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The role of affective states in the process of goal setting

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Abstract
Given that employee performance goals are major determinants of work motivation and performance, examining the factors that influence goal setting has generated substantial research interest. Despite decades of work, however, the relationship between affect and goal setting is poorly understood. Based on mood-as-information and arousal-as-information theories, our study examines the extent that affective valence and affective arousal influence goal-setting processes and, in particular, the extent that the activation level moderates the effect of affective valence. Since theoretical perspectives that attempt to explain the process of goal setting are commonly based on an expectancy-value framework, we examined the effects of affective states on performance goal level and its antecedents of expectancy and valence. Participants were 142 university students, and the performance task was solving anagrams across two trials. Positive affective states were positively associated with expectancy and goal-level judgments, whereas negative affective states were negatively associated with expectancy and goal-level judgments. However, affective states were not found to be associated with valence judgments. Contrary to expectations, our findings did not support the moderating effect of affective arousal. We discuss the various implications of our findings for mood-as-information theory and arousal-as-information theory as well as for future research.

Keywords Goal setting · Motivation · Affect · Mood-as-information · Arousal-as-information

Introduction

Goal-setting theory (Latham & Locke, 2018) has emerged as the dominant theory of work motivation in organizational psychology literature. There is vast support for its major propositions that (1) specific goals lead to better performance than vague or no goals, and (2) difficult goals lead to better performance than easy goals (e.g., Epton et al., 2017). Moreover, these findings have been observed in the laboratory and field settings (e.g., Dekker et al., 2023), with over 100 different tasks (e.g., Liu et al., 2021), in various populations (e.g., So et al., 2021), and in many countries (e.g., Ge et al., 2023). A major implication of goal-setting research is that an employee's adopted goal will be a prime determinant of job performance. Indeed, the importance of goal setting is underscored by extensive literature spanning several decades that has tested the theory's principal assertions and found that observed differences in effort and subsequently task performance can be partially attributed to differences in the level of aspired performance goals (Latham & Locke, 2018).

Given the importance of a person's goals, a logical question for researchers to address is what factors influence the choice of personal goals. Surprisingly, goal choice (i.e., choosing the goal difficulty level or choosing the goal that one strives to achieve from a set of possible goals) has been a relatively understudied motivational process compared to goal striving (Klein et al., 2008). The goal choice process has often been equated to a decision-making task involving a choice among various behavioral alternatives with different possible consequences (Klein et al., 2008). Therefore, most theoretical perspectives that attempt to explain the goal choice process (e.g., Ajzen, 2020) are based on an expectancy-value framework (e.g., Vroom, 1964) that suggests goal choice involves a rational process where a

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decision is made among various behavioral options. Specifically, the goal choice decision is determined by the expectations that effort is linked to goal success (i.e., expectancy) and the perceptions that goal success is linked to valued outcomes (i.e., value, but often referred to as "valence" in this domain; Klein et al., 2008). Although the proposed calculus by which the expectation and attractiveness of goal success are cognitively combined remains unsettled (e.g., whether expectancy and valence are combined additively or multiplicatively), there is general empirical support for expectancy-value models of goal choice (Kanfer & Chen, 2016). As such, many studies have focused on identifying the antecedents of expectancy and valence.

According to Klein et al.'s (2008) literature review of goal choice research, expectancy judgments (defined as an individual's expectations of goal success given a reasonable level of effort) are influenced by a person's ability, prior experience, and task-specific knowledge and skills. Valence judgments (defined as an individual's perceived value of goal success based on its association with desired outcomes) are influenced by a person's needs and values, rewards associated with goal attainment, and commitment to the task or organization. The role that affect plays in goal choice was notably absent in Klein et al.'s (2008) review. By contrast, considerable research in social cognition has investigated the effect of affect on decision-making and evaluative judgments. Indeed, Diefendorff and Chandler (2011) lamented that the role of affect in goal processes remains understudied and identified it as an area needing additional research. Additionally, in a review of emotion research in organizations, Seo et al. (2008) observed that a notably important gap in the literature is a particular dimension of affect (i.e., the experienced level of activation of an affective state) and identified this dimension as a significant avenue for future research given that it is relevant for understanding motivation and behavior in the workplace. Similarly, Fletcher et al. (2020) noted the lack of research on the role of affect in motivation-related processes. The sparse literature in this area is surprising given the significance of affect, moods, and emotions to employee judgments, attitudes, and behavior. In fact, based on mood-as-information theory (e.g., Schwarz, 2012), an individual's pre-existing affective state can be a key predictor of evaluative judgments (e.g., goal choice) because it can function as a heuristic and signal information that is used to infer judgments. Moreover, affective events theory (AET; Weiss & Cropanzano, 1996) posits that discrete work events induce constant shifts in an employee's affective state during the course of the day. These variations in affective experience presumably influence multiple work-related judgments that employees must routinely make. Because of these reasons, our study examines the role of affect in the goal choice process. Specifically, we are interested in how affect will influence goal level, which refers to the difficulty level of a specific goal that an individual is striving to achieve.

Affect is a broad term that forms the most fundamental elements of the various feelings (e.g., moods, discrete emotions) that individuals can experience (Russell & Barrett, 1999). Based on the circumplex model of affect (e.g., Russell & Barrett, 1999), affective experience is composed of the two orthogonal and bipolar dimensions of affective valence (i.e., the hedonic quality of an affective state) and affective arousal (i.e., the felt activation of an affective state). The affective valence and arousal dimensions combine to form four distinct quadrants: high-activated positive affect (HAPA, e.g., feeling excited or enthusiastic), low-activated positive affect (LAPA, e.g., feeling calm or relaxed), high-activated negative affect (HANA, e.g., feeling anxious or tense), and low-activated negative affect (LANA, e.g., feeling depressed or dejected). All affective states are formed by a combination of these two dimensions. For example, an individual may be feeling alarmed, which would be a combination of low affective valence and high affective arousal.

The review of the affective state-goal level relationship has revealed somewhat unclear and inconsistent findings. Whereas some studies have found that positive affective states are associated with higher (i.e., increased) goal levels (e.g., Richard & Diefendorff, 2011), other studies have found that negative affective states are associated with higher goal levels (e.g., Cervone et al., 1994) or have found non-significant results (e.g., Davis et al., 2007). Another observation from reviewing the affective state-goal level choice literature is a focus on the valence dimension of affective phenomena while largely ignoring the role of the arousal dimension. For example, Davis et al. (2007) examined the effect of affective states on goal level and task performance by distinguishing positive states from negative states with adjectives (e.g., sad-glad) but without regard to affective arousal. Furthermore, because past studies have assessed affective states by either not explicitly considering the role of affective arousal and thus simply contrasting positive affective states from negative affective states (e.g., Cervone et al., 1994; Davis et al., 2007) or have considered the role of affective arousal but only examined high-arousal states (e.g., Richard & Diefendorff, 2011), relatively less is known about the relationship between low-arousal states and goal level. Some of the ambiguous and varying results that have been reported might potentially be attributed to the failure to account for the effect of affective arousal or to the restricted sampling of the affect construct domain (e.g., not assessing low-arousal states). Only one study (Seo et al., 2010) examined both affective valence and arousal. However, Seo and colleagues did not assess goal level but instead measured perceived goal progress.

