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ORIGINAL ARTICLE

Regulatory focus theory: Disentangling goals and strategies

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Abstract

The purpose of this research was to develop and test the Regulatory Goals and Strategies Questionnaire (RGSQ) to promote conceptual and empirical clarity in the literature on regulatory focus theory (RFT). According to RFT, construing an end-state as a maximal goal (ideal, gain, and advancement) elicits the adoption of an eager promotion-focused strategy, whereas construing an end-state as a minimal goal (ought, non-loss, and security) elicits the adoption of a vigilant prevention-focused strategy. This means that promotion-focused eagerness and prevention-focused vigilance can be elicited by various goals and that eager and vigilant strategies are in fact separate from goals. However, extant measurement instruments have not treated them as such. The RGSQ was developed to distinguish various maximal and minimal goals and to separate these goals from promotion- and prevention-focused strategies of eagerness and vigilance. Across three studies that combine six samples (total $N = 1848$), we examined the factor structure and nomological network of the RGSQ (Study 1: four samples of students and adults) and its predictive validity in a task context (Study 2) and working sample (Study

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3). Overall, we found support for the RGSQ's validity and demonstrated that the RGSQ operationalizes regulatory focus in accordance with the theory's core assumptions.

KEYWORDS

eagerness and vigilance strategies, maximal and minimal goals, regulatory focus

INTRODUCTION

Regulatory focus theory (RFT; Higgins, 1997) has been of great importance to both psychology and management. Building on the hedonic principle that all individuals seek to approach pleasure and avoid pain, the central premise of RFT is that individuals construe their pleasure/pain goals in unique ways and that this unique construal determines the *strategic orientation* they adopt during goal-pursuit. In particular, maximal goals (e.g. ideal, gain, and advancement) lead individuals to adopt a promotion-focused strategy that is referred to as “eagerness,” whereas minimal goals (e.g. ought, non-loss, and security) lead individuals to adopt a prevention-focused strategy referred to as “vigilance.” Distinguishing these goals and strategies has enabled differential predictions of affect, cognition, motivation, and behavior in the self-regulation of goal-pursuit across multiple occupational (e.g. general and work), hierarchical (e.g. employees, managers, and executives), social (e.g. intra- and interpersonal and group), and temporal (e.g. trait and state) contexts (Baas et al., 2008; Brockner & Higgins, 2001; Sassenberg & Hamstra, 2017; Sassenberg & Wolpin, 2009). Accordingly, regulatory focus has been used to study various organizational practices, including leadership, motivation and work behavior, performance management, recruitment and selection, and training and development (cf. Bozer & Delegach, 2019; Brockner & Higgins, 2001; Fruhen et al., 2015; Gorman et al., 2012; Lanaj et al., 2012).

Despite the contributions of RFT and its growing presence, current instruments (e.g. Regulatory Focus Questionnaire (RFQ), Higgins et al., 2001; General Regulatory Focus Measure (GRFM), Lockwood et al., 2002) that are used to operationalize and measure promotion and prevention foci suffer from critical problems (Gorman et al., 2012; Haws et al., 2010; Johnson et al., 2015; Summerville & Roesse, 2008). Regulatory focus operates across a motivational hierarchy that involves several levels (Scholer et al., 2010): the goals that people strive for (the *system* level), the strategies they employ in goal-pursuit (the *strategic* level), and the decisions they make and behaviors they perform to achieve their goals (the *tactical* level). Rather than separating these levels by distinguishing strategies from goals, however, measurement instruments primarily conceptualize and operationalize promotion and prevention foci either at the system level as maximal and minimal goals (e.g. Lockwood et al., 2002) or as a conflation of multiple levels (e.g. Fellner et al., 2007; Higgins et al., 2001; Neubert et al., 2008; Ouschan et al., 2007). Furthermore, the instruments differ in their emphasis on (combinations of) distinct types of maximal (e.g. ideal, gain, and advancement) and minimal (e.g. ought, non-loss, and security) goals and sometimes differ in the occupational, hierarchical, social, and temporal contexts to which they are applied.

Potentially resulting from these differences, these measurement instruments do not correlate strongly with each other and exhibit inconsistent nomological and predictive validity

patterns (Gorman et al., 2012; Haws et al., 2010; Summerville & Roese, 2008). This is problematic because it makes it difficult to draw comparisons or generalize across research areas, hampering the usefulness and development of RFT. Given these problems, researchers have called for a fundamental overhaul of instruments to measure promotion and prevention foci (Gorman et al., 2012; Johnson et al., 2015; Summerville & Roese, 2008).

This investigation answers this call and our goal for this research is twofold. First, we aim to develop and validate an instrument that (a) distinguishes different maximal goals (i.e. ideal, gain, and advancement) and minimal goals (i.e. ought, non-loss, and security) at the system level, (b) distinguishes promotion strategy (i.e. eagerness) and prevention strategy (i.e. vigilance) at the strategic level, (c) can be applied to different contexts (e.g. occupational, hierarchical, social, and temporal) with only minor adaptations, and (d) can be used to predict behavior at the tactical level. Second, to support the validity of the measurement instrument, we aim to provide empirical evidence for the central premise of RFT, which is that goals predict behavior via promotion-focused (eager) strategies and prevention-focused (vigilant) strategies (Higgins, 1997). We do so by demonstrating that (a) maximal and minimal goals are empirically distinct from promotion eagerness and prevention vigilance, (b) maximal goals predict promotion eagerness and minimal goals predict prevention vigilance, and (c) promotion eagerness and prevention vigilance (i.e. the strategic level) are more proximal predictors of choices and behaviors (i.e. the tactical level) than are maximal and minimal goals (i.e. the system level).

The eventual aim of this research is to develop an instrument that enables both scholars and practitioners to explain and predict the regulation of goal-directed behavior of people in different domains of psychology and management. In doing so, the contributions of this research include not only a theory-driven improvement in how regulatory focus can be measured by researchers and practitioners but also promotes a better understanding of RFT. By creating the ability to distinguish among different goals, and among goals and strategies, and by examining those distinct constructs empirically, our research helps to clarify the relationships between goals and strategies (and behavior) and between different sets of goals. For example, many studies on regulatory focus assume that the way outcomes are framed prompts people's strategies (Shah et al., 1998), which also holds a key role for strategies in most, if not all, research on the regulatory fit hypothesis (Higgins, 2000). Yet, strategies are usually not explicitly measured as the operative causal element in these effects. Hence, the novel instrument may enable researchers to examine more precise questions about the distinct roles of goals and strategies in the regulation of behavior.

THEORETICAL DEVELOPMENT

The distinction between goals and strategies

RFT (Higgins, 1997) explains how different types of goals lead individuals to employ different types of strategies, which are key determinants of behavior (Crowe & Higgins, 1997; Higgins et al., 1994). Hence, at the heart of this theory is a distinction between different goals, a distinction between different strategies, and a distinction between goals versus strategies. The different descriptions of RFT have included various types of goals. Distinctions are made between *ideal* goals (ambitions, hopes, and aspirations) versus *ought* goals (responsibilities, duties, and

obligations), between *positive* outcome goals (non-gain and gain) versus *negative* outcome goals (non-loss and loss), and between *advancement* goals (progress and growth) versus *security* goals (maintenance and stability).

The goal “set” of ideals, gain/non-gain, and advancement can be understood as representing “maximal” goals—specifying a maximal upper reference point that individuals strive to reach; the goal set of ought, loss/non-loss, and security can be understood as representing “minimal” goals—specifying a minimal reference point that individuals seek to uphold (Brendl & Higgins, 1996). However, although these sets of goals may refer to the same psychological—maximal or minimal—realm, they are also different from each other in that, for example, ideals and oughts may be closely tied to the person’s self-identity (DeNisi & Kluger, 2000), whereas advancement and maintenance may be much more task- or situation-specific (cf. Brendl & Higgins, 1996). Furthermore, certain situations (e.g. a job interview) may allow for certain goals to be activated (e.g. ideal goal), but not others (e.g. immediate gains); by contrast, a contract negotiation could be a situation in which potential gain goals might become more salient.

Because most studies tend to focus on one type of goal, the distinction among different maximal and minimal goals occurs across various empirical examples. First, research that connects hierarchy, power, or status to regulatory focus relies on the association between relative positions in a hierarchy/ranking and the drive to advance one’s low position or the drive to maintain one’s high position (see Hamstra & Schreurs, 2018). Second, research that connects regulatory focus to sales behavior, to networking behavior, or to CEO acquisition decisions tends to rely on arguments relating to gains and losses (Gamache et al., 2015; Hamstra et al., 2018; Pollack et al., 2015). Third, research that connects regulatory focus to emotional experiences in goal-pursuit tends to be heavily based on the ideal/ought distinction of self-discrepancy theory (e.g. Higgins et al., 1997). In the current research we therefore explicitly distinguish among different maximal (ideals, gain, and advancement) and minimal (ought, non-loss, and security) goals.

When a person focuses on a maximal goal, their motivation is to move away from their current state (0) and move to a better state (+1). This makes a person promotion-focused, which manifests in strategic eagerness. As Higgins et al. (2001, p. 5) put it, “eager strategies ensure the presence of positive outcomes (ensure hits; look for means of advancement) and ensure against the absence of positive outcomes (ensure against errors of omission; don’t close off possibilities).” Eagerness, thus, entails grasping every opportunity one encounters, saying “yes” more often than saying “no,” and being ready to use any possible ways and means to attain the goal. Indeed, all of these provide potential opportunities to move toward a better, maximal state (see also Brockner et al., 2002; Crowe & Higgins, 1997). When a person focuses on a minimal goal, their motivation is to maintain their current state (0) and to not move to a worse state (−1). This makes a person prevention-focused and manifests in strategic vigilance. As Higgins et al. (2001, p. 5) put it, vigilant strategies “... ensure the absence of negative outcomes (ensure correct rejections; be careful) and ensure against the presence of negative outcomes (ensure against errors of commission; making mistakes).” Vigilance, as such, entails worrying about mistakes (errors of commission), saying “no” more often than “yes,” and playing it safe (checking that conditions are met). Indeed, any action, movement, or change could provide a potential threat to maintaining a current, minimal state.

RFT is rooted in approach-avoidance conceptualizations of motivation yet deviates from it in important ways. First, approach-avoidance motivation emphasizes gains versus losses, which

refer to positive and negative outcome value. The thinking that led from approach-avoidance motivation to RFT was that positive and negative values should not be contrasted with each other, but that they form dimensions in their own right: non-gain versus gain and non-loss versus loss. Second, this leads RFT to emphasize *strategic means* rather than outcomes. Hence, in contrast to prior concepts and theories, RFT emphasizes how focusing on changing from a non-gain state to a gain state results in an eager, promotion-focused strategy, while focusing on maintaining a non-loss state and preventing movement to a loss state results in a vigilant, prevention-focused strategy.

