation.* We modified the sentence construction task assigned to participants in the self-construal conditions, using provided words, from a scrambled sentence task for self-construal priming (e.g., Kühnen & Hannover, 2000; Utz, 2004) that asks participants to create grammatically correct sentences repeatedly, using different sets of words (see Oyserman & Lee, 2008, for a review). In the traditional version of the scrambled sentence task, only one sentence can be made based on the provided set of words, so the participants can only produce sentences that are designed for priming, rather than generate sentences on their own. Under this scenario, the assumption of the scrambled sentence task is that all participants will be effectively primed with the target concept when they completed the task. However, research by Kühnen and Hannover (2000) has shown this approach can lead to a reverse effect if participants are aware of the primed concepts and thus attempt to counteract the priming effect. To avoid this threat, in our adaption of the scrambled sentence task, we asked participants to make ten

sentences, using the provided word set, on their own. In this way, we reduced the possibility of a reverse priming effect as participants were not requested to write specific sentences. Nevertheless, our approach meant it was then necessary to examine the contents of generated sentences to ensure the validity of the responses to the priming task.

To examine the effectiveness of this priming task, we conducted a pilot study with a British sample recruited from Prolific Academic, an online platform designed specifically to recruit participants for academic research. We used the British sample in the pilot study to ensure independent samples across the pilot study (U.K. sample) and the formal study (U.S. sample). It was appropriate to use a British sample because the United Kingdom and the United States share similar culture characteristics. The results indicated that sentence construction using the words we provided in the independent and interdependent conditions strengthened the states of independent or interdependent self-construals, after controlling for chronic independent/interdependent self-construals that had been measured one week earlier. The pilot study thus supported the effectiveness of the sentence construction task for self-construal priming. Appendix A contains the details of the pilot study.

***Work characteristics manipulation.*** We used an autobiographical narratives method to manipulate work characteristics. This method has been widely used as a reliable alternative to the direct manipulation of an independent variable (e.g., Deng, Wu, Leung, & Guan, in press; Leunissen, De Cremer, Reinders Folmer, & van Dijke, 2013): describing a real experience can evoke responses similar to those resulting from direct manipulations of the same experience (DeWall & Baumeister, 2006). We asked participants to describe their work experiences in their current position and provide five examples of job autonomy or job interdependence. Instructions for the job autonomy condition were: “Every job has some level of autonomy that allows

employees to make decisions and use their personal initiative or judgment in carrying out the work, such as deciding what, when and how to complete work. Now, please recall your work experiences and provide five examples of when you could make decisions on your own to do your work.” Instructions for job interdependence condition were: “Every job has some level of interdependence such that employees need to coordinate and communicate with colleagues in order to get things done, such as waiting for others’ information and responses to determine the next step, or needing to co-ordinate your actions with someone else to meet the goal. Now, please recall your work experiences and provide five examples of when you needed to coordinate and communicate with colleagues in order to complete your tasks.”

*Measures of career-oriented and work unit-oriented proactive behavior.* We adopted two questions developed by Bledow and Frese (2009) in their situational judgment test of proactive behavior to assess level of engagement in career-oriented and work unit-oriented proactive behavior. With regard to career-oriented proactive behavior, participants read a scenario about an individual asking to change tasks to fit her/his career interests who had little support from her/his supervisor.<sup>2</sup> We provided four responses to this situation that varied in the level of proactivity (i.e., -1, 0, and +1). Participants indicated the actions they were most likely and least likely to take. Based on the two selected actions, each participant received two scores, derived from the algorithm developed by Bledow and Frese (2009) and reflecting their degree of proactivity in responding to the situation. Sample actions included “Asking for a formal meeting with the supervisor to find out possibilities” (1 = most likely action, -1 = least likely action) and “Doing

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<sup>2</sup> The scenario in the original version is to ask for a promotion. Because asking for a promotion can be a specific and sensitive request that involves factors other than career interests, we thus revised the scenario to emphasize “changing tasks to fit ones’ career interests.”

nothing but believing I will change tasks soon” (-1 = most likely action, 1 = least likely action).<sup>3</sup> Scores based on the most and least likely actions were positively correlated ( $r = .36, p < .01$ ). We used the sum score (ranging from -2 to +2) to indicate the level of engagement in career-oriented proactive behavior.

To assess work unit-oriented proactive behavior, we first asked participants to respond to a problem of team coordination and then indicate what actions, among four possible choices, they would take to respond to the situation. Sample actions included “Finding a long-term solution with colleagues” (1 = most likely action, -1 = least likely action) and “Won’t let such problem bother me” (-1 = most likely action, 1 = least likely action). We again derived two scores corresponding to the most and least likely actions selected, reflecting the participant’s degree of proactivity in responding to the situation. The two scores were positively correlated ( $r = .45, p < .01$ ). We used the sum score (ranging from -2 to +2) to indicate the level of engagement of work unit-oriented proactive behavior.

To validate our measures of these two types of proactive behavior, we performed exploratory factor analysis with the four combined scores (two for each type of proactive behavior). We obtained a two-factor structure in which the two scores for career-oriented proactive behavior (factor loadings = .54 and .83) and the two scores for work unit-oriented proactive behavior (factor loadings = .57 and .63) loaded on different factors. The two factors were not strongly correlated ( $r = .29$ ). The two factors together explained 70.69% of the variances of the four scores.

## **Results and Discussion**

We first examined sentences generated by each participant for the self-construal priming

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<sup>3</sup> To protect the copyright of the scale, we rephrased the sample actions for assessing career-oriented and work unit-oriented proactive behaviors. Bledow and Frese (2009) provide more information regarding the situational judgment test of proactive behavior.

task. For each participant, the first author and one research assistant (blind to the research purpose) each read the sentences independently and counted the numbers of sentences that reflected features of an independent/interdependent self-construal. The possible score range for each participant was 0–10. Their interrater reliability (ICC based on a two-way mixed effect model for absolute agreement) (McGraw & Wong, 1996) was .98.<sup>4</sup> We calculated an average score of each participant’s sentence creation quality ( $M = 4.31$ ,  $SD = 2.92$ ), then retained for further analysis only those who received a score higher than 5. That is, we included participants only if at least half of their created sentences reflected features of independent/interdependent self-construal (i.e., we screened out 121 participants)<sup>5</sup>. With regard to the job characteristics manipulation, the first author and the same research assistant independently examined the contents of examples provided by participants and used dummy coding to exclude those who provided irrelevant examples or responses. The interrater reliability (ICC based on a two-way mixed effect model for consistency) (McGraw & Wong, 1996) was .86. We retained for further

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<sup>4</sup> We obtained this high interrater reliability because the raters had the same rating experiences in a pilot study (see Appendix A).

<sup>5</sup> Participants were told that they must participate in a sentence completion task (the self-construal priming task) as an attention task before they can complete a formal task. We note that not all participants devoted the same effort to generate sentences. As it is relatively easy to use the provided words to generate simple but correct sentences, participants can finish the task easily by generating sentences that have nothing to do with independent or interdependent self-construal (i.e., “I own a car” in independent self-construal condition or “we are bored” in the interdependent self-construal condition). Also, some participants produced repetitive sentences (i.e., “we together share” and “we share together”). As such, we evaluated sentences to ensure that we only included participants who have properly completed the priming task and generated sentences that are consistent with independent or interdependent self-construal. Our approach of removing inattentive participants is not uncommon, as this has been done in experimental studies to ensure internal validity (Oppenheimer, Meyvis, & Davidenko, 2009). Moreover, when evaluating statements in assessing self-construal, Gardner, Gabriel, and Lee (1999) suggested that sentences referred to transient states (e.g., “I am hungry”) cannot be counted as self-definitions, suggesting a need to closely examine content of sentences for assessing self-construals.

analysis only participants who had been included by both raters (we screened out 31 participants). There were thus 61 participants in our final analysis; they did not differ in their demographic backgrounds from those removed from the analysis.

Table 1 displays the means and standard deviations of career-oriented and work unit-oriented proactive behavior in the four conditions. We conducted a two-way analysis of variance (ANOVA) to examine the effects of the self-construal manipulation, the work characteristics manipulation, and their interaction on the two types of proactive behaviors. With regard to career-oriented proactive behavior, none of the self-construal or work characteristics manipulations were significant, nor was the interaction effect. Hypothesis 1 therefore did not receive support. With regard to work unit-oriented proactive behavior, the self-construal manipulation and the work characteristics manipulation did not have significant main effects ( $p > .10$ ), but as we hypothesized, they had a significant interaction effect ( $F(1, 57) = 3.96, p = .05, \eta^2 = .05$ ). A simple effect analysis indicated that participants primed with an interdependent self-construal were more likely to engage in work unit-oriented proactive behavior when they were in the job interdependence condition ( $M = 1.46, SD = .88, n = 13$ ) than in the job autonomy condition ( $M = 0.25, SD = 1.81, n = 16$ ) ( $p < .05$ ), in support of Hypothesis 2. As we anticipated, participants primed with an independent self-construal did not differ in their engagement in work unit-oriented proactive behaviors across the job interdependence ( $M = 0.50, SD = 1.38, n = 18$ ) or job autonomy ( $M = 0.79, SD = 1.53, n = 14$ ) conditions.

To check the reliability of the results using a different analytic approach, we performed ordinal regression analysis by treating the two outcome variables (i.e., career-oriented and work unit-oriented proactive behavior) as ordinal variables as scores of these two variables are integers ranging from -2 to +2. Similarly, in predicting career-oriented proactive behavior,

neither the main effects nor the interaction effect of the self-construal manipulation and the work characteristics manipulation was significant. In predicting work unit-oriented proactive behavior, there was only a significant interaction effect of the self-construal manipulation and the work characteristics manipulation ( $p = .05$ ). The finding again suggests that participants primed with an interdependent self-construal were more likely to engage in work unit-oriented proactive behavior when they were in the job interdependence condition than in the job autonomy condition (odds ratio = 3.97, Wald chi-square test = 3.57,  $p = .06$ ). Participants primed with an independent self-construal did not differ in their engagement in work unit-oriented proactive behaviors across the two job conditions (odds ratio = 0.61, Wald chi-square test = 0.59,  $p > .10$ ).