Present study

To investigate a problem in the literature that is reflected by inconsistent findings and in response to calls for exploring the role of affective states and, in particular, affective arousal in the process of goal setting (e.g., Diefendorff & Chandler, 2011; Fletcher et al., 2020; Seo et al., 2008), our study extends previous research by exploring the role of affective arousal in the affective state-goal level relationship. Because almost all theoretical perspectives that attempt to explain the goal choice process (e.g., Latham & Locke, 2018) are based on an expectancy-value framework (e.g., Vroom, 1964) that conceptualize expectancy and valence as the antecedents of goal choice, we incorporated an expectancy-value framework in investigating this relationship. To the best of our knowledge, this is the first study to explore the role of affective arousal, specifically its moderating effect on the affective state-goal level relationship. This is also the first study to adopt a four-quadrant perspective of affect (i.e., HAPA, LAPA, HANA, LANA) and examine its relationship with goal level, which allows for the assessment of a wider range of activation as well as relationships that have not been explored in previous research (e.g., examining the relationship between deactivated states and goal level). Figure 1 presents the proposed conceptual model.

Theoretical framework and hypotheses development

AET (Weiss & Cropanzano, 1996) serves as a foundational and overarching theoretical framework that aids in understanding our conceptual model. AET postulates that the work environment (e.g., job demands) produces discrete work events (e.g., an angry manager) that cause fluctuations in employees' affective states and thereby lead to changes in workplace attitudes and behaviors (e.g., job performance). Accordingly, changes in workplace moods and emotions (as a response to daily work events) are considered important predictors of employee cognitions and subsequent behavior. To explain the precise mechanisms for the proposed relationships in our conceptual model, additional frameworks are necessary.

Affective states and goal-related judgments

Based on mood-as-information theory (e.g., Schwarz, 2012; Schwarz & Clore, 2007), the current affective state of an individual, whether a positive or a negative mood state, assists in forming an evaluative judgment. Affective states inform judgments by serving as an informational cue that influences judgments through affect-congruent effects (i.e., an evaluative bias consistent with the hedonic tone of affect) on cognitions. That is, given a target of judgment, affective states can inform judgments as individuals base their evaluation according to the current pleasantness level of feelings rather than elaborate and exhaustive information processing (Schwarz, 2012). Accordingly, individuals in positive affective states are more likely to have more favorable judgments (i.e., a positive evaluation), whereas those in negative affective states are more likely to have less favorable judgments (i.e., a negative evaluation). Thus, affective states can function as a heuristic that simplifies judgments as they can be used to infer a judgment (Schwarz, 2012). For example, an individual may need to evaluate their level of enjoyment of a particular advertisement. If this individual is in a pleasant affective state (e.g., feeling happy), it is more likely that they will have a positive evaluative bias when determining their feelings about this judgment target (i.e., consistent with their current positive affective state) as the current

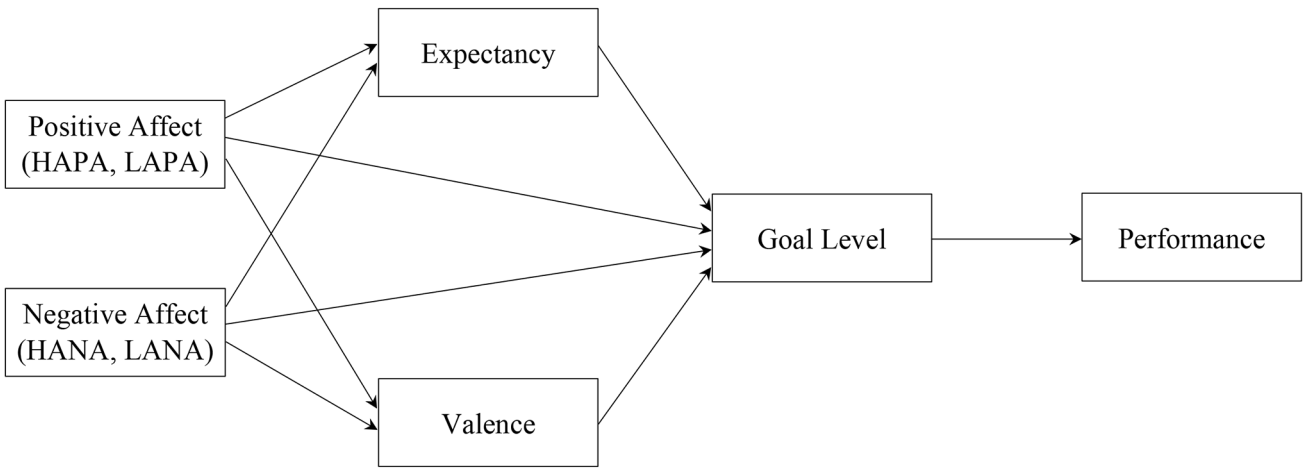

Fig. 1 Conceptual model. *HAPA* high-activated positive affect; *LAPA* low-activated positive affect; *HANA* high-activated negative affect; *LANA* low-activated negative affect. For brevity, control variables are not presented

pleasant mood state serves as the informational source that facilitates this judgment. Alternatively, if this individual is in an unpleasant affective state (e.g., feeling sad), it is more likely that they will have a negative evaluative bias when determining their feelings about this advertisement (i.e., consistent with their current negative affective state) as the current unpleasant mood state serves as the informational source that facilitates this judgment.

This affect-congruent effect has been labeled as the "How do I feel about it?" heuristic and is more likely to be employed when a judgment requires an affective reaction to a target (e.g., judgments of an individual's liking, pleasantness, or satisfaction level regarding a target), which can lead to an evaluation based on the current affective state rather than the target's attributes. Hence, rather than arriving at a judgment based on the recalled characteristics of a target, individuals may simply ask themselves how they feel about the target and proceed to attribute their pre-existing affective state as a reaction to the target and the basis for judgment (Schwarz & Clore, 2007). When judgments do not directly involve an affective reaction to a target, affective states can still inform judgments as individuals attempt to simplify their evaluations by assessing their current feelings regarding targets (Schwarz, 2012). Mood-as-information theory's hypothesized role of an individual's current affective state as an informational cue is in line with signaling theory (Spence, 1973), which proposes that individuals can construe various types of information (i.e., signals) as reflective of unknown characteristics of a judgment target. Signaling theory suggests that this effect is most prevalent in the absence of knowledge about a target's characteristics.

Affect-congruent effects occur because individuals mistakenly attribute their incidental feelings (i.e., feelings unrelated to a target of judgment) as part of their reaction to a target (Schwarz & Clore, 2007). The tendency to misattribute the current affective state occurs partly because individuals usually assume that their feelings must be regarding what they are focused on at the moment (Schwarz & Clore, 2007). Further, it is difficult for an individual to determine the extent to which their current affective state is incidental or integral (i.e., elicited by the target of judgment; Schwarz & Clore, 2007). It is because of these difficulties that a pre-existing affective state can become the informational source for arriving at a judgment. However, if incidental affect is viewed as being unrelated to the target or if integral affect is attributed to a different source, the effect of an individual's affective state on a judgment is discounted, and its informational value can be eliminated (Schwarz, 2012; Schwarz & Clore, 2007). Alternately, the informational value of an individual's affective state is increased when it is experienced in the presence of opposing forces (e.g., an individual will rely more on the informational value of a negative affective state if under the impression that the current environment promotes a positive affective state).

Mood-as-information theory's main proposition has received widespread support as many studies have found affect-congruent effects in which more positive judgments are observed when individuals are in a pleasant state rather than an unpleasant state, with neutral moods falling in between (e.g., Rubbaniy et al., 2022). In the present study, mood-as-information theory (e.g., Schwarz, 2012) explains how momentary state affect can alter goal-related judgments. An individual's current affective state would be expected to influence the evaluative judgments of expectancy, valence, and goal level via affect-congruent changes (i.e., consistent with the pleasantness level of the affective state) in the cognitive processes involved in producing these judgments.