The primary contributions and utility of RFT lie in its distinction among maximal (ideal, gain, and advancement) and minimal (ought, non-loss, and security) goals and promotion and prevention strategies, and in its proposed causal chain where maximal and minimal goals predict behaviors *through* these promotion and prevention strategies (cf. Sassenberg & Vliek, 2019). However, these important distinctions are not captured adequately in current operationalizations of RFT. As a consequence, the amount of research that has tested the fundamental predictions and assumptions of RFT is limited: beyond the landmark studies that sparked the transition from self-discrepancy theory to RFT (e.g. Crowe & Higgins, 1997; Higgins et al., 1994; Higgins & Tykocinski, 1992), there is surprisingly little direct and explicit empirical evidence for the existence and mediating effects of *strategic* promotion and prevention foci, eagerness and vigilance. In addition, research on regulatory focus demonstrates that goals and strategies are affected by context, such as group membership (Scheepers et al., 2013) and leadership (Hamstra et al., 2011). Hence, it is likely that individuals' strategic regulatory state is affected by a host of variables, such as chronic maximal and minimal goals, situational maximal and minimal goals, and other contextual factors. Yet, among other problems, current operationalizations are not able to capture these strategic regulatory states.

Current operationalizations of regulatory focus

The two most prominent measurements of regulatory focus, Higgins et al.' (2001) RFQ and Lockwood et al.'s (2002) GRFM, have inconsistent relations with other concepts and inconsistent predictive validities (Gorman et al., 2012; Summerville & Roese, 2008). Indeed, various researchers have remarked on the variety of operationalizations of regulatory focus and have suggested that this variety may be caused by different conceptualizations (Gorman et al., 2012; Haws et al., 2010; Summerville & Roese, 2008). We agree, and additionally believe that these differences in conceptualizations have important consequences for how different measures are related to each other and how they are related to antecedents and outcomes.

First, as regards the distinction of, and causal link between, goals and strategies, RFQ confounds the two. RFQ assesses one's subjective history of success in promotion and prevention. A (reverse coded) prevention item illustrates this point: the item "Not being careful enough has gotten me into trouble at times" relates to prevention success (not getting into trouble) and to the vigilance (being careful) that attained it. Although RFQ taps into promotion and prevention strategies, there are only a few items that include eagerness and vigilance. Most items focus on goals that correspond to self-guides (Summerville & Roese, 2008). Hence, within RFQ, goals are emphasized over strategies, and items that do assess strategies confound strategies with goals. RFQ is a reasonably good predictor of the chronic orientations and, thus, people's aggregated

behavior (e.g. Hamstra et al., 2018) but is less suitable to tap into the temporary regulatory states that determine behavior in the moment (Scholer & Higgins, 2011). This causes a decrease in the predictive precision and validity of the regulatory focus concept, the strategic states, and the causal linkages between goals and strategies.

Second, as regards the distinctions within the sets of maximal and minimal goals, Summerville and Roese (2008) argued that the GRFM focuses on gains/losses, while RFQ focuses on ideals/oughts. Moreover, GRFM mostly focuses on losses, at the neglect of non-losses, which is problematic as promotion and prevention are both “approach” (and “avoidance”) forms of self-regulation (e.g. the approach of non-loss and the avoidance of loss). As one consequence of the focus on losses rather than non-losses, GRFM prevention is related to negative affect (to which it should not be related).

Overall, one can conclude that the two measures make different choices about which maximal versus minimal goal to measure. Neither addresses a combination of goals or a distinction within those sets of goals, and neither explicitly addresses advancement and security. As a result of their conceptual inconsistencies, RFQ and GRFM constitute distinct operationalizations that are uncorrelated among each other and that yield different correlations with important antecedents and consequences (Summerville & Roese, 2008).

Moreover, there are also various practical problems associated with the different measures of regulatory focus. Thus, while the RFQ may be the most closely connected to the theory, it also suffers from the fact that the promotion subscale often fails to attain satisfactory internal consistency in other languages than English and that the items focus on childhood experiences, asking sensitive personal questions that make the measure difficult to use in applied settings (see Sassenberg et al., 2007, 2012; Semin et al., 2005). There are also several measures available that assess regulatory focus within a specific context (e.g. Cunningham et al., 2005; Fellner et al., 2007; Johnson & Chang, 2008; Neubert et al., 2008; Ouschan et al., 2007). However, while these regulatory *state* measures may be potentially useful, it is problematic when measurements in different contexts are designed independent of each other, because the effects cannot be compared across contexts. Accordingly, what is needed, and what we present in this research, is a measure that (a) distinguishes different goals, (b) distinguishes goals and strategies, (c) can be used to determine people’s regulatory traits and states, and (d) can be easily used in different contexts with only minor adaptations, and does not require the creation of an entirely new set of items for each context/study.

REGULATORY GOALS AND STRATEGIES QUESTIONNAIRE ITEM DEVELOPMENT

We aim to develop a measurement instrument that can more accurately predict behavior and that more closely follows the basic tenets of RFT. This instrument should clearly distinguish promotion and prevention foci as behavioral strategies that can arise from a variety of maximal and minimal goals. As such, we developed the Regulatory Goals and Strategies Questionnaire (RGSQ), which captures three distinct types of maximal and three distinct types of minimal goals as well as promotion and prevention strategies. For application purposes, we aimed to develop items that were short and to the point and could be adapted to many different contexts by only changing the scale preamble (e.g. “In life ...,” or “At work ...,” or “In this task ...”) and not the content of the items themselves. Through these considerations, we arrived at 24 items,

three for each of the six goals, and three for each of the two strategic orientations. The final list of items, including instruction texts, is provided in Supporting Information S1.

Our approach to scale construction follows the “prototype” tradition rooted in the act-frequency approach (Buss & Craik, 1980, 1981, 1983). The prototype approach is particularly useful for developing questionnaires to measure “fuzzy” concepts. Concepts are fuzzy when behaviors or other indicators that are indicative of the concept fall into a certain category, but this category has unclear boundaries, and some indicators more clearly fit the category than others (i.e. are more prototypical). This approach is suitable for our purposes because it is not always clear for specific indicators of regulatory goals and strategies in which category they fall. For example, an item from the GRFM (Lockwood et al., 2002) is “I often imagine myself experiencing good things that I hope will happen to me.” This item, which is assumed to measure promotion focus, may be indicative of gain as well as ideal goals (“good things”), and may also fit with an eagerness strategic orientation (“I often imagine”). In these cases, the prototype approach suggest that more prototypical items will more accurately capture a construct than less prototypical ones. Additionally, more prototypical items are more likely relevant in different contexts (e.g. psychological studies in the lab as well as field research among employees).

At first, this approach entailed collecting sets of items that experts might consider examples of the concepts in question. We initially collected around half a dozen of such items per goal and per strategy. These examples were drawn from items of existing scales, in particular, for the goals, and by generating behavioral descriptions of eagerness and vigilance through our own expertise. Because several of the collaborators on this investigation have experience working with the regulatory focus concept and have written peer reviewed publications on RFT, these researchers could be considered subject matter experts (SMEs). Following the prototype approach, examples were thus generated of instances of goals or behavioral strategies that fall into the *categories* of, for example, ideals and oughts or eagerness and vigilance.

In our initial item-generation phase, we considered formulations with slightly different emphases. For example, for the gain factor we had included the goal “to maximize profits” and for the advancement factor we had included the goal “to acquire knowledge and skills.” These are examples of items that are too specific and not prototypical enough, which would not be applicable examples of the goal in question under all circumstances. As other examples, we generated several items that used the formulations “not lose” and “avoid,” but these put too much emphasis on loss and negative outcomes at the expense of maintenance. After iterative discussion among subject matter experts, such formulations were dropped from the overall item set.

The next step in this approach is item selection. Because the prototype approach considers categories as “fuzzy sets,” membership of the category is gradual, and some examples of eagerness and vigilance are more, others are less, prototypical of the category. The goal in this item selection stage was to establish the prototypical items, and this was done by letting non-experts respond to the questionnaire items, through an iterative process of testing and comparing. Items were removed from the set because (1) they empirically showed inconsistent correlations with other items measuring the same construct or did not load well on a factor in exploratory factor analysis, or (2) theoretically, SMEs considered them to be less prototypical for a specific construct, given that our practical consideration was to end up with three items for each factor. Examples of ought goal items that were dropped on empirical grounds are the goal “to conform to expectations” and “conform to standards.” An example of an item that was dropped based on prototypicality and practical considerations is “I am eager to seize any opportunity” (it was covered by the other three items). Finally, the SMEs were in full agreement that the resulting items all were related to the core of the concepts, indicating good content validity.

OVERVIEW OF STUDIES

We collected data from six samples across three studies to confirm the factor structure of the RGSQ, study the interrelationships between goals and strategies, and assess criterion-related validity in terms of a regulatory focus nomological network. That is, we assessed whether the RGSQ was related to other theoretically-related constructs and was unrelated to theoretically-unrelated constructs. Lastly, we determined the RGSQ's predictive validity (i.e. is the RGSQ related to outcomes at a later point in time; cf. DeVellis, 2016).

In Study 1, we collected data across four different samples to confirm the factor structure of the RGSQ, and to test whether the different goals and strategies are empirically distinct. We then assessed convergent and discriminant validity by relating the RGSQ to a nomological network of concepts that should (not) correlate with promotion versus prevention focus, such as approach-avoidance motivation (BIS/BAS), positive and negative affect (PANAS), but also different forms of organizational commitment. In Study 2, we assessed predictive validity in a task-oriented study in which we tested whether individuals' promotion and prevention strategies are the proximal predictor and explain the effects of maximal and minimal goals on behavioral outcomes. Finally, in Study 3, we assessed predictive validity over time in a time-split field study among employees and their supervisors: we tested a mediation-chain in which promotion and prevention strategies at Time 2 mediate the relation between maximal and minimal goals at Time 1 and employee creativity and performance at Time 3. These studies give credence to the RGSQ by demonstrating that maximal and minimal goals and eagerness and vigilance strategies are distinguishable (Study 1), that specific goals can meaningfully predict behavioral outcomes through their appropriate regulatory strategies (Study 2), and that this holds across time in a work sample (Study 3).

STUDY 1: FACTOR STRUCTURE AND NOMOLOGICAL NETWORK

The purpose of Study 1 was to (1) confirm the factor structure of the items we developed, (2) establish the relations among goals and strategies, and (3) establish convergent and discriminant validities through a nomological network. To promote generalizability, we used samples from multiple countries and occupational contexts (cf. DeVellis, 2016) and measured both work-specific (e.g. organizational commitment) and general (e.g. personality) correlates of regulatory focus.

