



# An integrative approach to personality: Behavioural Approach System, mastery approach orientation and environmental cues in the prediction of work performance

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## ABSTRACT

This research presents theoretical and empirical evidence to show the usefulness of a moderated mediation model to test individual differences in Behavioural Approach System in the prediction of workplace performance. We consider mastery approach orientation as the mediator in the relationship between Behavioural Approach System (BAS) and work performance. Additionally, we examined the moderated effect of a rewarding climate on the indirect effect of BAS in the prediction of work performance. Results from 123 supervisors' ratings of employees' work performance supported the model whereby the indirect effect of BAS on work performance via mastery orientation was strongest when the psychological climate of the organization was also rewarding. This model further advances our understanding of how individual differences in conjunction with contextual factors may influence work-related behaviour.

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## 1. Introduction

Over the past few decades, extensive research has addressed the importance of approach and avoidance constructs and illustrated their central role in understanding human behaviour and personality (Carver, Sutton, & Scheier, 2000). A mainstay in this line of research is Gray's Reinforcement Sensitivity Theory (RST), which now stands as one of the most influential theories in the field (Gray & McNaughton, 2000; Pickering & Gray, 1999). Broadly speaking, RST proposes that individual responses to environmental cues vary as a function of innate neurological differences in sensitivity to rewarding or punishing stimuli. Observed variability in human behaviour and personality is grounded in distinct neurobiological systems that drive approach and avoidance behaviours. The particular system of interest to the present study is the Behavioural Approach System or BAS, which represents sensitivity to reward and non-punishment and manages appetitive behaviour directed towards actual or potential positive events (Gray, 1987).

Given recent acknowledgement of the profound influence RST has had on theories of personality motivation, any effort to identify paradigms for testing the utility of this theory in prediction of behaviour are critical (Smillie, 2008). For example, there has been

minimal application of RST to work performance and context, which is a notable omission in light of the considerable role work plays in the daily lives of many people (Furnham & Jackson, 2008). Therefore, the present study seeks to investigate the impact of the approach dimension of RST (BAS) on work performance.

The viewpoint to this investigation reflects the expressed need within the psychological literature for research to outline and validate comprehensive models of personality that can accommodate the large array of variables relevant in predicting behaviour (see Cacioppo & Berntson, 1992; Judge, Bono, Ilies, & Gerhardt, 2002). This is particularly important with respect to the processes through which personality traits shape behaviour (Judge et al., 2002). For instance, personality traits are likely to affect work behaviour and performance through goal orientation/mastery orientation (Elliot & Thrash, 2002; O'Connor and Jackson, 2008); and this effect is also likely to be moderated by factors such as motivation or environment (Hambrick, Finkelstein, & Mooney, 2005; Ng, Ang, & Chan, 2008). Therefore, in light of the complex relationship between personality and behaviour, models which accommodate key meditational mechanisms and situational moderators are likely to significantly improve the explanatory and predictive power of RST. However, these issues have received scant attention and represent a distinct gap in the literature. The present research aims to help address this gap by proposing a model of personality (BAS in RST) and work performance that concurrently

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takes into account the role of theoretically-derived mediational mechanisms (mastery approach orientation) and situational moderators (the dimension of rewarding climate).

In both original (Gray, 1987) and revised RST (Pickering & Gray, 1999) the effect of BAS is similar. The main theoretical difference is that the original RST, BAS is sensitive to strictly conditioned rewarding stimuli, whereas in the revised RST, BAS is sensitive and responsive to both conditioned and unconditioned rewarding stimuli. The operationalization of the original BAS has in fact been as a system responsive to both conditioned and unconditioned rewards, so the current research applies to both theories (e.g., Smillie, Pickering, & Jackson, 2006). Therefore, BAS represents sensitivity to conditioned and unconditioned signals of reward and manages appetitive motivation and resultant approach behaviours (Gray, 1987).

### 1.1. Work performance as outcome

Work performance is conceptualised as a complex multidimensional behaviour that accounts for the interdependent and changing nature of work and organizations (Ilgen & Pulakos, 1999; Rotundo & Sackett, 2002). This view is consistent with contemporary perspectives in which jobs are viewed as non-formalized and without standard criteria such that individuals initiate and negotiate change through self-directed action. Griffin, Neal, and Parker (2007) proposed the notion of fixed tasks as defining work roles within dynamic organizational contexts. This assessment can be made across three contexts of work performance: core task performance, team performance, and organizational performance. The core task dimension of work performance is the focus of this investigation and is the core dimension of work performance since it is the one most monitored by supervisors.