For example, when an employee is in a positive affective state (e.g., feeling elated) and faced with goal-related judgments relating to a work task (e.g., writing a research proposal), their affective state can inform these judgments as they base their evaluations according to this current positive mood state rather than exhaustive information processing. Indeed, the expected affect-congruent evaluative bias is likely to lead to increased expectations of goal success given reasonable effort (i.e., a higher expectancy judgment). Similarly, the affect-congruent effect consistent with their current positive state is likely to lead the employee to perceive goal success as having greater value based on its association with desired outcomes (i.e., a higher valence judgment). Using this same theoretical rationale, the positive evaluative bias is expected to lead the employee to strive for a more challenging goal (i.e., higher goal level). Mood-as-information theory's proposed affect-congruent bias can occur because, at the moment of making these goal-related judgments, the employee's pre-existing positive affective state can be misattributed as part of their evaluative reaction to the target of judgment (Schwarz & Clore, 2007), which is writing a research proposal in this example. Therefore, we would predict an individual in a positive affective state to exhibit a positive evaluative bias (i.e., more favorable) when forming the three goal-related judgments of expectancy, valence, and goal level. Hence, the following hypotheses are proposed:

Hypothesis 1a: Positive affective states are positively associated with expectancy.

Hypothesis 2a: Positive affective states are positively associated with valence.

Hypothesis 3a: Positive affective states are positively associated with goal level.

In contrast to the previous example, when an employee is in a negative affective state (e.g., feeling anxious because

of a recent work-related experience) and has to form the same three goal-related judgments relating to a work task (e.g., grading an essay exam), their mood state can again serve as an informational cue that informs these judgments. Specifically, the employee can base these cognitive evaluations according to their prevailing negative affective state instead of elaborate information processing. Accordingly, as proposed by mood-as-information theory (Schwarz, 2012; Schwarz & Clore, 2007), the affect-congruent effect (consistent with this negative affective state) would be expected to lead to decreased expectations that a reasonable level of effort will be linked to goal success (i.e., a lower expectancy judgment). Likewise, the affect-congruent evaluative bias would be expected to lead this employee to deem goal success as having lesser value based on its connection with desired outcomes (i.e., a lower valence judgment). Consistent with this theoretical framework (e.g., Clore & Parrott, 2020), we would also expect the negative evaluative bias to lead this employee to pursue a less difficult goal (i.e., lower goal level). Hence, in contrast to an individual who is in a positive affective state, we would predict an individual in a negative affective state to exhibit a negative evaluative bias (i.e., less favorable) when arriving at these three goal-related judgments of expectancy, valence, and goal level. Thus, the following hypotheses are proposed:

Hypothesis 1b: Negative affective states are negatively associated with expectancy.

Hypothesis 2b: Negative affective states are negatively associated with valence.

Hypothesis 3b: Negative affective states are negatively associated with goal level.

Role of affective arousal

Whereas mood-as-information theory describes how the hedonic tone of affective experience (i.e., affective valence) can affect evaluative judgments, arousal-as-information theory (Storbeck & Clore, 2008) details how the arousal dimension of affective experience (i.e., affective arousal) can affect judgments (e.g., Gorn et al., 2001; Riemer & Viswanathan, 2013; Storbeck & Clore, 2008). According to arousal-as-information theory, affective arousal conveys information regarding the relevance, urgency, or importance of a judgment. Consequently, the information communicated by affective arousal amplifies the value of the information that is conveyed by affective valence (Storbeck & Clore, 2008). Indeed, as part of the heuristic that involves implicitly asking the question, "How do I feel about it?" when making a judgment, an individual might also ask, "How *strongly* do I feel about it?" (Storbeck & Clore, 2008). Feeling strongly about a target of judgment, as inferred from the current level of affective arousal, should increase the value of the information conveyed by affective valence (whether it is positive or negative) and, thereby, lead to more polarized judgments. For example, increasing levels of arousal can make a positive judgment to be experienced as more positive and a negative judgment to be experienced as more negative. Stated differently, affective arousal moderates the effect of affective valence on judgments such that with increasing arousal levels, the effect of affective valence will be stronger.

Some of the evidence for this proposed effect of affective arousal on judgments is found in brain activation research. The amygdala is the area of the brain that is believed to be most involved when evaluating stimuli and has been reported to be more active when participants judge either positive or negative words that are emotionally arousing (Cunningham et al., 2008). This finding suggests that affective arousal might indicate the significance of stimuli by amplifying activation in the brain region that has a central role in stimuli evaluation (Storbeck & Clore, 2008).

Similar to mood-as-information theory, arousal-as-information theory posits that affective arousal can affect judgments when it is either correctly (i.e., integral arousal) or incorrectly (i.e., incidental arousal) attributed as part of the reaction to a target of judgment (Storbeck & Clore, 2008). The effect of affective arousal on judgments via incidental affect is based on Zillmann's (1971) theory of excitation transfer, according to which arousal cues can be transferred from one source to another. Zillmann (1971) observed that if the manipulation of arousal and a judgment occur close in time, arousal cues can be transferred from an irrelevant source to the relevant source. Furthermore, because affective arousal lingers long after exposure to an arousing stimulus, it can easily be misattributed to an unrelated target (Gorn et al., 2001).

The hypothesized intensifying effect of affective arousal on judgments has been observed in numerous studies (e.g., Gorn et al., 2001). In the present study, arousal-as-information theory explains how affective arousal can moderate the relationships between affective states and judgments of expectancy, valence, and goal level. Given that increasing levels of arousal are hypothesized to lead to positive judgments being perceived as even more positive (i.e., affective arousal magnifies the value of the information conveyed by affective valence and thereby produces more polarized judgments; Storbeck & Clore, 2008), we would expect the strength of the relationship between positive affective states and goal-related judgments to be stronger for activated positive states (i.e., HAPA) as compared with deactivated positive states (i.e., LAPA). Thus, the following hypotheses are proposed:

Hypothesis 4a: The relationship between positive affective states and expectancy is stronger for HAPA than for LAPA.

Hypothesis 5a: The relationship between positive affective states and valence is stronger for HAPA than for LAPA.

Hypothesis 6a: The relationship between positive affective states and goal level is stronger for HAPA than for LAPA.

Alternatively, given that increasing levels of arousal are hypothesized to lead to negative judgments being perceived as even more negative (i.e., more polarized judgments; Storbeck & Clore, 2008), we would expect the strength of the relationship between negative affective states and goal-related judgments to be stronger for activated negative states (i.e., HANA) as compared with deactivated negative states (i.e., LANA). Thus, the following hypotheses are proposed:

Hypothesis 4b: The relationship between negative affective states and expectancy is stronger for HANA than for LANA.

Hypothesis 5b: The relationship between negative affective states and valence is stronger for HANA than for LANA.

Hypothesis 6b: The relationship between negative affective states and goal level is stronger for HANA than for LANA.

Expectancy and goal level

According to expectancy-value frameworks, the goal level choice decision is jointly determined by a weighting function that combines the cognitive judgments of expectancy and valence into an expected utility value reflecting motivational force (e.g., Vroom, 1964). Given that expectancy beliefs reflect an individual's perceived relationship between effort and goal success, they can be considered the level of confidence in goal achievement (Diefendorff & Chandler, 2011). When expectancy for a given performance task is perceived to be high, an individual is more likely to pursue a higher goal (i.e., more difficult) based on having a greater belief in their chances of goal success. The relationship between expectancy and goal level has received widespread empirical support (e.g., Klein, 1991) and thus expected that this well-supported finding will be replicated in our study. Hence, the following hypothesis is proposed:

Hypothesis 7: Expectancy is positively associated with goal level.