Method

We gathered data from four different samples: two student samples from a Dutch university (Sample A, $N = 142$, 52.8% female, $M_{age} = 21.82$, $SD_{age} = 2.53$; Sample B, $N = 136$; 58.1% female, $M_{age} = 20.32$, $SD_{age} = 2.20$) and two samples of US citizens recruited through Mturk (Sample C, compensation of \$2.00, $N = 498$; 41.6% female, $M_{age} = 33.87$, $SD_{age} = 10.68$; Sample D, compensation of \$1.50 $N = 197$; 43.7% female, $M_{age} = 35.29$, $SD_{age} = 11.15$). All surveys were administered in English.

Measures for regulatory focus

To confirm the factor structure and assess validity of the RGSQ, we also administered two other regulatory focus instruments in all samples. The main purpose of including other regulatory focus measures was to examine the effects of maximal and minimal goals, as operationalized in the RGSQ, on eagerness and vigilance, while controlling for these existing measures (i.e. to determine their unique effects). Furthermore, it is also informative to examine the correlations among different regulatory focus measures.

RGSQ

We measured ideal ($\alpha = .84$), gain ($\alpha = .80$), advancement ($\alpha = .89$), ought ($\alpha = .83$), non-loss ($\alpha = .91$), and security goals ($\alpha = .86$), and promotion ($\alpha = .84$) and prevention strategies ($\alpha = .79$) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) in Samples A through C with the preamble “*In my life ...*” and in Sample D with the preamble “*In my work ...*”

RFQ promotion and prevention focus

We measured promotion ($\alpha = .74$) and prevention focus ($\alpha = .84$) on a scale from 1 (*never or seldom, never true, certainly false*) to 5 (*very often, many times, always, very often true, certainly true*) in all samples using the 11-item measurement instrument (Higgins et al., 2001).

GRFM promotion and prevention focus

We measured promotion ($\alpha = .94$) and prevention focus ($\alpha = .92$) on a scale from 1 (*not at all true of me*) to 9 (*very true of me*) in all samples using the 18-item measurement instrument (Lockwood et al., 2002).

Measures for nomological network

Promotion and prevention strategies are part of a rich nomological network comprising various affective, cognitive, motivational, and behavioral variables. Based on recent conceptual and empirical reviews (Baas et al., 2008; Brockner & Higgins, 2001; Gorman et al., 2012; Johnson et al., 2015; Lanaj et al., 2012; Sassenberg & Hamstra, 2017; Sassenberg & Wolpin, 2009), we identified several constructs that should meaningfully and theoretically be (un)related to promotion and/or prevention strategy. Because the theoretical argumentation for most of these relationships is not a main concern in the current research, we provide brief justifications for each expectation in the sections below, including references to previous work that has shown a link between the respective concepts and regulatory focus. To provide the clearest evidence for convergent and discriminant validity, we focus mostly on a set of concepts for which the relationships with promotion focus and prevention focus diverge (e.g. a positive relation for one focus, and a negative or no relation for the other).

BAS and BIS

BAS refers to a sensitivity to rewards and BIS refers to a sensitivity to punishment (Carver & White, 1994). We measured BAS ($\alpha = .86$) and BIS ($\alpha = .86$) on a scale from 1 (*very false for me*) to 4 (*very true for me*) in Samples B and C using 20 items developed by Carver and White (1994). We expected promotion strategy to be positively related to BAS, and prevention strategy to be negatively related to BAS, as BAS refers to reward responsiveness and fun seeking, including items specifically referring to risk taking; in contrast, we expected promotion strategy to be negatively related and prevention strategy to be positively related to BIS as it reflects a sensitivity to punishment and a tendency to avoid risk (see Higgins et al., 2001).

Big five

Agreeableness is a tendency for cooperative behavior, *conscientiousness* is a tendency for goal-oriented and persistent behavior, *extraversion* is a tendency to be sociable, dominant, and positive, *neuroticism* is a tendency to show poor emotional adjustment in the form of stress, anxiety, and depression, and *openness to experience* is a tendency for novel and opportune behavior (e.g. Judge & Ilies, 2002). We measured agreeableness ($\alpha = .89$), conscientiousness ($\alpha = .81$), extraversion ($\alpha = .83$), neuroticism ($\alpha = .90$), and openness to experience ($\alpha = .71$) on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) in Samples B, C, and D using 25-items developed by John and Srivastava (1999). Based on the meta-analytic review of Lanaj et al. (2012), we expected *promotion strategy* to be positively related to agreeableness, conscientiousness, extraversion, and openness to experience and negatively related to neuroticism. We expected *prevention strategy* to be positively related to agreeableness, conscientiousness, and neuroticism, and negatively related to extraversion and openness to experience.

Organizational commitment

Affective commitment is an emotional attachment to an organization, continuance commitment is a perception of costs associated with leaving an organization, and normative commitment is a feeling of moral obligation to remain with an organization (Meyer & Allen, 1991). We measured affective ($\alpha = .91$), continuance ($\alpha = .76$), and normative commitment ($\alpha = .82$) on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) in Sample D using 24 items developed by Allen and Meyer (1990). Following Johnson et al. (2010), affective commitment is more likely to be experienced when people are promotion focused because the kind of information that creates affective commitment fits with the eagerness of a promotion focus. In contrast, costs that are associated with leaving the organization (i.e. continuance commitment) are highly relevant for prevention-focused individuals, whereas promotion-focused individuals are less sensitive to such costs. Hence, we expected that affective commitment would be positively associated with promotion strategy, negatively with prevention strategy, while continuance commitment was expected to be positively associated with prevention strategy, and negatively with promotion strategy. According to the previously cited authors, normative commitment may not be so distinctly relevant to either and therefore should show a less distinct pattern.

Positive and negative affect

Positive and negative affect refer to emotional feelings over a prolonged period of time. We measured positive ($\alpha = .90$) and negative affect ($\alpha = .91$) on a scale from 1 (*very slightly or not at all*) to 5 (*very much*) in Samples B and C using 20 items developed by Watson et al. (1988). Although positive and negative affect are likely to play a role in maximal and minimal goal (*non-*)attainment (Higgins, 1997), their role in *strategies*, especially for prevention, is less prominent (Summerville & Roese, 2008). Because of feelings of cheerfulness when attaining gains, chronic eagerness is likely to enhance overall positive affect and decrease negative affect. However, chronic vigilance implies success in maintenance which is affectively neutral. We expected *promotion strategy* to be positively related to positive affect and negatively to negative affect and *prevention strategy* to be unrelated to both.

Results

Descriptive statistics and intercorrelations are reported in Table 1.

Confirmatory factor analyses

To confirm the factor structure of the RGSQ, we estimated various measurement models using Lavaan 0.6-3 (Rosseel, 2012) in *R*, which we assessed using the root-mean-square error of approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI) and which we compared by means of χ^2 -difference tests. We first estimated an eight-factor theoretical model in which the ideal, gain, advancement, ought, non-loss, and security goal and promotion and prevention strategy items loaded on their intended factors without cross-loadings, while being allowed to freely correlate. This model had a good fit, $\chi^2[224] = 797.51$, $p < .001$ (RMSEA = .05 [.05; .06]; CFI = .96; TLI = .95). We compared this model to all possible configurations of goals and strategies (see Table 2a). Confirming our expected factor structure, we found that the fit of our theoretical model was significantly superior to all alternative models at $p < .001$.

Furthermore, to establish whether the RGSQ captures unique variance relative to established measures of regulatory focus, we estimated an additional 12-factor theoretical model that included both the intended factor structure of the RGSQ as well as the RFQ and GRFM. This model had a good fit, $\chi^2[1158] = 4003.57$, $p < .001$ (RMSEA = .05 [.05; .05]; CFI = .91; TLI = .90). We compared this model to various configurations in which the RGSQ's maximal goals and promotion strategy were loaded on the RFQ and GRFM promotion factors and the RGSQ's minimal goals and prevention strategy were loaded on the RFQ and GRFM prevention factors (see Table 2b). Results indicate that all RGSQ's dimensions are distinct from those of the RFQ and GRFM at $p < .001$. Taken together, these confirmatory factor analyses indicate that the various maximal and minimal goals and eagerness and vigilance strategies are not only conceptually but also empirically distinct and that they capture unique variance not present in contemporary measures of regulatory focus.

To further assess the dimensionality of the items, we followed procedures outlined by Fornell and Larcker (1981) to calculate average variance extracted (AVE) values for all of our latent variables in the eight-factor baseline model with all RGSQ factors. All eight AVE's ranged

TABLE 1 Descriptive statistics and intercorrelations (Study 1)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Ideal goals ^{a,b,c,d}	5.59	1.05												
2. Gain goals ^{a,b,c,d}	5.77	.89	.53***											
3. Advancement goals ^{a,b,c,d}	5.92	.96	.63***	.44***										
4. Ought goals ^{a,b,c,d}	4.86	1.25	.10**	.19***	.08**									
5. Non-loss goals ^{a,b,c,d}	5.45	1.26	.05	.11***	.03	.31***								
6. Security goals ^{a,b,c,d}	4.84	1.43	.01	-.01	-.05	.43***	.52***							
7. Promotion strategy ^{a,b,c,d}	5.16	1.08	.55***	.57***	.45***	.14***	.03	-.07*						
8. Prevention strategy ^{a,b,c,d}	4.90	1.24	.01	.04	-.02	.44***	.56***	.68***	-.06					
9. RFQ promotion focus ^{a,b,c,d}	3.60	.68	.42***	.34***	.33***	.11***	-.10**	-.11***	.42***	-.16***				
10. RFQ prevention focus ^{a,b,c,d}	3.34	.84	.00	-.03	.00	.27***	.07*	.21***	-.02	.21***	.11***			
11. GRFM promotion focus ^{a,b,c,d}	6.83	1.44	.62***	.55***	.52***	.08*	-.06	-.09**	.56***	-.08*	.48***	.00		
12. GRFM prevention focus ^{a,b,c,d}	4.68	1.86	-.13***	-.10**	-.13***	.15***	.43***	.41***	-.19***	.51***	-.49***	-.05	-.23***	
13. BAS ^{b,c}	2.96	.48	.47***	.48***	.40***	-.05	-.01	-.23***	.56***	-.23***	.34***	-.21***	.54***	-.10**
14. BIS ^{b,c}	3.08	.65	-.14***	-.08*	-.10*	.23***	.40***	.40***	-.19***	.52***	-.32***	.09*	-.16***	.58***
15. Agreeableness ^{b,c,d}	3.89	.77	.33***	.24***	.36***	.26***	.12***	.11*	.30***	.14***	.30***	.13***	.33***	-.08*
16. Conscientiousness ^{b,c,d}	3.90	.72	.25***	.28***	.25***	.25***	.08*	.18***	.31***	.18***	.43***	.24***	.29***	-.18***
17. Extraversion ^{b,c,d}	3.22	.88	.39***	.33***	.37***	.08*	-.10**	-.15***	.44***	-.18***	.48***	-.06	.43***	-.27***
18. Neuroticism ^{b,c,d}	2.50	1.01	-.16***	-.16***	-.13***	.00	.21***	.18***	-.25***	.27***	-.42***	-.09**	-.24***	.54***
19. Openness to experience ^{b,c,d}	3.67	.63	.42***	.31***	.38***	-.05	-.02	-.10**	.37***	-.12***	.44***	-.05	.42***	-.19***
20. Affective commitment ^d	3.08	.91	.40***	.31***	.46***	.21**	.02	.10	.34***	.07	.27***	.14	.23**	-.15*