### 1.2. Mastery approach orientation as mediator

Mastery approach orientation is a sub-category of goal orientation that focuses on task learning and the development of competence. This is achieved through mastering new situations and skills, understanding tasks, and using self-referenced standards of improvement (Elliot & Sheldon, 1997). Mastery approach orientation is associated with regulation towards positive outcomes such as achieving or maintaining a desirable end state (Elliot & Thrash, 2002). Individuals high in this orientation tend to believe that success stems from hard work and persistence, are interested in challenging tasks, and are not afraid of making mistakes believing them to provide beneficial learning opportunities (Kong & Hau, 1996; Nicholls, 1992). Research has shown that mastery approach orientation positively predicts performance in education (Grant & Dweck, 2003) and that it mediates the relationship between personality (BAS) and performance (Elliot & Thrash, 2002). Drawing on these findings regarding the distal relationship between personality and outcome performance, we propose that mastery approach orientation is a proximal motivational mechanism that accounts for the relationship between BAS and work performance. However, the relationship between BAS and performance is unlikely to be invariant across different work climates.

### 1.3. Rewarding climate as moderator

Climate represents work context and concerns employee perceptions of organizational characteristics and events, particularly those perceived as psychologically meaningful (Stringer, 2002). As such, climate has significant effects on employee behaviour and attitudes (Jaramillo, Mulki, & Solomon, 2006). One characteristic of climate expected to be associated with BAS activation is the dimension of reward (e.g., Arvey & Ivancevich, 1980; Kopelman,

Brief, & Guzzo, 1990). Within the literature on RST, the effect of BAS occurs in interaction with rewarding stimuli to determine the conditionability of this system (Carver & White, 1994; Pickering & Smillie, 2008). Within organizational research, evidence also shows that context moderates the relationship between personality (i.e., conscientiousness) and work outcomes (Barrick & Mount, 1993; Beatty, Cleveland, & Murphy, 2001). Therefore, our integrative model argues that rewarding climate interacts with BAS sensitivity to differentially predict work performance at varying levels of work climate. That is, the strength of the hypothesized relationship between BAS and work performance (mediated by mastery approach orientation) varies across high and low levels of rewarding climate.

### 1.4. Summary of model and hypotheses

We extend Gray's RST to the prediction of work performance and propose a mediating role for mastery approach orientation and a moderating role for rewarding climate. This moderated mediation model will be empirically tested using techniques recommended by Muller, Judd, and Yzerbyt (2005). Two hypotheses are tested: first, we hypothesize that mastery approach orientation will mediate the relationship between BAS and work performance; second, we hypothesize that this mediated effect will be stronger for those who perceive a highly rewarding climate within their workplace (see Fig. 1).

## 2. Method

### 2.1. Participants and procedure

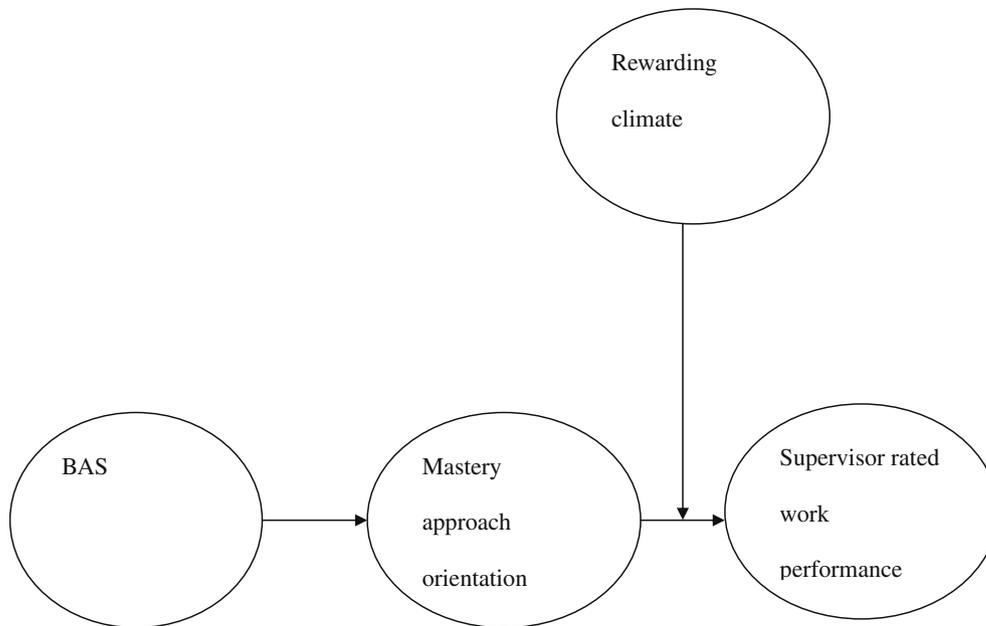
Participants were 123 workers (Mean age = 31.43 years old, SD = 4.28; range 17–65 years; 56% female, 43% male; 57% part-time, 43% fulltime) living in Brisbane, Queensland, Australia. Participants were drawn from a predominantly Caucasian population and English was the first language of the participants. The majority (74%) of part-time workers worked between 16–20 h per week primarily in the service industry (28%), education (21%), production (17%) administration (16%), and other areas (18%). Part-time employees were required to be working at their current job for at least 12 months and full-time employees for six months.

