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# What is Extraversion For? Integrating Trait and Motivational Perspectives and Identifying the Purpose of Extraversion

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## Abstract

The purpose of this study is to determine whether the manifestation of extraversion (i.e., acting and being extraverted) in everyday behavior can be explained by intentional (functional) constructs, namely, goals. By using personality states as an outcome for specific, momentary goal pursuit, we were able to identify the function of extraversion states in everyday behavior. Using experience-sampling methodology, participants described their current state extraversion, goal pursuit, and state affect over ten days. Results show that eighteen selected goals predicted over 74 percent of the variance in state extraversion, meaning that both within-person and between-person fluctuations in state extraversion were strongly associated to changes in momentary goal pursuit. The eighteen goals also strongly predicted positive affect, which was partially mediated by state extraversion.

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The purpose of this study is to determine whether the manifestation of extraversion (i.e., acting and being extraverted) in everyday behavior can be explained by intentional (functional) constructs, namely, goals. We wish to examine whether the goals people are pursing at any given moment can predict both differences between people in how extraverted they are and differences within people in how extraverted they are being (Heller, Komar, & Lee, 2007; Zelenski, Santoro, & Whelan 2011). Using experience-sampling methodology, we asked participants to report their momentary goal pursuit and state extraversion over ten days.

This study is important for at least three reasons. First, this study tests the hypothesis that traits have a functional aspect to them, at least partially and possibly completely, bridging the divergent trait and motivational domains of personality psychology. It brings together two historically divergent areas and two different psychological domains (traits and motivation), by putting one of these domains (traits) in the service of the other (motivation). Second, this study tests an emerging explanatory theory of traits, Whole Trait Theory (Fleeson, 2012). Whole Trait Theory proposes that Big 5 Traits have an underlying motivational and social-cognitive explanatory side to them, thereby advancing traits from purely descriptive concepts to explanatory concepts. A prediction of this model is that variation in traits is associated with variation in goals. Third, by identifying the content of the goals that produce extraversion, we can begin to go beyond extraversion as a simple description of differences, towards understanding the specific and core purposes of extraversion.

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## Traits and Motivational Perspectives

In recent decades, many trait theorists have emphasized the five-factor model, or Big Five model, of personality. The Big Five have increasingly been accepted as the dominant model of personality traits (encompassing extraversion, agreeableness, conscientiousness, emotional stability, and intellect; Saucier & Goldberg, 1996). For over two decades, support for the five-factor model has increased, including longitudinal (Roberts, Walton, & Viechtbauer, 2006) and cross-cultural evidence (Saucier & Ostendorf, 1999).

A key strength of the Big Five is that factor analytic methods represent it as a hierarchy. At the top are two broad traits (DeYoung, Quilty, & Peterson, 2007), lower down are the Big 5, and below that are many smaller subcomponent traits (Widiger & Simonsen, 2005).This hierarchy can describe both general and specific traits of personality in an organized structure.

The fundamental weakness of the Big Five is that it does not explain personality function—a weakness that is common to the trait approach. Traits are descriptive characteristics of people, but they do not have a clear purpose or process. Some theorists have proposed that traits are inherited physiological entities, which cause behaviors, goals, and other adaptations (e.g., Eysenck & Eysenck, 1985; McCrae & Costa, 2003). However, in its current form, the Big Five cannot explain why people differ on traits or how people use their traits. This lack of function is partly a result of the origin of the Big 5 in factor analysis. Factor analysis is an atheoretical statistic, in which there is no rationale why items are grouped together into factors (McCrae & Costa, 2003).

In contrast to a trait, a goal can be defined as “a cognitive representation of a future object that the organism is committed to approach or avoid” (Elliot & Fryer, 2008). Goals have a purposive quality, in that they represent a future state and motivate the actor to get to that desired state, whereas traits are treated only as descriptions of the way an individual acts, thinks, and feels (McCrae & Costa, 2003). Goals are by definition process-based units, whereas traits are by definition static descriptions. This critical distinction between goals and traits – the representation of a future state and some sense of movement towards or away the state, versus the steady-state trait description of an individual – has led to two distinct traditions in psychology (Winter, John, Stewart, Klohnen, & Duncan,, 1998).