TABLE 1 (Continued)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
21. Continuance commitment ^d	3.44	.70	-.24***	-.18*	-.24***	.00	.22**	.10	-.23***	.18*	-.24***	.02	-.17*	.27***
22. Normative commitment ^d	2.73	.70	.31***	.12	.22**	.32***	.12	.20**	.13	.18*	.13	.13	.21**	.09
23. Positive affect ^{b,c}	3.37	.78	.45***	.35***	.42***	.21***	-.02	-.08*	.44***	-.07	.54***	.00	.48***	-.28***
24. Negative affect ^{b,c}	1.80	.74	-.17***	-.14***	-.12**	.00	.11**	.02	-.20***	.07	-.35***	-.12**	-.18***	.34***

Note: N = 197–973.

^aSample A (N = 142).

^bSample B (N = 136).

^cSample C (N = 498).

^dSample D (N = 197).

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 2a Confirmatory factor analyses (Study 1)

Model	χ^2	df	RMSEA (90% CI)	CFI	TLI
Baseline (eight factors)	797.51	224	.05 (.05; .06)	.96	.95
Distinguishing goals and strategies					
All goals collapsed (three factors)	7941.11	249	.18 (.17; .18)	.45	.39
Both strategies collapsed (two factors)	2442.78	231	.10 (.10; .10)	.84	.81
All goals and strategies collapsed (one factor)	9356.81	252	.19 (.19; .20)	.35	.28
Distinguishing maximal goals					
Ideal and gain goals collapsed (seven factors)	1476.44	231	.07 (.07; .08)	.91	.89
Ideal and advancement goals collapsed (seven factors)	1460.29	231	.07 (.07; .08)	.91	.89
Gain and advancement goals collapsed (seven factors)	1789.76	231	.08 (.08; .09)	.89	.87
All maximal goals collapsed (six factors)	2192.69	237	.09 (.09; .10)	.86	.84
Distinguishing minimal goals					
Ought and non-loss goals collapsed (seven factors)	2008.76	231	.09 (.09; .09)	.87	.85
Ought and security goals collapsed (seven factors)	1676.39	231	.08 (.08; .08)	.90	.88
Non-loss and security goals collapsed (seven factors)	1965.35	231	.09 (.08; .09)	.88	.85
All minimal goals collapsed (six factors)	2869.61	237	.11 (.10; .11)	.81	.78
Distinguishing maximal goals and promotion strategy					
Ideal goals and promotion strategy collapsed (seven factors)	1495.44	231	.08 (.07; .08)	.91	.89
Gain goals and promotion strategy collapsed (seven factors)	1248.93	231	.07 (.06; .07)	.93	.91
Advancement goals and promotion strategy collapsed (seven factors)	1843.14	231	.08 (.08; .09)	.88	.86
All maximal goals and promotion strategy collapsed (five factors)	2728.45	242	.10 (.10; .11)	.82	.80
Distinguishing minimal goals and prevention strategy					
Ought goals and prevention strategy collapsed (seven factors)	1531.63	231	.08 (.07; .08)	.91	.89
Non-loss and prevention strategy collapsed (seven factors)	1562.55	231	.08 (.07; .08)	.90	.89
Security goals and prevention strategy collapsed (seven factors)	979.42	231	.06 (.05; .06)	.95	.94
All minimal goals and prevention strategy collapsed (five factors)	2974.43	242	.11 (.10; .11)	.80	.78

Note: Baseline model has a significantly better fit than all other models at $p < .001$.

between .56 and .77 ($M = .66$), thereby exceeding the .5 cut-off point. This indicates that the proportion of explained variance of the eight latent factors is higher than the proportion of measurement error and that convergent validity is adequate. Furthermore, with the exception of the squared latent correlation between prevention strategy and security goals (.70) exceeding the AVE of prevention strategy (.56), all AVE's were greater than the latent intercorrelations

TABLE 2b Confirmatory factor analyses with alternative measures (Study 1)

Model	χ^2	df	RMSEA (90% CI)	CFI	TLI
Baseline (12 factors)	4003.57	1158	.05 (.05; .05)	.91	.90
RFQ promotion focus					
Ideal goals	4879.55	1169	.06 (.06; .06)	.88	.87
Gain goals	4866.76	1169	.06 (.06; .06)	.88	.87
Advancement goals	5156.95	1169	.06 (.06; .06)	.87	.86
Promotion strategy	4730.83	1169	.06 (.05; .06)	.89	.88
RFQ prevention focus					
Ought goals	5354.04	1169	.06 (.06; .06)	.87	.86
Non-loss goals	6168.12	1169	.07 (.06; .07)	.84	.83
Security goals	5978.23	1169	.07 (.06; .07)	.85	.83
Prevention strategy	5919.85	1169	.06 (.06; .07)	.85	.84
GRFM promotion focus					
Ideal goals	4950.38	1169	.06 (.06; .06)	.88	.87
Gain goals	4831.15	1169	.06 (.06; .06)	.88	.87
Advancement goals	5366.55	1169	.06 (.06; .06)	.87	.85
Promotion strategy	4922.84	1169	.06 (.06; .06)	.88	.87
GRFM prevention focus					
Ought goals	5511.77	1169	.06 (.06; .06)	.86	.85
Non-loss goals	5786.83	1169	.06 (.06; .07)	.85	.84
Security goals	5613.72	1169	.06 (.06; .06)	.86	.85
Prevention strategy	5002.73	1169	.06 (.06; .06)	.88	.87

Note: Baseline model has a significantly better fit than all other models at $p < .001$.

between focal factors. Also, in light of the confirmatory factor analyses, this indicates that discriminant validity is largely in order, suggesting that the different goals and strategies are sufficiently distinct.

Relationships among goals and strategies

To assess the relationships among the goals and strategies, first, we looked at the intercorrelations. With the exception of two small correlations between promotion strategy and ought goals, $r(973) = .14, p < .001$, and promotion strategy and security goals, $r(973) = -.07, p = .027$, all intercorrelations between our maximal and minimal goals and promotion and prevention strategies were as expected (see Table 1). Second, also to gauge the uniqueness of these relationships, we estimated path models in which we regressed promotion and prevention strategies on all maximal and minimal goals (see Table 3, path model without other instruments). Results indicate that ideal ($b = .30, \beta = .29, z = 8.68, p < .001$), gain ($b = .44, \beta = .36, z = 12.28, p < .001$), and advancement goals ($b = .11, \beta = .10, z = 3.04, p = .002$) significantly and uniquely related to promotion strategy and that ought ($b = .16, \beta = .16, z = 6.31, p < .001$),

TABLE 3 Unstandardized regression coefficients (Study 1)

	Path model without other instruments						Path model with other instruments					
	Promotion strategy			Prevention strategy			Promotion strategy			Prevention strategy		
	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>
Intercept	.36 (.34)	.23	1.61	.95*** (.77)	.24	4.03	.09 (.08)	.27	.32	.16 (.13)	.27	.58
Ideal goals	.30*** (.29)	.03	8.68	-.03 (-.02)	.04	-.73	.20*** (.19)	.04	5.44	.00 (.00)	.04	.10
Gain goals	.44*** (.36)	.04	12.28	-.01 (-.00)	.04	-.16	.35*** (.29)	.04	9.64	.03 (.02)	.04	.71
Advancement goals	.11** (.10)	.04	3.04	.00 (-.00)	.04	-.01	.07 (.06)	.03	1.88	.01 (.01)	.04	.34
Ought goals	.07** (.08)	.02	2.85	.16*** (.16)	.02	6.31	.06* (.07)	.02	2.44	.14*** (.15)	.02	6.00
Non-loss goals	-.01 (-.01)	.02	-.21	.26*** (.27)	.03	10.25	.03 (.03)	.02	1.09	.19*** (.19)	.03	7.49
Security goals	-.07** (-.10)	.02	-3.22	.41*** (.47)	.02	16.93	-.05* (-.07)	.02	-2.22	.34*** (.39)	.02	14.41
RFQ promotion focus							.19*** (.12)	.05	3.89	-.02 (-.02)	.05	-.41
RFQ prevention focus							-.05 (-.04)	.03	-1.43	.13*** (.13)	.03	4.10
GRFM promotion focus							.13*** (.18)	.03	5.28	-.00 (-.00)	.03	-.03
GRFM prevention focus							-.01 (-.02)	.02	-.78	.16*** (.16)	.02	8.91
<i>R</i> ²	.43						.53					
							.47					

Note: *N* = 973.

p* < .05. *p* < .01. ****p* < .001.

non-loss ($b = .26$, $\beta = .27$, $z = 10.25$, $p < .001$), and security goals ($b = .41$, $\beta = .47$, $z = 16.93$, $p < .001$) significantly and uniquely related to prevention strategy. Furthermore, we found that ought ($b = .07$, $\beta = .08$, $z = 2.85$, $p = .004$) and security goals ($b = -.07$, $\beta = -.07$, $z = 3.22$, $p = .001$) also significantly and uniquely related to promotion strategy. Taken together, these results suggest that maximal and minimal goals have unique associations with (promotion or prevention) strategic preferences for goal-pursuit.

Subsequently, we assessed whether the RFQ and GRFM contributed unique variance in promotion and prevention strategy beyond the maximal and minimal goals (see Table 3, path model with other instruments). Results indicated that RFQ promotion ($b = .19$, $\beta = .12$, $z = 3.89$, $p < .001$) and GRFM promotion ($b = .13$, $\beta = .18$, $z = 5.28$, $p < .001$) significantly and uniquely related to promotion strategy and that RFQ prevention ($b = .13$, $\beta = .13$, $z = 4.10$, $p < .001$) and GRFM prevention ($b = .16$, $\beta = .16$, $z = 8.91$, $p < .001$) significantly and uniquely related to prevention strategy. Furthermore, with the exception of the marginal relationship of advancement goal with promotion strategy ($b = .07$, $\beta = .06$, $z = 1.88$, $p = .060$), the relationships of the maximal goals with promotion strategy and minimal goals with prevention strategy remained significant when controlling for the RFQ and GRFM. Taken together, these results indicate that the strategies relate to the RFQ and GRFM in ways that one would expect. This is important because the prevention measures of the RFQ and GRFM appear uncorrelated. That is, this finding means that our strategy measures are consistent with our theoretical assumptions in that the strategies may be predicted by various maximal and minimal goals.

