

The Interplay of Temperament and Regulatory Focus on Consumer Problem-Solving Modes

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Abstract

Regulatory Focus Theory's two fundamental processing orientations, Prevention Focus and Promotion Focus, have been shown to capture important differences in problem-solving motivation, goal pursuit, and individual-task 'fit', although some ambiguity remains regarding the nature of these differences; they have been construed as chronic but have also been related to specific situational factors. Separately, understandings of temperament (heritable, physiological-based individual differences) have advanced significantly, although efforts to validate measures of temperament have been frustrating. Reinforcement Sensitivity Theory posits two fundamental temperaments, the Behavioral Inhibition System (an avoidance system sensitive to punishments and threats) and the Behavioral Activation System (an appetitive/approach system sensitive to rewards). We relate Regulatory Focus Theory to Reinforcement Sensitivity Theory, initiating the integration of Promotion Focus and Prevention Focus with the extensive extant theory and nomological networks of temperament and highlighting conspicuous empirical divergence between the two systems.

'Tis one thing to be tempted, Escalus, another thing to fall.'

Angelo, in Shakespeare's *Measure for Measure* (II-1)

Philosophers and psychologists, as well as playwrights, have long recognized the central role of appetitive and aversive temperaments in human behavior (e.g., James, 1890; Pavlov & Anrep, 1927). Appetitive/approach responsiveness has been likened to the gas pedal in a car, aversive/avoidance response systems to the brake (e.g., Carver, Sutton, & Scheier, 2000). Greek philosopher Democritus proposed that the pursuit of pleasure and the avoidance of pain were the defining motives of human behavior (see Cartledge, 1999). In modern psychology, many theoretical schemes propose apparently similar approach/appetitive and avoidance/aversion sensitivity or reactivity systems (e.g., Depue & Iacono, 1989; Gray, 1987, 1990; Higgins, 1997; 1998, 2000; Patterson & Newman, 1993; see Derryberry

& Rothbart, 1997; Elliot, 2006 for reviews of literature on approach and avoidance response systems). As compelling and oft considered as the notion of these dual systems has been, their measurement has remained frustrating and therefore difficult to integrate or contrast seemingly similar theories, models, and constructs (e.g., Caseras, Avila, & Torrubia, 2003; Corr, 2001, 2004).

Levels of Individual Differences: Temperament, Personality, and Motives

Individual differences can be differentiated within a general hierarchical organization ranging from broad, largely invariant, neurophysiologically and genetically based temperaments (i.e., ‘source traits’, ‘level one’ differences, ‘basic tendencies’, or ‘basic traits’) toward narrower, more transient, cognitive, socially and environmentally based predispositions including personality traits and motives (‘surface traits’, ‘level two’, or ‘characteristic adaptations’, see, e.g., Cattell, 1965; Mayer, 2005; McAdams, 1995; Zuckerman, 2005; cf., McCrae & Costa, 1999). The fundamental, innate, early appearing, and enduring qualities of temperament have led to it being compared to the ‘raw ingredients’ in cooking (Bateson & Martin, 2000; Strelau, 1998); narrower, more transitory, and more cognitive tendencies and specific observable behavioral patterns would, then, be analogous to the ‘finished dishes’ – the result not only of the raw ingredients and their interactions but also of the specifics and nuances of the environment and nurturing (cooking) processes. While different individual difference constructs are situated at different levels of this imprecise hierarchy, a well-defined and delimited construct will not encompass differences from different levels of the hierarchy. That is, despite the recognition of a range of important constructs, a single construct should be positioned or be able to be positioned at some distinct level of this array.

Higgins’s Regulatory Focus Theory (RFT; 1997, 1998, 2000) proposes two motivational orientations: Prevention Focus and Promotion Focus. Both describe individual differences in the ways individuals approach problems and pursue goals – and the ways individuals derive value from solving problems and achieving goals. Promotion Focus involves an emphasis on ‘ideals’ and achieving desirable outcomes; Prevention Focus is an emphasis on ‘oughts’ and avoiding negative outcomes. These individual differences in motivations have been construed as ‘chronic’, that is, as relatively enduring individual differences similar to cognitive personality traits. They have, however, also been related to nurturing and environmental factors such as parenting style (Lockwood, Jordan, & Kunda, 2002; Manian, Papadakis, Strauman, & Essex, 2006) and to specific task priming (e.g., Higgins, Roney, Crowe, & Hymes, 1994).

