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How the behavioral approach system predicts everyday life outcomes

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This study tested crucial components of Gray's reinforcement sensitivity theory that have generally been overlooked in the literature. We tested whether the perceived amount of reward moderates the behavioral approach system (BAS) and the importance of reward mediates BAS in the prediction of job satisfaction and organizational commitment. Results from 514 participants employed in part-time and full-time jobs provided support for our model, such that the indirect effect of BAS through the importance of reward was strongest when reward was provided. This model advances our understanding of reinforcement sensitivity theory and offers a solid foundation for predicting outcomes in everyday life.

Gray's reinforcement sensitivity theory (RST; Gray, 1982, 1987) has received increasing attention as a biologically based personality model spanning different areas of psychology (Avila & Parcet, 2002; Corr, Pickering, & Gray, 1995; Dawe & Loxton, 2004; Gable, Reis, & Elliot, 2000; Gomez & McLaren, 1997; Stewart, 1996). Support in the RST literature is mixed (Matthews & Gilliland, 1999; Pickering et al., 1997; Torrubia, Ávila, Moltó, & Caseras, 2001). Difficulties in formulating Gray's theory have been mentioned frequently in different research (e.g., Corr, 2001, 2002b; Gupta, 1990; Heubeck, Wilkinson, & Cologon, 1998; Larsen & Ketelaar, 1991). Efforts to identify paradigms for operationalizing this theory

are therefore critical for testing and developing the theory. The current research provides a model for evaluating crucial components of RST that have often been overlooked in the literature and will determine whether RST is predictive of workplace behavior.

RST has undergone continuous development, from original reinforcement sensitivity theory (O-RST; Gray, 1982, 1987) to revised reinforcement sensitivity theory (R-RST; Gray & McNaughton, 2000; Jackson, 2009a), with modifications reviewed by Smillie, Pickering, and Jackson (2006). R-RST proposes three functionally distinct yet interdependent brain systems that govern behavior. These systems are called the behavioral inhibition system

(BIS), behavioral approach system (BAS), and fight flight freezing system. The focus of the present research is on the BAS, which is the system most similar across the two versions of RST. In the original version of RST, BAS is sensitive to strictly conditioned rewarding stimuli, whereas in the revised RST, BAS is seen as being sensitive and responsive to both conditioned and unconditioned rewarding stimuli (McNaughton & Corr, 2004). The operationalization of original BAS has been as a system responsive to both conditioned and unconditioned rewards, so the current research applies as much to R-RST as O-RST (Smillie, Pickering, et al., 2006).

The BAS is activated by rewarding stimuli such as food, social recognition, or access to resources such as money or an attractive mate, resulting in reward-seeking behavior, feelings of elation, hope, happiness, and desire for reward (Pickering & Gray, 1999). Nevertheless, there are some inconsistent findings in terms of BAS (see Corr, 2001, 2002a; Pickering et al., 1997). In particular, more recent studies present some ambiguities in the application of BAS to everyday life (Gable et al., 2000; van der Linden, Taris, Beckers, & Kindt, 2007). Gable et al. found that high-BAS people experience high positive mood in everyday life. However, their positive mood was independent of positive events they experienced in daily life. However, RST proposes that positive mood should depend on the availability of positive events. Furthermore, in an investigation of the interaction between favorable working conditions and BAS in predicting work outcomes, van der Linden and colleagues (2007) found that high-BAS people were more satisfied and more involved in their work. However, favorable working conditions did not moderate the relationship between BAS and job involvement and satisfaction. The important point is that research generally has not found evidence in favor of an interaction between BAS and favorable conditions to predict positive outcomes, and yet this is the mechanism by which RST is proposed to work (Gray & Smith, 1969).

The current research presents a model to evaluate the effects of BAS in the context of the workplace. We propose a model that incorporates additional components needed for the theoretical underpinning of Gray's RST that has not been widely used in prior research. Specifically, we developed a moderated mediated model (Baron & Kenny, 1986; Preacher,

Rucker, & Hayes, 2007) that jointly examines the mediating effect of the importance of external rewards to the individual (measured as perceived importance of rewarding climate) and the moderating effect of the reward availability (measured as perception of rewarding climate) in the relationship between BAS and job satisfaction and organizational commitment (Figure 1).

