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Velocity explains the links between personality states and affect

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ABSTRACT

The present research examined whether perceived rate of progress toward a goal (velocity) mediated the relationships between personality states and affective states. Drawing from control theories of self-regulation, we hypothesized (i) that increased velocity would mediate the association between state extraversion and state positive affect, and (ii) that decreased velocity would mediate the association between state neuroticism and state negative affect. We tested these hypotheses in 2 experience sampling methodology studies that each spanned 2 weeks. Multilevel modeling analyses showed support for each of the bivariate links in our model, and multilevel path analyses supported our mediation hypotheses. We discuss implications for understanding the relations between personality states and affective states, control theories of self-regulation, and goal striving.

1. Introduction

Imagine freshman college student "Dash." During the first week of his first semester, Dash decides to go to a party near campus. At the party, Dash wants to achieve a number of positive outcomes as well as avoid negative outcomes. He wants to meet people and get to know them, make friends, and maybe even find a romantic partner for the night; he wants to avoid being criticized and does not want to appear foolish. Dash acts in a variety of different ways over the course of the evening in order to accomplish these goals. His behavior may be characterized as talkative and bold when pontificating about lacrosse to his new friends, whereas his behavior is silent and timid when the topic of conversation turns to politics. His behavior is insecure and high-strung around a group of attractive men and women, but he is secure and relaxed when his friends ask him about his interactions with the attractive group of people. In other words, Dash's behavioral states varied on state extraversion and state neuroticism. In turn, these different ways of behaving were associated with Dash's cognitive perceptions of how he was progressing toward his goals. At times that he acted more extraverted (as compared with more introverted), he perceived that he was moving toward his approach goals at a relatively high rate (i.e., *velocity*). In turn, higher velocity was associated with feelings of positive affect in Dash. In contrast, when he acted more neurotic (as compared with more emotionally stable), he perceived himself as moving toward his goals at a relatively low velocity. In turn, lower velocity was related to Dash feeling negative affect.

This example illustrates the topic of this paper: to examine the relations between goals, personality states, perceived rate of progress toward goals (i.e., *velocity*), and affective states. Specifically, the purpose of this paper is to examine whether perceived velocity toward goals explains the links between personality states and affective states. We test whether velocity mediates (i) the association between state extraversion and state positive affect and (ii) the association between state neuroticism and state negative affect. Our predictions are that: (i) state extraversion will lead to higher velocity, and higher velocity will lead to positive affective states; and (ii) state neuroticism will lead to lower perceived velocity, and lower velocity will lead to negative affective states. Our hypotheses and the given example were based primarily on perspectives on control theories of self-regulation (e.g., Carver & Scheier, 1990, 1998), so named because they draw heavily upon the principles of feedback control of behavior (Powers, 1973). We next detail how we derived our hypotheses from this perspective.

1.1. A self-regulation perspective on behavior, goals, velocity and affect

Control theories of self-regulation emphasize feedback loops to explain the relations between goal-directed behaviors, velocity, and affect (for reviews, see Carver & Scheier, 2009, 2013). The first feedback loop monitors discrepancies between one's current

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condition and one's desired condition or goal, where the person's goal serves as a reference value. The effect of this feedback loop is to modify behavior until one's present condition reaches the goal; that is, the purpose of this feedback loop is to produce goal achievement. The second feedback loop monitors the rate or *velocity* at which one's behavior is reducing the discrepancy between one's current condition and one's goal. From this perspective, affective states are produced by discrepancies between one's current velocity and one's intended velocity, which serves as a reference value. If sensed velocity is higher than the reference value, positive emotions are produced (i.e., things are going well). If velocity is lower than the reference value, negative emotions are produced (i.e., things are going poorly). If sensed velocity is equal to the reference value, no affective reactions occur.

The variables of interest in this paper fit within this framework as follows. State extraversion and state neuroticism represent the psychological (i.e., affective, *behavioral*, cognitive) content of each respective trait except occurring over a relatively short timeframe (Fleeson, 2001; Fleeson & Gallagher, 2009; Fleeson & Jayawickreme, 2015). These personality states reflect the quality and kinds of affects, behaviors, and cognitions that a person engages in over a specified time span. We hypothesized that state extraversion should relate to increased velocity and that neuroticism should relate to decreased velocity. Going back to our example of the freshman college student, state extraversion resulted in a perceived rate of progress toward one's goals that was higher than the reference velocity, whereas state neuroticism resulted in a perceived rate of progress that was lower than the reference velocity. In turn, positive affect was produced from extraverted states via increased velocity, and negative affect was produced from neurotic states via decreased velocity. Thus, velocity acted as a mediator between personality states and affective states. We next focus on each of the bivariate links between the variables included in this example.