Hoyle, in the introduction to a recent special issue of the *Journal of Personality*, noted that despite a large and growing literature ‘... there has been relatively little study of self-regulation as a feature of personality or

how personality is reflected in self-regulation' (2006, 2). Our essay and an empirical example presented below begin to address that call, relating Higgin's regulatory foci to two broad and robust appetitive and aversive dimensions of temperament, the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS).

Temperament and Reinforcement Sensitivity Theory

Allport (1961) defined temperament as 'the characteristic phenomena of an individual's emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, and the quality of his prevailing mood, these phenomena being regarded as dependent upon constitutional make-up' (p. 34). Strelau (1998), building on this primary and 'constitutional' construal of temperament, distinguished temperament and personality, characterizing personality as socially determined, emerging in adulthood, specific to human beings, and including 'content saturated' and significantly regulated behaviors.

Although distinct from personality, temperament is nevertheless *related to* personality. Childhood temperament has been shown to predict adult personality in coherent and robust ways (explaining approximately a third of the variance in adult personality; see Deal, Halverson, Havill, & Martin, 2005). Temperament has been likened to the raw ingredients of personality (Bateson & Martin, 2000; Strelau, 1998) or 'the hard ice ball, around which the softer snowball of personality accumulates developmentally' (Graziano, Jensen-Campbell, & Sullivan-Logan, 1998, 1267). Thus, temperament, which is basic, genetically and physiologically based, early appearing, remarkably invariant, and largely made up of affective individual differences (e.g., Allport, 1961; Strelau, 1998; Zuckerman, 2005), comprises the most elementary, deep-seated foundations of human behavior and underlies more specific, malleable, and transient differences.

Although a profusion of theories, trait schemes, trait labels, and measures have been proposed in the literature, taxonomies of temperament consistently include among any reduced set of 'super-factors', two broad dimensions addressing (1) an appetitive reward sensitivity or responsiveness and (2) an aversive threat or punishment sensitivity or responsiveness (see, e.g., Carver, Sutton, & Scheier, 2000; Derryberry & Rothbart, 1997; Elliot, & Thrash, 2002; Deal et al., 2005; Konorski, 1967; Mowrer, 1960; Puca, Rinkenauer, & Breidenstein, 2006; Rothbart, Ahadi, & Evans, 2000; Zuckerman, 2005). As discussed in our opening, similar elemental temperaments have recurred in philosophy, psychology, and prose for centuries. One of the most widely documented and thoroughly examined frameworks of appetitive and aversive temperaments is Gray's Reinforcement Sensitivity Theory (RST), which proposes two distinct physiological systems that underlie approach and avoidance responses: the BAS which is sensitive to rewards and relief from punishment and regulates approach and appetitive responses

(Gray, 1987, 1990; Corr, 2004, Gray & McNaughton, 2000) and the BIS which is sensitive to threats, punishment, and non-reward and regulates avoidance responses (the inhibition or interruption of behavior). The BAS and the BIS are opposing systems which may be engaged (or released) simultaneously (e.g., Carver, Sutton, & Scheier, 2000). Prior research has examined other dual appetitive and aversive system theories (e.g., Depue & Iacono, 1989; Derryberry & Rothbart, 1997; Newman, Patterson, Howland, & Nichols, 1990; Patterson & Newman, 1993). Extensive theory and empirical data have clarified common underlying neurological and physiological foundations of these basic temperaments (e.g., Corr, 2004; Strelau, 1998; Zuckerman, 2005). Behavioral genetics studies indicate that approximately half of the variance in both BIS and BAS is explained by heredity (e.g., Anokhin, Heath, & Myers, 2004; Reuter, Schmitz, Corr, & Hennig, 2006).