Valence and goal level

Valence represents an individual's perceived value of goal achievement as a function of its relationship with desired outcomes. Thus, this judgment reflects the expectation that (1) goal success will lead to various outcomes and (2) these various outcomes will be satisfying (Vroom, 1964). When valence for a given performance task is perceived to be high, an individual is more likely to pursue a challenging goal given that higher performance standards will often lead to greater outcomes. For example, striving for a high level of job performance is much more likely to lead to a promotion and salary increase as compared to a satisfactory (average) level of performance. The relationship between valence and goal level has also received strong empirical support (e.g., Klein, 1991). It is therefore expected that this well-supported finding from the expectancy-value and goal-setting literature will be replicated in this study. Hence, the following hypothesis is proposed:

Hypothesis 8: Valence is positively associated with goal level.

Goal level and performance

Latham and Locke (2018) found that the highest (i.e., most difficult) goals were associated with the highest levels of effort and performance. A consistent finding in the literature is that greater motivation (specifically when goal level is used as an indicator) is associated with higher performance levels (Latham & Locke, 2018; Richard & Diefendorff, 2011). Two primary mechanisms explain how an individual's goal level affects their performance. First, as the goal level increases (i.e., the goal becomes more difficult), it leads an individual to exert more effort (Locke & Latham, 2013). Second, an increase in goal level leads an individual to be more persistent and thereby prolonged effort over time. Hence, these increases in both effort and persistence enable higher levels of performance. Therefore, the following hypothesis is proposed:

Hypothesis 9: Goal level is positively associated with performance (operationalized in this study as proficiency in an anagram task).

Method

Power analysis

An a priori power analysis was conducted using Optimal Design software for multilevel modeling (Raudenbush et al., 2011). To achieve a power of 0.80 for detecting a medium effect size for a fixed effect, results indicated that a total of 128 participants were needed. This effect size is based on the mean observed effect size across previous studies that have examined the effect of affective states on goal-related judgments (e.g., Richard & Diefendorff, 2011; Seo & Ilies, 2009; Seo et al., 2010). A sample size of this magnitude is also similar to or greater than the sample sizes of past studies in this domain (e.g., *N* of 102 in Cron et al., 2005; *N* of 126 in Richard & Diefendorff, 2011).

Participants

The study participants were 142 students at a large Northeastern US university. The mean age of participants was 22.4 years. Approximately 78% identified as female, and 22% identified as male. Participants' academic majors consisted of psychology (15%) and business (8%); the remaining 77% had a different major. Regarding class standing, 10.5% were first-year students, 17.5% second-year students, 11.2% third-year students, 29.4% fourth-year students, 25.9% graduate students, and 5.6% identified as not currently enrolled. In terms of ethnicity and racial composition, approximately 36.4% of the participants were White, 25.2% were Black, 15.4% were Hispanic, 14.7% were Asian, and 8.4% identified as "other."

Task

The performance task involved solving "moderately difficult" anagrams that required participants to rearrange scrambled letters to produce a word. This is a commonly used task in motivation research (e.g., Holst-Hansen & Bergenholtz, 2020). Specifically, the performance task required participants to solve 10 five-letter anagrams in Trial 1 and a different set of 10 five-letter anagrams in Trial 2, all presented on paper. These anagrams were selected from Gilhooly and Johnson's (1978) list of 80 with only one possible solution. Examples of the anagrams included were "githl" (the answer is light) and "itruf" (the answer is fruit). The difficulty level of the anagram was based on the solution scores reported by Gilhooly and Johnson, which refer to the number of individuals (0–45) who correctly solved any anagram. Moderately difficult anagrams were defined as correctly solved by approximately half of the individuals in their norming study. The average solution score across the two trials of the study was 26.3. The participant's performance score on the task was the number of anagrams solved correctly (0–10) within 4 min per trial.

Procedure

After consenting to participate in the study, participants were informed that the study aimed to examine the link between task novelty and performance while developing new assessments using word puzzles. This slight deception is common in studies that examine the effect of affective states (e.g., Gorn et al., 2001) and is necessary to reduce the possibility of participants inferring the true intent of the study. Participants were then allowed to become familiar with the anagram task and shown two example anagrams, one which the solution was already provided and one which they had to solve. After this practice trial, participants completed surveys measuring affect, expectancy, valence, and goal level before the first trial. The anagrams in each trial were similar in difficulty to the examples in the practice trial. After the first trial, participants completed the same surveys again before starting the second trial. After the second trial, participants completed the final set of surveys that assessed the various control variables. All participants were compensated $20 for taking part in the study.

Measures

Affect

Based on the circumplex model of affective structure, the 16-item multi-affect indicator (Warr, 2016) was used to assess the four quadrants that represent HAPA, LAPA, HANA, and LANA. Participants were asked to indicate the extent to which they currently felt each affective state by rating each item (represented by a different adjective) on a 5-point scale ranging from 0, "not at all," to 4, "extremely." Specifically, HAPA was measured by *enthusiastic, excited, inspired*, and *joyful*; LAPA was measured by *at ease, calm, laid-back,* and *relaxed*; HANA was measured by *anxious, nervous, tense,* and *worried*; and LANA was measured by *dejected, depressed, despondent,* and *hopeless.* Across four studies, Warr et al. (2021) reported alpha reliability estimates of 0.88 (HAPA), 0.83 (LAPA), 0.88 (HANA), and 0.90 (LANA). Cronbach's alpha averaged across trials were 0.87 (HAPA), 0.91 (LAPA), 0.84 (HANA), and 0.72 (LANA) in the current sample.

Expectancy

Based on past recommendations regarding proper measurement (e.g., Klein, 1991) and following the best practice of

past work (e.g., Seo et al., 2010), we measured expectancy by providing participants with a range of performance outcomes and asking them to rate their subjective expectancies for each. The average of these ratings led to a single expectancy index with higher values representing higher expectancy. The expectancy measure contained 10 items, representing 10 performance levels, ranging from 1–10 anagrams correctly solved. Participants were asked to indicate the subjective probability (0–100) of attaining each of the 10 performance levels. Seo et al. (2010) reported an alpha reliability estimate of 0.74 using this same approach. Cronbach's alpha averaged across trials was 0.95 in the current sample.

Valence

Valence was also measured based on recommendations by Klein (1991). Specifically, participants indicated the perceived desirability of the same 10 possible performance outcomes on a 7-point scale ranging from –3 (very undesirable) to + 3 (very desirable). A single valence index was computed by averaging these ratings, with higher values representing higher valence. Seo et al. (2010) reported an alpha reliability estimate of 0.77 using this same approach. Cronbach's alpha averaged across trials was 0.91 in the current sample.

Goal level

Participants were asked to indicate their overall target performance level on the anagram task by responding to the question, ''What is the LOWEST level of performance that you would need to achieve to be satisfied with your performance in this task?" The 10 possible performance levels ranged from 1–10 anagrams correctly solved.

Performance

Performance on the anagram task was measured by the number of anagrams solved correctly (ranging from 0–10) within 4 min per trial.