We also conducted a sensitivity analysis by changing the cut-off point of the sentence quality score for the self-construal priming and obtained the same results: self-construal manipulation and the work characteristics manipulation only had a significant interaction effect in predicting work unit-oriented proactive behavior. Specifically, participants primed with an interdependent self-construal were more likely to engage in work unit-oriented proactive behavior when they were in the job interdependence condition than in the job autonomy condition. Participants primed with an independent self-construal did not differ in their engagement in work unit-oriented proactive behaviors across the two job conditions.<sup>6</sup>

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<sup>6</sup> When we retained those with scores higher than 4.5, we had 84 participants for analysis. We obtained a similar finding and a significant interaction effect only between the self-construal manipulation and work characteristic manipulation in predicting work unit-oriented proactive behavior ( $F(1, 80) = 3.22, p = .08, \eta^2 = .03$ ). Specifically, participants primed with an interdependent self-construal were more likely to engage in work unit-oriented proactive behavior when they were in the job interdependence condition ( $M = 1.27, SD = 1.07, n = 18$ ) than in the job autonomy condition ( $M = .48, SD = 1.721, n = 21$ ) ( $p = .08$ ). Participants primed with an independent self-construal did not differ in their engagement in work unit-oriented proactive behavior across the job interdependence ( $M = .43, SD = 1.34, n = 23$ ) or the job autonomy ( $M = .73, SD = 1.35, n = 22$ ) conditions ( $p > .10$ ). When we retained those with scores higher than 5.5, we had 55 participants for analysis and found a significant interaction effect only between



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 Insert Table 1 about here  
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These results indicate that priming an interdependent self-construal helps trigger work unit-oriented proactive behaviors when job interdependence is emphasized. We did not find that priming an independent self-construal triggers career-oriented proactive behavior when job autonomy was emphasized. A potential explanation for these different findings could be the temporal difference between work unit-oriented and career-oriented proactive behavior, as assessed in our scenarios. Because our measure for career-oriented proactive behavior focused on changing tasks for career interests, which can be a long-term process, it could be that momentary conditions of independent self-construal and job autonomy were not strong enough to lead participants to act on these situations in the way we predicted.

Despite our null finding about career-oriented proactive behavior, the results for work unit-oriented proactive behavior support our use of trait activation theory to understand the joint effects of self-construals and work characteristics in shaping certain forms of proactive behavior. As emphasized by trait activation theory, a specific work characteristic can provide situational cues that encourage people with specific types of self-construal to express corresponding behaviors. However, a specific work characteristic may make a specific type of self-construal

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self-construal manipulation and work characteristics manipulation in predicting work unit-oriented proactive behavior ( $F(1, 51) = 4.24, p < .05, \eta^2 = .06$ ). Again, participants primed with an interdependent self-construal were more likely to engage in work unit-oriented proactive behavior when they were in the job interdependence condition ( $M = 1.46, SD = .88, n = 13$ ) than in the job autonomy condition ( $M = .25, SD = 1.81, n = 16$ ) ( $p < .05$ ). Participants primed with an independent self-construal did not differ in their engagement of work unit-oriented proactive behavior across the job interdependence ( $M = .47, SD = 1.40, n = 15$ ) or job autonomy ( $M = .91, SD = 1.58, n = 11$ ) conditions ( $p > .10$ ).

salient, thereby promoting a specific proactive behavior. These two mechanisms differ: In the former, work design encourages the expression of the self-construal, whereas in the latter, work design enhances the salience of a self-construal. Priming participants' self-construals and manipulating work characteristics at the same time thus helps us examine the role of work characteristics, as suggested by trait activation theory. Because self-construals were salient due to direct priming, the significant interaction effect between the self-construal manipulation and the work characteristics manipulation on work unit-oriented proactive behavior may result from the function of job interdependence in supporting an expression of interdependent self-construal, in line with trait activation theory. In addition, because of the experimental design of our study, our results indicate a causal link between interdependent self-construals and work unit-oriented proactive behavior when job interdependence is emphasized.

However, this study did not examine the proposed mediation process. Our scenario-based measures of career-oriented or work unit-oriented proactive behavior also assessed participants' behavioral intentions, rather than their actual behavior. To overcome these limitations, we conducted a field study (Study 2) with a sample of subordinate-supervisor pairs. We measured subordinates' levels of independent and interdependent self-construals, job autonomy, and job interdependence while including career and work unit commitment as mediators and using supervisors' ratings of subordinates' career-oriented and work unit-oriented proactive behaviors.

## **STUDY 2: METHODS**

### **Participants and Procedure**

We collected data from two large companies in manufacturing industries in a southern province of China. With the assistance of human resources (HR) managers, we compiled a list of 423 subordinates randomly selected from more than 10,000 employees and their corresponding

supervisors (one supervisor rating per subordinate). We administered separate questionnaires to the subordinates and supervisors on the list. The HR department informed respondents that the survey aimed to examine their experience of HR practices and assured them of the confidentiality of their responses. Participants engaged in the survey voluntarily, without having specific rewards. Each respondent placed a completed survey in a sealed envelope and returned it to a box in the HR department. The final sample consisted of 205 subordinates and their corresponding 205 supervisors, with 90 pairs from one company and 115 pairs from the other. The response rate was 48.5%. All participants had similar demographic and work backgrounds. The average age was 33.02 years ( $SD = 7.46$ ), and the average organizational tenure was 6.31 years ( $SD = 4.24$ ). There were 83 female participants (40.5%). In terms of education, 5.4% held a middle school degree or below, 34.6% held a high school degree, 52.2% held a college degree, and 7.8% held a postgraduate degree. Participants from both companies included employees in research and development, technique and engineering, and administration. They had varying degrees of job autonomy and job interdependence, and direct supervisors managed their work.

In the first survey, we asked employees to provide information about their demographics (e.g., age, gender, education, tenure), self-construal type (independent or interdependent), work characteristics (job autonomy, job interdependence), and proactive personality and role breadth self-efficacy, as control variables. After two months, we asked them to rate their career commitment and work unit commitment, together with career self-efficacy, prosocial motivation, and future orientation as controls. This time-lagged survey procedure helped reduce common method effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Finally, two months after the employee survey, we asked supervisors to evaluate their subordinates' career-oriented proactive behavior and work unit-oriented proactive behavior.

## Measurement

Because our measures originally were constructed in English, we created Chinese versions, following the commonly used translation–back translation procedure (Brislin, 1970). All items are reported in Appendix B.

*Self-construal.* Independent and interdependent self-construals were measured using Lu and Gilmour's (2007) scale. On that scale, each type of self-construal features seven facets. Facets on the independent subscale include (1) being independent, unique and consistent; (2) expressing oneself; (3) realizing internal attributes; (4) promoting one's own goals; (5) being direct; (6) separation from in-group; and (7) self-reliance with hedonism. Facets on the interdependent scale include (1) belonging and fitting in, (2) occupying one's proper place, (3) engaging in appropriate action, (4) promoting others' goals, (5) being indirect, (6) family integration, and (7) interdependence with sociability. We used items assessing only the first five facets of each scale, for several reasons. First, the first five facets of both scales are identified in Markus and Kitayama's (1991, Table 1: 230) self-construal theory. Those facets are parallel and contrasting in terms of the association with others (being independent vs. belonging), behaving (expressing oneself vs. occupying one's proper place), self-understanding (realizing internal attributes vs. engaging in appropriate action), goal pursuit (promoting one's own goals vs. promoting others' goals), and communication style (being direct vs. being indirect). Second, items assessing separation from the in-group (e.g., "I believe that people should retain independence even from their family members") and family integration (e.g., "I believe that family is the source of our self") are specific to the role of family in self-construals. Because our focus is on behavior at work, we do not use these items. In their review of individualism/collectivism literature, Oyserman, Coon, and Kemmelmeier (2002) indicate the lack of consensus about whether

familialism should be included as an element of collectivism. Such conceptual inconsistency supported our decision to omit items regarding familialism and to avoid bringing the family context into our research. Third, self-reliance with hedonism and interdependence with sociability do not have parallel meanings. We omitted these two facets to ensure that we measured independent and interdependent self-construals on the same aspects. To assess the selected facets of independent/interdependent self-construals, we used two items with the highest factor loadings in Lu and Gilmour's (2007) report. We therefore had ten items for each self-construal. Average scores of the ten items indicated the level of independent/interdependent self-construal. The response scale ranged from 1 ("strongly disagree") to 5 ("strongly agree").

***Work characteristics.*** We used three items assessing job autonomy from Morgeson and Humphrey's (2006) work design questionnaire. We focused on decision-making autonomy at work, rather than work-method autonomy or time-scheduling autonomy, because decision-making autonomy has been examined in past proactivity research (e.g., Parker et al., 2006). Furthermore, it is likely to be critical for those high in independent self-construals to shape their work tasks for their career development. We used three items assessing job interdependence from Bishop and Scott (2000). The response scale ranged from 1 ("strongly disagree") to 5 ("strongly agree").

***Commitment.*** We measured career commitment and work unit commitment using the items developed by Ellemers, de Gilder, and van den Heuvel (1998). We selected three items with the highest factor loading in Ellemers et al.'s (1998) report for each type of commitment. The response scale ranged from 1 ("strongly disagree") to 5 ("strongly agree").

***Proactive behavior.*** Supervisors rated the two forms of proactive behavior: career-oriented and work unit-oriented. We measured career-oriented proactive career behavior using items

from Belschak and Den Hartog (2010) and Claes and Ruiz-Quintanilla (1998) and work-unit-oriented proactive behavior using items from Griffin et al. (2007). For all items, the response scale ranged from 1 (“not at all”) to 5 (“a great deal”).