Rewarding climate

Climate as a representation of environmental characteristics has been a vital construct in organizational psychology since the 1950s (Schneider, 1990). Climate concerns the job perception or the psychological meaning of job characteristics (James & Sells, 1981; Jones & James, 1979). In any organization, people make sense of all the clusters of psychologically related events, practices, and procedures they encounter. Climate affects individual behavior and attitudes (Klein & Kozlowski, 2000; McMurray, Scott, & Pace, 2004). Any organization typically involves different kinds of characteristics and events (Patterson et al., 2005). Therefore, rewarding climate has been considered in many studies either as a dimension of climate or as a characteristic of the job or organization (e.g., Bartol & Locke, 2000; Kopelman, Brief, & Guzzo, 1990). Some researchers have investigated rewards at work as a predictor of organizational outcomes (e.g., Brown & Leigh, 1996; Kalleberg & Reve, 1992). Reward in the workplace includes the more predictable rewards such as salary and benefits or less predictable rewards such as promotion, bonuses, and results of

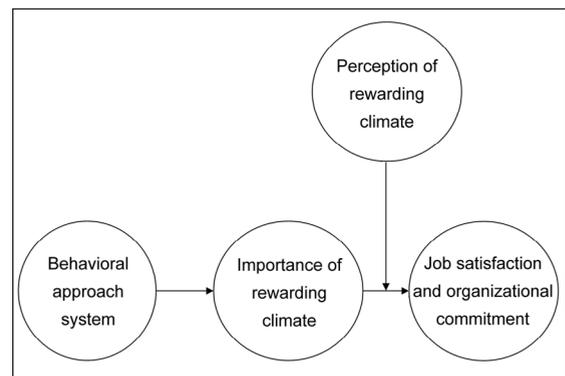


FIGURE 1. Model of the mediated effect of the importance of rewarding climate and the moderated effect of the perception of rewarding climate in the prediction of job satisfaction and organizational commitment

appraisals. We investigate the process by which the importance of rewarding climate and the availability of rewards respectively mediate and moderate the relationship between BAS in the prediction of job satisfaction and organizational commitment.

The mediator effect of importance of reward

Many studies that have used RST in predicting everyday behavior have not given full consideration to what constitutes reward and punishment. Though not well understood, reward and punishment are fundamental principles in the theoretical underpinning of Gray's theory. Despite the fact that reward sensitivity is the core concept of neurobiological sensitivity of BAS, few studies have explicitly examined reward in the context of individual differences in reward sensitivity of BAS. In everyday situations such as the workplace, people are exposed to an almost continuous stream of events that include potentially rewarding stimuli (Gable et al., 2000); we suggest that the importance of reward plays a critical role in activating the BAS and reexpressing it in an organizationally relevant context. Thus the activation of the BAS through importance of a rewarding climate affords a mechanism through which it predicts outcomes in a workplace. In addition, we think the importance of rewarding climate provides an organizationally relevant context for including some of the real-world problems of operationalizing reward (e.g., how frequency, delay, or the source of reinforcement may influence the process of activating BAS, as noted by Corr, 2001).

The importance of rewarding climate also enables us to provide a measure that is relevant to an individual as opposed to being an objective measure. This is important because reward can have different meanings to different people. On one hand, rewards in real-world settings (e.g., the opportunity to get a promotion or have social contact) may be more salient compared with the promise of small monetary reward or points, as provided in typical laboratory studies. On the other hand, it is possible that the way rewards are presented in everyday situations may actually reduce the effects of rewards on activating BAS. For example, in everyday life the frequency of rewards may not have a direct relationship to improvements in performance, and they are often provided sometime later than the behavior that led to the reward. It is also possible that employees may not place the same

importance on rewards even if they are provided in the same amount. Our use of the importance of rewarding climate provides a perception relevant to an individual and therefore helps us to provide a useful person-oriented measure of BAS activation relevant to the real world.