Full-time employees were recruited from staff at two schools and a hospital. Part time employees were recruited from the same organizations as the full-time employees (53%) and also included a sample of university students who also work part time (47%).

### 2.2. Measures

#### 2.2.1. Behavioural approach system

The BIS/BAS Scales (Carver & White, 1994) are the most well known and widely used questionnaire assessing RST constructs and directly tap reactions to environmental stimuli of different valence (Amodio, Master, Yee, & Taylor, 2008). The 13 BAS items load onto three subscales, (1) Reward responsiveness; representing positive responses to reward ("When I get something I want I feel excited and energized"), (2) Drive; representing willingness to approach positive outcomes ("I go out of my way to get things I want") and (3) Fun Seeking; representing the willingness to try new things ("I'm always willing to try something new if I think it will be fun"). Items are scored on a 4-point Likert-type scale. Overall BAS reactivity was computed as the sum of the three subscales (Smillie, Jackson, & Dalgleish, 2006). One reason that we used this measure is that this is a measurement based on personality–environment interaction assessment. Research to date has provided strong evidence for the reliability and validity of this measure.



**Fig. 1.** The mediating effect of mastery approach orientation and the moderating effect of rewarding climate in the prediction of supervisor ratings of work performance.

#### 2.2.2. VandeWalle's (1997) goal orientation questionnaire

VandeWalle's (1997) goal orientation questionnaire is the most widely used measurement of goal orientation in the organizational field. It measures three dimensions of goal orientation: mastery (or learning) orientation (four items), performance approach orientation (four items) and performance avoidance orientation (five items). Evidence for validity was obtained from four samples with 58 to 239 college students in each, using exploratory factor analysis to select items from an initial item pool and cross-validating scores from these items by conducting a CFA (VandeWalle, 1997). The response format for the scale is a 5 category Likert-type scale similar to Jackson's goal orientation questionnaire.

#### 2.2.3. Rewarding climate

The Organizational Climate Questionnaire (OCQ; Furnham & Gunter, 1993) was designed to measure 15 different aspects of psychological climate such as innovation, relationships, responsibility, and reward. Rewarding climate is assessed with a 10-item subscale that captures the extent to which employees perceive their organisational climate to be rewarding (e.g., "In my organization good work is appropriately recognised"). Items are rated on a 5-point Likert-type response scale (from 5 'strongly agree' to 1 "strongly disagree"). Construct validity and reliability have been supported through confirmatory factor analysis including 153 employees across two organizations (Levine & Jackson, 2002).

#### 2.2.4. Work performance

Work performance Griffin et al. (2007) takes into account the changing nature of work and organizations as well as the interdependent and uncertain nature of work systems. The Individual Task Behaviours subscale from the Work Performance Questionnaire (Griffin et al., 2007) measures core task performance. Supervisors rated their employees' performance over the previous six months on specific tasks (e.g., "Adjusted to new equipment, processes or procedures in your core tasks?"). Prior research has provided evidence for the reliability and validity of this scale. An example item of Core Task Performance is "John initiated a better way of doing his core tasks".

#### 2.3. Procedure

Ethics approval was obtained for this research. Full-time and full-time employees were contacted through their organization. Part time employees were recruited from the same organizations as the full-time employees (53%) and also included a sample of university students who also work part time (47%). All participants completed a set of electronic surveys and were asked to provide the email address of their immediate work supervisor. Supervisors who agreed to participate in the study completed the supervisor work performance rating scales for their employee participating in the study. Supervisor names and details were not saved during this process. Supervisors' and participants questionnaires were matched by a computer-generated numerical code.