Nomological network

We examined correlations between the RGSQ and other constructs (see Table 1). We expected and found promotion strategy to be positively related to BAS, agreeableness, conscientiousness, extraversion, openness to experience, affective organizational commitment, and positive affect (r s between .30 and .56), negatively to BIS, neuroticism, continuance commitment, and negative affect (r s between $-.19$ and $-.25$), and unrelated to normative commitment ($r = .13$). We also expected and found prevention strategy to be positively related to BIS, agreeableness, conscientiousness, neuroticism, and continuance and normative organizational commitment (r s between .14 and .52), negatively related to BAS, extraversion, and openness to experience (r s between $-.12$ and $-.23$), and unrelated to affective organizational commitment, and positive and negative affect (r s between $-.07$ and .07). These results indicate that the positive, negative, and non-correlations of the RGSQ with other constructs are as theoretically expected.

Discussion

The results of Study 1 confirm the factor structure of the RGSQ and demonstrate that maximal and minimal goals and promotion and prevention strategies are distinct constructs. Furthermore, although no causal conclusions can be drawn, regression path analyses provide suggestive support for the general proposition that pursuing specific (maximal and minimal) goals is associated with the use of specific (promotion and prevention) strategies. Finally, the correlations with the other measures in the nomological network provided evidence for the convergent and discriminant validity of the measures.

STUDY 2: PREDICTIVE VALIDITY IN A TASK CONTEXT

The purpose of Study 2 was to establish predictive validity of the RGSQ by examining whether our instrument predicts goal-directed behaviors in task situations. To this end, we conducted a study in which participants engaged in two tasks to examine an indirect chain in which *trait*-level maximal and minimal goals (i.e. the system level) predict *state*-level promotion and prevention strategy (i.e. the strategic level), which subsequently predict choices the participants made in a strategic decision-making task and solutions they generated in a creative insight task (i.e. the tactical level). As such, Study 2 aimed to provide a direct test of some of the core predictions of RFT.

In broad terms, promotion-focused eagerness and prevention-focused vigilance result in a risky versus conservative behavioral bias (Crowe & Higgins, 1997), which has various implications for the behaviors that individuals exhibit and the choices that they make in task situations (Gino & Margolis, 2011; Halamish et al., 2008). We chose the tasks in Study 2 (Number Optimization Task (NOT) and Remote Associates Task (RAT)) to capture behavioral consequences of eagerness and vigilance. These tasks are simple, and to the point, in addressing the tactical choices in a behavioral way and thus stay close to the core consequences of eagerness and vigilance.

The NOT is based on the secretary problem (e.g. Freeman, 1983; Seale & Rapoport, 1997; Zwick et al., 2003) and presents participants with a strategic, sequential choice task. Participants receive a randomly drawn number (from a uniform distribution between 0 and 100) and are asked to accept or reject that number. The goal is to end up with a number that is as close to 100 as possible. However, a rejected number cannot be accepted later on, and it is uncertain what number will come next (it could be lower or higher). When the game ends before a number is selected, the participant has to accept the last number (which may be lower than previously rejected numbers). The task thus reflects decision-making under uncertainty, and promotion strategy should predict a tendency to play more of these rounds (eagerness to advance to a higher number because a next number is an opportunity for higher outcome). Prevention strategy, in contrast, should predict a tendency to play fewer of these rounds (vigilance to maintain an acceptable number as there is always the risk that the next will be lower).

The RAT (Mednick, 1962; Mednick & Mednick, 1967) is assumed to measure creative insight. RAT items consist of three stimuli words that appear to be unrelated. Participants are required to produce a fourth word that is somehow related to each of the first three words either by synonymy, formation of a compound word, or semantic association (Mednick, 1962). RAT items have an established single, correct solution and the number of correct answers on the items makes up the total score on the task. We expect that eagerness leads people to provide more solutions because they prefer to take risks and engage in errors of commission rather than omission (i.e. incorrect solutions) in order to attain as many hits (solutions) as possible (Crowe & Higgins, 1997). Moreover, promotion-focused individuals use a more holistic, global, and heuristic processing style (Crowe & Higgins, 1997; Friedman & Förster, 2001) and can therefore more easily find words that are remotely associated with stimuli words. Vigilance, in contrast, leads people to provide fewer solutions because it makes them risk averse to avoid errors of commission (a preference not to answer over giving a possibly incorrect answer). Moreover, prevention-focused individuals use a more focused, local, and analytical processing (Crowe & Higgins, 1997; Friedman & Förster, 2001), and are therefore limited in finding remote associates. Thus, we expected that promotion strategy is positively related to the number of provided solutions and prevention strategy is negatively related to the number of provided solutions.

Method

Sample and procedure

Mturk workers ($N = 441$; 49% female), ranging in age from 19 to 73 ($M = 35.50$, $SD = 10.47$), participated in this study for a compensation of \$2 (an additional 61 participants were compensated but excluded from the dataset because they failed an attention check). Participants indicated the extent to which they strived to attain ideal ($\alpha = .88$), gain ($\alpha = .85$), advancement ($\alpha = .90$), ought ($\alpha = .82$), non-loss ($\alpha = .92$), and security goals ($\alpha = .85$) in their life by completing the RGSQ. After that, they performed several tasks, including the NOT and Remote Associates Task, in random order. Following each of these tasks, we measured promotion and prevention strategies using the RGSQ to assess their experienced promotion and prevention strategic states during the previous task.

Number optimization task

In the NOT, participants were instructed as follows:

“In this task, you will begin by being presented with a random number between 0 and 100. You can then decide to either keep this number or to move to a new round and get a new random number between 0 and 100. With every new number that you get, there is a 10% chance that you will have to keep that number, and that the task is done. This is true regardless of whether this new number is higher or lower than your old one. The goal of this task is to end up with a number that is as close to 100 and as far away from 0 as possible. Your number optimization skills are better when you end up with a number close to 100 and worse when you end up with a number close to 0.”

The numbers provided to participants were fixed: 48, 64, 24, 71, 8, 5, 63, 78, 70, 75, 43, 83, 92, and 57. For each round/number, participants could indicate whether they wanted another round/number, or keep the one they had. Participants that played all rounds until receiving the last number 57 were told that they had to keep this number and would then discontinue the task and continue the study. The variable of interest was the number of rounds that participants played ($M = 4.79$, $SD = 4.07$). Following the task, we measured promotion ($\alpha = .92$) and prevention strategy ($\alpha = .86$) with the preamble “In this task”

Remote associates task

In the RAT, participants were provided with 15 sets of three words and were asked to find a fourth word that associated with the set of three words (Mednick & Mednick, 1967). The sets of three words appeared on the screen one by one and participants had a maximum of 25 s for each trial to provide a single answer. After the task, we provided participants with answers and asked them to indicate which trials they had correctly solved. In line with previous research (Mednick, 1962), we counted the number of correct associations that participants provided ($M = 7.14$, $SD = 3.07$). We measured promotion ($\alpha = .89$) and prevention strategy ($\alpha = .89$) with the preamble “In this task”

Results

Descriptive statistics and intercorrelations are reported in Table 4. We estimated path models using Lavaan 0.6-3 (Rosseel, 2012) in *R* in which we regressed the promotion and prevention strategies on the maximal and minimal goals and the task scores on the promotion and prevention strategies and goals. We also estimated bootstrapped indirect effects of maximal and minimal goals on outcomes through promotion and prevention strategies (see Tables 5 and 6).

Number optimization task

Table 5 contains the results for the mediation path model for the NOT. First, promotion strategy was positively predicted by gain goals, $b = .27$, $\beta = .18$, $z = 2.83$, $p = .005$, but not by ideal goals, $b = .09$, $\beta = .07$, $z = 1.15$, $p = .250$, and advancement goals, $b = .15$, $\beta = .11$, $z = 1.88$, $p = .060$; prevention strategy was positively predicted by ought, $b = .16$, $\beta = .12$, $z = 2.54$, $p = .011$, and security goals, $b = .41$, $\beta = .32$, $z = 5.81$, $p < .001$, but not by non-loss goals, $b = .03$, $\beta = .03$, $z = .48$, $p = .630$. Interestingly, prevention strategy was negatively predicted by ideal goals, $b = -.24$, $\beta = -.16$, $z = -2.61$, $p = .009$, suggesting that ideal goals may demotivate prevention strategies of vigilance for goal pursuit. Second, promotion strategy positively predicted number of rounds played, $b = .73$, $\beta = .25$, $z = 5.30$, $p < .001$, whereas prevention strategy negatively predicted number of rounds played, $b = -.41$, $\beta = -.16$, $z = -3.31$, $p = .001$. Furthermore, Table 5 indicates that promotion strategy mediated the indirect relationships between gain goals and number of rounds played, and prevention strategy mediated the indirect relationships between ought and security goals and number of rounds played.

Remote associates task

Table 6 contains the results for the mediation path model for the RAT. First, promotion strategy was positively predicted by gain goals, $b = .23$, $\beta = .16$, $z = 2.67$, $p = .008$, and advancement goals, $b = .22$, $\beta = .17$, $z = 2.96$, $p = .003$, but not by ideal goals, $b = .12$, $\beta = .10$, $z = 1.59$, $p = .113$; prevention strategy was positively predicted by ought, $b = .17$, $\beta = .12$, $z = 2.64$, $p = .008$, non-loss, $b = .29$, $\beta = .21$, $z = 3.99$, $p < .001$, and security goals, $b = .28$, $\beta = .21$, $z = 3.80$, $p < .001$. Interestingly, promotion strategy was also positively predicted by ought goals, $b = .11$, $\beta = .10$, $z = 2.01$, $p = .045$, suggesting that individuals may use promotion strategies to pursue prevention goals (cf. Scholer et al., 2008, 2010). Second, promotion strategy positively predicted correct number of solutions, $b = .60$, $\beta = .26$, $z = 5.25$, $p < .001$, whereas prevention strategy negatively predicted correct number of solutions, $b = -.20$, $\beta = -.11$, $z = -2.19$, $p = .029$. Furthermore, Table 6 indicates that promotion strategy mediated the indirect relationships between gain and advancement goals and correct number of solutions, and prevention strategy mediated the indirect relationships between ought, non-loss, and security goals and correct number of solutions.