The BIS and BAS have also been linked to a variety of consequent differences in personality traits and in observable behaviors, emotions, and psychological disorders. Gray originally proposed his theory in relationship to Eysenck's PEN model of personality, postulating that Extraversion and Neuroticism were functions of the underlying BAS and BIS systems (Gray, 1987, 1990), and although those relationships may have sometimes been confused (e.g., Rusting & Larsen, 1997; 1999; Pickering, Corr, & Gray, 1999) and have since been clarified (e.g., Gray & McNaughton, 2000; Pickering et al., 1999; see Corr, 2004 for a review and synthesis), Extraversion and Neuroticism have been shown to be closely related to BAS and BIS, respectively (e.g., Elliot & Thrash, 2002; Rusting & Larsen, 1997).

Specific observable behaviors, ranging from assertive communication patterns (Wahba & McCroskey, 2005) to responses to differently framed persuasive messages (Mann, Sherman, & Updegraff, 2004) have also been related in predicted patterns to the BIS and BAS. Regarding affective states, the BAS is strongly related to the experience of positive affect, and the BIS is related to the experience of negative affect and, inversely, to positive affective experiences (e.g., Brenner, Beauchaine, & Sylvers, 2005; Jorm, Christensen, Henderson, Jacomb, Korten, & Rodgers, 1999). With regard to psychological disorders, the BAS and BIS have been linked to mania vulnerability, anxiety disorders, and ADHD (e.g., Meyer, Johnson, & Winters, 2001; Quay, 1997). Corr (2004) has thoroughly reviewed the rich literature on RST and its nomological networks.

Measuring BIS and BAS

Carver and White's (1994) 20-item BAS/BIS scales have been the most widely applied measures of Gray's BAS and BIS (see, e.g., Cogswell, Alloy, van Dulmen, & Fresco, 2006; Heubeck, Wilkinson, & Cologon, 1998; Leone, Perugini, Bagozzi, Pierro, & Mannetti, 2001; Smillie, Jackson, &

Dalgleish, 2006). Although Gray's theory specifies a single BAS dimension, Carver and White, noting an 'absence of complete consensus about exactly how BAS sensitivity is likely to be manifest' (1994, 322), included items addressing a broad set of possible markers in their factor-analytic scale development. In those candidate items, they identified three distinct BAS factors: Reward Responsiveness (BAS-RR; reaction to both anticipated and realized rewards; e.g., 'When I get something, I want to feel excited and energized'), Fun Seeking (BAS-FS; 'a tendency to seek out new potentially rewarding experiences' and 'to act quickly in pursuit of desired goals' (Carver & White, 1994, 322); e.g., 'I'm always willing to try something new if I think it will be fun' and 'I often act on the spur of the moment'), and Drive (BAS-D; 'the strong pursuit of appetitive goals' (Carver & White, 1994, 322); 'I go out of my way to get things I want'). Subsequent analyses indicate that BAS-RR and BAS-D capture *reactivity to positive signals and actual or anticipated experiences* (e.g., in validating these scales, Carver and White, 1994 found that BAS-RR and BAS-D, but not BAS-FS, predicted happiness in response to an experimental manipulation). Smillie et al. (2006) confirmed that BAS-RR related most strongly to positive mood, while BAS-FS and BAS-D were unrelated to positive mood. BAS-FS is related to reward-reactivity and impulsiveness and is thus broader and more motivational and proactive than reactive (see Smillie et al., 2006). Smillie et al. (2006) conclude that BAS-D and BAS-RR therefore provide 'purer measurement of concepts relating to the BAS than Fun does' (2006, 1047).

The psychometrics of Carver and White's scales have been well examined (see, e.g., Caseras et al., 2003; Cogswell et al., 2006; Heubeck et al., 1998; Jorm et al., 1999; Ross, Millis, Bonebright, & Bailley, 2002). Some analyses have indicated that the 13 BAS items converge as *one* factor (consistent with Gray's original postulation; e.g., Caseras et al., 2003; Jorm et al., 1999), while others have supported Carver and White's four-factor solution (e.g., Heubeck et al., 1998; Jorm et al., 1999; Ross et al., 2002; Smillie et al., 2006). Jorm et al. (1999), for example, employed principle components factor analysis and reported that both the four-factor solution and a two-factor solution (with single factors for BAS and BIS) described the data well (four factors had eigenvalues greater than 1.0; the two-factor solution was identified via inspection of a skree plot of the eigenvalues), while Ross et al. (2002) performed two sets of confirmatory factor analyses: one on the complete Carver and White (1994) instrument (all 20 items) and one on just the 13 BAS items. In the first analysis, which tested one-, two-, and four-dimensional models, Ross et al. (2002) confirmed that the BAS and BIS items 'are best represented as four latent constructs' (p. 865). In their second analysis, which considered the independence of the three BAS subfactors, Ross et al. found that 'the three BAS "subscales" are in fact independent of one another and should not be summed to form a total score' (2002, 865).