## Whole Trait Theory

Whole Trait Theory (Fleeson, in press) proposes that traits are not limited to only a descriptive part or only an explanatory part, but properly conceived, join the descriptive and explanatory parts into whole traits.

### Density Distributions of Personality States

Whole Trait Theory characterizes the descriptive side of traits as *density distributions of states*. A *state* is an individual’s personality within a given moment (Fleeson & Noftle, 2008). Personality states are measured the same way as personality traits, by using the same content (e.g., adjectives) and the same scale (e.g., 7-point scale), but describing how extraverted a person is within a given moment rather than in general. The accumulation of an individual’s states over a reasonable period of time (e.g., one week) form a distribution of states for a given dimension: the number of occasions on which the individual enacted the state at each given level. Several studies have now revealed two key qualities of these distributions (Fleeson & Noftle, 2008). First, the distributions are wide, because the typical individual varies along an entire state dimension quite a bit, as much as the typical individual varies in mood and more than individuals differ from each other in their states. In

other words, people have the capacity to behave either extraverted or introverted in a given moment, even if they generally are introverts or extraverts. In fact, Fleeson and Gallagher (2009) showed that distributions of extraversion states for even highly extraverted and highly introverted individuals overlap quite a bit in the degree of extravertedness of their behavior. Explaining this variability is an important job of trait theory, as well as an opportunity to discover the mechanisms underlying traits. Second, individuals' density distributions are located at different places along the dimension (i.e. have differing means), and these locations stay put week after week (with correlations around 0.8 to 0.9).

### The Explanatory Side of Traits

The second part of whole traits is the explanatory part, and it causes the descriptive part, that is, it consists of the causal forces that produce distributions of states. Based on Allport (1937) and CAPS (Mischel & Shoda, 1995), the explanatory side includes causes such as interpretations of situations (Fleeson, 2007), goals, and other antecedents, and is the result of genetics, learning, reasoning, and environment. When goals are the causal force, states can be conceived of as instruments, means, or tools employed to achieve the goal; states are relegated to a support role.

Based on this theory, we hypothesized that variation in personality states (manifestations of traits) can be explained by goals. The pursuit of a goal increases or decreases the personality state that facilitates accomplishing the goal. For example, a person is trying to have fun: to reach this desired end-state, this person increases his or her state spontaneity (a subcomponent of extraversion), because spontaneity will lead to fun. Thus, an individual's current states should be predictable from the individual's current goals, and variation within a person in in states across moments should be due to variation in goal pursuit across moments. At the between-person level, it should be possible to predict individuals' mean levels of states from the mean levels of their goals, and differences between people in states should be due to differences between people in their habitual goals.

## Subcomponent-State Function Hypothesis

Testing this proposal that Big 5 states are tools for accomplishing goals requires identifying the goals that the states facilitate. That is, if the trait is a tool, what is it a tool for? There is no yet identified list of goals that Big 5 traits facilitate, so we had to identify such a list. We started with empirical literature reporting associations between goals and traits. There are a variety of procedures for identifying goals: (i) listing of goals followed by factor analysis (Roberts, O'Donnell, & Robins, 2004; Roberts & Robins, 2000); (ii) theorizing broad goals [e.g., Self-Determination Theory needs (Deci & Ryan, 2008) or life tasks (Cantor & Fleeson, 1991)]; and (iii) free listing and then categorizing (Emmons & King, 1988; Little & Lecci, 1992). After utilizing these methods, some researchers found that goals and motives were correlated at the broad person level, and there were some moderate associations to the Big 5 (Reisz & Ozer, 2011). Heller et al., (2007) found that goals characterized at the abstract, broad level of whether they were goals to approach something or to avoid something predicted within-person variations in state extraversion and state neuroticism, at about the .32 level.

