



Enactment of approach and avoidance behavior influences the scope of perceptual and conceptual attention

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Abstract

In this study, we tested the hypothesis, derived from the theorizing of Derryberry and Tucker (1994), that the mere enactment of approach or avoidance behavior, without concomitant pursuit of personal approach or avoidance goals, can independently moderate the scope (i.e., breadth or narrowness) of attention on both the perceptual and conceptual levels. Specifically, we predicted that enactment of approach behavior would broaden attentional scope, engendering a focus upon global perceptual structure and facilitating conceptual access to mental representations with lower a priori accessibility, whereas enactment of avoidance behavior would constrict attentional scope, engendering a focus upon local perceptual details and “choking off” conceptual access to mental representations with lower a priori accessibility. These hypotheses were borne out in three experiments, using two different manipulations of approach vs. avoidance actions.

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In recent years, social cognitive psychologists have made great strides in understanding the influence of motivation on cognition, that is, the way in which our goals impact the way we process and store information (e.g., Higgins & Tykocinski, 1992), solve problems (e.g., Dweck, 1999; Elliot & Harackiewicz, 1996), and make decisions (e.g., Kruglanski, 1996; Liberman & Trope, 1998). However, it may be argued that one of the most influential theoretical contributions to this line of inquiry far predates the advent of social cognition—more than four decades ago, Easterbrook (1959) put forth his seminal hypothesis that “...arousal acts...to reduce the range of cues that an organism uses...” This basic notion, couched in the learning theoretical terminology that dominated his era, has been subsequently

reinterpreted in the language of cognitive science to suggest that arousal narrows the scope of perceptual attention, engendering visual focus upon peripheral and local, as opposed to central and global details (Burke, Heuer, & Reisberg, 1992; Cacioppo, Berntson, & Crites, 1996; Derryberry & Tucker, 1994). Of course, this reconceptualization leaves open the critical question: What exactly did Easterbrook mean by “arousal”? In the decades-old literature examining his hypothesis, researchers have typically interpreted Easterbrook (1959) as referring to stimulation due to aversive motivational states such as stress or anxiety. As such, they have sought to demonstrate, with some success, that such states undermine the ability to detect visually peripheral targets, such as flickering lights (e.g., Reeves & Bergum, 1972; Weltman, Smith, & Edstrom, 1971) and enhance attention to component features of visual stimuli as opposed to their global form (e.g., Tyler & Tucker, 1982).

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Unfortunately, while it has inspired a ground-breaking body of research, as a general model of the link between motivation and attention, the Easterbrook hypothesis is substantially limited in its predictive utility. For starters, inasmuch as the hypothesis only makes predictions regarding the scope of perceptual attention, it is silent regarding how motivational states may impact performance on conceptual tasks (e.g., word problems) that are insensitive to variations in perceptual scope. Furthermore, insofar as the attention-funneling “arousal” described by Easterbrook indeed refers to an avoidance-related motivational state such as anxiety, his hypothesis is silent regarding how approach-related motivational states (e.g., joy) may influence attention and thereby performance.

Recently, Derryberry and Tucker (1994; see also, Luu, Tucker, & Derryberry, 1998; Derryberry & Reed, 1998) have proposed a model that conceptually refines and extends the Easterbrook hypothesis in a manner that elegantly overcomes the aforementioned limitations. Essentially, Derryberry and Tucker (1994) propose that motivational states not only influence the scope of perceptual attention (i.e., the extent to which attention is focused upon central as opposed to peripheral environmental cues) but analogously influence the scope of conceptual attention. Conceptual attention refers to internal attention to mental representations as opposed to external percepts (Anderson & Neely, 1996). A narrower scope of conceptual attention is conceived of as restricting activation of mental representations to those with the highest accessibility in a given context (e.g., dominant semantic associates to a contextually primed word), whereas a broader scope of conceptual attention is conceived of as expanding the range of activation to additionally target representations with lower a priori accessibility (e.g., subordinate semantic associates).

It is important to note that while changes in the scope of perceptual and conceptual attention may be empirically correlated, they are nonetheless distinct processes. For instance, people should be able to broaden their perceptual attention to take in more external stimuli, even controlling for the breadth of conceptual processing. To illustrate, if three baseballs are placed on a table, an individual can attend to just one, two, or all three (i.e., to narrowly or broadly focus perceptual attention), but in any case, this will solely activate the concept of “baseball” (i.e., narrow conceptual attention). Likewise, if an individual were to view a large letter “H” made up of small letter “L”s (see Experiment 1 below), broad perceptual attention would lead to activation of a single construct (e.g., the letter “H”), just as narrow attention leads to activation of a single construct (e.g., the letter “L”). That is, in both cases perceptual attention varies while conceptual attention remains constant. In corresponding fashion, conceptual attention can expand or contract in scope holding perceptual scope constant or

even in the complete absence of perceptual input. Conceptual scope refers to the breadth of construct activation, not the amount of perceptual input that is selected for processing. However, as alluded to above, broader conceptual attention can, and may typically, lead to broader perceptual attention inasmuch as construct activation influences object salience (see e.g., Higgins, 1996)—the greater the number of constructs rendered accessible, the greater the number of objects (relevant to these constructs) that stand to capture perceptual attention. Moreover, broader perceptual attention can, and may typically, lead to broader construct activation insofar as it allows access to more information, thereby potentially activating a greater number of mental representations.

Beyond their pivotal tenet that motivational states influence the scope of both perceptual and conceptual attention, Derryberry and Tucker (1994) also significantly extend the Easterbrook hypothesis by proposing that different types of motivational states will yield different effects on attentional scope. Like Easterbrook (1959), Derryberry and Tucker (1994) agree that avoidance-related states such as anxiety (i.e., tense arousal) narrow the focus of attention; however, they additionally argue that approach-related states such as joy (i.e., elated arousal) broaden the focus of attention, leading to increased responsiveness to peripheral cues on the perceptual level and increased activation of relatively inaccessible mental representations on the conceptual level (cf. Fredrickson, 2001).

Upon examination, a great deal of empirical evidence may be construed as consistent with Derryberry and Tucker’s (1994) model. Obviously, research adduced in support of the Easterbrook hypothesis may also be seen as supportive of Derryberry and Tucker’s (1994) framework inasmuch as their model integrates the notion that avoidance-related motivational states narrow the focus of perceptual attention. Regarding Derryberry and Tucker’s (1994) prediction that approach-related states broaden the scope of perceptual attention, at least two recent studies (Gasper & Clore, 2002; Gasper, 2004) have experimentally demonstrated that happiness (an affective concomitant of approach motivation; Carver, Sutton, & Scheier, 2000; Higgins, 2000; Roseman, 1984) engenders a perceptual focus on global form as opposed to local details. Specifically, participants induced to feel happy, relative to those in a control group, tended to classify figures on the basis of their overall shape as opposed to the shape of their component parts. In another study, Basso, Scheffé, Ris, and Dember (1996) made the analogous discovery that trait happiness was positively associated with the proclivity to perceive figures on the basis of their global as opposed to local structure.

In addition to these findings supporting the notion that motivational states moderate the scope of percep-

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