***Control variables.*** In addition to basic demographic variables (e.g., age, gender, education, tenure) and company identification (participants were from two companies), we included proactive personality, future temporal focus, career self-efficacy, role breadth self-efficacy, and prosocial motivation in our analysis to control for their effects on proactive behavior. Proactive personality describes individual differences in behavioral tendencies for proactivity (Fuller & Marler, 2009; Tornau & Frese, 2013). As such, it was desirable to control for its impact, to gauge the incremental contribution of self-construals to explain different forms of proactive behavior. We included four items from Bateman and Crant’s (1993) measure with the highest factor loadings to assess this construct. This four-item scale has been applied in proactivity studies (e.g., Parker & Collins, 2010). Response categories ranged from 1 (“strongly disagree”) to 5 (“strongly agree”).

Future temporal focus refers to “the extent to which people devote their attention to the future” (Shipp, Edwards, & Lambert, 2009: 4). Because proactive behavior is future-focused by definition, it is reasonable to expect a positive association between future temporal focus and proactive behavior. Empirically, measures such as consideration of future consequences (Parker & Collins, 2010) and possible future selves (Strauss, Griffin, & Parker, 2012) have been linked to different types of proactive behavior. To examine the unique effect of self-construal type on shaping proactive behavior, we included future temporal focus as a control variable for both types of proactive behavior. We used four items developed by Shipp, Edwards, and Lambert (2009). Response categories ranged from 1 (“strongly disagree”) to 5 (“strongly agree”).

In addition, our focus is on the motivational mechanism of commitment as the proximal driver of different forms of proactivity, a form of “reason to” motivation according to Parker et al. (2010). Nevertheless, as reflected in Parker et al.’s (2010) reference to a “can do” motivational pathway, and as demonstrated empirically by many studies (see Bindl & Parker, 2010, for a review), an important proximal antecedent of proactivity is employees’ self-efficacy. We thus included a measure of career self-efficacy to control for its impact on career-oriented proactive behavior. To measure career self-efficacy, we adapted three items from a general self-efficacy scale (Chen, Gully, & Eden, 2001). Response categories ranged from 1 (“strongly disagree”) to 5 (“strongly agree”). We included role breadth self-efficacy (Parker, 1998) to control for its effect on work unit–oriented proactive behavior. Role breadth self-efficacy refers to people’s self-belief that they are able to engage in proactive, integrative, and interpersonal tasks beyond technical proficiency; it is especially important for facilitating proactivity at work (Ohly & Fritz, 2007). We used four items with the highest loadings in Parker’s report (1998; Parker & Collins, 2010). The response scale ranged from 1 (“not confident at all”) to 5 (“very confident”).

Finally, we controlled for the effect of prosocial motivation on work unit–oriented proactive behavior, because previous studies show that employees with a higher prosocial motivation tend to use their initiative to make additional contributions at work (e.g., Grant & Mayer, 2009). Controlling for its impact helped us examine a unique effect of interdependent self-construals in shaping work unit–oriented proactive behavior. We used four items that assess prosocial motivation (Grant, 2008). Response categories ranged from 1 (“strongly disagree”) to 5 (“strongly agree”).

## **Results and Discussion**

Table 2 presents the means, standard deviations, and correlations of all the variables.<sup>7</sup> We examined a measurement model that included all measured variables. In this model, we indicated independent/interdependent self-construal scales by five-item parcels according to their five facet scores. We indicated other constructs by individual items. We performed the estimation in Mplus (Muthén & Muthén, 2012). The fit of the measurement model was acceptable and better than alternative models (see Table 3).

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 Insert Tables 2 and 3 about here  
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We then examined our hypotheses regarding the joint effects of self-construals and work characteristics on the two forms of proactive behavior. We used structural equation modeling because it controls for measurement errors and is more flexible than regression analysis to specify associations between variables. We built a model to allow the two types of self-construal and the two work characteristics to predict both forms of proactive behavior; the model enabled us to comprehensively examine their associations with the two outcome variables. We also introduced a latent interaction effect of independent self-construal and job autonomy on career-oriented proactive behavior and a latent interaction effect of interdependent self-construal and job interdependence on work unit-oriented proactive behavior.<sup>8</sup> With regard to the control

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<sup>7</sup> We analyzed data from the two companies together, because employees from these companies had similar demographics and work backgrounds. The two companies did not exhibit significant differences on the research variables, as was evident by the non-significant correlations between the dummy variable of company and other research variables in Table 1. Correlation tables for all facets of the two types of self-construal are provided in Table A1, and their association with measures of the two types of commitment and proactive behavior are provided in Table A2.

<sup>8</sup> Due to an estimation problem, we did not specify items for job autonomy, job interdependence, proactive personality, future temporal focus, career self-efficacy, role



variables, we included direct effects of proactive personality and future temporal focus on both types of proactive behavior, a direct effect of career self-efficacy on career-oriented proactive behavior, and direct effects of role breadth self-efficacy and prosocial motivation on work unit-oriented proactive behavior. We did not include demographic variables (i.e., age, gender, education, tenure, company), because they did not have predictive effects on two types of commitment or proactive behavior in a preliminary analysis, so we removed them to reduce model complexity.

Of the several approaches available to examine interaction effects between latent variables (see Cortina, Chen, & Dunlap, 2001; Marsh, Wen, & Hau, 2004), we used latent moderated structural (LMS) equations (Klein & Moosbrugger, 2000) implemented in Mplus (Muthén & Muthén, 2012). Because a fit index for the LMS approach has not been developed, such that conventional approaches to model evaluation cannot be implemented, we used a likelihood ratio test to confirm that the latent interaction model was better than a model without interaction effects ( $\Delta 2LL [df = 2] = 13.04, p < .01$ ). Figure 1 presents the unstandardized estimates.

In support of Hypothesis 1, job autonomy and an independent self-construal had a significant and positive interaction effect on career-oriented proactive behavior ( $B = .39, p < .01$ ). A simple slope analysis (e.g., Aiken & West, 1991) showed that an independent self-construal had a stronger positive association with career-oriented proactive behavior when job autonomy was high (one SD above the mean) (simple slope =  $.37, p < .01$ ) but did not have a significant

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breadth self-efficacy, prosocial motivation, career-oriented, and work unit-oriented proactive behavior as categorical variables, as we did when testing measurement models. In this model, we treated all these items as continuous variables. In addition, to facilitate estimation of the latent interaction effects, we imposed factor loadings in the measurement model and left the parameters only in the structural part (i.e., associations between latent factors) for estimation. To estimate the model, we used the MLR estimator in Mplus (Muthén & Muthén, 2012) while specifying a random effect and a numerical integration approach.

association with career-oriented proactive behavior when job autonomy was low (one *SD* below the mean) (simple slope =  $-.15$ ,  $p > .10$ ) (see Figure 2<sup>9</sup>).

In support of Hypothesis 2, job interdependence and an interdependent self-construal had a significant and positive interaction effect on work unit-oriented proactive behavior ( $B = .28$ ,  $p < .05$ ). This simple slope analysis showed that the interdependent self-construal had a stronger positive association with work unit-oriented proactive behavior when job interdependence was high (simple slope =  $.35$ ,  $p < .01$ ) but did not have a significant association with work unit-oriented proactive behavior when job interdependence was low (simple slope =  $-.01$ ,  $p > .10$ ) (Figure 3). We obtained the same findings when the control variables were removed from the model.

We used the same approach to examine the moderated mediation hypotheses. We built a moderated mediation model in which the two types of self-construal and the two work characteristics could predict both career commitment and work unit commitment. We introduced a latent interaction effect of independent self-construal and job autonomy on career commitment and a latent interaction effect of interdependent self-construal and job interdependence on work unit commitment.<sup>10</sup> We specified the same effects for the control variables. The results of a likelihood ratio test indicated that the latent interaction model was better than a model without interaction effects ( $\Delta 2LL$  [ $df = 2$ ] =  $26.26$ ,  $p < .01$ ). Figure 4 presents the unstandardized estimates.

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<sup>9</sup> To facilitate interpretation of the interaction patterns in an original scale of outcome variables, we generated the interaction plots in Figures 2, 3, 5, and 6 based on regression analysis in which the composite scores of variables were used to predict outcome variables. We obtained the same interaction plots when estimates from structural equation models were used.

<sup>10</sup> In this model, we treated items for all constructs as continuous variables.

In support of Hypothesis 3, job autonomy and an independent self-construal had a significant and positive interaction effect on career commitment ( $B = .49, p < .01$ ). The simple slope analysis (e.g., Aiken & West, 1991) showed that an independent self-construal had a stronger positive association with career commitment when job autonomy was high (one SD above the mean) (simple slope =  $.51, p < .01$ ) but did not have a significant association with career commitment when job autonomy was low (one SD below the mean) (simple slope =  $-.15, p > .10$ ) (Figure 5<sup>7</sup>). We then used a distribution-of-the-product method implemented in the RMediation program (Tofighi & MacKinnon, 2011) to examine the mediation effect of career commitment when job autonomy was high or low. Mackinnon, Lockwood, and Williams (2004) and Pituch, Whittaker, and Stapleton (2005) provide evidence that the distribution-of-the-product method is more accurate than other methods in constructing confidence limits for an indirect effect. We found a positive and significant mediation effect of commitment on the association between independent self-construal and proactive career behavior when job autonomy was high (conditional mediation effect =  $.14, p < .01$ , 95% confidence interval [CI]:  $.05, .26$ ) but did not have a significant mediation effect when job autonomy was low (conditional mediation effect =  $-.04$ , 95% CI:  $-.12, .02$ ).

In support of Hypothesis 4, we found that job interdependence and an interdependent self-construal had a significant and positive interaction effect on work unit commitment ( $B = .57, p < .01$ ). The simple slope analysis showed that the interdependent self-construal had a stronger positive association with work unit commitment when job interdependence was high (simple slope =  $.61, p < .01$ ) but no significant association with work unit commitment when job interdependence was low (simple slope =  $-.16, p > .10$ ) (see Figure 6). Work unit commitment also had a positive, significant mediation effect on the association between an interdependent

self-construal and work unit-oriented proactive behavior when job interdependence was high (conditional mediation effect = .14, 95% CI: .05, .26) but did not have a significant mediation effect when job interdependence was low (conditional mediation effect =  $-.04$ , 95% CI:  $-.15$ , .06). We obtained the same findings when control variables were removed from the model.