To examine the effect of personality on work outcomes, researchers need to consider the processes through which personality influences behavior (Judge, Bono, Ilies, & Gerhardt, 2002). In statistical terms, a mediator variable specifies how or why an independent variable relates to a dependent variable and provides a mechanism through which a predictor influences an outcome variable (Baron & Kenny, 1986). We argue that BAS predicts job satisfaction and organizational commitment through the mediating effect of the importance of rewarding climate. This concept matches the criteria and context of BAS sensitivity addressed by Corr (2001, 2002a) and therefore provides one opportunity for a proper evaluation of the role of RST in the prediction of work outcomes.

Availability of rewards as moderator

In addition, we propose that the strength of the indirect relationship between BAS and everyday life outcomes through importance of rewards will differ depending on the perceived availability of rewards in the situation. We suggest that the context in which the behavior occurs provides further explanation for the mixed support for RST in the literature. RST proposes that it is the presentation or occurrence of reward that activates BAS and allows it to control responding (Pickering & Smillie, 2008). Gray and Smith (1969) suggested that it is the interaction of BAS with rewarding stimuli that determines the conditionability of this system, not merely the BAS system. Some researchers have examined extroverts under rewarding conditions in supporting this theoretical stance (e.g., Boddy, Carver, & Rowley, 1986; Stewart, 1996).

Therefore, we believe that a proper test of BAS entails examining this construct in interaction with available rewards. Although the literature argues that an appetitive system is supposed to organize behavior, motivation, and affect only in the presence of positive and rewarding stimuli, we cannot find much research in this area that considers available

reward as a moderator of BAS. Additionally, within organizational research there is evidence that context should be considered as a moderator in the relationship between personality and work outcomes (e.g., Barrick & Mount, 1993; Beaty, Cleveland, & Murphy, 2001). A moderator variable addresses when or for whom a certain effect will hold (Baron & Kenny, 1986). Van der Linden et al. (2007) recognized this issue by considering work characteristics as moderators of the relationship between BAS and work outcomes. In the current research, we chose rewarding climate as the work characteristic we believed would moderate BAS activation in an organizational context. This perspective is also in line with the person-environment fit hypothesis (Finegan, 2000; Meglino, Ravlin, & Adkins, 1989). This model suggests that the fit between what a person desires and what he or she receives should predict job satisfaction and organizational commitment.

Job satisfaction

Job satisfaction is a core concept in organizational psychology and has been defined as a global feeling about the job or a positive emotional state or affect that is the result of the appraisal of one's job or job experiences (Welbourne, Eggerth, Hartley, Andrew, & Sanchez, 2007). According to this definition, job satisfaction is a function of what the person wants from the job and what he or she perceives it as offering. Therefore, both environmental cues and individual differences are important in this definition (Cohrs, Abele, & Dette, 2006). In the job satisfaction literature, research has focused on how individual differences including personality directly predict job satisfaction or whether their effects interact with other factors (Thomas, Buboltz, & Winkelspecht, 2004). In personality research, extroversion positively predicts job satisfaction (Furnham & Zacherl, 1986). This is unsurprising given that extroverts are more sensitive to rewarding aspects of their work, in terms of praise and recognition, which is similar to Gray's theory (see Smillie, Pickering, & Jackson, 2006), and extroversion is closely aligned with BAS (Depue & Collins, 1999).

Organizational commitment

Organizational commitment is a psychological state that characterizes an employee's relationship with his

or her organization in relation to his or her dedication and loyalty (Cohen & Kirchmeyer, 1995; Cooper-Hakim & Viswesvaran, 2005). We consider it likely that a person who is provided with the rewards that are important is likely to be committed to that organization. For this reason we think that organizational commitment is likely to be a good variable with which to test our moderated mediational model of how BAS predicts real-world behavior.