#### 2.4. Data analysis

A series of regression models tested the direct effect of BAS on performance, its indirect through mastery approach orientation, and the moderating effect of rewarding climate (Muller et al., 2005; Preacher, Rucker, & Hayes, 2007).

### 3. Results

Means, standard deviations, sample alpha coefficients, and correlations between variables are presented in Table 1. Assumptions for regression analysis were tested and met. As shown in table 1, alpha coefficients were all high. All variables were positively and significantly inter-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 covariates. To reduce the effects of multicollinearity, BAS and mastery approach orientation were mean centered.

Hypothesis 1 predicted that mastery approach orientation would mediate the relationship between BAS and work performance. This was tested according to steps proposed by Baron and Kenny (1986) for testing mediation: (1) the IV significantly affects the mediator, (2) the IV significantly affects the DV in the ab-

**Table 1**  
Descriptive statistics and correlations between BAS, mastery approach orientation, rewarding climate and supervisor work performance.

Variable	BAS	Mastery approach orientation	Rewarding climate	Supervisor work performance
M	39.43	29.42	25.53	34.57
SD	4.36	4.19	4.86	5.03
Alpha	.86	.82	.81	.89
Correlations				
Mastery approach orientation	.19**			
Rewarding climate	.16**	.13*		
Supervisor work performance	.14**	.17*	.31**	

Note. IV = BAS, mediator = mastery approach orientation, moderator = rewarding climate, DV = supervisors' ratings of work performance.  
\*  $p < .05$ .  
\*\*  $p < .01$ .

sense 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. The results of the regression are presented in Table 2. The first column contains standardised beta coefficients for age, gender and BAS as predictors of mastery approach orientation. The second column shows beta coefficients of age, gender and BAS as predictors of supervisors' ratings entered in step one. The third column shows beta coefficients for age, gender, BAS with mastery orientation entered in the second step as predictors of supervisors' ratings of work performance. Controlling for age and gender, BAS predicted mastery approach orientation supporting condition one ( $\beta = .12, p < .01$ ) and also predicted work performance ( $\beta = .14, p < .001$ ) supporting condition two. Condition three was supported with the significant prediction of work performance from mastery approach orientation ( $\beta = .14, p < .001$ ). Finally, after controlling for mastery approach orientation, BAS no longer predicted work performance ( $\beta = .07, p = ns$ ). These findings satisfy the necessary conditions to establish a mediational effect. To further assess this mediation, we applied Sobel (1982) test for indirect effects. Results show that the indirect effect of mastery approach orientation on BAS was significant ( $p < .001$ ). Hypothesis 1 was supported.

Hypothesis 2 predicted that the indirect effect of mastery approach orientation on BAS in predicting work performance would be stronger at high levels of rewarding climate. To assess this mod-

**Table 2**  
Regression results for testing mediation in Hypothesis 1, in the prediction of supervisor ratings of work performance.

Factor and statistic	Mastery approach orientation	Supervisor rated work performance	
		Step 1	Step 2
Age	.04	.05	.06
Gender	.04	.06	.07
BAS	.24***	.10*	.08
Mastery approach orientation			.19**
F	19.43**	17.56**	13.41**
R <sup>2</sup>	.14	.12	.13
R <sup>2</sup> change	.11	.11	.12

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

erated mediation, we examined four conditions: (1) the effect of BAS on work performance, (2) the interaction between mastery approach orientation and rewarding climate in predicting work performance; (3) the effect of mastery approach orientation on work performance; (4) varying conditional indirect effect of BAS on work performance, via mastery approach orientation, across low and high levels 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 the present model, moderated mediation is demonstrated when the magnitude of the indirect effect of BAS on work performance, via mastery approach orientation, varies as a function of low and high levels of rewarding climate.

As shown in table 3, conditions one and three were supported through the mediational analysis for Hypothesis 1. With respect to condition two, a significant interaction between mastery approach orientation and rewarding climate emerged in the prediction of work performance ( $\beta = .18, p < .001$ ).