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The results of Study 2 thus support our predictions. Employees with different types of self-construal engaged in different types of proactive behavior, especially when their work environments were consistent with their type of self-construal. Although these effects suggest that managers can rely on work designs to enhance proactive behavior, without considering the impact of self-construals, the interaction effects between work characteristics and self-construals dispute such a notion. In a supplementary analysis, we found that job autonomy was positively related to career-oriented proactive behavior only among those high in independent self-construals (simple slope = .36,  $p < .01$ ), and job interdependence positively related to work unit-oriented proactive behavior only among those high in interdependent self-construals (simple slope = .20,  $p < .05$ ). When we included commitment variables as mediators, we found that job autonomy related positively to career commitment, and thus career-oriented proactive behavior, only among those high in independent self-construals (conditional mediation effect = .15,  $p < .01$ ) and that job interdependence positively related to work unit commitment, and thus work unit-oriented proactive behavior, only among those high in interdependent self-construals (conditional mediation effect = .14,  $p < .05$ ). Therefore, whether we treat self-construals or work characteristics as independent variables or moderators, both self-construals and work

characteristics should be considered together for the sake of trait–situation consistency in triggering self-construal–related proactive behavior. Moreover, we examined interaction effects based on other combinations of self-construals and work characteristics. Except for our proposed interaction effects, these other interaction effects were not significant.

Despite these encouraging findings in support of our proposed framework, we encountered an unexpected finding: Strong interdependent self-construal had a significant positive association with career commitment, such that those who are more other-focused also tend to be focused on career development. Also, we found that career self-efficacy has a stronger correlation with work unit commitment than career commitment. A potential explanation for this finding is that our participants are from China, and in Chinese culture, individual career achievement has relational meaning tied to family expectations (Yu, 1996). Perhaps career success and status have more relational meanings to our participants than we theorized. This speculation should be examined further.

## **GENERAL DISCUSSION**

In these studies, we offer a theoretical framework to strengthen understanding of individual motivations for practicing various forms of proactive behavior. Drawing on self-construal and trait activation theories, we propose that an individual self-construal, or conception of individuality, directs a person’s attention to goals and behaviors that can be used to express and achieve her/his self-construal when that person also is exposed to self-construal–relevant situations.

In Study 1, we conducted an experiment to examine the applicability of trait activation theory and establish a causal link between self-construal type and proactive behavior in specific work conditions. We achieved these two research goals using a priming technique. As we

hypothesized, those primed with an interdependent self-construal engaged in more work unit-oriented proactive behavior when job interdependence was also manipulated. We replicated this effect in Study 2 and found that employees higher in chronic interdependent self-construals engaged in more work unit-oriented proactive behavior when job interdependence was high. Furthermore, employees higher in chronic independent self-construals engaged in more career-oriented proactive behavior when job autonomy was high. Extending the findings of Study 1, Study 2 reveals that those higher in independent self-construals had higher career commitment and thus engaged in more career-oriented proactive behavior when they had higher job autonomy. Those higher in interdependent self-construals had higher work unit commitment and engaged in more work unit-oriented proactive behavior when they had higher job interdependence.

### **Theoretical and Practical Implications**

Our studies extend proactivity literature that typically identifies and examines core processes and antecedents across multiple forms of proactivity (e.g., Parker et al., 2010). We adopt and strengthen a differential approach to understanding when and why different forms of proactive behavior occur. This differential approach has important implications. First, it helps us understand why people differ in their proactive striving to influence different targets and achieve different goals. Because proactive behavior is self-initiated and likely determined by personal values and interests, it results in individual differences in the extent to which people engage in proactive behavior. The way people define themselves in relation to others—that is, whether they define themselves as independent or interdependent—shapes the direction of their proactive behavior with regard to enhancing individual career development or improving work unit effectiveness. Our findings suggest that workers with both independent and interdependent

self-construals can be proactive, but in different ways, supporting the notion that proactivity is a means for achieving goals (Grant & Ashford, 2008). De Dreu and Nauta (2009) report that employees higher in self- or other-orientation have higher personal initiative (a general measure of proactive behavior). Our investigation extends this finding by showing that the proactive strivings of employees differ according to their orientations.

Second, our differential approach highlights the importance of specific work contexts in shaping proactive behavior. Although situational factors have been widely examined in proactivity literature (see Bindl & Parker, 2010, for a review), to our knowledge, the investigation of how these factors drive different forms of proactive behavior has been limited. This research gap exposes the need to use a differential approach to understand proactive behavior, given that situations determine the opportunities associated with specific behaviors (Johns, 2006). In support of this view, our use of trait activation theory indicates that different work characteristics can shape different specific proactive behaviors by enabling employees to express their conceptions of individuality. By taking a differential approach, we delve into the joint effects of dispositional and situational factors in shaping specific proactive behaviors and find that dispositional factors can determine the direction of a person's proactivity striving, and situational factors can determine the contextual capacity to support such proactivity striving. To date, a few studies have adopted an interactionist perspective to examine proactive behavior (e.g., Grant & Rothbard, 2013; Wu & Parker, in press; Wu, Parker, & de Jong, 2014), but they have not used an interactionist approach to differentiate forms of proactive behavior. Our research thus furthers interactionist analyses of different forms of proactive behavior.

By emphasizing the importance of accounting for different forms of proactive behavior, we also extend the theoretical underpinnings of this approach. Several studies have categorized

proactive behavior into different forms (Belschak & Den Hartog, 2010; Griffin et al., 2007; Parker & Collins, 2010). However, these studies have not offered a theoretical framework to understand why and when people engage in different proactive behaviors. Our framework, which incorporates self-construal and trait activation theories, extends previous work that seeks to know *what* (i.e., differences between specific forms of proactive behavior) to knowing *why* (i.e., why people engage in different forms of proactive behavior). Our research supports the development of a more comprehensive framework to understand proactive behavior.

Our focus on the role of self-construals in shaping proactive behavior supports the notion that “A ... reason to set and strive for proactive goals is to fulfill important life goals or express values that are central to the self” (Parker et al., 2010, p. 837). Self-construal, defined as one’s conception of individuality, shapes fundamental life goals and values central to the self (Markus & Kitayama, 1991); it can be a powerful antecedent of shaping the direction of proactivity striving and determining specific proactive behavior. From a motivational perspective, self-construals generate internal reasoning for determining a sense of bringing about a different future and evoking a “reason to” process in shaping proactive behavior (Parker et al., 2010). Such reasoning to process, according to self-construal theory, is a goal regulation process sustained by a motive to express a conception of individuality. This notion not only helps explain why people differ in the extent to which they engage in different forms of proactive behavior but also suggests that they might not pursue proactive behavior merely to obtain positive outcomes. For example, though career-oriented proactive behavior (e.g., career initiative) and work unit-oriented proactive behavior (e.g., innovation and voice) can both facilitate work success (e.g., Hornung et al., 2009; Liu et al., 2013; Whiting et al., 2008), in Study 2, the independent self-construal has a positive association with career-oriented proactive behavior but not with



work unit-oriented proactive behavior. Similarly, an interdependent self-construal has a positive association with work unit-oriented proactive behavior but not with career-oriented proactive behavior. These findings suggest that employees with different types of self-construal tend to engage in different proactive behaviors to express their conceptions of individuality, rather than for more instrumental reasons such as achieving success. To understand the roles of different motives in shaping proactive behavior, we encourage studies that measure and examine different motives directly.

Nevertheless, whether people can express their self-construals in specific forms of proactive behavior depends on the characteristics of their work environment. In two studies, using different research methods, we consistently find that work characteristics support the expression of self-construals in concrete, proactive behavior. This finding suggests a different way in which work designs may shape proactive behavior, beyond that we have already considered. The motivational perspective adopted by past theories suggests that particular work designs, such as offering high job autonomy, motivate proactive behavior by enhancing self-efficacy or other motivational orientations (e.g., Grant, 2007; Parker et al., 2006). By going beyond this view, we suggest that work design can promote proactive behaviors by supporting the expression of self-construals. Although further research is needed to test the specific processes by which work characteristics moderate the link between self-construals and proactive behavior, we speculate that a specific type of self-construal might be continuously reinforced by certain work characteristics. This prediction raises the intriguing possibility that, over time, work designs can contribute to self-development and actualization by shaping self-construals. In line with this idea, several studies indicate that work design factors influence self-views or personalities over time (e.g., Kohn & Schooler, 1978; Schooler, Mulatu, & Oates, 2004; Wu, 2016; Wu, Griffin, &

Parker, 2015). Scholars also have theorized about the long-term effects of work design on identity development (Parker, 2014). Our study suggests a specific way such a process might operate, such that the work design evokes and sustains a dynamic link between self-construal and behavior to reinforce conceptions of individuality over time. Such speculations about this longitudinal effect are worth further pursuit.

Practically, our studies suggest ways to enhance specific forms of proactive behavior in the workplace. The results of Study 1 suggest that it is possible to enhance work unit-oriented proactive behavior by emphasizing interdependent self-construals at work, especially for work that requires interdependent activities among employees. We used a sentence construction task to prime interdependent self-construals, but in practice, an emphasis on interdependent self-construals at work can be conveyed by (1) having managers construct strong team identifications for subordinates performing the same work (Jung & Sosik, 2002), (2) helping subordinates understand how their work fits to a bigger picture involving others' work (Zhang & Bartol, 2010), and (3) communicating the value of team and collective work in relational work practices (Parker, Atkins, & Axtell, 2008).

The results of Study 2 also suggest that knowledge of employees' dispositional tendencies for motivating distinct forms of proactivity can help organizations select and train employees for particular contexts to direct proactive effort. For example, in professions that emphasize independent work and personal development, such as professional contractors, having employees with higher independent self-construals is likely desirable; they are more likely to engage in activities to facilitate their personal growth, such as seeking out development opportunities and staying up-to-date on environmental changes. In contrast, in professions that emphasize interdependent work and collective outcomes, such as mining, engineering, or healthcare in

intensive care units, it is desirable to have employees with higher interdependent self-construals, because then they will tend to notice their team roles and put proactive effort into maximizing their contributions to achieve collective goals.