Over the past few decades, organizational commitment has received increasing attention because it has a positive impact on different organizational outcomes such as employee motivation (Naquin & Holton, 2002), attendance and retention (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002), and accomplishment of organizational goals (Pratt & Rosa, 2003). It is therefore beneficial to investigate the antecedents of organizational commitment, particularly when there seems to be a lack of research on dispositional sources of commitment (Erdheim, Wang, & Zickar, 2006; Gelade, Dobson, & Gilbert, 2006). Therefore, this study not only helps to develop a better understanding of RST in work context but also expands the knowledge of dispositional bases of job satisfaction and organizational commitment.

We have argued that the prediction of job satisfaction and organizational commitment from Gray's RST entails taking into account both the importance of reward as a mediator and available reward as a moderator. Moderated mediation is the situation in which the indirect effect of a mediator variable between an independent variable and a dependent variable depends on the value of a moderator variable (Muller, Judd, & Yzerbyt, 2005). Researchers have already started examining moderated mediated models in different areas of psychology (e.g., Ng, Ang, & Chan, 2008). We hypothesize that the importance of rewarding climate will mediate the relationship between BAS and work outcomes measured as job satisfaction and organizational commitment. Furthermore, we hypothesize that this mediated effect will be stronger for those who perceive a highly rewarding climate in their workplace. Therefore, on the basis of the theoretical assumptions we propose the following:

Hypothesis 1: The importance of rewarding climate mediates the relationship between BAS and job satisfaction and organizational commitment.

Hypothesis 2: The indirect effect of the importance of rewarding climate on BAS in the prediction of job satisfaction and organizational commitment is conditional on the perception of rewarding climate. Therefore, the mediated relationship will be weaker under low perception of rewarding climate and stronger under high perception of rewarding climate.

EXPERIMENT

METHOD

Participants and procedure

This study consists of two samples of a total of 514 part-time and full-time workers. Full-time workers (216 people) were recruited from a corrective services industry, three schools, and a hospital. Part-time workers (298) were also in tertiary education and worked in multiple organizations: 13% worked in production, 28% worked in service, 16% in education, 22% in administration, and 19% in other jobs. On average, 3% worked 20–24 hours per week, 77% worked 16–20 hours, 13% worked 12–16 hours, and there were some unspecified cases.

The average age in the total sample of part-time and full-time workers was 34.08 years (range = 17–57, $SD = 4.26$; 38% male). They completed a number of electronically administered questionnaires in a room, under the direct supervision of a researcher, and received course credit for their participation.

Measures

NEUROBIOLOGICAL SENSITIVITY OF BAS.

The BIS/BAS scales (Carver & White, 1994) are the most well known and widely used questionnaire representing Gray's RST (Amodio, Master, Yee, & Taylor, 2008). The items directly tap reactions to environmental rewarding stimuli of different valences and therefore are ideal for use in a study that also measures perceived effects of the environment. The BAS scale consists of 13 items and measures three subscales: Reward Responsiveness, representing positive responses to the occurrence of a reward; Drive, representing the willingness to approach positive outcomes; and Fun Seeking, representing the willingness to try new things. An example item for the BAS is, "When I get something I want I feel excited and energized." Items are scored on a 4-point Likert-type scale. In common with other studies, an

overall BAS reactivity score was computed as the sum of the three subscales (Smillie, Jackson, & Dalgleish, 2006).

THE IMPORTANCE AND THE PERCEPTION OF REWARDING CLIMATE.

The Organizational Climate Questionnaire (Furnham & Gunter, 1993) was designed to measure 15 different aspects of psychological climate, such as innovation, relationships, responsibility, and reward. The scale is based on a 5-point Likert-type response scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). The two scales, importance of rewarding climate and perception of rewarding climate, each includes 10 items. Participants were asked to assess the climate of their organization based on the extent to which they perceived it to be rewarding. Example items concerning the availability of reward include, "In my organization good work is appropriately recognized"; example items for the importance of rewarding climate include, "It is important that in my organization good work is appropriately recognized."

The importance and provision questions reflect how much reward is generally valued by the person and available in the organization, respectively. Construct validity and reliability of this scale were reported using confirmatory factor analysis, recruiting 153 employees in 17 departments across two organizations (Levine & Jackson, 2002).