Regulatory Fit Theory, Promotion Focus, and Prevention Focus

Higgins' RFT posits that individuals approach problems with strategies that differ with regard to *Promotion Focus*, 'concerned with advancement and accomplishment, with the presence and absence of positive outcomes' (Higgins, 2000, 1220) and *Prevention Focus*, 'concerned with safety and responsibility, with the absence and presence of negative outcomes' (Higgins, 2000, p. 1220). Regulatory fit occurs 'when individuals use goal pursuit means that fit their regulatory orientation, [and] they experience a regulatory fit that increases the value of what they are doing' (Higgins, 2000, 1220). The value of regulatory fit is 'independent of outcomes or value from worth' (Higgins, 2000, 1217).

RFT has been studied extensively with regard to goal pursuit. In social psychology and decision making, RFT has been related to the manner in which we look at the past and predict the future (Camacho, Higgins, & Luger, 2003). In consumer psychology, RFT has been examined in terms of how intentions lead to actual behavior (Spiegel, Grant-Pillow, & Higgins, 2004). The two foci have been related to a variety of behavioral outcomes including persuasion (Evans & Petty, 2003) and forgiveness (Molden & Finkel, 2006).

As noted, RFT posits that there are two manners in which individuals try to satisfy needs for goal accomplishment – either via (1) attempting to advance through active pursuit of gains, thus a potential for experiencing the presence of positive outcomes (i.e., *advancement*) or, in contrast, by (2) protecting what has already been gained, that is avoiding negative outcomes (i.e., seeking *security*; Liberman, Molden, Idson, & Higgins, 2001; Molden, Lee, & Higgins, 2007). In other words, the goal for an individual with a promotion focus is one in which the individual experiences an end-result allowing the person to experience positive affect associated with a gain (e.g., 'I am exultant and want to celebrate that I can experience the euphoria associated with winning'). On the other hand, a gain for an individual with a prevention focus is a situation in which the individual experiences relief from not having negative affect resulting from a loss (e.g., 'I am relieved that I can now relax and not suffer the frustration and sadness associated with losing'). Thus, the two types of regulatory foci are different in terms of the experienced affect engendered by success (Molden et al., 2007).

A promotion focus has been manipulated by asking participants to list a trait they would *ideally like* to have and indicate, on a 9-point scale from '1' (not at all) to '9' (very much), (a) the extent to which they would ideally like to have that trait and (b) the extent to which they felt they actually have that trait. In total, participants list five different traits and answer the two-follow-up questions for each of the five traits. A prevention focus has been manipulated in a similar fashion by asking participants to

list a trait they feel they *ought like* to have and indicate, on the same 9-point scale, (a) the extent to which they ought to possess this trait, and (b) the extent to which they actually have this trait (Higgins et al., 1994; Higgins, 1997; Molden & Finkel, 2006; Molden & Higgins, 2004).