TABLE 4 Descriptive statistics and intercorrelations (Study 2)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Ideal goals	5.71	1.11	(.88)										
2. Gain goals	5.68	.94	.66***	(.85)									
3. Advancement goals	5.85	1.05	.61***	.57***	(.90)								
4. Ought goals	4.73	1.21	.09	.13**	.06	(.82)							
5. Non-loss goals	5.55	1.22	.04	.11*	.07	.25***	(.92)						
6. Security goals	5.19	1.26	-.02	.02	-.05	.40***	.55***	(.85)					
7. Promotion strategy (NOT)	4.90	1.41	.27***	.30***	.27***	.04	.03	-.05	(.92)				
8. Prevention strategy (NOT)	4.38	1.63	-.12*	-.03	-.05	.25***	.23***	.38***	-.04	(.86)			
9. Number of rounds played (NOT)	4.79	4.07	.04	.00	.03	-.04	.04	-.07	.23***	-.17***	—		
10. Promotion strategy (RAT)	5.16	1.33	.32***	.33***	.33***	.10*	-.04	-.06	.56***	.04	.03	(.89)	
11. Prevention strategy (RAT)	4.02	1.70	-.03	.05	-.03	.26***	.35***	.38***	.19***	.61***	.04	.05	(.89)
12. Number of correct solutions (RAT)	7.14	3.07	.09	.07	.10*	.04	-.06	-.02	.06	-.10*	.07	.25***	-.08

Note: *N* = 441. Cronbach's Alpha's between parentheses on the diagonal. NOT = Number Optimization Task, RAT = Remote Associates Task.

p* < .05. *p* < .01. ****p* < .001.

TABLE 5 Unstandardized regression coefficients and bootstrapped indirect effects for number optimization task (Study 2)

	Promotion strategy			Prevention strategy			Number of rounds played			
	<i>b</i> (β)	<i>Se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>	
Intercept	2.04*** (1.45)	0.52	3.88	2.02** (1.24)	0.58	3.47	2.11*** (1.03)	0.48	4.41	
Ideal goals	0.09 (.07)	0.08	1.15	-.24** (-.16)	0.09	-2.61	0.06 (.02)	0.24	0.23	
Gain goals	0.27** (.18)	0.09	2.83	0.03 (.02)	0.11	0.31	-.38 (-.09)	0.28	-1.37	
Advancement goals	0.15 (.11)	0.08	1.88	0.07 (.05)	0.09	0.84	-.05 (-.01)	0.23	-0.23	
Ought goals	0.03 (.03)	0.06	0.58	0.16* (.12)	0.06	2.54	-.03 (-.01)	0.17	-0.19	
Non-loss goals	0.04 (.04)	0.06	0.65	0.03 (.03)	0.07	0.48	0.35 (.10)	0.18	1.91	
Security goals	-.09 (-.08)	0.06	-1.39	0.41*** (.32)	0.07	5.81	-.15 (-.05)	0.19	-0.79	
Promotion strategy							0.73*** (.25)	0.14	5.30	
Prevention strategy							-.041** (-.16)	0.12	-3.31	
R^2	.11			.18			.16			
Bootstrapped indirect effects (95% confidence interval)							Number of rounds played			
Ideal goals → promotion strategy → number of rounds played							0.069 (-0.040; 0.209)			
Gain goals → promotion strategy → number of rounds played							0.196* (0.072; 0.406)			
Advancement goals → promotion strategy → number of rounds played							0.110 (-0.010; 0.251)			
Ought goals → prevention strategy → number of rounds played							-0.067* (-0.157; -0.011)			
Non-loss goals → prevention strategy → number of rounds played							-0.014 (-0.091; 0.053)			
Security goals → prevention strategy → number of rounds played							-0.170* (-0.338; -0.069)			

Note: $N = 441$. Bootstrapped confidence intervals between parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The results of Study 2 indicate that promotion and prevention strategic states predict theoretically-ensuing behavior, evidenced by the fact that promotion strategies were associated with more eager behaviors and prevention strategies were associated with more vigilant behaviors. These results represent classic behavioral effects of promotion and prevention, using the strategies scales. We also found that the goals predict behavior only indirectly, through the strategies, attesting to the general premises of RFT, and providing support for the predictive validity of our questionnaire. However, we also see that not all goals predicted the strategies equally or consistently. Although this certainly calls for additional theorizing and nuance of RFT, a topic to which we return in our General Discussion, it demonstrates that goals can meaningfully predict behavior through strategic orientations.

TABLE 6 Unstandardized regression coefficients and bootstrapped indirect effects for remote associates task (Study 2)

	Promotion strategy			Prevention strategy			Number of correct solutions		
	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>	<i>b</i> (β)	<i>se</i>	<i>z</i>
Intercept	0.41 (1.60)	0.60	0.68	4.18** (0.24)	1.57	2.66	4.38*** (1.42)	1.19	3.69
Ideal goals	0.12 (0.10)	0.08	1.59	-0.09 (-0.06)	0.09	-0.95	0.03 (0.01)	0.18	0.16
Gain goals	0.23** (0.16)	0.09	2.67	0.12 (0.07)	0.11	1.11	-0.10 (-0.03)	0.21	-0.47
Advancement goals	0.22** (0.17)	0.07	2.96	-0.08 (-0.05)	0.09	-0.82	0.08 (0.03)	0.18	0.42
Ought goals	0.11* (0.10)	0.05	2.01	0.17** (0.12)	0.07	2.64	0.10 (0.04)	0.13	0.78
Non-loss goals	-0.07 (-0.06)	0.06	-1.15	0.29*** (0.21)	0.07	3.99	-0.12 (-0.05)	0.14	-0.87
Security goals	-0.07 (-0.06)	0.06	-1.14	0.28*** (0.21)	0.07	3.80	0.12 (0.05)	0.14	0.83
Promotion strategy							0.60*** (0.26)	0.11	5.25
Prevention strategy							-0.20* (-0.11)	0.09	-2.19
<i>R</i> ²	.19			.10			.09		
Bootstrapped indirect effects (95% confidence interval)							Number of correct solutions		
Ideal goals → promotion strategy → number of correct solutions							0.072 (-0.019; 0.190)		
Gain goals → promotion strategy → number of correct solutions							0.140* (0.035; 0.309)		
Advancement goals → promotion strategy → number of correct solutions							0.130* (0.048; 0.250)		
Ought goals → prevention strategy → number of correct solutions							-0.035* (-0.101; -0.003)		
Non-loss goals → prevention strategy → number of correct solutions							-0.058* (-0.130; -0.008)		
Security goals → prevention strategy → number of correct solutions							-0.056* (-0.130; -0.005)		

Note: *N* = 441. Bootstrapped confidence intervals between parentheses.

p* < .05. *p* < .01. ****p* < .001.

STUDY 3: PREDICTIVE VALIDITY OVER TIME IN A WORK CONTEXT

The purpose of Study 3 was to provide further evidence of predictive validity beyond Study 2 by demonstrating that (1) predictive validity also applies to work contexts and (2) the causal chain where goals predict behaviors through strategies (also) is supported across time.

Eagerness tends to result in creative behavior, partly because eager individuals generate more ideas (just as they provide more creative insight solutions in order to attain hits, see Study 2), whereas vigilant individuals' tendency toward a conservative bias leads them to be more critical of expressing their ideas (Friedman & Förster, 2001). Moreover, a promotion focus is associated with a more holistic, global, and heuristic processing style, whereas a prevention focus is

associated with processing information in more focused, localized, and analytical ways (Crowe & Higgins, 1997; Friedman & Förster, 2001). In turn, a more global processing style enhances creativity, whereas a more focused style inhibits it. In Study 3, we thus test whether promotion and prevention strategies positively or negatively predict creative behavior as rated by employees' supervisors (Baas et al., 2011; Friedman & Förster, 2001; Henker et al., 2015; Lanaj et al., 2012).

Furthermore, in the workplace, research indicates that performance of employees is typically evaluated along promotion-oriented criteria. This has led to the finding that prevention-focused individuals tend to receive lower ratings on work performance, whereas promotion-focused individuals receive higher ratings (Lanaj et al., 2012). We thus also test whether promotion strategies positively predict work performance (supervisor-rated), while prevention strategies negatively predict work performance.

Method

Sample and procedure

We administered surveys at three time points: a survey to employees (T1), inquiring about their maximal and minimal goals at work, a survey to employees 2 months later (T2), inquiring about their promotion and prevention strategies, and a survey, another 3 months later (T3) in which their supervisors rated these employees' creative behavior and performance.

The final convenience sample consisted of 483 employees rated by 84 immediate supervisors. Most employees were male (61.1%) and had an average age of 42.14 ($SD = 11.03$) years and organizational tenure of 11.53 ($SD = 9.35$) years. Most employees held a vocational (31.1%), college (47.5%), or university degree (16.6%). The participants worked in a wide range of industries in the Netherlands, including agriculture, civil service, construction, consulting, education, healthcare, information, and retail. The surveys were administered in Dutch—all items were translated from English using a back-translation procedure (Brislin, 1970).

Measures

RGSQ

We measured ideal ($\alpha = .86$), gain ($\alpha = .70$), advancement ($\alpha = .89$), ought ($\alpha = .83$), non-loss ($\alpha = .88$), and security goals ($\alpha = .86$) at T1 and promotion ($\alpha = .80$) and prevention strategy ($\alpha = .85$) at T2 on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) by using the RGSQ with the preamble “*In my work*”

Creativity

We measured employee creative behavior ($\alpha = .90$) at T3 on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) by using three items based on the instrument developed by Tierney et al. (1999). An example item is, “This employee finds new ways of dealing with work-related issues.”

Performance

We measured employee performance ($\alpha = .89$) at T3 on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) by using three items based on the instrument developed by Wayne et al. (1997). An example item is, “This employee generally provides good performance in his/her work.”

Confirmatory factor analyses

In line with procedures as outlined in Study 1, we estimated a baseline measurement model in which the RGSQ, creativity, and performance items loaded on their intended factors without cross-loadings and with freely correlated factors. This model had a good fit, $\chi^2[360] = 598.24$, $p < .001$ (RMSEA = .04 [.03; .04]; CFI = .97; TLI = .96) and was superior to alternative models with all possible configurations of factors at $p < .001$. Furthermore, AVE's ranged between .48 and .75 ($M = .65$) and exceeded all squared latent intercorrelations between focal factors. These analyses provide further evidence that the RGSQ goals and dimensions are empirically distinct.