Control variables

We assessed positive and negative affect as control variables to prevent the systematic effects of trait affect on participants' responses. Trait positive and negative affect were measured with the 20-item Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Participants were asked, for example, to what extent they had felt *interested* (for positive affect) and *upset* (for negative affect) during the past year by providing ratings on a 5-point scale. Cronbach's alpha was 0.91 for positive affect and 0.90 for negative affect. We also measured the strength of participants' emotional experiences (i.e., affect intensity; Larsen et al., 1986). Affect intensity was assessed with the 40-item Affect Intensity Measure (AIM; Larsen et al., 1986) as participants indicated how they had reacted to different events by providing ratings on a 6-point scale. A sample item was ''my emotions tend to be more intense than those of most people.'' Cronbach's alpha was 0.86. We also assessed goal commitment as it is an important moderator of the goal level-task performance relationship (Latham & Locke, 2018). Klein et al.'s (2001) 5-item survey was used to measure goal commitment on a 5-point scale. Items were modified to specifically reference the goal of solving anagrams. For example, the original item, "I was strongly committed to pursuing this goal," was reworded as "I was strongly committed to pursuing the goal of solving anagrams." Cronbach's alpha was 0.78.

Analytic strategy

Given the hierarchical structure of our data whereby trial-level data (i.e., Level 1) was nested within persons at Level 2, we used multilevel modeling (MLM; Raudenbush & Bryk, 2002) to test hypotheses 1–3 and 7–9. Level-1 predictors (e.g., HAPA) were person-mean centered. We used the following steps in building a multilevel model to test these hypotheses. In Step 1, we tested a null model with only a criterion variable. The intraclass correlation coefficient (ICC) estimated the proportion of variance within- and between-person. Intraclass correlation coefficients ranged from 0.55 to 0.67 (see Tables 2 and 3), indicating that 33–45% of the variance in study variables was at the within-person level, thus supporting the use of MLM in the current study. In Step 2, we added any Level-1 covariates (except for the predictors of interest) to the model. Based on Nezlek (2023), we removed predictors that were not significant from the model before any new predictors were added in subsequent models. In Step 3, we added Level-1 predictors to estimate a random intercept and fixed slope model.

We used path analysis to assess hypotheses 4–6. These hypotheses were tested by comparing a freely estimated model with a competing model that constrained the path coefficients of HAPA and LAPA (or HANA and LANA) to be equal in association with study outcomes. The respective independent variables were not allowed to correlate to ensure that an excessive number of parameters were not estimated. We used SPSS 21 to perform all MLM and moderator analyses (via Amos), including all descriptive statistics.

Results

Discriminant validity and common method bias

We evaluated the discriminant validity among study variables that were measured by self-reported surveys (i.e., all except task performance). Based on a procedure by Fornell and Larcker (1981), discriminant validity is considered acceptable if the square root of the average variance extracted (AVE) from a construct is greater than all correlation estimates between that construct and other constructs in a study. As displayed in Table 1, the square root of the AVE for each construct was larger than all correlations that included that construct, suggesting that there was sufficient discriminant validity and thereby the variables in the study can be considered distinct from each other.

With the exception of task performance, the measurement of study variables was based on self-reports by participants. Thus, it was necessary to address concerns with common method bias (CMB). Following recommendations by Podsakoff et al. (2024), we implemented a procedural remedy that minimized the scale properties that were shared by the measures of different variables. Specifically, our assessments of the predictor and criterion variables were mostly different with respect to the scale type and the number of scale points. Further, as described in our Analytic Strategy section, we person-mean centered all Level-1 predictors, which removes some of the typical causes of CMB (e.g., dispositional differences, response tendency differences).

We also conducted various statistical tests to assess CMB concerns. Harman's single-factor test (Podsakoff et al., 2024) was first performed to detect the presence of CMB. Based on this test, an exploratory factor analysis is conducted and the unrotated factor solution is examined for the existence of a single dominant factor. The presence of CMB is indicated if a single factor emerges or explains most of the variance (> 50%). Based on the results of this test, a single factor accounted for 25.61% of the variance and thereby indicates that CMB was not a significant concern in the present study. We also conducted a confirmatory factor analysis (CFA) to compare the fit of our seven-factor measurement model with a one-factor model in which all items were forced to load on a single factor. Results of the CFA indicated that the one-factor measurement model (χ^2 [629] = 5555.77, $p < 0.05$; CFI = 0.23, TLI = 0.16, RMSEA = 0.24) was a worse fit than our seven-factor model ($\triangle\chi^2$ [20] = 2278.35, $p < 0.001$). Additionally, we performed the ex-post procedure outlined by Podsakoff et al. (2024) that introduces an unmeasured latent method factor to an existing model. Using this approach, the initial multifactor measurement model is compared with a model that adds an unmeasured latent method factor, with all items of the focal variables also being loaded on the common method factor. The results indicated that the common method factor accounted for an average of 18.30% of the variance, which is less than the mean amount of method variance (24%) found in studies with self-reported data (Podsakoff et al., 2024). Based on these statistical tests, we concluded that CMB did not pose a serious threat to our results.

Descriptive statistics and hypotheses testing

Table 2 presents the study variables' means, standard deviations, and correlations. The results of the MLM analyses for hypotheses 1–3 are presented in Table 3. Hypothesis 1a predicted that positive affective states positively correlate with expectancy. In support of this hypothesis, HAPA ($\gamma_{20} = 5.41$, $p < 0.01$) and LAPA ($\gamma_{30} = 6.16$, $p < 0.01$) were positively associated with expectancy judgments. Note that all of our models were analyzed with control variables included in Step 2. In no model were our results different regarding support for hypotheses when adding control variables. Thus, as recommended by Nezlek (2023), they were not included in our final models. Hypothesis 1b predicted that negative affective states negatively correlate with expectancy. In support of this hypothesis, HANA ($\gamma_{40} = -5.87$, $p < 0.01$) and LANA ($\gamma_{50} = -9.07$, $p < 0.01$) were negatively associated with expectancy judgments.

Hypothesis 2a predicted that positive affective states positively correlate with valence. Contrary to this hypothesis,

Table 1 Correlations among latent variables and discriminant validity

	1	2	3	4	5	6
1. HAPA	**.79**					
2. LAPA	.44	**.85**				
3. HANA	−.06	−.57	**.76**			
4. LANA	−.26	−.41	.55	**.65**		
5. Valence	.16	.10	−.02	−.13	**.72**	
6. Expectancy	.29	.30	−.31	−.33	.09	**.80**
7. Goal level	.24	.10	−.14	−.07	−.11	.46

Numbers along the diagonal (in bold) are the square root of the average variance extracted (AVE)

$N = 142$; number of observations = 284. *HAPA* high-activated positive affect; *LAPA* low-activated positive affect; *HANA* high-activated negative affect; *LANA* low-activated negative affect

Table 2 Means, standard deviations, and correlations among study variables

	M	*SD*	1	2	3	4	5	6	7	8
1. HAPA	1.54	1.00		.33**	−.40**	−.39**	.10	.31**	.35**	−.14
2. LAPA	2.02	1.09	.44**		−.38**	−.21*	.02	.31**	.04	−.04
3. HANA	0.94	0.81	−.01	−.53**		.16	−.08	−.27**	−.34**	.18*
4. LANA	0.28	0.46	−.18*	−.37**	.51**		.05	−.28**	−.22*	.03
5. Valence	5.75	1.13	.21*	.10	−.04	−.19*		.15	.21*	−.17*
6. Expectancy	72.21	16.50	.23**	.27**	−.29**	−.25**	.15		.52**	−.24**
7. Goal level	6.36	1.93	.17*	.08	−.10	−.00	−.05	.44**		−.23**
8. Performance	6.32	2.33	.06	.17*	−.16	−.20*	−.09	.49**	.33**	