Measuring promotion focus and prevention focus

Self-report measures of Promotion Focus and Prevention Focus have also been developed (Cunningham, Raye, & Johnson, 2005; Harlow, Friedman, & Higgins, 1997). In their unpublished manuscript reporting the development of the Regulatory Focus Questionnaire (RFQ), Harlow et al. (1997) report correlations between the BAS and Promotion Focus scale as part of the tests of convergent and discriminant validity of their scales. They predicted that the three facets of BAS should be related to Promotion more strongly than they are related to Prevention. In line with the form of their hypothesis, they reported only the tests of the differences in magnitude of the partial correlations between the BAS facets and RFQ scales, confirming that the correlations of the BAS facets with Promotion were greater than their correlations with Prevention and thereby supported the discriminant validity of their subscales. They found that BAS-D and BAS-FS had inverse relationships with Prevention Focus, which they interpreted as resulting from the fact that those aspects of BAS include 'willingness to take risks, which should relate negatively to the prevention scale.' In a footnote to that manuscript, they specify that they did not include hypotheses regarding the BIS. Nevertheless, they reported that they found no significant relationship between BIS and Prevention, which they interpreted as supporting discriminant validity of their scale, and they found a 'modest but reliable' inverse relationships ($r = -0.23$) between Promotion and BIS.

An Empirical Example

Two hundred and forty nine students participated in a survey measuring Promotion Focus and Prevention Focus using the 11-item RFQ (Harlow et al., 1997; see also Higgins, Friedman, Harlow, Idson, Ayduk, & Taylor, 2001). We assessed three BAS dimensions (BAS-Reward Responsiveness, BAS-Drive, and BAS-Fun Seeking) and BIS with Carver and White's 20-item scale (1994).

Analyses

Structure of temperament scales

As mentioned above, Ross et al. (2002) confirmed Carver and White's original (1994) four-factor structure using confirmatory factor analysis, while others have found different factor structures (e.g., Jorm et al., 1999). We used

confirmatory factor analysis (utilizing AMOS 5.0) to test the structure of these scales in our data. The results confirm the four factor structure of the overall 20-item measure corroborating Ross et al.'s (2002) conclusion that the four Carver and White subscales 'are best represented as four latent constructs of personality and behavioral disposition' (p. 865). Using maximum likelihood estimation, the four factor model indicates the best model fit.

Test of structural relationships

To test the relationship between the constructs, we employed structural equation modelling using AMOS 5.0. A number of items had to be excluded due to low reliabilities resulting in low indicator loadings. We tested reliability and validity of the measures by calculating the composite reliability (CR) of the constructs, the average variance extracted (AVE; Fornell & Larcker, 1981), and the Fornell-Larcker-Ratio (1981). Composite reliability exceeds the commonly accepted threshold of 0.70 (see Hair, Anderson, Tatham, & Black, 1998) for each construct (with the exception of Promotion Focus for which CR was 0.60). Average variance extracted, which measures the overall amount of variance in the indicators accounted for by the latent construct (Hair et al., 1998), is close to or above 0.50 for each construct. Fornell and Larcker (1981) assert that a construct should share more variance with its measurers than it shares with other constructs in the model (which is the case when the Fornell-Larcker-Ratio is below 1). The Fornell-Larcker ratio is below 1 for each construct.

We compared two models of our conceptual framework: one treating the 13 BAS items as a second-order factor, and the other one conceptualizing them as three independent factors. Table 1 reports the results. Although both models show very good fit, the model treating the 13 BAS items as first-order factors fits the data better.

Figure 1 reports fit indices, standardized path coefficients, and explained variance of the structural model (second-order factor model) with the purified scales and Figure 2 reports the first-order-factor model. The fit indices show a good model fit (all indices exceed the threshold of 0.90,

Table 1 Model comparison

Model	Chi ² (Chi ² /df)	<i>P</i>	GFI [†]	AGFI [†]	NNFI [†]	IFI [†]	CFI [†]	RMSEA [†]	AIC
First-order factor model [‡]	156.336 (1.303)	0.014	0.936	0.908	0.967	0.975	0.974	0.035	258.336
Second-order factor model [‡]	185.471 (1.460)	0.001	0.925	0.899	0.950	0.959	0.958	0.043	273.471

[†]GFI, Goodness of Fit Index; AGFI, Adjusted Goodness of Fit Index; NNFI, Non-normed Fit Index; IFI, Incremental Fit Index; CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation.

[‡]Two factors corresponding to Carver & White's (1994) factor structure of Fun.