ORGANIZATIONAL COMMITMENT.

In the current study we collected data from the 12 items that were most appropriate for use out of 15 in the original questionnaire. Validity and reliability of this questionnaire were explored and published by Johnson (1998), based on a sample of 975 employees. Good psychometric properties and high reliability of .78 were found for the questionnaire (see Johnson, 1998). An example item for this questionnaire, which assesses employee dedication and loyalty to the organization, is "I am proud to tell others that I work for this organization."

JOB SATISFACTION QUESTIONNAIRE.

The three-item Job Satisfaction Questionnaire assesses employees' overall satisfaction with their job, without reference to any specific job facet. Using a different 5-point Likert scale, higher scores indicate high job satisfaction. Warr and Payne (1983) found high reliability levels for this scale and have used it as a measure of workplace behavior. This questionnaire has been used in similar research, for example, to

investigate positive affectivity and impression management (Chan, 1998, 2001). In the present study, the satisfaction items were “How much do you enjoy your job?,” “How satisfied are you with your job?,” and “How happy are you with your job?”

Data analysis

To test the direct and indirect effect of BAS through the importance of rewarding climate and the moderated effect of the perception of rewarding climate, we used two moderated mediated models (Preacher et al., 2007) to predict job satisfaction and organizational commitment separately.

RESULTS

Means, standard deviations, alpha coefficients, and correlations between variables are presented in Table 1. Assumptions for regression analysis were met. All alpha coefficients were satisfactory and similar to those found in previous research. There were significant positive correlations between BAS and the importance of rewarding climate. Also, there were significant positive correlations between the importance of rewarding climate, job satisfaction, and organizational commitment. There were positive and significant correlations between BAS and the perception of rewarding climate, between BAS and job satisfaction,

and between BAS and organizational commitment. Job satisfaction and organizational commitment also were correlated.

Hierarchical multiple regression was used to test Hypothesis 1 and hierarchical moderated regression to test Hypothesis 2. In all analyses age and gender were entered as control variables. To reduce the effects of multicollinearity when using product terms in the same equation as main effects, the independent variables were mean centered.

Hypothesis 1 proposed that the importance of rewarding climate mediates the relationship between BAS and job satisfaction and organizational commitment. According to Preacher and Leonardelli (2001), mediation occurs “when four conditions are met (1) the IV [independent variable] significantly affects the mediator, (2) the IV significantly affects the DV [dependent variable] in the absence of the mediator, (3) the mediator has a significant unique effect on the DV, and (4) the effect of the IV on the DV shrinks upon the addition of the mediator to the model.” We now investigate each of these conditions.

Table 2 presents results of the regression analyses based on Baron and Kenny’s (1986) approach to mediational analysis. In the first step, age and gender were included as control variables, and in the second step BAS and importance of rewarding climate were

TABLE 1. Descriptive statistics and correlations between the behavioral approach system (BAS), work climate, job satisfaction, and organizational commitment

Variable	BAS	Importance of rewarding climate	Perception of rewarding climate	Job satisfaction	Organizational commitment
<i>M</i>	40.69	33.58	34.13	8.69	48.57
<i>SD</i>	4.72	5.53	6.24	2.84	8.67
Alpha	.87	.80	.82	.89	.78
Correlations					
Importance of rewarding climate	.13*				
Perception of rewarding climate	.10*	.08*			
Job satisfaction	.09*	.10*	.21**		
Organizational commitment	.11*	.13*	.24**	.46**	

Note. Independent variable = BAS; mediator = importance of rewarding climate; moderator = perception of rewarding climate; dependent variable = job satisfaction and organizational commitment.

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

included as main effects in the prediction of job satisfaction and organizational commitment. Results in Table 2 therefore reflect the criteria of job satisfaction and organizational commitment.