$N = 142$; number of observations = 284. Correlations above the diagonal are within-person correlations. Correlations below the diagonal are between-person correlations. *HAPA* high-activated positive affect; *LAPA* low-activated positive affect; *HANA* high-activated negative affect; *LANA* low-activated negative affect

*$p < .05$, **$p < .01$

Table 3 Multilevel modeling estimates of the effect of affective states on study outcomes

Variable	Model 1	Model 2a	Model 2b
Outcome: Expectancy			
Fixed effects			
Intercept (γ_{00})	72.21 (1.38)**	72.21 (1.39)**	72.21 (1.39)**
HAPA (γ_{20})		5.41 (1.93)**	
LAPA (γ_{30})		6.16 (2.16)**	
HANA (γ_{40})			−5.87 (2.00)**
LANA (γ_{50})			−9.07 (2.91)**
Variance components			
Within-person (L1) variance (σ^2)	158.74 (18.84)**	137.44 (16.43)**	139.40 (16.66)**
Intercept (L2) variance (τ_{00})	192.83 (33.76)**	203.48 (33.44)**	202.50 (33.47)**
ICC	.55		
Outcome: Valence			
Fixed effects			
Intercept (γ_{00})	5.70 (0.09)**	5.70 (0.09)**	5.70 (0.09)**
HAPA (γ_{20})		0.16 (0.12)	
LAPA (γ_{30})		0.04 (0.13)	
HANA (γ_{40})			−0.16 (0.12)
LANA (γ_{50})			0.07 (0.18)
Variance components			
Within-person (L1) variance (σ^2)	0.52 (0.06)**	0.52 (0.06)**	0.52 (0.06)**
Intercept (L2) variance (τ_{00})	0.98 (0.15)**	0.98 (0.15)**	0.98 (0.15)**
ICC	.65		
Outcome: Goal level			
Fixed effects			
Intercept (γ_{00})	6.36 (0.16)**	5.74 (0.26)**	5.92 (0.26)**
Trial (γ_{10})		0.41 (0.14)**	0.29 (0.14)*
HAPA (γ_{20})		0.87 (0.18)**	
LAPA (γ_{30})		−0.06 (0.21)	
HANA (γ_{40})			−0.69 (0.19)**
LANA (γ_{50})			−0.67 (0.28)*
Variance components			
Within-person (L1) variance (σ^2)	1.46 (0.17)**	1.22 (0.15)**	1.23 (0.15)**
Intercept (L2) variance (τ_{00})	2.98 (0.45)**	3.10 (0.45)**	3.09 (0.45)**
ICC	.67		

HAPA high-activated positive affect; *LAPA* low-activated positive affect; *HANA* high-activated negative affect; *LANA* low-activated negative affect; *L1* Level 1; *L2* Level 2. L1 $N = 284$; L2 sample size = 142. Model 1 = null; Model 2 = random intercept and fixed slope. For brevity, positive affect and negative affect analyses are presented in Models 2a and 2b, respectively. Values in parentheses are standard errors

*$p < .05$, **$p < .01$

HAPA ($\gamma_{20} = 0.16$, $p = 0.18$) and LAPA ($\gamma_{30} = 0.04$, $p = 0.76$) were not related to valence judgments. Hypothesis 2b predicted that negative affective states negatively correlate with valence. Contrary to this hypothesis, HANA ($\gamma_{40} = -0.16$, $p = 0.20$) and LANA ($\gamma_{50} = 0.07$, $p = 0.69$) were not related to valence judgments.

Hypothesis 3a predicted that positive affective states positively correlate with goal level. In partial support of this hypothesis, HAPA ($\gamma_{20} = 0.87$, $p < 0.01$) was positively associated with goal level, but LAPA ($\gamma_{30} = -0.06$, $p = 0.78$) was not related to goal level. Hypothesis 3b predicted that negative affective states negatively correlate with goal level. In support of this hypothesis, HANA ($\gamma_{40} = -0.69$, $p < 0.01$) and LANA ($\gamma_{50} = -0.67$, $p < 0.05$) were negatively associated with goal-level judgments.

Table 4 presents the results of the path analyses for hypotheses 4–6. These tests involved comparing the hypothesized model where the path coefficients were freely estimated (Model 2) with the competing model that constrained the path coefficients as equal (Model 1). Hypothesis 4a predicted a stronger relationship between HAPA (as compared with LAPA) and expectancy judgments. Contrary to this hypothesis, the freely estimated model (Model 2) did not have a significantly better fit to the data than the constrained model (Model 1), $\triangle\chi^2 = 0.02$, $p = 0.89$. Hypothesis 4b predicted a stronger relationship between HANA (as compared with LANA) and expectancy judgments. In contrast to this hypothesis, Model 2 did not have a significantly better fit to the data than Model 1, $\triangle\chi^2 = 0.29$, $p = 0.59$.

Hypothesis 5a predicted a stronger relationship between HAPA (as compared with LAPA) and valence judgments. Contrary to this hypothesis, the freely estimated model (Model 2) did not have a significantly better fit to the data than the constrained model (Model 1), $\triangle\chi^2 = 0.12$, $p = 0.73$. Hypothesis 5b predicted a stronger relationship between HANA (as compared with LANA) and valence judgments. In contrast to this hypothesis, Model 2 did not have a significantly better fit to the data than Model 1, $\triangle\chi^2 = 0.34$, $p = 0.56$.

Hypothesis 6a predicted a stronger relationship between HAPA (as compared with LAPA) and goal-level judgments. Contrary to this hypothesis, the freely estimated model (Model 2) did not have a significantly better fit to the data than the constrained model (Model 1), $\triangle\chi^2 = 2.39$, $p = 0.12$. Hypothesis 6b predicted a stronger relationship between HANA (as compared with LANA) and goal-level judgments. In contrast to this hypothesis, Model 2 did not have a significantly better fit to the data than Model 1, $\triangle\chi^2 = 0.00$, $p = 0.98$.

Table 5 presents the results of the MLM analyses for hypotheses 7–9. Hypothesis 7 predicted that expectancy positively correlates with goal level. In support of this hypothesis, expectancy ($\gamma_{20} = 0.05$, $p < 0.01$) was positively associated with goal-level judgments. Hypothesis 7 predicted that valence positively correlates with goal level. In support of this hypothesis, valence ($\gamma_{30} = 0.29$, $p < 0.05$) was positively related to goal-level judgments. Hypothesis 9 predicted that goal level positively correlates with performance. Contrary to this hypothesis, goal level ($\gamma_{40} = -0.25$, $p < 0.05$) was negatively associated with performance.