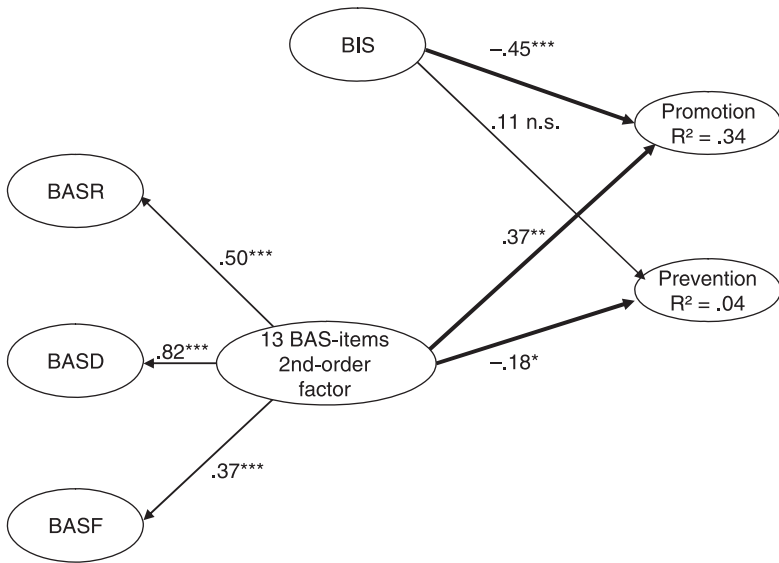


Figure 1 Fit indices, standardized path coefficients, and explained variance of the structural model (second-order factor model).

Notes: $\chi^2 = 185.471$, $p = .001$; $\chi^2/DF = 1.1460$; AGFI = .899; GFI = .925; CFI = .958, TLI = .950; IFI = .959, RMSEA = .043; *** $p < .001$; ** $p < .01$; * $p < .05$, n.s. = not significant

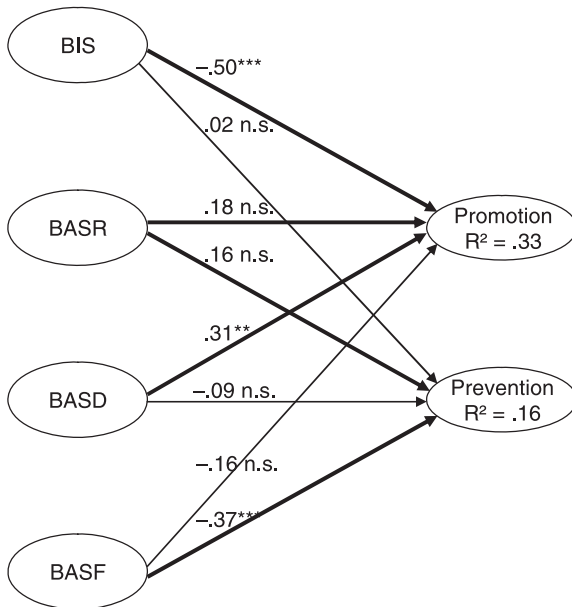


Figure 2 Fit indices, standardized path coefficients, and explained variance of the structural model (first-order factor model).

Notes: $\chi^2 = 156.336$, $p = .014$; $\chi^2/DF = 1.303$; AGFI = .908; GFI = .936; CFI = .974, TLI = .967; IFI = .975, RMSEA = .035; *** $p < .001$; ** $p < .01$; * $p < .05$, n.s. = not significant

indicating that the models fit the data well). To select a model, we used the Akaike (1973) information criterion (AIC). With a value of 258.336 of the first-order factor model compared with a value of 273.471 of the second-order factor model, the first-order factor should be favored. Hence, our results confirm Ross et al.'s (2002) findings who asserted that, '... the three BAS 'subscales' are in fact independent of one another and should not be summed to form a total score' (2002, 865).

Figure 2 displays the structural relationships between the constructs of the first-order factor model. BIS is negatively related to promotion ($\beta = -0.50^{***}$) and has no significant impact on prevention. BAS-R has no impact on the two endogenous constructs. BAS-D is positively related to promotion ($\beta = 0.31^{**}$) but is not significantly associated with prevention, and BAS-F has a significant and negative impact on prevention ($\beta = -0.37^{***}$) and a negative but not significant impact on promotion.