The results for job satisfaction are as follows. First, with age and gender controlled, BAS was positively related to the importance of rewarding climate ($\beta = .23, p < .001$), satisfying Condition 1 for mediation. Second, BAS was positively related to job satisfaction ($\beta = .14, p < .001$), satisfying Condition 2 for mediation. Third, the importance of rewarding climate was positively related to job satisfaction ($\beta = .14, p < .001$), which supports Condition 3. Moreover, after the importance of rewarding climate was taken into account, the effect of BAS on job satisfaction became nonsignificant ($\beta = .07, p = ns$). Sobel's (1982) test for indirect effect (Preacher & Leonardelli, 2001) provided further confirmation that the intervening effect of the importance of rewarding climate for BAS was significant ($p < .001$). These results provide strong support for Hypothesis 1.

Results in the prediction of organizational commitment are reported in the last two columns. With age and gender controlled, BAS was positively related to the importance of rewarding climate ($\beta = .23, p < .001$). BAS was shown to be positively related to organizational commitment ($\beta = .17, p < .001$). The importance of rewarding climate was positively related to organizational commitment ($\beta = .23, p < .001$).

Moreover, after the importance of rewarding climate was taken into account, the effect of BAS on organizational commitment became nonsignificant ($\beta = .08, p = ns$). Additionally, Sobel's (1982) test also indicated that the intervening effect of the importance of rewarding climate for BAS ($p < .001$) was significant, which indicates that the importance of rewarding climate mediates the relationship between BAS and job satisfaction. Similarly, for organizational commitment, Hypothesis 1 was strongly supported because all four conditions of mediation were met.

In this section, results in terms of both job satisfaction and organizational commitment are reported together. Hypothesis 2 predicted that the indirect effect of the importance of rewarding climate on BAS in the prediction of job satisfaction and organizational commitment would be strengthened by high perception of rewarding climate. To assess moderated mediation we examined four conditions of the model (Preacher et al., 2007): (1) the significant effect of BAS on job satisfaction and organizational commitment, (2) the significant interaction between the importance of rewarding climate and the perception of rewarding climate in the prediction of job satisfaction and organizational commitment, (3) the significant effect of the importance of rewarding climate on job satisfaction and organizational commitment, and (4) the different conditional indirect effect of BAS on job satisfaction and organizational commitment, via the importance

TABLE 2. Regression results for testing mediation in Hypothesis 1 in the prediction of organizational commitment and job satisfaction

Factor and statistic	Importance of rewarding climate	Job satisfaction		Organizational commitment	
		Step 1	Step 2	Step 1	Step 2
Age	-.20**	.05	.08*	.02	.06
Gender	-.04	.09*	.09*	.13**	.14**
Behavioral approach system	.23***	.14***	.07	.17***	.08
Importance of rewarding climate			.14***		.23***
<i>F</i>	25.82**	7.96**	12.36**	11.95***	36.51***
<i>R</i> ²	.11	.03	.017	.05	.05
<i>R</i> ² change	.10	.03	.04	.05	.09

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

of rewarding climate, across low and high levels of the perception of rewarding climate. According to Preacher et al. (2007), the core concept of moderated mediation is that the strength of the mediation differs across the two levels of the moderator. In our model, moderated mediation is demonstrated when the conditional indirect effect of BAS on job satisfaction and organizational commitment, via the importance of rewarding climate, differs in strength across low and high levels of the perception of rewarding climate.

We have already provided support for Condition 1 through the mediational analysis. To test for Condition 2, we examined whether the interaction for the importance of rewarding climate with the perception of rewarding climate was significant in the prediction of job satisfaction and organizational commitment. Results presented in Table 3 show a significant interaction between the importance of rewarding climate and the perception of rewarding climate in the prediction of job satisfaction ($\beta = .17, p < .001$) and organizational commitment ($\beta = .18, p < .001$).

Condition 3 has already been supported as part of our mediational analysis and testing of Hypothesis 1, in which the importance of rewarding climate was positively related to job satisfaction and organizational commitment. To examine Condition 4, we report the magnitudes of the conditional indirect effect of BAS via the importance of rewarding climate according to Preacher et al.'s (2007) statistical significance test, in which they applied Aroian's (1944/1947) ex-

act standard error for indirect effects to compute a z statistic for the conditional indirect effect.