Discussion

Our results support several of the hypotheses predicting a main effect of affect. Consistent with mood-as-information theory, expectancy ratings were congruent with affective valence (for both high- and low-activated affect) as Hypotheses 1a and 1b were fully supported. This finding is similar to previous research that has reported a positive relationship

Table 4 Path analysis of affective states and judgments

Criterion	Predictor	Model	χ^2	*df*	$\Delta\chi^2$	RMSEA	CFI	NNFI
Expectancy	HAPA and LAPA	1	33.50	2	—	.24	.21	−0.18
		2	33.48	1	0.02	.34	.19	−1.43
	HANA and LANA	1	7.33	2	—	.10	.58	0.38
		2	7.04	1	0.29	.15	.53	−0.42
Valence	HAPA and LAPA	1	33.60	2	—	.24	.00	−0.51
		2	33.48	1	0.12	.34	.00	−2.11
	HANA and LANA	1	7.38	2	—	.10	.00	−0.74
		2	7.04	1	0.34	.15	.00	−2.91
Goal level	HAPA and LAPA	1	26.97	3	—	.17	.61	0.21
		2	24.58	2	2.39	.20	.63	−0.11
	HANA and LANA	1	15.45	3	—	.12	.50	−0.01
		2	15.45	2	0.00	.15	.46	−0.63

$N = 284$. *HAPA* high-activated positive affect; *LAPA* low-activated positive affect; *HANA* high-activated negative affect; *LANA* low-activated negative affect. Model 1 = path coefficients are constrained as equal; Model 2 = freely estimated model. Change in model fit assessed in relation to hypothesized Model 1. χ^2 = chi-square value. *df* degrees of freedom; *RMSEA* root-mean-square error of approximation; *CFI* comparative fit index; *NNFI* non-normed fit index

Table 5 Multilevel modeling estimates of the effect of secondary predictors on goal level and performance

Variable	Outcome: Goal level			Outcome: Performance	
	Model 1	Model 2a	Model 2b	Model 1	Model 2
Fixed effects					
Intercept (γ_{00})	6.36 (0.16)**	5.81 (0.24)**	5.92 (0.27)**	6.32 (0.20)**	6.93 (0.34)**
Trial (γ_{10})		0.36 (0.12)**	0.29 (0.14)*		−0.41 (0.18)*
Expectancy (γ_{20})		0.05 (0.01)**			
Valence (γ_{30})			0.29 (0.13)*		
Goal level (γ_{40})					−0.25 (0.11)*
Variance components					
Within-person (L1) variance (σ^2)	1.46 (0.17)**	1.01 (0.12)**	1.37 (0.16)**	2.48 (0.29)**	2.30 (0.28)**
Intercept (L2) variance (τ_{00})	2.98 (0.45)**	3.20 (0.45)**	3.02 (0.45)**	4.17 (0.66)**	4.26 (0.66)**
ICC	.67			.63	

L1 Level 1; *L2* Level 2. L1 $N = 284$; L2 sample size = 142. Model 1 = null; Model 2 = random intercept and fixed slope. For brevity, expectancy and valence analyses are presented in Model 2a and 2b, respectively. Values in parentheses are standard errors

*$p < .05$, **$p < .01$

between positive affective states and expectancy judgments (e.g., Seo et al., 2010) but has not assessed different levels of affective arousal. Our study, however, finds that regardless of the arousal level of an affective state, positive affective states are positively related to expectancy judgments, whereas negative affective states are negatively related to expectancy judgments.

Goal level was largely congruent with affective valence as Hypothesis 3a was partially supported (only HAPA was positively associated with goal level). In contrast, Hypothesis 3b was fully supported (both HANA and LANA were negatively associated with goal level). This pattern of findings also aligns with mood-as-information theory, as all significant relationships are congruent with the affective valence dimension. The significant observed relationships between HAPA and goal level as well as HANA and goal level are consistent with past work (e.g., Richard & Diefendorff, 2011). However, none of the past studies assessed the LAPA-goal level or the LANA-goal level links; thereby, our study has assessed these relationships. Therefore, whereas only high-activated positive affective states are found to lead to higher goal levels, negative affective states, irrespective of the level of arousal, lead to lower goal levels.

Based on our findings, however, affective states did not influence valence judgments as Hypotheses 2a and 2b were not supported. The hypothesized effect of affective states on judgments in an affect-congruent direction is contingent on different contextual factors (Greifeneder et al., 2011). Two of these factors involve the type of judgment and the target of judgment. Specifically, whether the judgment involves an assessment of value (e.g., desirability, liking) and whether the target of judgment has the potential to elicit specific feelings related to its level of pleasantness (i.e., a clear positive or negative affective tone as opposed to an ambiguous affective tone) might be important boundary conditions.

Evidence for this argument is based on studies that have found that affect-congruent biases in evaluations similar to valence (i.e., the judgment of the perceived value of a target) are more pronounced for targets of judgment that are affectively ambiguous (e.g., Gorn et al., 2001; Seo et al., 2010). For instance, Gorn et al. (2001) observed that a positive affective state was positively associated with evaluations of an advertisement (e.g., like vs. dislike). However, this effect only occurred when the advertisement had an ambiguous affective tone. Thus, the failure to observe a significant relationship between affect and valence judgments in our study might be explained by the target of judgment (i.e., anagrams). Specifically, the valence judgment required participants to indicate the perceived desirability of different levels of performance (i.e., the number of anagrams correctly solved). Anagrams are a common and popular word game, with many web and mobile app-based versions of the game (e.g., Bananagrams). Therefore, many individuals may perceive playing anagrams as representing a target with a clear positive or a clear negative affective tone depending on their previous experiences playing anagrams or their perceptions of this word game if no experience playing it (i.e., very unlikely that the anagram task is perceived as having an ambiguous affective tone). Accordingly, the effect of affective states on valence judgments regarding the anagram performance task would be expected to be less pronounced.

Our results do not support the hypotheses based on arousal-as-information theory (Storbeck & Clore, 2008) and predicted that the relationships between affective valance and study outcomes would be stronger for high-activated affective states than low-activated affective states. Thus, activated and deactivated affective states did not differ in their association with expectancy, valence, and goal level. These findings might be viewed as suggesting that the arousal dimension of affective states does not convey information relevant to judgments in the same manner as

the valence dimension. However, this interpretation would be inappropriate as it involves accepting the null hypothesis of no effect (Kluger & Tikochinsky, 2001). Thus, we discuss alternative explanations of these results in the Theoretical Implications section below.

Consistent with hypotheses 7 and 8, expectancy and valence judgments were positively associated with goal level. Because these relationships were not the primary focus of our study and have been examined extensively and consistently supported in past research (e.g., Klein, 1991), we will not discuss them further. Contrary to expectations, Hypothesis 9 was not supported as the relationship between goal level and task performance was negative. Specifically, at the within-person level (i.e., variation across trials within each person), goal level increased, whereas performance on the anagram task decreased. However, if this relationship had been analyzed at the between-person level, the anticipated positive relationship would have been observed based on the significant and positive between-person correlation between goal level and performance. It is possible that after experiencing the first anagram trial, participants underestimated the difficulty of this task and perceived it as less challenging than it was. This would have then led to an increase in goal level in the second trial without the expected increase in performance as participants would not have devoted the necessary resources to the task (e.g., the requisite on-task effort).

Theoretical implications

With the noted exception of the non-significant results for valence judgments, the results of our study were consistent with mood-as-information theory's predicted effect (e.g., Schwarz, 2012), which proposes that state affect influences cognitive evaluations with an evaluative bias that is consistent with the affective valence dimension (i.e., affect-congruent effects). When results were statistically significant, positive affective states were positively associated with expectancy and goal level judgments, whereas negative affective states were negatively associated with expectancy and goal level judgments.

We adopted arousal-as-information theory (Storbeck & Clore, 2008) to account for the role of affective arousal in cognitive judgments and the basis for our moderating hypotheses. However, our findings were not supportive of the theory's hypothesized role of affective arousal as a moderator. As specified, arousal-as-information theory conceptualizes the effect of affective arousal as dependent on the affective valence dimension (i.e., affective arousal increases the value of the information conveyed by affective valence; Storbeck & Clore, 2008). It is certainly possible that future investigations may find evidence of this hypothesized effect. However, the possibility also exists that the proposed effect of affective arousal occurs independent of an individual's affective valence level (i.e., a main effect but no interaction). Perhaps affective arousal does polarize cognitive judgments, but it is not based on an individual's level of pleasantness. For example, Brown and Curhan (2013) found that affective arousal can polarize judgments regarding the subjective value of negotiating. However, this effect was independent of whether individuals were in a positive or negative affective state. Instead, the effect of affective arousal depended on an individual's preexisting attitude toward the target of judgment (i.e., negotiating). Higher levels of affective arousal increased favorability judgments for individuals with prior positive attitudes toward negotiation and decreased favorability judgments for individuals with prior negative attitudes toward negotiation.