No matter whether self-construal is manipulated or chronic, our studies highlight that managers should pay attention to the alignment between work environment and employee self-construals. Work designs can facilitate particular forms of proactive behavior. For example, if more collective-oriented proactivity is required, managers should seek to create interdependent work structures and overtly communicate interconnections among employees.

### **Limitations and Further Research**

Our studies have several limitations. First, to provide a stringent test in Study 1, we used the contents of sentences in the self-construal priming task to exclude almost two-thirds of participants from analysis. This exclusion did not threaten the internal validity of the results because we randomly assigned participants to different experimental conditions. Those included in our analysis did not differ from their excluded counterparts in their demographic backgrounds. In fact, the exclusion helps increase internal validity as only participants who generated sentences showing a good level of independent or interdependent self-construal were included (see Footnote 5 for more information). We also obtained the same results using a different analytic approach, ordinal regression analysis, and we demonstrated that the findings are not influenced by a few participants by conducting sensitive analysis. Nevertheless, future studies should cross-validate our findings because the sample size of participants was relatively small and might produce unreliable results.

Second, in Study 2, we assessed predictors and mediators using a self-report method that could have resulted in common method bias and thereby threatened the validity of our

conclusions (Podsakoff et al., 2003). We reduced the chance of common method bias (Podsakoff et al., 2003) by using a time-lagged design. Moreover, the two work characteristic variables had different interaction effects with the two types of self-construal in predicting corresponding commitment, which could not be obtained if the variables shared a high proportion of covariance (Siemsen, Roth, & Oliveira, 2010).

Third, in Study 2, our sample of participants, used to examine individual differences in independent and interdependent self-construals, came from a culture (China) that strongly promotes interdependent self-construal (see Cross et al., 2011, for a review), raising the question of potential range restriction on independent self-construal. However, the mean score of independent self-construals in Study 2 was slightly higher than the mean score of interdependent self-construals. We also had enough variation in these two self-construal variables to describe an individual difference phenomenon (e.g., participants' scores on the two self-construal variables ranged from 1–5 on a 5-point Likert scale). These findings suggest that our sample was not restricted to those with higher interdependent self-construals. The means and standard deviations of independent self-construals ( $M = 3.68$ ,  $SD = .65$ ) and interdependent self-construals ( $M = 3.35$ ,  $SD = .58$ ) also were comparable to those obtained from the British sample ( $M = 4.83$ ,  $SD = .64$  for independent self-construal,  $M = 4.37$ ,  $SD = .62$  for interdependent self-construal, on 7-point scales) in the original scale development study (Lu & Gilmour, 2007). Although the Chinese sample appeared appropriate for our study purposes, we remained concerned that the results obtained from this sample might not generalize to samples from cultures promoting independent self-construals. We alleviated this concern by taking the results of Study 1 into account. We manipulated self-construal types in Study 1 and conducted the study with a sample from the United States, a culture that strongly promotes independent self-construals. Those primed with

interdependent self-construals engaged in more work unit-oriented proactive behavior when job interdependence was emphasized, so we are confident that our proposed trait activation mechanism can be generalized to samples with different cultural backgrounds.

Fourth, the generalizability of job type is a further issue in Study 2, because we tested our hypotheses using technical and administrative employees from two large manufacturing companies. Although this approach has the advantage of holding organizational and job context factors constant, it leaves the question of the generalizability of the findings to other organizations and job categories open. To increase generalizability, other studies could examine our findings across multiple organizational and job contexts. Because the theoretical ideas in our study can be broadly applied to proactive behavior, we are optimistic that our findings will generalize. As noted by Highhouse and Gillespie (2009), convenience sampling is an issue only when the researcher seeks to make conclusions about a specific population; otherwise, the concern is whether the theory is applicable for the sample being studied. We believe our theories are applicable to our sample in Study 2. Moreover, we recruited participants in Study 1 without constraining their organizational or job contexts and directly manipulated self-construal and work characteristics. This experimental approach helped us alleviate concern about the generalizability of the organizational and job contexts.

Fifth, our studies are not longitudinal; we did not assess the dynamic associations between research variables over time. This limitation prevents us from understanding associations between self-construals and work environment, such as whether people with higher types of self-construal are more likely to choose or create environments that are consistent with those self-construals. To date, associations of self-construals and related concepts with job autonomy or job interdependence have been examined only in cross-sectional studies; these results are

inconsistent. On the one hand, we found a significant and positive link between interdependent self-construals and job interdependence ( $r = .17, p < .05$ ) but a null association between independent self-construals and job autonomy ( $r = .09, p > .10$ ) in Study 2. On the other hand, De Dreu and Nauta (2009) indicate that both self-orientation and other-orientation at work relate positively to job autonomy, across two samples. If we consider findings related to collectivism/individualism and job autonomy/job interdependence, we find inconsistencies. For example, Man and Lam (2003) report a null association between collectivism/individualism and job autonomy. Ramamoorthy and Flood (2004) report inconsistent associations between facets of a collectivism/individualism measure and job interdependence. These inconsistencies may arise because people lack a dominant self-construal, such that their self-construals are not strongly independent or strongly interdependent. In the pilot study samples ( $n = 352$  from United Kingdom; Appendix A) and in Study 2 ( $n = 205$  from China), we found that 79.0% and 68.3% of participants, respectively, have differences in their self-reported independent and interdependent self-construals within one point on the 7-point (U.K. sample) or 5-point (China sample) scales. If people lack a salient self-construal, they are unlikely to select their work environment according to their self-construal; this lack of salience could explain the inconsistent research findings and make our proposed trait activation mechanism more relevant. Overall, these mixed findings suggest the need to delve deeper into the association between self-construal types and work environment. Observing the association over time can paint a clearer picture.

We know little about whether specific work environments can shape self-construal in the long run when a specific type of self-construal is continually emphasized and encouraged at work. But it is theoretically and practically important to examine how proactive behavior shapes self-construals and work characteristics, because such knowledge advances understanding of

how people can use initiative to shape their personal and work situations. In a longitudinal study, Frese, Garst, and Fay (2007) examine the dynamics among individual control orientations, work characteristics, and proactive behavior and indicate the possibility that individual proactive behavior can shape orientations and therefore work environments. However, these authors do not differentiate types of proactive behavior or dispositional and situational factors. We recommend that further research include a longitudinal design to clarify the dynamics across dispositional attributes, situational factors, and different types of proactive behavior over time.

## **Conclusion**

The term “proactive behavior” has been used to describe self-initiated behavior that aims to bring about constructive changes for a better future. Scholarly investigation of this broad concept has advanced understanding of the commonality of various forms of proactive behavior. However, we need to focus more closely on different forms of proactive behaviors to answer theoretical and managerial questions about why employees engage in them and how specific forms of proactive behavior can be promoted. In this study, we provide a theoretical framework based on self-construal theory and trait activation theory to delineate an interactive effect between personal and situational factors in driving different forms of proactive behavior. With this generic framework, we help clarify why employees engage in different forms of proactive behavior, and the results of our mixed-method research suggest ways to promote the specific forms. The alignment of employees’ self-construals with their work environments is critical to driving specific forms of proactive behavior. To promote a specific form of proactive behavior, managers can emphasize a particular type of self-construal by enhancing the salience of that self-construal type at work or by selecting employees on the basis of their dispositional

self-construal type, then using a work design that aligns self-construals with the work environment.



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**Table 1**  
**Means and Standard Deviation of Two Types of Proactive Behavior in Study 1**

<b>Manipulation of self-construal</b>	Independent self-construal		Interdependent self-construal	
<b>Manipulation of work characteristics</b>	Job autonomy	Job interdependence	Job autonomy	Job interdependence
<i>N</i>	14	18	16	13
<b>Career-oriented proactive behavior</b> <i>M (SD)</i>	0.64 (1.45)	0.78 (1.35)	0.94 (1.28)	0.77 (1.36)
<b>Work unit-oriented proactive behavior</b> <i>M (SD)</i>	0.79 (1.53)	0.50 (1.38)	0.25 (1.81)	1.46 (0.88)

**Table 2**  
**Descriptive Statistics**

Variables	M	SD	Correlations																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Age	33.03	7.46	--																	
2. Gender	0.40	0.49	-.03	--																
3. Education	--	--	.02	.12	--															
4. Company (dummy coding)	--	--	-.15	-.15	.03	--														
5. Tenure (year)	6.31	4.25	.61	-.03	-.05	-.07	--													
6. Proactive personality	3.53	0.66	.02	.01	-.04	-.04	.09	.76												
7. Future temporal focus	3.57	0.70	.05	.04	.13	-.01	.02	.22	.85											
8. Career self-efficacy	3.31	0.82	.04	.02	.04	.04	.10	.25	.08	.81										
9. Role breadth self-efficacy	3.54	0.62	-.01	.09	-.08	.07	.07	.29	.08	.12	.82									
10. Prosocial motivation	3.39	0.68	.08	-.01	.02	-.03	.07	.14	.01	.08	.11	.75								
11. Job autonomy	3.41	0.72	.05	.04	-.05	-.07	.02	.31	-.05	.08	.40	.16	.73							
12. Job interdependence	3.62	0.73	.02	-.09	-.01	-.10	.17	.21	.10	.27	.22	.10	.07	.82						
13. Independent self-construal	3.35	0.65	-.01	.01	-.04	-.05	.12	.07	.02	.01	.10	.06	.09	.06	.93					
14. Interdependent self-construal	3.68	0.58	-.05	-.09	.02	-.03	.01	.13	-.07	.15	.13	.20	.06	.17	.03	.92				
15. Career commitment	3.37	0.79	.01	-.09	-.08	.06	-.03	.20	.07	.04	.17	.12	.31	.06	.18	.19	.85			
16. Work unit commitment	3.24	0.79	.08	-.01	.01	-.10	.13	.32	.08	.32	.21	.22	.25	.31	.02	.24	.18	.85		
17. Career-oriented proactive behavior	3.82	0.67	.09	.01	-.14	-.01	.09	.29	.21	.13	.16	.11	.26	.11	.14	.03	.37	.12	.79	
18. Work unit-oriented proactive behavior	3.67	0.77	.09	.00	-.10	.06	.15	.20	.19	.23	.27	.19	.16	.21	.12	.19	.27	.29	.49	.84

N = 205;  $|r| > .14, p < .05$ ;  $.18 > |r| > .14, p < .01$ ;  $|r| > .18, p < .001$ .