Based on Whole Trait Theory, we propose a different procedure and a different level of analysis. Instead of considering what large-scale goals people pursue in their lives, we used a method we call the subcomponent-state function identification procedure to generate goals. First, we focused on the specific subcomponent level rather than the larger trait level, because subcomponents may more easily be seen as means to accomplish goals. Instead of asking why people act extraverted, for example, we asked why people act sociably or assertively.

Second, we identified goals that are pursued at a temporal duration on par with personality states. For each subcomponent, we hypothesized the goals towards which it could be put to use in a given moment. We used the following means-end template: "I am intentionally *(subcomponent means)* in order to *(goal end)* in a given moment." For example, we generated one possible goal as follows: "I am intentionally *sociable* in order to *connect with people* in a given moment." By using personality states and momentary goals, the potential connections between the trait concept and the goal concept are easier to comprehend and to identify.

## Extraversion and its Functions

Extraversion is a one of the traits of the five-factor model, but it also has been a part of many other personality theories. Extraversion describes active people who are sociable, talkative, and assertive. The specific extraversion subcomponents are a debated issue. For example, McCrae and Costa (2003, p. 47) assert that there are six facets of extraversion: gregariousness, assertiveness, warmth, activity, excitement-seeking, and positive emotions. (c.f. Saucier & Ostendorf 1999; DeYoung, Quilty, & Peterson, 2007; Widiger & Simonsen, 2005). In order to conduct the subcomponent state function identification procedure, we had to settle on a tentative list of subcomponents. Members of our lab collated several lists of subcomponents and adjectives and through extensive discussion collapsed across redundancies. This procedure produced the following list of subcomponents that should adequately represent most theories: talkative, bold, spontaneous, sociable, dominant, and energetic. We then substituted each subcomponent into the template sentence to identify three candidate functions for each state, as shown in Table 1.

### Association to Positive Affect

One area of agreement among most researchers is extraversion's relationship with positive affect (McCrae & Costa,2003). Lucas, Le, and Dyrenforth (2008) showed that extraverts have higher positive affect than introverts across different situations. Fleeson, Malanos, and Achille (2002) and Heller et al.,(2007) showed that the relationship holds up even within-person, such that people experience more positive affect when they act extraverted than when the same people acted introverted. In an experimental setting, when asked to act extraverted, both extraverts and introverts increased in positive affect, demonstrating causality (McNiel, Lowman, & Fleeson, 2010; Zelenski, Santoro, & Whelan 2011).

## Methods

### Participants

Forty-seven participants enrolled to fulfill a course requirement; one participant dropped the study and one participant did not complete a sufficient number of reports.

### Procedure

**Information session—**Participants attended a personal digital assistant (PDA) training and questionnaire session. At the end of the session, participants could withdraw from the study for partial credit.

**Experience-sampling methodology—**Participants answered questions about momentary behavior on PDAs, completing reports five times a day for ten days. Participants answered questions about their state extraversion, momentary goals, and state affect during the previous half hour. Participants were asked to come by the lab two separate times to download data. At the end of the ten days, participants returned the PDA and completed a final questionnaire. The response rate of participants was within a satisfactory range for

experience-sampling studies. Data were painstakingly cleaned (McCabe, Mack, & Fleeson, in press), eliminating incorrectly completed reports. Of the 50 possible reports that a participant could complete during the study, the mean was 30.75 reports (61.5%), and the median was 30 reports (60%) with a range of 11–45 reports.

### Materials

State extraversion was measured through twelve Big Five adjectives (Goldberg, 1992; Saucier & Goldberg, 1996), two adjectives per subcomponent[1] (Talkative: talkative, verbal; Bold: bold, daring; Spontaneous: spontaneous, playful; Sociable: sociable, outgoing; Dominant: dominant, assertive; Energetic: energetic, vigorous). Participants rated each question, such as "How talkative were you in the last 30 minutes?" on a 6-point scale (1 = Not at all; 6 = Very) with a "Not Applicable" option.