Results

Descriptive statistics, intra-class correlations, and intercorrelations are reported in Table 7. The intra-class correlations for the focal variables were sufficiently high that the nesting structure of employees within their immediate supervisors had to be controlled for (Snijders & Bosker, 2012). To this end, we used multilevel SEM procedures (Preacher et al., 2010) to estimate multilevel mediation path models using Mplus 7.4 (Muthén & Muthén, 1998-2017). In these models, we regressed promotion and prevention strategies (T2) on maximal and minimal goals (T1) and the control variables and regressed employee creative behavior and performance (T3) on promotion and prevention strategies (T2), maximal and minimal goals (T1), and the control variables (see Table 8) on both the employee (Level 1) and leader (Level 2) level. We only report the employee-level estimates (Level 1) because the coefficients for the leader level (Level 2) models were not significant and not of theoretical interest. Furthermore, we estimated indirect relationships between maximal and minimal goals (T1) and employee creative behavior and performance (T3) through promotion and prevention strategies (T2) using Monte Carlo procedures (Selig & Preacher, 2008).

First, promotion strategy was predicted by ideal, $b = .15$, $\beta = .23$, $t = 3.62$, $p < .001$, and advancement goals, $b = .18$, $\beta = .21$, $t = 3.78$, $p < .001$, but not by gain goals, $b = .07$, $\beta = .07$, $t = 1.15$, $p = .249$, and prevention strategy was predicted by ought, $b = .23$, $\beta = .18$, $t = 3.39$, $p = .001$, and security goals, $b = .28$, $\beta = .28$, $t = 5.07$, $p < .001$, but not non-loss goals, $b = .07$, $\beta = .06$, $t = 1.31$, $p = .192$. Second, promotion strategy positively predicted both employee creative behavior, $b = .24$, $\beta = .18$, $t = 3.53$, $p < .001$, and performance, $b = .13$, $\beta = .11$, $t = 2.18$, $p = .029$, and prevention strategy did not predict employee creative behavior, $b = -.07$, $\beta = -.09$, $t = -1.33$, $p = .184$, but negatively predicted performance, $b = -.08$, $\beta = -.10$, $t = -2.00$, $p = .045$. Furthermore, in line with the above effects, Table 8 indicates that promotion strategy mediated the indirect relationship between ideal and advancement goals with employee creativity and performance, and prevention strategy mediated the indirect relationship between ought and security goals with employee performance.

TABLE 7 Descriptive statistics and Intercorrelations (Study 3)

	<i>M</i>	<i>SD</i>	<i>ICC</i> ₁	1	2	3	4	5	6	7	8	9	10
1. Ideal goals (T1)	3.18	.83	.05	(.86)									
2. Gain goals (T1)	4.07	.65	.19	.40***	(.70)								
3. Advancement goals (T1)	4.20	.66	.11	.46***	.36***	(.89)							
4. Ought goals (T1)	4.10	.71	.12	.14**	.33***	.18***	(.83)						
5. Non-loss goals (T1)	3.80	.88	.17	.20***	.42***	.15**	.34***	(.88)					
6. Security goals (T1)	3.47	.95	.19	.17**	.31***	.11*	.49***	.52***	(.86)				
7. Promotion strategy (T2)	3.82	.58	.10	.34***	.34***	.36***	.15**	.14**	.09	(.80)			
8. Prevention strategy (T2)	2.92	.87	.01	-.08	.05	.00	.29***	.21***	.33***	-.06	(.85)		
9. Creativity (T3)	3.51	.86	.30	.11*	-.03	.06	-.17**	-.10*	-.18***	.16**	-.14**	(.90)	
10. Performance (T3)	4.07	.72	.26	-.04	-.05	.05	-.08	-.04	-.16**	.10*	-.08	.50***	(.89)

Note: *N* = 434. Cronbach's Alpha's between parentheses on the diagonal.

p* < .05. *p* < .01. ****p* < .001.

TABLE 8 Unstandardized regression coefficients and bootstrapped indirect effects for multilevel SEM path model at level 1 (Study 3)

	Promotion strategy (T2)			Prevention strategy (T2)		
	<i>b</i> (β)	<i>se</i>	<i>t</i>	<i>b</i> (β)	<i>se</i>	<i>t</i>
Ideal goals (T1)	0.15*** (0.23)	0.04	3.62	-0.17** (-0.16)	0.06	-2.71
Gain goals (T1)	0.07 (0.07)	0.06	1.15	-0.04 (-0.03)	0.10	-0.42
Advancement goals (T1)	0.18*** (0.21)	0.05	3.78	0.02 (0.02)	0.08	0.32
Ought goals (T1)	0.08 (0.10)	0.05	1.62	0.23** (0.18)	0.07	3.39
Non-loss goals (T1)	0.01 (0.02)	0.04	0.31	0.07 (0.06)	0.05	1.31
Security goals (T1)	-0.04 (-0.07)	0.04	-1.04	0.28*** (0.28)	0.06	5.07
<i>R</i> ² (level 1)	.19***	.04	5.09	.17***	.03	5.76
	Creativity (T3)			Performance (T3)		
	<i>b</i> (β)	<i>se</i>	<i>t</i>	<i>b</i> (β)	<i>se</i>	<i>t</i>
Ideal goals (T1)	0.11 (0.12)	0.07	1.44	-0.10* (-0.13)	0.05	-2.04
Gain goals (T1)	-0.06 (-0.05)	0.11	-0.53	-0.02 (-0.02)	0.06	-0.37
Advancement goals (T1)	-0.08 (-0.07)	0.07	-1.07	0.01 (0.01)	0.05	0.14
Ought goals (T1)	-0.12 (-0.11)	0.07	-1.77	0.00 (0.00)	0.06	0.03
Non-loss goals (T1)	-0.01 (-0.02)	0.06	-0.25	0.01 (0.01)	0.05	0.10
Security goals (T1)	-0.07 (-0.09)	0.06	-1.33	-0.03 (-0.05)	0.05	-0.70
Promotion strategy (T2)	0.24*** (0.18)	0.07	3.53	0.13* (0.11)	0.06	2.18
Prevention strategy (T2)	-0.07 (-0.09)	0.05	-1.33	-0.08* (-0.10)	0.04	-2.00
<i>R</i> ² (level 1)	.09**	0.03	3.00	.04*	.02	2.02
Indirect effects						
	Creativity (T3)			Performance (T3)		
Ideal → promotion → outcome	0.037* (0.012; 0.071)			0.020* (0.002; 0.043)		
Gain → promotion → outcome	0.017 (-0.013; 0.049)			0.009 (-0.006; 0.033)		
Advancement → promotion → outcome	0.044* (0.016; 0.078)			0.024* (0.002; 0.051)		
Ought → prevention → outcome	-0.016 (-0.043; 0.008)			-0.017* (-0.040; -0.000)		
Non-loss → prevention → outcome	-0.005 (-0.019; 0.004)			-0.005 (-0.016; 0.003)		
Security → prevention → outcome	-0.020 (-.0053; 0.009)			-0.021* (-0.048; -0.000)		

Note: *N* = 434. Bootstrapped confidence intervals between parentheses.

p* < .05. *p* < .01. ****p* < .001.

Discussion

The results of Study 3 supported the predictive validity established in Study 2 in a time-split work context. In line with the central tenets of RFT, maximal and minimal goals predicted promotion and prevention strategies, even months later, and these strategies, in turn, predicted behaviors that were measured, again, months later. Furthermore, Study 3 affirmed that maximal and minimal goals had an indirect relationship with creativity and performance *through* promotion and prevention strategies. This study thus provided evidence for the causal relations that are implied by RFT and further supported the validity of the distinction between goals and strategies. Just as in Study 2, interestingly, the distinct goals within each focus did not all predict the regulatory strategies to the same extent.

GENERAL DISCUSSION

Despite the importance of RFT to psychology and management, several authors have noted that RFT operationalizations require a fundamental overhaul (e.g. Gorman et al., 2012; Haws et al., 2010; Johnson et al., 2015; Summerville & Roese, 2008). We developed the RGSQ, which, unlike other instruments, uses an operationalization that (a) distinguishes different maximal goals (i.e. ideal, gain, advancement) and minimal goals (i.e. ought, non-loss, security) at the system level, (b) distinguishes promotion (i.e. eagerness) and prevention strategy (i.e. vigilance) at the strategic level, and (c) can be applied in different contexts (e.g. occupational, hierarchical, social, and temporal) with only minor adaptations. We used the RGSQ across three studies (with six samples) to test RFT's premises that (1) maximal and minimal goals predict promotion and prevention strategies and (2) promotion and prevention strategies are more proximal predictors of behavioral outcomes than maximal and minimal goals.

In Study 1, we found evidence for RGSQ's factor structure, interrelationships between goals and strategies, and convergent and discriminant validity. We found that ideal, gain, and advancement goals (i.e. maximal goals) and ought, non-loss, and security goals (i.e. minimal goals) and promotion and prevention strategy are distinct constructs, that they all interrelate as one would theoretically expect, and that the maximal and minimal goals uniquely contribute to promotion or prevention strategy, respectively. This confirms that maximal goals are distinct from promotion strategy and that minimal goals are distinct from prevention strategy. Moreover, these distinctions between and within maximal and minimal goals and their unique relationships with the strategies may explain the inconsistent correlations and predictive validities of operationalizations that either focus solely on maximal and minimal goals (e.g. Lockwood et al., 2002) or conflate multiple levels (e.g. Fellner et al., 2007; Higgins et al., 2001; Neubert et al., 2008; Ouschan et al., 2007). Furthermore, when regressing promotion and prevention strategies on both the maximal and minimal goals and the RFQ and GRFM, all but advancement goals had unique effects. On the one hand, this indicates that advancement goals may be adequately captured by the RFQ and GRFM measures. On the other hand, this confirms that promotion and prevention strategies can be activated by different goals and that it is therefore inappropriate to operationalize strategies on the system level. Finally, results indicate that the RGSQ correlates with theoretically meaningful affective, cognitive, motivational, and behavioral constructs both in a general and work context, providing evidence for convergent and discriminant validity.

In Studies 2 and 3, we found evidence for predictive validity of the RGSQ and further supported RFT's basic tenet that maximal and minimal goals predict behaviors *through*

promotion and prevention strategies and that, compared with goals, strategies are more proximal predictors of behavior. Across two tasks, the results of Study 2 suggest that the maximal and minimal goals that individuals generally strive for in life are predictive of the promotion and prevention strategies that they employ during task performance: maximal goals activate eager behavior to ensure hits and prevent errors of omission, whereas minimal goals activate vigilant behaviors to ensure correct rejections and prevent errors of commission (Crowe & Higgins, 1997; Hamstra et al., 2018). Individuals who generally pursue maximal goals were more likely to opt for promotion strategies, leading them to take more risks in the pursuit of gains and to generate more creative insight solutions; individuals who generally pursue minimal goals were inclined to opt for prevention strategies, leading them to be more careful in the pursuit of gains and to generate fewer creative insight solutions. Study 3 extended these results to a work context by demonstrating that maximal and minimal goals predicted promotion and strategies 2 months later, which subsequently predicted work performance and creativity 3 months later. Individuals pursuing maximal goals scored higher on performance and creativity because they used promotion strategies, whereas individuals pursuing minimal goals scored lower on performance because they used prevention strategies.