That provides conditional indirect effects at increments of the moderator, as well as standard errors and p values, ranging from the lowest observed value of the perception of rewarding climate to the highest observed value. That is, according to moderated mediation test (Preacher et al., 2007) we operationalized high and low levels of the perception of rewarding climate as one standard deviation above and below the mean score of the perception of rewarding climate. The conditional indirect effects on job satisfaction through the importance of rewarding climate at the mean as well as $\pm 1 SD$ from the mean of the perception of rewarding climate are significant.

Table 4 presents the estimates, standard errors, z statistics, and significance value of the conditional indirect effects for BAS across low and high levels of the perception of rewarding climate in the prediction of job satisfaction and organizational commitment. As shown in Table 4, in the prediction of job satisfaction, the conditional indirect effect is larger for higher values (e.g., the conditional indirect effect is .12 when the perception of rewarding climate is 1 SD above the mean, compared to .06 at the mean level of the perception of rewarding climate, and nonsignificant when the perception of rewarding climate is 1 SD below the mean). For organizational commitment the conditional indirect effect is nonsignificant when the perception of rewarding climate is low (1 SD below

TABLE 3. Regression results for testing moderation for the importance of rewarding climate and job satisfaction or organizational commitment (Hypothesis 2)

Factor and statistic	Job satisfaction	Organizational commitment
Factor statistic		
Age	.01	.01
Gender	.08*	.12**
Importance of rewarding climate	.19***	.27***
Perception of rewarding climate	.37***	.32***
Importance of rewarding climate \times perception of rewarding climate	.17***	.18***
F	19.14	21.26
R^2	.02	.2
Adjusted R^2	.21	.23

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

the mean). The conditional indirect effect is .27 at the mean of the perception of rewarding climate, compared to .46 when the perception of rewarding climate is high (1 *SD* above the mean).

These results suggest that the magnitude of the conditional indirect effect of the BAS via the importance of rewarding climate differs across low and high levels of perception of rewarding climate.

Finally, Preacher et al. (2007) suggested that there are various moderated mediation models. Our proposed model is what we hypothesized, but we tested each of the other moderated mediation models anyway and found that the effects were nonsignificant.

DISCUSSION

In this research we developed a model that takes into account critical assumptions of RST that are generally neglected in prior research. We built a moderated mediation model testing the effect of BAS that may present possible explanations for some inconsistent results in prior RST research. In the laboratory (where rewards are generally administered differently across different experimental conditions), significant main effects of BAS may provide direct evidence in favor of RST. However, in everyday application of RST, it is probably necessary to take into account that BAS responds to important rewarding stimuli only when rewarding stimuli are perceived as available. Therefore, the results of this integrated model address two gaps in the literature regarding the application of

RST in everyday life and extend our understanding of RST theory in two important ways.

Results supported the first hypothesis by showing that the importance of rewarding climate reexpresses the generalized effects of BAS in the prediction of job satisfaction and organizational commitment. These findings support Corr's (2001, 2002a) argument that an accurate test of BAS requires a consideration of what actually constitutes reward. That means that only when the actual reward matches or exceeds expected reward can we expect positive associations with measures of BAS (see Corr, 2002a; Gray & Smith, 1969). Thus, in the prediction of job satisfaction and organizational commitment we operationalized the concept of reward expectancies as the perceived importance of rewarding climate. In everyday situations, people face many kinds of rewarding stimuli, and the importance of rewarding climate represents a pathway through which BAS influences outcomes such as job satisfaction and organizational commitment in an organizational context. This finding is also broadly consistent with Elliot and Thrash (2001) and Jackson (2008, 2009b), who suggested that cognition mediates the relationship between distal neurobiological constructs and outcome performance.