1.1.1. Personality states and affective states

Before reviewing the evidence linking personality states and affective states, it is important to clarify potential confusion regarding this type of research. Specifically, confusion may arise because personality states, by definition (and similar to their corresponding traits), include affective content (Fleeson & Jayawickreme, 2015). Thus, there is concern as to whether the "links" between personality states and affective states are due simply to affective content overlap. To address this possibility, the research reviewed below (and the research presented in this article) employed measures of personality states that did not include the same content as the affective measures.

An early study showed that momentary extraverted states were related to positive affect states (Schutte, Malouff, Segrera, Wolf, & Rodgers, 2003), and multiple studies employing experience sampling methodology (ESM) have shown that increases in state extraversion are related to increases in state positive affect in naturalistic settings (Bleidorn & Denissen, 2015; Fleeson, Malanos, & Achille, 2002; Heller, Komar, & Lee, 2007; Wilt, Noftle, Spain, & Fleeson, 2012). The relation between extraverted states and positive affect in ESM studies has also been observed in non-Western cultures, including Venezuela, the Philippines, China, and Japan (Ching et al., 2014). Furthermore, experiments in which people were randomly assigned to act extraverted or introverted have revealed a causal association leading from state extraversion to state positive affect (McNiel & Fleeson, 2006; McNiel, Lowman, & Fleeson, 2010; Smillie, Wilt, Kabbani, Garrat, & Revelle, 2015; Zelenski et al., 2013). Similarly, there are a number of studies linking state neuroticism to state negative affect. This association has been observed at the level of momentary states (Schutte et al., 2003), in ESM studies in naturalistic settings (Heller et al., 2007) across cultures (Ching et al., 2014), and in experimental settings in which participants were randomly assigned to act neurotic or emotionally stable (McNiel & Fleeson, 2006). In sum, there is good evidence that state extraversion leads to state positive affect, and that state neuroticism leads to state negative affect.

1.1.2. Velocity and affect

Evidence linking velocity to affect has also been accumulating steadily. It may reduce confusion to remind the reader here that velocity in all studies below refers broadly to the rate of progress toward a specified goal rather than the rate at which tasks are completed.

The first studies investigating this phenomenon (Hsee & Abelson, 1991) had participants indicate their preference among hypothetical scenarios based on the degree of satisfaction that they would obtain from each scenario. For scenarios involving positive outcomes (e.g., improving class standing), participants preferred scenarios in which they improved at a high velocity compared to a low velocity, and they preferred small, fast improvements to large, slow improvements. For example, scenarios in which class rank improved rapidly were favored over those in which class rank improved more slowly, and scenarios in which class rank improved quickly but to a small degree were favored over those in which class rank improved slowly and to a large degree. For negative outcomes (e.g., decreasing salary), participants preferred scenarios that involved slow decreases to fast decreases and they preferred large, slow decreases to small, fast decreases.

A conceptual replication of these findings (Lawrence, Carver, & Scheier, 2002) involved an experiment in which participants received different success feedback rates on an ambiguous task. For example, a task involved answering whether a word from a foreign language (likely to be unfamiliar to participants) conveyed the same meaning as an English word. Results showed that, given equal success (number of "correct" trials) over time, participants reported increases in positive mood when their *rate* of success feedback increased over time and decreases in mood when their *rate* of success feedback decreased over time.

Chang, Johnson, and Lord (2010) presented a field study showing that participants preferred higher perceived velocity toward desired job characteristics (e.g., scenarios in which they perceived rapid progress toward their professional goals) was related to higher satisfaction with those characteristics, as well as an experimental study showing that higher actual velocity on task performance (e.g., high rate of success feedback on an ambiguous task) contributed to higher satisfaction with one's task performance. Finally, Elicker et al. (2010) presented a longitudinal study of students showing that higher perceived velocity toward a desired class goal (e.g., perception that one's performance on exams was increasing at a rapid rate) was related to satisfaction with performance in the class. Taken together, these studies suggest that people much prefer experiencing high velocity toward goals as compared with low velocity.

1.1.3. Personality states and velocity

Although no empirical studies have investigated the links between personality states and velocity, there is good reason to expect that state extraversion should lead to higher perceived velocity and that state neuroticism should lead to lower perceived velocity. Indeed, as control theories of self-regulation propose that behaviors are connected to affect through velocity (Carver & priority management, in press), it follows logically from this framework that higher velocity is at least in part responsible for the association between state extraversion and state positive affect, and that lower velocity at least in part explains the association between state neuroticism and state negative affect.