Note: Gender: "0" – Male; "1" – Female. Education: "1" – Middle school or below degree; "2" – High school degree; "3" – College degree; "4" – Postgraduate degree. Values of Cronbach's alpha are presented on the diagonal of the correlation matrix.

**Table 3**  
**Model Fits of Measurement Models in Study 2**

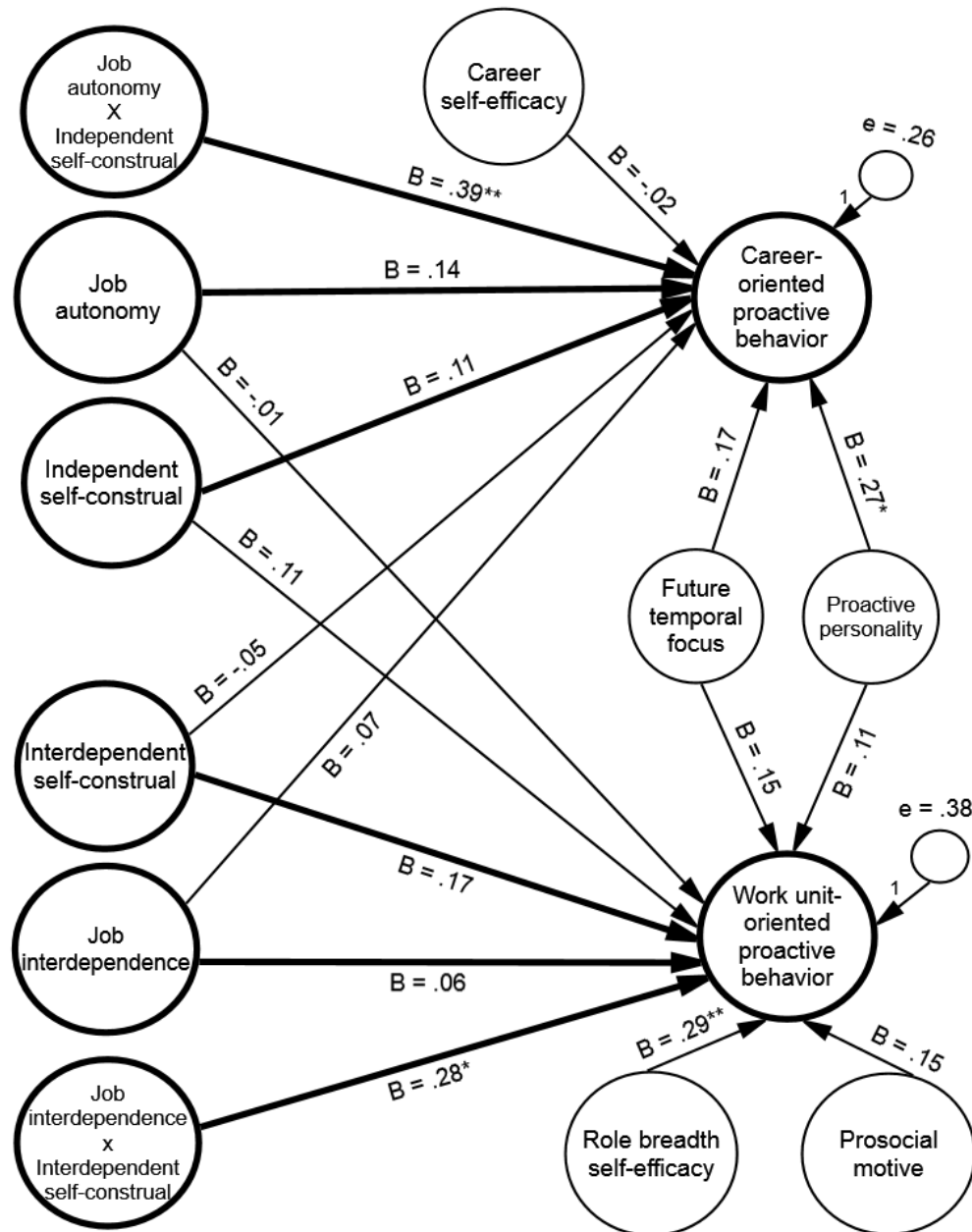
	<i>WLSMV-<math>\chi^2</math></i> <sup>a</sup>	<i>df</i>	$\Delta\chi^2$	CFI	TLI	RMSEA (90% C.I.)
Thirteen-factor model <sup>b</sup>	1242.12	956		.95	.95	.038 (.032-.044)
Single-factor model <sup>c</sup>	4214.43	1034	2972.31 (df = 78) **	.46	.44	.122 (.119-.126)
Two-factor model <sup>d</sup>	3815.09	1033	2572.97 (df = 77) **	.53	.51	.115 (.111-.119)
Four-factor model <sup>e</sup>	3231.11	1028	1988.99 (df = 72) **	.63	.61	.102 (.098-.106)
Twelve-factor model <sup>f</sup>	1326.21	968	84.09 (df = 12) **	.94	.93	.042 (.037-.048)

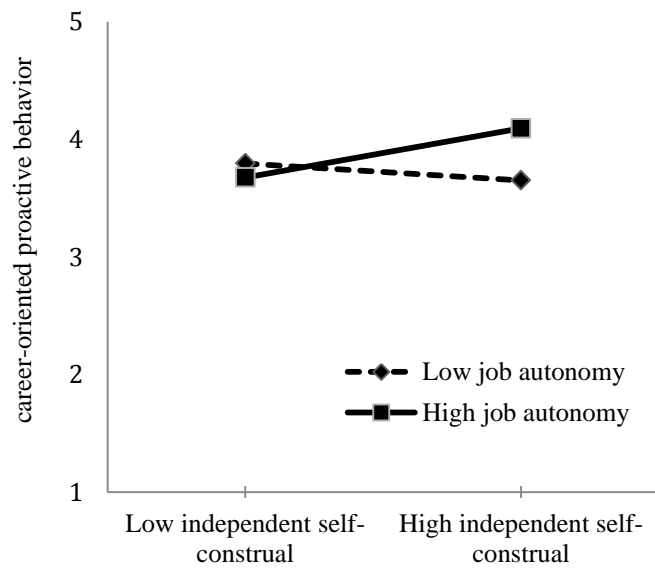
- a: Items for job autonomy, job interdependence, career commitment, team commitment, proactive personality, future temporal focus, career self-efficacy, role breadth self-efficacy, prosocial motivation, career-oriented proactive behavior, and work unit-oriented proactive behavior were regarded as categorical variables. Estimator of WLSMV in Mplus (Muthén & Muthén, 2012) was used to estimate models with categorical variables.
- b: In this model, items or facets for independent self-construal, interdependent self-construal, job autonomy, job interdependence, career commitment, team commitment, proactive personality, future temporal focus, career self-efficacy, role breadth self-efficacy, prosocial motivation, career-oriented proactive behavior, and work unit-oriented proactive behavior were influenced by different factors respectively.
- c: In this model, there is only one factor influencing all employee-report variables.
- d: In this model, one factor influenced employee-report variables and the other factor influenced supervisor-report variables.
- e: In this model, one factor influenced employee-report variables assessed at Time 1, and the other factor influenced employee-report variables assessed at Time 2; career-oriented proactive behavior and work unit-oriented proactive were influenced by two other factors respectively.
- f: In this model, items for career-oriented and work unit-oriented proactive were influenced by the same factor, and items or facets for other variables were influenced by their own factors respectively.

Figure 1

## Unstandardized Estimates of the Model with Interaction Effects on Proactive Behavior

\*  $p < .05$ , \*\*  $p < .01$ . Core research variables and associations displayed in bold.



**Figure 2****Interaction Plot of Independent Self-Construal and Job Autonomy in Predicting Career-Oriented Proactive Behavior**