State positive affect was measured through ten adjectives from the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). Participants rated each question, such as "How excited did you feel in the last 30 minutes?" on a 6-point scale (1= never; 6= all the time) with a "Not Applicable" option.

Participants also rated the extent to which they were trying to accomplish eighteen goals at the moment (e.g., "How much were you trying to have fun in the last 30 minutes?", see Table 1), using a 6-point scale (1 = Never; 6 = All the Time) with a "Not Applicable" option. The goals were correlated with each other (most correlations around .40 to .50), and the one goal that did not predict extraversion—trying to get things done—showed some discriminant validity by not relating very highly to the other goals (most correlations below . 10) In a test of discriminant validity, we asked an independent sample of 147 participants to indicate whether each item was a goal or a trait. 93.8% of the responses to the trait items were that they were traits, and 73.3% of the responses to the goal items were that they were goals ($p < .001$).

## Results

### Between and Within-Person Variance in Extraversion

The first question is the degree to which people differ from each other in their actual manifestation of extraversion (between-person variation) and the degree to which each person changed the degree to which he or she was manifesting extraversion across the hours of a week (within-person variation).

An unconditioned multilevel model revealed that the amount of variance across people was . 21 and the amount of variance within individuals was .81. Thus, within-person variability was 80 percent, whereas between-person variability was 20 percent of the total. Consistent with past research (Fleeson & Noftle, 2008), the differences across a group of people were substantially less than the differences within each individual's behavior from moment to moment.

### Bivariate Predictions of Extraversion from Goals

Multilevel modeling tested whether each goal predicted variation in state extraversion. While we used subcomponents to generate the goal items, we only used overall measures of state extraversion as the outcome variable. In each of eighteen different analyses, one goal separately predicted state extraversion. The resulting unstandardized coefficients depicted in

[1]The original study included additional negative adjective per subcomponent, which was removed from our analyses. We address this issue in the discussion.

Table 1 are similar to beta weights, indicating the degree to which the goals predicted changes in state extraversion for the average participant.

The central claim of the subcomponent state function hypothesis is that goals selected with our procedure would predict overall extraversion. This hypothesis was strongly supported. Half of these goals had unstandardized regression weights exceeding .40, including the goals of trying to entertain someone ($b$ =.45; $p$<.01), trying to be the center of attention ($b$ =.45; $p$<.01), and trying to stir things up ($b$ =.45; $p$<.01). When the average participant tried to entertain someone, tried to become the center of attention, or tried to stir things up, they acted more extraverted then they did on other occasions.

The significant standard deviations in Table 1 show that individuals differed from each other in their associations between state extraversion and the indicated goal. That is, different people reliably used extraversion to different degrees to pursue the same goals.

## Predicting Variation in State Extraversion

To determine how much of the variation in extraversion states was due to variation in goal pursuit, we included all eighteen goals as predictors in the model. The unexplained variation within people shrunk from .81 to .22, and the unexplained variation between people shrunk from .21 to .04. By subtraction, the variation explained by goals was 0.74. Thus, including goals as predictors reduced the unexplained between-person variability from 20 percent to 4 percent, and reduced the unexplained within-person variability from 80 percent to 22 percent. The eighteen goals explained 74 percent of the variance in extraversion. This finding shows that goals explain a substantial part of the variability in state extraversion. Goals explained why people sometimes manifested extraversion and sometimes manifested introversion, and goals explained why some people manifested extraversion more often than did others.

Variability in each of the extraversion subcomponents was also explained by the eighteen goals (Talkative: 55%; Bold: 55%; Spontaneous: 62%; Sociable: 66%; Dominant: 50%; Energetic: 49%). These results show that the goals selected for this study were related more strongly to the spontaneous and sociable subcomponents than to the other subcomponents. Therefore, there is a possibility that there are other goals not in this study that are affiliated with the remaining subcomponents that we have yet to identify.