The second part of the results provides an integrated moderated mediation analysis with the aim of providing support for the second hypothesis, which highlights the role of situational cues. Our results show that the importance of rewarding climate is a

TABLE 4. Moderated mediated results for the behavioral approach system across levels of the perception of rewarding climate in the prediction of job satisfaction and organizational commitment

Perception of rewarding climate	Conditional indirect effect	SE	z	p
Job satisfaction				
-1 <i>SD</i> (24.83)	.0031	.0231	0.1335	.8938
Mean (30.97)	.0629	.0173	3.6307	.0003
+1 <i>SD</i> (37.10)	.1228	.0236	5.2041	.0000
Organizational commitment				
-1 <i>SD</i> (25.06)	.0750	.0707	1.0611	.2886
Mean (31.17)	.2675	.0603	4.4354	.0000
+1 <i>SD</i> (37.28)	.4600	.0840	5.4753	.0000

stronger mediator of BAS in the prediction of job satisfaction and organizational commitment in a climate that provides rewards compared with one that does not. This confirms that, as stated by Gray and Smith (1969), in examining BAS it is critical to consider the context in which the rewards are present. Particularly, in the prediction of everyday outcomes BAS should be regarded in interaction with the availability of rewarding stimuli. Very few studies have explicitly examined the moderating role of reward in the context of how BAS predicts everyday outcomes. The failure to examine such moderating effects might contribute to the mixed or inconsistent results supporting RST. Research that does not examine the moderating role of reward in the context of how BAS predicts behavioral outcomes in real life provides weak evidence in favor of or against Gray's theory. For example, a significant main effect of BAS in the prediction of real-world outcomes provides evidence of a general affective response associated with BAS but not as a response to environmental rewards, as specified in Gray's RST.

In sum, first, we found support for our hypothesis that importance of reward mediates BAS in the prediction of job satisfaction and organizational commitment. This finding provides evidence that the generalized effects of BAS on job satisfaction and organizational commitment go through proximal motivational mediators (similar to findings provided in a different context by Barrick & Mount, 2005; Kanfer, 1990). Second, our integrated moderated mediation analyses demonstrate the critical role of environment in the RST theory. Consistent with these findings, we found that importance of reward mediates the effects of BAS on job satisfaction and organizational commitment only for high-BAS participants who received high rewarding climate. Further analyses show that these moderated mediation relationships occur because high importance of reward strengthened the relationship between the BAS with job satisfaction and organizational commitment and thus strengthened the overall effectiveness of BAS on these outcome variables. We think that this finding is more meaningful than that provided by simply searching for an interaction effect.

In predicting everyday performance, personality research needs to move beyond a focus on examining only the biological component and develop

a more comprehensive perspective by integrating additional components such as cognitions. In everyday life, behavior is far more complex than can be understood by just considering biology. We believe our model provides a better representation of the response to reward mechanisms than a simple interactional model.

The results of this study should be interpreted in light of a few limitations. First, the results are based on self-ratings. Although this might suggest influences of common method bias, this is less likely to be a matter of concern because our dependent variables of job satisfaction and organizational commitment are inherently subjective and more commonly measured using self-ratings, and the complex theorized relationships seem unlikely to be associated with common method bias. Nevertheless, the possibility of common method bias remains a limitation of our research. Second, participants in this survey were from different companies and had different types of jobs, and although this might be considered a limitation, this is also strength of our research. Our participants were employees across many jobs and therefore were facing many different levels of reward in different environments. From this perspective, we have demonstrated a general model as opposed to one that is specific to a particular organization.

Our research also raises interesting questions about the nature of real-life rewards and how they might activate the BAS. We measured reward importance such that if a work construct was valued, then it would probably be scored highly and related to BAS activation. Similarly, if a reward were not valued, then it would receive a low score and be related to low BAS activation. Our measure of reward importance therefore provides a way to measure BAS activation in an organizational context. We think that our moderated mediational model presents a very interesting way of understanding how biological models of personality can predict real-world outcomes and encourage others to explore these models further.

To conclude, we brought together theoretical and empirical evidence to demonstrate the usefulness of RST in the prediction of complex human behavior. Our moderated mediated model may not only advance understanding of RST theory but also provide a solid foundation for future research in terms of evaluating RST in the prediction of everyday behavior.

NOTES

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