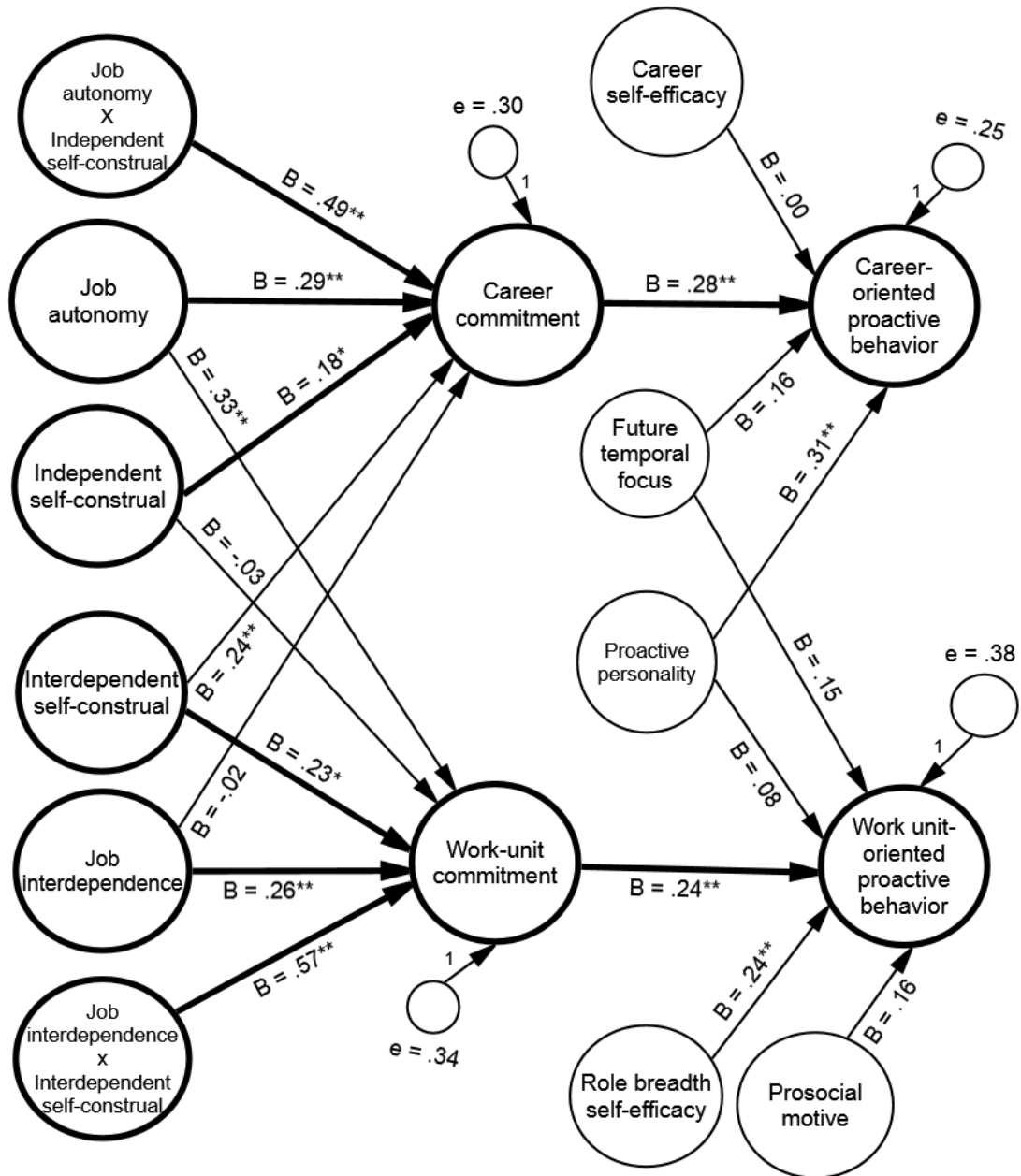


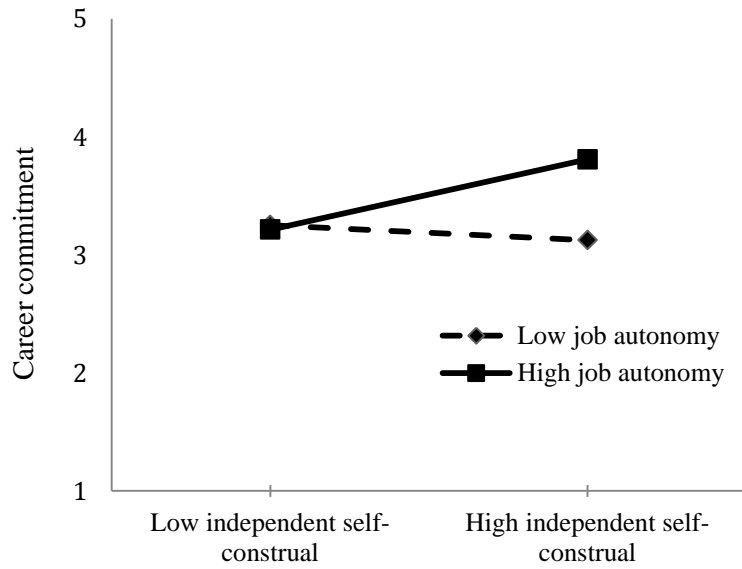
**Figure 3****Interaction Plot of Interdependent Self-Construal and Job Interdependence in Predicting****Work Unit–Oriented Proactive Behavior**

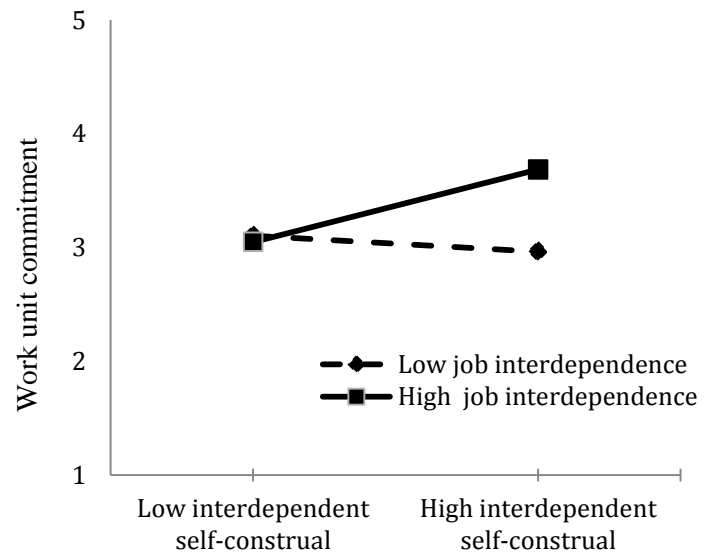
Figure 4

## Unstandardized Estimates of the Moderated Mediation Model

\*  $p < .05$ , \*\*  $p < .01$ . Core research variables and associations displayed in bold.



**Figure 5****Interaction Plot of Independent Self-Construal and Job Autonomy in Predicting Career****Commitment**

**Figure 6****Interaction Plot of Interdependent Self-Construal and Job Interdependence in Predicting****Work Unit Commitment**

## APPENDIX A

### Pilot Study of Sentence Construction Task for Self-Construal Priming

#### *Sample and Procedure*

A total of 352 participants from United Kingdom who had full-time jobs or work experience for at least three years were recruited from Prolific Academic, an online platform for recruiting participants for academic research. Participants in the panel of Prolific Academic voluntarily registered their accounts and verified them by providing email addresses and phone numbers or Facebook account information. We invited only participants who had British nationality, were based in the United Kingdom, and had English as their first language. In this sample, 140 were males and 212 were females. Age ranged from 21–62 ( $M = 35.33$ ,  $SD = 9.27$ ). Most (83.5%) had work experience of more than seven years. A total of 111 participants (31.5%) had managerial responsibility. Most (74.7%) had a college bachelor degree or above. In terms of ethnicity, most (93.5%) were white.

We asked participants to complete an online study after reading participation information in which confidentiality and anonymity were ensured. Participants were informed that the study was a research project to understand employees' attitudes and behaviors at work. The 352 participants were requested to complete a survey at Time 1, containing a self-construal scale for measuring participants' chronic independent self-construal and interdependent self-construal with five facets for each. Each participant received 1 GBP for participation. Self-construal type (independent/interdependent) was measured by 10 items retrieved from Lu and Gilmour (2007) (see Appendix B). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). We examined a measurement model in which independent self-construal and interdependent self-construal were indicated by their five facets. We performed estimation in Mplus (Muthén & Muthén, 2012) and obtained results generally supporting the two-factor model ( $\chi^2 = 113.50$ ,  $df =$

34; CFI = .90; TLI = .85; RMSEA = .082, with a 90% C.I. = .065 to .098; SRMR = .056). Both independent and interdependent self-construal were positively but not strongly correlated ( $r = .40$ ,  $p < .01$ ).

After one week (Time 2), all participants were invited to take part in a second survey that began with the sentence construction task for self-construal priming. A total of 181 participants responded. The respondents did not differ in the levels of independent/interdependent self-construal from those who did not respond ( $t(350) = 0.26$ ,  $p > .10$ , for independent self-construal;  $t(350) = 1.58$ ,  $p > .10$ , for interdependent self-construal). Results of chi-square tests also indicated that the respondents did not differ from non-respondents in terms of gender, age, education, tenure within the organization, work experience, or ethnicity ( $p$ 's  $> .10$ ). They received 2.5 GBP for their participation.

When participants started the survey at Time 2, they were told to perform a concentration task, i.e., the sentence construction task. They were randomly assigned to one of the self-construal priming conditions. Specifically, in the independent self-construal condition, participants were asked to construct 10 sentences using words including "I," "me," "mine," "individual," "own," "different," "unique," and "assertive." In the interdependent self-construal condition, participants were asked to construct 10 sentences using words including "we," "us," "ours," "together," "share," "integrate," "alliance," and "harmony." Ninety-one participants were assigned to the independent self-construal condition and 90 were assigned to the interdependent self-construal condition.

Immediately following sentence construction, participants were asked to rate their state of independent/interdependent self-construal with four items, followed by questionnaires that were irrelevant to this pilot study. The items for independent orientation were "I believe that people

should fully realize their potential,” and “I believe that people should have their own ideals and try hard to achieve them.” The items for interdependence orientation were “I believe that people should find their place within a work group,” and “I believe that success of the work group is more important than success of the individual.” We used only these items because they emphasized the dimensions of independent self-construal (i.e., realizing internal attributes and promoting one’s own goal) and the dimension of interdependent self-construal (i.e., finding one’s proper place in a group and promoting collective goals) that did not directly relate to the meaning of words used for sentence construction (e.g., ‘unique’ or ‘harmony’). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). Results of exploratory factor analysis supported a two-factor structure in which the two items for independent self-construal (factor loadings = .74 and .81) and the two items for interdependent self-construal (factor loadings = .49 and .52) were loaded on different factors. The two factors were moderately correlated ( $r = .35$ ). These two factors altogether explained 71.78% of the variances of the four scores.

### ***Results***

We first judged sentences generated by each participant. For each participant, the first author and one research assistant read all sentences independently and counted the number of sentences that reflected features of independent and interdependent self-construal. Each participant’s score ranged from 0–10. Inter-rater reliability (ICC based on a two-way mixed effect model for absolute agreement) (McGraw & Wong, 1996) was .86. An average score was calculated to indicate a participant’s quality of sentence creation ( $M = 4.65$ ,  $SD = 2.38$ ). For each condition, we did not find a significant correlation between the sentence construction score and the participants’ chronic independent and interdependent self-construal, indicating that whether

an individual generated more or less qualified sentences was independent of their chronic self-construal. Based on the average score, we retained only those who received a score higher than 5 (i.e., those who provided more than five sentences reflecting features of an independent/interdependent self-construal); thus, we included 74 participants for our final analysis. These participants did not differ in their demographic backgrounds from those who were removed from further analysis.