Taken together, the results of these studies demonstrate the benefits of a conceptualization and operationalization of regulatory focus that distinguishes goals from strategies. First, the studies provide a validation of the RGSQ, a measurement instrument that is more closely attuned to RFT's core premises than existing measurement instruments and that can easily be adapted to different contexts. Given the results of our studies, we believe that it is advisable to use measurement instruments (such as the RGSQ) that distinguish the strategic level (i.e. promotion and prevention strategies) from the system level (i.e. maximal and minimal goals). Second, the studies provide a new test of RFT's basic premise that maximal and minimal goals activate promotion and prevention foci of eagerness and vigilance, which regulate further goal-directed behavior. In so doing, we corroborate the results of some of the initial studies on which RFT was founded (Crowe & Higgins, 1997; Higgins et al., 1994; Higgins & Tykocinski, 1992; Idson et al., 2000; Shah et al., 1998), returning to the crucial notion that promotion and prevention foci are best captured as motivational states of strategic eagerness and vigilance, rather than goals focusing on (un)desirable outcomes (Higgins, 2014; Scholer et al., 2008, 2010; Stroessner et al., 2015; Zou et al., 2014; Zou & Scholer, 2016).

Theoretical implications and future research directions

The development and validation of the RGSQ has several theoretical implications and introduces important questions for future research, including how different goals are interrelated, how (and when) different goals relate to strategies, and how (and when) these strategies manifest themselves.

A first question that future research might address involves the relations among different self-regulatory goals. Although our results suggest that the maximal and minimal goals within each (promotion or prevention) system are distinct, we did not examine whether, and if so how, goals might be causally related to each other. Brendl and Higgins's (1996) distinction between high- and low-identity goals might lead to some interesting speculations about the causal structure within sets of goals. High-identity goals clarify *why* people pursue goals; they are abstract, general, and broad in scope and typically do not have a clear end-state. Therefore, they apply across many contexts and success or failure in these goals does not occur through a single event.

Low-identity goals clarify *how* people pursue goals. Low-identity goals are concrete, specific, and narrow in scope. These lower identity goals are more closely related to the specific interpretation of an event and its elements, and events can imply success or failure in reaching those lower identity goals.

Ideal and ought goals are very broad, general goals about how people ideally would like, or think they ought to be, which aligns them with the definition of high-identity goals. If ideal and ought goals are conceptualized as high-identity goals, they should give broad meaning to specific situations. That is, ideal goals should lead people to construe specific situations in terms of gains versus non-gains, whereas ought goals should lead people to construe situations in terms of non-losses versus losses. Activating ideal goals should therefore lead people to consider lower order outcomes (such as advancement/movement) that are relevant to the higher-order ideal goal, whereas activating ought goals should lead people to consider other lower order outcomes (such as security/stability) that are relevant to that higher-order ought goal. To our knowledge, theorizing on RFT has remained relatively implicit about the nature and functioning of these different goals, and how they are related.

Second, it seems likely that different goals become more salient or more strongly predictive of a specific regulatory strategy depending on contextual features. For example, in the laboratory tasks of Study 2, we found differential relationships between several of the goals and the strategies, in the sense that it was not always the same *set* of goals that predicted the strategy. Similarly, in the work context of Study 3, we found that whereas security and advancement goals were strong predictors, we also found the (more abstract) ideal and ought goals to predict their respective strategy. A reasonable explanation for this difference may be that the work context enables people to take a more global, long-term perspective on their goal pursuit, in which ought and ideal goals play a more consistent role compared with their role in instigating strategies in specific tasks.

This point, that the goal-strategy relationship may depend on features of the context, has several implications. For example, it implies that there will often be moderators of the relationships between goals on the one hand, and regulatory strategies and outcomes on the other, which represents a clear opportunity for future research and theorizing. Indeed, measurement instruments that focus on different goals will differ in their predictive validity depending on the situation, a result that has been empirically observed regarding the RFQ and the GRFM (see Summerville & Roese, 2008). We suggest that applying the high- versus low-identity distinction to these contexts might be a good start.

Third and finally, the manner in which regulatory strategies manifest themselves deserves more attention, in particular with regard to the principle of regulatory fit (Higgins, 2000). The principle of regulatory fit is closely related to RFT and the current conceptualization and operationalization may help to advance the regulatory fit literature. The principle of fit is based on the notion that applying strategies that sustain an individual's underlying motivation (eagerness for promotion, vigilance for prevention) provides the individual with a feeling of rightness about the goal pursuit and increases engagement (Higgins, 2000). Although studies frequently measure these fit outcomes, studies rarely examine whether these feelings are actually caused by the application of promotion and prevention strategies of eagerness and vigilance. That is, in most cases, the outcome of fit (e.g. increased task engagement or persistence) leads to the inference that fit must have been present. To be able to measure the strategies clearly and separately from each other and from goals is thus important, because the concept of regulatory fit explicitly relates to the strategies that individuals may use in a situation, and not to whether they can attain the goals that they value. That is, the value of the fit principle is that it applies to

matching strategies and not to the ability to attain valued outcomes (regulatory relevance). Fit studies, using the RGSQ, will be able to provide evidence that effects are indeed due to strategic fit, rather than due to the goal-congruent situation “serving” the individual’s goals.

Limitations

A first limitation of this research is that we have focused strongly on the internal validity of our measurement instrument. We have provided evidence of the measure’s validity in its consistency with predictions from RFT, and by examining how it relates to other concepts, as well as to objectively observable behavior. However, our samples were relatively uniform, in that they drew from Western student and worker populations. Regulatory focus has frequently been researched in non-Western cultures and future work on the validity of our measure in other cultures and contexts would be valuable.

A second limitation, arguably, is that we tested the predictive validity of our instrument using tasks and behaviors that were relatively inconsequential. People’s responses in Study 2’s task, for instance, had no real consequences. Although some might argue that this limits the interpretability of these tasks or makes results less meaningful, we would note that Study 2 was designed to test theoretically-derived (and non-trivial) predictions. Real-world relevance or importance was therefore not of immediate concern. Furthermore, one could argue that observing the expected patterns even in a context without actual consequences is actually strong evidence. The consideration that leads eager people to take action and vigilant people to refrain from taking action is undergirded by a cost–benefit analysis, and it therefore stands to reason that when actual consequences exist, these will further enhance manifestations of these strategic proclivities. Regardless, if similar effects are found in real-stakes contexts, they are likely to be highly consequential (see Gamache et al., 2015; Hamstra et al., 2018), which makes it important to examine whether observed effects generalize to higher-stake situations.

A third limitation is that the RGSQ measures regulatory goals and strategies only in approach or avoidance terms. As RFT contends, both promotion and prevention focus include approach and avoidance forms of regulation. Specifically, promotion-focused individuals may eagerly approach gains and avoid non-gains, while prevention-focused individuals may vigilantly approach non-losses and avoid losses. However, our RGSQ questionnaire measures the maximal goals (i.e. ideal, gain, and advancement) and promotion strategies with items that are all framed in approach terms, while the minimal goals (ought and loss) and prevention strategies are measured with items that are all framed in avoidance terms, with the exception of approach-framed items for ought goals. We do not think this limitation is a serious concern, because approach-based regulation dominates the pursuit of maximal goals and avoidance-based regulation dominates the pursuit of minimal goals. Notwithstanding, our RGSQ as it stands is unable to assess and examine effects of avoidance-framed maximal goals and promotion strategies and approach-framed minimal goals and prevention strategies.

A fourth limitation is that we have developed and tested the RGSQ from an *intrapersonal* and self-regulation perspective. Recently, however, research has also been conducted to examine *interpersonal* effects of regulatory focus (e.g. Henker et al., 2015; Sue-Chan et al., 2012; Wu et al., 2008). For example, research has examined the role of regulatory focus in the influence that leaders have on employee outcomes (e.g. Henker et al., 2015; Kark & Van Dijk, 2007;

Neubert et al., 2008; Wu et al., 2008). Our RGSQ would need to be adapted to be able to examine effects of regulatory goals and strategies in *interpersonal* relationships in different contexts (e.g. organization, education, and sports). For example, using regulatory focus as a multilevel concept, leaders—as representatives of the organizational system—can be assumed to set maximal and minimal goals for their employees (i.e. system level). These regulatory goals set by the leader may prime employees to adopt eagerness and vigilance regulatory strategies in their goal pursuit (i.e. strategic level) that eventually unfold and manifest as situationally-specific work behavior (i.e. tactical level). In such interpersonal leader-employee contexts, our RGSQ can be adapted to measure leader goal setting of maximal and minimal goals and employee adoption of promotion and prevention strategies for pursuing these goals.

Practical implications and conclusion

In addition to its theoretical rigor and usefulness, RFT is critically important for organizational practice (Brockner & Higgins, 2001). One of the many merits of RFT includes its flexible conceptualization at multiple levels of analysis (Johnson et al., 2015). Indeed, regulatory focus can be applied to different occupational (e.g. general and work), hierarchical (e.g. employees, managers, and executives), social (e.g. intra- and interpersonal, group), and temporal (e.g. trait and state) contexts (Baas et al., 2008; Brockner & Higgins, 2001; Sassenberg & Hamstra, 2017; Sassenberg & Wolfin, 2009). This includes more specific psychology and management topics such as leadership, motivation and work behavior, performance management, recruitment and selection, and training and development (cf. Bozer & Delegach, 2019; Brockner & Higgins, 2001; Fruhen et al., 2015; Gorman et al., 2012; Lanaj et al., 2012). Previous studies required distinct, sometimes incompatible and incomparable measurement instruments to operationalize regulatory focus at these different levels of analyses and in different contexts. Our study offers the RGSQ as a more flexible measurement instrument that is applicable across different levels of analyses and contexts, while simultaneously being more attuned to RFT as conceptually intended. Indeed, on the one hand, the RGSQ allows practitioners to assess the extent to which specific maximal and minimal goals indeed elicit their relevant regulatory strategies of eagerness and vigilance. This is especially important in the leadership domain, for example, where the RGSQ can be used to assess and analyze the different ways in which followers may perceive and adopt the maximal and minimal goals set by their leaders. On the other hand, the more proximal strategic orientations of the RGSQ allow practitioners to more accurately predict relevant outcomes. Accordingly, scholars and practitioners can use the RGSQ to reliably predict affect, cognition, motivation, and behavior across a wide range of topics relevant for psychology and management.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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