There have been other studies that have reported affective arousal can affect cognitive evaluations independent of whether an individual is in a positive or negative affective state (e.g., Yan et al., 2016). There is also the possibility that only one dimension of affective experience can have an effect on our judgments. Indeed, Gorn et al. (2001) argued that the affect-congruent effects on judgments proposed by mood-as-information theory and the hypothesized polarization effect of affective arousal on judgments proposed by arousal-as-information theory cannot occur concurrently (i.e., when the valence dimension affects judgments, the arousal dimension can only have a minimal effect, and vice versa).

Additionally, there is evidence that the effect of affective arousal on judgments is limited to value judgments (e.g., a target's level of desirability, favorability, or pleasantness). For example, the main effect of affective arousal in Gorn et al. (2001) was for advertisement preferences. In Riemer and Viswanathan (2013), the outcome was the favorability of attitudes toward advertisements. In Brown and Curhan (2013), the main effect of affective arousal was for the favorability of attitudes toward the negotiation process. Indeed, in the limited number of studies that have examined the effect of affective arousal, there is no evidence that its effect also generalizes to other types of judgments, such as some of those in our study (e.g., expectancy).

In addition to the noted potential moderator in the preceding paragraph, the effect of affective arousal on judgments is likely bound by various other conditions, similar to the different moderators that the literature has identified for the effect of affective valence on judgments. However, because there has been less research on the arousal dimension of affective states, its potential moderators are poorly understood. The limited studies in this domain have focused on identifying the conditions that can permit individuals to exert control over the effect of affective arousal and thereby

minimize any effect on judgments. One of these conditions appears to be the presence or absence of extreme time pressure (Riemer & Viswanathan, 2013). In the absence of extreme time pressure, individuals have more time to deliberate on a necessary judgment and thereby are more likely to be able to control the influence of affective arousal.

Practical implications

The significant goal level findings have implications for employees' performance goals in organizations. Because the pleasantness level of affective states is positively associated with goal level, affective states will have consequences for the level of effort exerted and thereby task performance. Human resources (HR) managers who might be interested in an intervention to boost overall levels of employee motivation via performance goals can take steps to affect the work environment in a manner that prompts positive affective states (Elfenbein, 2023). Different characteristics of the work environment (e.g., job demands, physical environment, social environment) have been found to predict the affective states of employees (e.g., Greenbaum et al., 2022).

Another practical implication of our findings applies broadly to HR departments and specifically to individuals tasked with assessing employee attitudes with various organizational surveys. Organizations typically measure employee attitudes (e.g., job satisfaction, employee engagement) in consistent time intervals (e.g., quarterly, annually). Although when these surveys are administered might appear trivial to HR managers, including any variable that can be affected by changes in employees' affective states would suggest otherwise. Because major work events and rather trivial daily events have both been found to be important in explaining shifts in employee affective states (Elfenbein, 2023), HR departments should be cautious about when variables that reflect employee motivation (e.g., goal level) are assessed to ensure that fluctuations do not represent mostly "noise" because of a recent affect-inducing work event (e.g., soon after bonuses have been awarded).

Limitations and directions for future research

Our study has several limitations. First, the study setting was a laboratory. We were motivated to collect data in a setting that would enable the researcher to have a high degree of control and reduce the effects of confounding variables. Accordingly, the study was conducted in a laboratory with college students as participants, with the majority of them either not employed or employed on a part-time basis. Thus, caution is advised before generalizing findings to employees in organizational settings. Second, affective states and study outcomes (except for task performance) were measured at the same time (i.e., lack of temporal separation between measurements), which affects conclusions about causal links. Despite this concern, the repeated-measures design used in our study is better equipped to provide insight into the direction of effects and casual inferences than cross-sectional designs because it does not use between-person level analysis to address questions regarding changes within individuals. Third, although based on the procedural remedies and statistical tests conducted, CMB did not pose a serious threat to our results, CMB remains a concern as the assessment of study variables, apart from task performance, involved self-reports by participants (Podsakoff et al., 2024). When both predictor and criterion variables are measured by the same rater or source, CMB has the potential to either deflate or inflate the observed relationships between variables and thereby lead researchers to draw incorrect conclusions. For example, it is possible for the observed correlation between a predictor and a criterion to be higher than it would be if both variables had not been measured by the same source. It should be noted, however, that assessing affective states by self-reports is viewed as the most valid option available to researchers (Quigley et al., 2014). Self-reports are certainly not the only option available to assess affective states. Indeed, some organizational researchers have called for the use of objective measures of affective states (e.g., physiological) to capture all aspects of feeling states and thereby reduce concerns with CMB (Yang et al., 2020).

The implications for arousal-as-information theory described in the Theoretical Implications section suggest specific research questions that can be addressed in future studies. First, future work is warranted to examine whether the lack of support for the moderating effect of affective arousal on judgments in our study can be attributed to the presence of moderators. Past research has found that the effect of affective valence on judgments is moderated by different variables (Greifeneder et al., 2011). Likewise, the effect of affective arousal on judgments is likely to be bound by different moderators, particularly study conditions that may allow an individual to exert control over the effect of affective arousal (e.g., cognitive load, Riemer & Viswanathan, 2013). Therefore, additional work is needed to determine whether important boundary conditions are an explanation for why affective arousal did not affect judgments in our study. A second and concurrent line of future research is needed to examine further the proposition that the hypothesized polarization effect of affective arousal does not operate as conceived by arousal-as-information theory (i.e., does not interact with the affective valence dimension when forming judgments). Given research evidence that the polarization effect of affective arousal can be based on variables related to the target of judgment (e.g., whether an

individual has a preexisting positive or negative attitude about the target; Brown & Curhan, 2013), future research in this domain can examine if these observed effects generalize beyond judgments of a target's perceived value. Because of the concern regarding the generalizability of study findings to other settings, future research is advised in an organization with employees as participants. Finally, given concerns about CMB when using single-source data and the accompanying options for reducing this bias by assessing other aspects of affective experience, future research may benefit from measuring both self-reported subjective feelings along with physiological responses such as skin conductance level or facial electromyography, which have been found to best reflect self-reported affect (Gomez et al., 2009). Furthermore, future investigations can address CMB concerns by designing multi-wave longitudinal studies that add a temporal separation between predictor and criterion measures (Podsakoff et al., 2024).

Conclusion

In this study, we examined the effects of affective states on performance goal level and its antecedents of expectancy and valence. As predicted, positive and negative affective states were associated with expectancy and performance goal level. Contrary to expectations, however, affective states did not predict valence judgments. Further, our results did not support the hypothesized moderating effect of affective arousal, as activated and deactivated affective states did not differ in association with study outcomes. Because our findings have several implications for mood-as-information theory and arousal-as-information theory, we believe they will motivate important avenues of future research on affective states and evaluative judgments.

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Data availability The datasets generated during and/or analyzed during the current study are available from the first author upon reasonable request.

Declarations

Informed consent The authors affirm that informed consent was obtained from all individual participants included in the study.

Competing interests The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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