Implications

Higgins's RFT has emerged as an important understanding of individuals' problem-solving orientations and has illuminated differences in the manner in which people approach tasks and perceive value in task resolutions across a variety of domains and disciplines including social psychology, decision making, and consumer research. The regulatory foci have been discussed conceptually as similar to or the same as temperamental differences (see, e.g., Mann et al., 2004, see especially p. 331), but they have also been conceptually and empirically linked to specific environmental factors and manipulations including nurturing/parenting processes (Manian et al., 2006) and tasks (Higgins, Roney, Crowe, & Hymes, 1994).

Our findings relate RFT's Promotion Focus and Prevention Focus to fundamental temperaments, BIS and BAS, indicating that the relationships between Promotion and Prevention Focus and their temperamental substrates, specifically Gray's BAS and BIS temperaments, are complex and that temperament explains less than a third of the variance in Higgins's regulatory foci (similar to the variance explained by temperament in adult personality traits within the 'Big Five'; Deal et al., 2005). As hypothesized, BAS-Drive explains significant variance in Promotion Focus. Unexpectedly, BIS is inversely related to significant and substantial variance in Promotion Focus. Only BAS-Fun Seeking explains significant variance in Prevention Focus; *BIS is unrelated to Prevention Focus*. Thus, the findings indicate that these measures discriminate distinct constructs – supporting the notion that they lie at different levels of the hierarchy distinguishing temperaments from surface phenotypes.

The fact that Promotion Focus is closely and *inversely* related to BIS indicates that, at least in as much as it is influenced by innate temperamental influences, this problem-solving orientation arises from *the absence of inhibition* (aversive temperament) rather than the presence of active pursuit of ideals

(appetitive temperament). This is analogous to a car slowing – that observable ‘behavior’ does not itself distinguish deceleration that reflects the presence of braking or the abatement of petrol. In these data drawn from these measures, Promotion Focus is influenced strongly by the absence of inhibition but does not reflect the presence of activation/goal seeking.

Thus, Promotion Focus and Prevention Focus are clearly distinct from temperament. In our literature review and logical development, we have highlighted definitions and extant data that position these regulatory foci at a higher level in the imprecise hierarchy of individual differences that ranges from innate, heritable, physiological-based differences (i.e., temperament) toward learned, cognitive, and less stable patterns of observable behaviors. An alternative perspective on these findings is that the two theories and their related measures consider *the same underlying systems* and that the observed relationships, rather than relating and contrasting distinct levels of individual differences, simply compare alternative views and measures of the same differences. In either case, the divergence of the measured variables is important to describe and future research should explore these relationships in greater depth, perhaps drawing on emerging methodological advances in the neurophysiology of temperament and behavior (see, e.g., Zuckerman, 2005).

A related conclusion is that, while fundamental appetitive and aversive systems (including temperaments and their manifestations in more transitory and learned traits) are compelling conceptually and theoretically, their measurement remains problematic (e.g., Corr, 2001, 2004; Caseras et al., 2003). The psychometric parameters are acceptable but not strong for either set of measures in these data. That is, the reliabilities for these measures are moderate and, although BIS and Prevention and BAS and Promotion seem in their theoretical origins and definitions to correspond, these measures in these data do not support that proposition. The marginal psychometric parameters and legacy of measurement difficulties make it difficult to attribute confidently these counterintuitive findings to differences in the underlying constructs rather than to measurement error.

Future research should relate RFT to other models and other measures of temperament and to other traits at various levels of individual differences. For example, it will be important to relate Promotion and Prevention Focus to the domains of the Five Factor Model (e.g., McCrae & Costa, 1999). Additionally, our findings emphasize the need for future research focused on improving the measurement of these regulatory foci and the substrates of temperament itself.

In this review and in the empirical example we present, we relate and especially *differentiate* RFT’s Promotion Focus and Prevention Focus from their temperament substrates, fostering the integration of RFT and the regulatory foci dimensions with emerging understandings of temperament and the neurophysiological and biological underpinnings of behavior. Although their specification in the literature heretofore has been somewhat

inconstant as to the level of trait (or state) that these regulatory foci embody, we have reviewed literature and studies that indicate that these are individual differences similar to motivations and facet-level traits. They are distinct from domain-level innate individual differences and temperament. They are, however, related to temperamental foundations of individual differences in specific ways; not all of those relationships are obvious from the face correspondence between the definitions of the various constructs.