Next, we performed an independent  $t$  test to examine whether participants in different priming conditions differed in their states of independent and interdependent self-construal immediately following the sentence construction task. Results indicated that those in the independent self-construal condition had stronger independent states ( $M = 6.35$ ,  $SD = 0.57$ ,  $n = 30$ ) than those in interdependent self-construal condition ( $M = 5.85$ ,  $SD = 0.70$ ,  $n = 44$ ) ( $t(72) = 3.21$ ,  $p < .01$ , Cohen's  $d = 0.78$ ); those in interdependent self-construal condition had stronger interdependent states ( $M = 5.55$ ,  $SD = 0.87$ ,  $n = 44$ ) than those in the independent self-construal condition ( $M = 5.05$ ,  $SD = 0.98$ ,  $n = 30$ ) ( $t(72) = 2.28$ ,  $p < .05$ , Cohen's  $d = 0.54$ ).

We then conducted regression analysis by including a priming condition (a dummy variable with 0 for the independent self-construal condition and 1 for the interdependent self-construal condition) and chronic independent/interdependent self-construal as predictors for the independent/interdependent self-construal state. With regard to the independent self-construal state, we found that those in the independent self-construal condition still had stronger independent states than their counterparts ( $b = -.42$ ,  $t(70) = -3.06$ ,  $p < .01$ ) when the effects of chronic independent ( $b = .60$ ,  $t(70) = 4.55$ ,  $p < .01$ ) and interdependent self-construal ( $b = .02$ ,  $t(70) = -0.42$ ,  $p > .01$ ) were taken into account. With regard to the interdependent self-construal state, we found that those in the interdependent self-construal condition still had a stronger



interdependent state ( $b = .55$ ,  $t(70) = 2.62$ ,  $p = .01$ ) when the effects of chronic independent ( $b = .18$ ,  $t(70) = 1.00$ ,  $p > .01$ ) and interdependent self-construal ( $b = .72$ ,  $t(88) = 4.75$ ,  $p < .01$ ) were taken into account.

We also explored interaction effects between the priming condition and chronic independent/interdependent self-construal on independent/interdependent self-construal state. With regard to the independent self-construal state, when interaction effects were additionally included, we only obtained significant main effects of the priming condition ( $b = -.41$ ,  $t(68) = -2.88$ ,  $p < .01$ ) and chronic independent self-construal ( $b = .39$ ,  $t(68) = 2.68$ ,  $p < .01$ ). With regard to the interdependent self-construal state, we found significant main effects of the priming condition ( $b = .44$ ,  $t(68) = 2.39$ ,  $p < .05$ ) and chronic interdependent self-construal ( $b = .54$ ,  $t(68) = 3.72$ ,  $p < .01$ ). We also found a significant interaction effect between the priming condition and chronic independent self-construal ( $b = .57$ ,  $t(68) = 2.65$ ,  $p = .01$ ). This interaction effect suggests that interdependent self-construal priming was very useful to induce an interdependent state, especially for those who tend to define themselves in an independent way.

Overall, these findings suggest that the sentence construction task can effectively induce a state of self-construal in an expected way.

## APPENDIX B

### Items for Measures

#### **Task interdependence** (Bishop & Scott, 2000)

1. I frequently must coordinate my efforts with others.
2. Jobs performed by team members are related to one another.
3. For the team to perform well, members must communicate well.

#### **Decision-making job autonomy** (Morgeson & Humphrey, 2006)

1. My job gives me a chance to use my personal initiative or judgment in carrying out the work.
2. My job allows me to make a lot of decisions on my own.
3. My job provides me with significant autonomy in making decisions.

#### **Career self-efficacy** (Adapted from Chen et al., 2001)

1. When facing difficult tasks for my career development, I am certain that I will accomplish them.
2. In general, I think that I can obtain career outcomes that are important to me.
3. I believe I can succeed at most any endeavor to which I set my mind for my career.

#### **Role-breadth self-efficacy** (Parker, 1998)

1. Analyzing a long-term problem to find a solution
2. Representing your work area in meetings with senior management
3. Designing new procedures for your work area
4. Making suggestions to management about ways to improve the working of your section

#### **Proactive personality** (Bateman & Crant, 1993)

1. No matter what the odds, if I believe in something I will make it happen.
2. I love being a champion for my ideas, even against others' opposition.
3. I excel at identifying opportunities.
4. If I believe in an idea, no obstacle will prevent me from making it happen.

#### **Prosocial motivation** (Grant, 2008)

1. I am motivated to work because I care about benefiting others through my work.
2. I am motivated to work because I want to help others through my work.
3. I am motivated to work because I want to have positive impact on others.
4. I am motivated to work because it is important to me to do good for others through my work.

#### **Future temporal focus** (Shipp et al., 2009)

1. I think about what my future has in store.
2. I think about times to come.
3. I focus on my future.
4. I imagine what tomorrow will bring for me.

#### **Independent self-construal** (Lu & Gilmour, 2007)

##### **Being independent, unique, and consistent**

I believe that people should be unique and different from others.

For myself, I believe that others should not influence my self-identity.

##### **Expressing oneself**

I believe that people should express their feelings in interpersonal interactions.

I believe that interpersonal communication should be direct.

##### **Realizing internal attributes**

I believe that people should try hard to satisfy their interests.

I believe that people should fully realize their potential.

**Promoting one's own goal**

I believe that people should have their own ideals and try hard to achieve them.

I believe that once a goal is set, one should do one's best to achieve it.

**Being direct**

I believe that people should face up to challenges in the environment.

I believe that people should express their opinions in public.

**Interdependent self-construal** (Lu & Gilmour, 2007)**Belonging and fitting in**

Once you become a member of the group, you should try hard to adjust to the group's demands.

I believe that it is important to maintain work group harmony.

**Occupying one's proper place**

I believe that people should find their place within a work group.

I believe that people should perform their social roles well in a work group.

**Engaging in appropriate action**

I believe that people should behave appropriately in a work group according to different circumstances.

I believe that people should behave appropriately in a work group according to their different roles.

**Promoting others' goals**

I believe that success of the work group is more important than success of the individual.

I believe that the work group should come first when it is in conflict with the individual.

**Being indirect**

We should be concerned about teammates' dignity in interactions.

In the interest of maintaining interpersonal harmony in the work group, communication should be indirect.

**Career commitment** (Ellemers et al., 1998)

1. My career is one of the most important things in my life.
2. The ambitions in my life mainly have to do with my career.
3. My career plays a central role in my life.

**Work unit commitment** (Ellemers et al., 1998)

1. I am prepared to do additional chores, when this benefits my work unit.
2. I try to invest effort into a good atmosphere in my work unit.
3. In my work, I let myself be guided by the goals of my work unit.

**Career-oriented proactive behavior** (The first item is from Belschak & Den Hartog, 2010. The other items are from Claes & Ruiz-Quintanilla, 1998.)

1. The employee took on tasks that will further his/her career.
2. The employee sought advice from you about additional training or experience s/he needs to improve future work prospects.
3. The employee initiated talks with you about training or work assignments s/he needs to develop skills that will help his/her future work chances.

**Work unit-oriented proactive behavior** (Griffin et al., 2007)

1. The employee suggested ways to make your work unit more effective.
2. The employee developed new and improved methods to help your work unit perform better.
3. The employee improved the way your work unit does things.

**Table A1**  
**Correlations Between Facets of Self-Construct Types in Study 2**

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
<b>Facets of independent self-construct</b>												
1. Being independent, unique, and consistent	3.36	0.68	.64									
2. Expressing oneself	3.26	0.73	.69	.63								
3. Realizing internal attributes	3.27	0.76	.70	.75	.73							
4. Promoting one's own goal	3.37	0.75	.70	.68	.75	.75						
5. Being direct	3.47	0.78	.74	.62	.69	.82	.80					
<b>Facets of interdependent self-construct</b>												
6. Belonging and fitting in	3.67	0.68	.04	-.02	.01	-.01	.06	.79				
7. Occupying one's proper place	3.70	0.66	.06	.05	.11	.06	.08	.65	.74			
8. Engaging in appropriate action	3.73	0.66	-.07	-.08	-.06	-.07	-.06	.59	.76	.81		
9. Promoting others' goals	3.60	0.71	-.02	.03	-.01	.03	.01	.49	.59	.58	.79	
10. Being indirect	3.70	0.75	.06	.05	.09	.08	.12	.65	.69	.70	.61	.81

$N = 205$ ;  $|r| > .14, p < .05$ ;  $.18 > |r| > .14, p < .01$ ;  $|r| > .18, p < .001$ .

Values of Cronbach's alpha are presented on the diagonal of the correlation matrix.

**Table A2****Correlations between Facets of Self-Construal Types and Measures of Commitment and Proactive Behavior in Study 2**

Self-construal	Career commitment	Work unit commitment	Career-oriented proactive behavior	Work unit-oriented proactive behavior
<b>Facets of independent self-construal</b>				
Being independent, unique, and consistent	.15	-.04	.10	.09
Expressing oneself	.14	.00	.18	.06
Realizing internal attributes	.18	.01	.14	.13
Promoting one's own goal	.18	.03	.13	.12
Being direct	.13	.08	.05	.12
<b>Facets of interdependent self-construal</b>				
Belonging and fitting in	.21	.26	-.02	.06
Occupying one's proper place	.11	.21	.00	.18
Engaging in appropriate action	.16	.21	.03	.15
Promoting others' goals	.14	.15	.07	.18
Being indirect	.19	.20	.01	.21

N = 205;  $|r| > .14, p < .05$ ;  $.18 > |r| > .14, p < .01$ ;  $|r| > .18, p < .001$ .

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