## Mediation of Goals to Positive Affect

As a simple test of the efficacy of extraversion states in accomplishing their functions, we enlisted positive affect as a proxy outcome. The goals of having fun and entertaining others aim for positive affect as one of their outcomes, and it is known that extraversion states increase positive affect (e.g., McNeil, Lowman, & Fleeson, 2010), so we tested whether manifesting extraversion states mediates the path from trying to have fun (and other goals) to actually experiencing positive affect.

To simplify this analysis, we selected the three goals with the highest bivariate relationships to positive affect (trying to convey information, trying to connect with people, and trying to have fun), which we entered into a multilevel model to predict state positive affect. As shown in Figure 1, the goals do strongly predict state positive affect ($R^2$ = 35%). As people pursue these goals, they are happier. The three goals strongly predict state extraversion ($R^2$ = 62.3%). For the third part, the three goals and state extraversion predicted state positive affect. In this analysis, extraversion $b$ = .40, $p$ = .001; unique $R^2$ = 7.8%) partially mediated the relationship between the goals (unique $R^2$ = 2.9%) and state positive affect (These results support the contention that enacting extraverted states helped to bring about the

positive affect outcome aimed for when participants were trying to have fun (and other goals).

## Discussion

The results in this study support the subcomponent-state function hypothesis of whole trait theory (Fleeson, in press). There was a strong relationship between momentary goals and state extraversion, and most of the variance in state extraversion – both within- and between-persons – was predicted by the goals. Thus, these findings are consistent with the hypothesis that extraversion has a purpose, and the findings also point to what that purpose is. Namely, extraversion appears to facilitate people's goals to have fun, to connect with other people, and to entertain other people. Furthermore, these goals strongly predicted increases in state positive affect.

Our theoretical framework and results bridge two concepts that have been theoretically separate for decades—motivation and traits. Since the days of Allport and Murray, researchers have debated which concept is central to personality. The subcomponent-state function hypothesis puts traits and goals in a very different relationship than is traditional in personality theory. In most theories, traits and goals (and other motivational concepts) are kept as separate entities, describing different parts of personality or different psychological modes. For example, McAdams & Olson (2011) puts traits and goals on different levels of analysis. Other theorists have goals as distinct psychological entities that are influenced by individuals' traits standings (e.g., Little et al., 1992; Reisz & Ozer, 2011; Roberts & Robins, 2000), such that the causal direction is from traits to goals. Winter et al. (1998) suggested the very novel hypothesis that goals provide the direction of behavior, whereas traits provide the style of the behavior. In our hypothesis, traits are put in the service of goals, as the means or tools by which goals are pursued and accomplished.

The success in predicting variance in extraversion states was in large part delivered by the focus on specific, concrete goals and states. We were able to identify apparently commonsense, but surprisingly strong, connections between traits and goals. This result was one of the points of the hypothesis: to discover the goals that are related to the Big 5 traits, it is necessary to think small and concrete, because the small, concrete, and immediate goals are precisely those that Big 5 states are tools for accomplishing.

### Limitations

There are two limitations to address: causality and self-report. First, this study does not show that goals cause state extraversion. Rather, it only shows that goals are highly related to state extraversion. Further, the mediation analyses reflected only one potential path relating momentary goal pursuit, state extraversion, and state positive affect. As there are strong correlations between each of these constructs, the reverse explanation is possible. Indeed, a theoretical argument could be made that increases in one's personality states leads to the pursuit of different kinds of goals in a given moment, or that a cascading bidirectional influence exists. Similarly it is possible that traits cause goals, and then goals cause states, such that goals are a kind of mediator between traits and states. Since the partial mediation was strong for both goals and extraversion, we believe that there is strong evidence for this proposed trajectory. Nonetheless, future research should investigate if goals do cause state extraversion.