With respect to the fourth condition, the magnitude of the conditional indirect effect of BAS via mastery approach orientation is reported according to Preacher et al.'s (2007) statistical significance test in which Aroian (1947) exact standard error for indirect effects was used to compute a z statistic for the conditional indirect effect. This approach provides conditional indirect effects at increments of the moderator, as well as SEs and p-values, ranging from the lowest observed value of rewarding climate to the highest observed value. High and low levels of rewarding climate were operationalised as one standard deviation above and below the mean of rewarding climate. 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 rewarding climate in the prediction of work performance. These results demonstrate that in predicting work performance, the conditional indirect effect of BAS was larger at higher levels of rewarding climate than low levels. That is, the strength of the conditional indirect effect is  $\beta = .12 (p < .0001)$  at 1 SD above the mean of rewarding climate compared with  $\beta = .06$ , a non significant effect, at 1 SD below the mean of rewarding climate. Results therefore suggest that the

**Table 3**  
Regression results for testing moderation of mastery approach orientation in prediction of supervisor ratings of work performance (Hypothesis 2).

Factor statistic	Supervisor rated work performance
Age	.1
Gender	.12
Mastery approach orientation	.14*
Rewarding climate	.13*
Mastery approach orientation × rewarding climate	.25**
F	6.25
R <sup>2</sup>	.10
Adjusted R <sup>2</sup>	.07

\*  $p < .05$ .  
\*\*  $p < .01$ .

**Table 4**  
Moderated mediated results for BAS across levels of the rewarding climate in the prediction of supervisor's ratings of work performance.

Rewarding climate	Conditional indirect effect	SE	Z	p
<i>Supervisor's ratings of work performance</i>				
-1 SD (20.54)	.0074	.0158	.1125	.7534
Mean (25.53)	.0872	.0124	3.864	.0003
+1 SD (30.39)	.1421	.0197	5.674	<.0001

mediated effect of BAS via mastery approach orientation on performance occurs only at higher levels of rewarding climate.

#### 4. Discussion

Our study tests the utility of a moderated mediation model of BAS in the prediction of workplace performance. This model integrates the effects of BAS, the mediating effects of mastery approach orientation and the environmental effects of rewarding climate acting as a moderator in explaining supervisor ratings of work performance. Our correlational results suggested significant and positive effects of BAS, mastery approach orientation and rewarding climate in the prediction of workplace performance. This suggests that our chosen variables are important predictors. More importantly, we found support for the hypothesized mediational role of mastery approach orientation in the relationship between BAS and work performance (i.e., Hypothesis 1). These results are broadly consistent with findings from prior research (e.g., Barrick & Mount, 2005; Elliot & Thrash, 2002; Ng et al., 2008).

Support was also found for the hypothesized moderating role of work context on the mediated relationship between BAS and work performance (i.e., Hypothesis 2). The results confirmed that mastery approach orientation is a stronger mediator of the relationship between BAS and work performance in work climates which are perceived as rewarding. Examination of this process addresses a major gap in the RST literature which for the most part, has neglected to explore the important role of contextual moderators. Models which account for the impact of these moderators represent more realistic and complete frameworks of complex human behaviour and are likely to improve the predictive and explanatory utility of RST (Gray & Smith, 1969).

The results suggested the positive potential of BAS in predicting work performance through mastery approach orientation. In addition, considering a moderator variable in this relationship suggests a significant positive association between BAS and work performance mainly in organizations with high rewarding climate.

Gray's RST specifically argues that BAS is sensitive to reward and therefore research that does not examine the moderating role of reward in the prediction of real world behaviour provides weak evidence in favor of or against Gray's theory. Studies which have focused on how BAS directly predicts real world behaviour fail to capture this important element of RST. Our results indicate that BAS affects work performance indirectly through mastery orientation such that BAS mainly has a distal relationship with performance and the effect of mastery approach orientation is much more proximal.

A strength of the current study was the use of supervisor ratings as the criterion which limits the effects of common method variance and provides a more objective measure of job performance than self-reported performance. Furthermore, participants were recruited from a range of jobs and companies in addition to university students, which allow our findings to be generalised across organizations. Limitations of the study include the reliance on self-report measures of BAS, mastery orientation and rewarding climate. Further support for the model tested would be to use more objective measures of these variables, such as a behavioural task of BAS and/or peer/supervisor ratings. Moreover, it is possible that there are other untested relationships in our data. For example, the significant positive correlation between BAS and rewarding climate, suggests that there may also be an indirect path from BAS to work performance through rewarding climate.

A practical implication of our study is that managers would be likely to benefit from high work performance in their followers if they hire high BAS individuals who are also high in mastery approach orientation and provide a highly rewarding climate. In

sum, our results demonstrated that mastery approach orientation mediates the effect of BAS on work performance in high rewarding climates. We believe this moderated mediation model establishes a broad and solid framework for future research; particularly in predicting work performance.

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