Hoyle (2006) has called for the integration of regulatory focus research with personality theory. In the temperament literature, Strelau has asserted that 'research can be characterized as progressive if facts to be discovered can be cumulated and *related to each other* ... data obtained within a given theoretical framework have to be compared with data to be found in other temperament approaches. This obvious principle is not realized in practice ...' (1991, 343, emphasis added). There is clearly ground to be covered situating regulatory foci within the hierarchy of individual differences and, more generally, there is a need to clarify and organize the oft considered appetitive and aversive motivation systems in the wide-ranging literatures; many similarly labeled but differently defined and differently labeled but similarly defined constructs remain unrelated theoretically, conceptually, and empirically. This essay and brief empirical example begin that process.

Short Biographies

Dr. Todd Mooradian is an Associate Professor of Marketing in the Mason School of Business at the College of William and Mary. Dr. Mooradian has been recognized for teaching excellence, and he has been honored with the Mason School of Business Faculty Excellence Award (1993, 1997, 2003, 2006), the College of William and Mary Alumni Fellowship Award (1998), and the Faculty Advisor of the Year Award (2002). Dr. Mooradian has been a Visiting Professor at the University of St. Andrews in Scotland, at the University of Innsbruck in Austria, at Management Center Innsbruck in Austria, at Aoyama Gakuin University in Tokyo, Japan, at Wirtschaftsuniversität Wien, in Vienna, Austria, and at the Instituto Centroamericano de Administracion de Empresas (INCAE) in Alajuela, Costa Rica. He was a Fulbright Scholar and Guest Professor at the University of Innsbruck in Austria in 2005.

Prof. Mooradian has published scholarly articles in such journals as the *Journal of Economic Psychology*, *Sloan Management Review*, the *Journal of the Academy of Marketing Science*, the *Journal of Business Research*, *Advances in Consumer Research*, *Personality and Individual Differences*, *Psychological Reports*, and *Psychology and Marketing*. Professor Mooradian consults on an on-going basis with clients including Riverside Healthcare; the Long John Silver's Franchisee Association; Treasure Isle Incorporated; Western SizzliN' Steakhouses, Swarovski's Tirolit Division, Siemens AG (Spain), Northrop

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Dr. Kenneth C. Herbst is an Assistant Professor of Marketing in the Babcock Graduate School of Management at Wake Forest University in Winston-Salem, NC. Dr. Herbst has also been on the faculty in the Mason School of Business at The College of William and Mary and the Haub School of Business at Saint Joseph's University. He has a Masters and PhD from The University of North Carolina at Chapel Hill.

Dr. Herbst serves on the editorial board of the *Journal of Food Products Marketing*. He has published numerous scholarly articles in scientific publications such as the *Journal of Personality and Social Psychology*, *Organizational Behavior and Human Decision Processes*, *Journal of Advertising Research*, *International Journal of Advertising*, *Journal of Political Marketing*, *Journal of Promotion Management*, *Journal of Marketing Management*, *Personality and Individual Differences*, *British Food Journal*, *International Journal of Retail and Distribution Management*, *Innovative Marketing*, *Revue Internationale De Psychologie Sociale*, and *Health Psychology*. He also writes a monthly retail and merchandising column in *The Gourmet Retailer* based on his supermarket shopper field research.

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Kurt Matzler is Professor at the Department of Strategic Management, Marketing, and Tourism at the Innsbruck University School of Management. Before joining the Faculty at Innsbruck University, he was a Professor of International Management at Johannes Kepler University Linz and Professor of Marketing at Klagenfurt University in Austria. His primary research and teaching interests are in the areas of Strategy and Innovativeness, Leadership, and Innovation. He is the author of four books and the editor of ten books in his research areas; he has published over 50 articles in peer-reviewed journals. Kurt is academic director of the Executive MBA program at the Management Center Innsbruck (MCI), and he teaches at several MBA Programs in Switzerland and Austria.

Endnote

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