Second, this study utilized self-report techniques, in which participants may be prone to a positive response bias. In calculating state extraversion, we only used the positive extraversion adjectives because the negative adjectives were not reliable. The reason for the lack of reliability is that participants commonly answered that they were not the high or low

end of a subcomponent (e.g. not dominant and not submissive). The negative items were not measuring the opposite of the positive items as they were intended to do. In addition, the goals were primarily approach goals. Since most goals had a positive relationship to extraversion, the reader could interpret the findings as participants merely indicating high goal pursuit for all goals. While this concern is important, there is evidence to suggest that participants did discriminate among the goals. Not all eighteen of the goals were related to extraversion (trying to get things done, $b = -0.02$, $p > .05$). This finding suggests that participants did detect differences among the goals in how it related to their behavior. Moreover, we ran analyses to see if our trait-goal relationships held when controlling for positive affect, and nearly all goals (with the exceptions of trying to get things done and trying to strive for something hard to get) remained strongly significant predictors of state extraversion. Future studies should provide additional validity evidence about the goal measures and about the findings, such as determining if participants discriminate among goals that are related to different personality traits.

### Conclusions

This study explains a new theoretical conception of the relationship between traits and goals and also provides strong evidence that momentary goals and personality states are related to each other. Manifestations of personality traits may be the means by which people achieve their goals. Extraversion specifically may be the means by which people try to have fun and connect with others, among other goals. Our findings also show that in this process of pursuing these goals and increasing state extraversion, people's levels of positive affect also increases.

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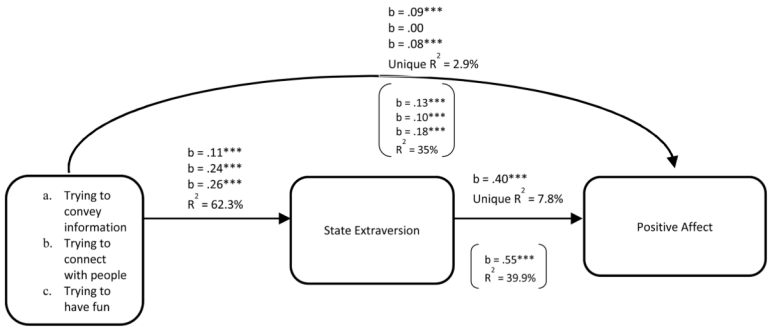


**Figure 1.**

State extraversion as a mediator linking goals to positive affect. The three goals with the strongest bivariate links to positive affect predicted positive affect via increased state extraversion. Unstandardized coefficients from multilevel models are listed for each goal separately in order. Associations in parentheses are those predicting positive affect from goals not controlling for state extraversion or from state extraversion not controlling for goals. State extraversion was a partial mediator, explaining a large part of why goals lead to greater positive affect. Note that even controlling for all 18 goals, the unique coefficient for extraversion does not drop below b = .30.

**Table 1**

Multilevel Modeling: Individual Goals Predicting Extraversion

| | *β* | *SD* |
|---|---|---|
| Goals facilitated by being talkative | | |
| Trying to convey information to someone | .28** | .19** |
| Trying to entertain someone | .45** | .13** |
| Trying to enjoy someone's company | .40** | .10* |
| Goals facilitated by being bold | | |
| Trying to make a positive impression on someone | .40** | .11* |
| Trying to stir things up | .45** | .19** |
| Trying to strive for something hard to get | .14** | .14* |
| Goals facilitated by being spontaneous | | |
| Trying to have fun | .43** | .12** |
| Trying to avoid boredom | .23** | .23** |
| Trying to break out of your routine | .33** | .18** |
| Goals facilitated by being sociable | | |
| Trying to avoid loneliness | .32** | .19** |
| Trying to make new friends | .34** | .12* |
| Trying to make other laugh | .43** | .11* |
| Goals facilitated by being dominant | | |
| Trying to be a leader | .43** | .17** |
| Trying to get others to do what you want | .38** | .12* |
| Trying to get things done | −.02 | .16** |
| Goals facilitated by being energetic | | |
| Trying to connect with people | .44** | .13** |
| Trying to be the center of attention | .45** | .18** |
| Trying to be attractive or interesting | .40** | .11* |

* $p < .05$

** $p < .01$