The role of personality in the pursuit of context-specific goals
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Chapter 2
Contextual Goal Pursuit & Personality States:
Testing goals for state extraversion and state conscientiousness

Abstract

Although traits and motivation are distinct concepts that have been treated mainly separately for almost a century of psychology, the purpose of these studies is to test the proposal that traits and motivation are intricately linked; specifically, that trait manifestations stand in service to goals by being the means by which people accomplish their goals. Study 1 used experience-sampling methodology to show that almost half the variance in extraversion and conscientiousness manifestation, both between-person and within-person, was explained by goal pursuit differences. Study 2 used experimental methodology to show that extraversion and conscientiousness manifestation was causally dependent on goal pursuit. Study 3 employed observer ratings to show that goal to manifestation relationships are present in observed goals and manifestations. In all three studies, different goals affected different traits discriminatively, based on meaningful means-ends relationships. These findings provided strong evidence for a new conception of traits, in which traits are wholes with an explanatory, dispositional part inclusive of goals and a manifested part caused by and useful for goals; they provided a supported answer to long-standing questions about the conceptual relations between traits and motivation; and they clarified the meaning and nature of extraversion and conscientiousness by revealing what these traits are for.

Although traits and motivation are two important and large concepts dominant in personality psychology, they are treated mainly separately because it is still not clear how they are related to each other. The purpose of this paper is to test a novel proposal that traits and motivation are intricately linked; specifically, trait manifestations have a functional role in that they are the concrete means by which people accomplish their goals. The reason people manifest different traits at different times and to different degrees is the goals they are pursuing. An experience-sampling study tests whether goal pursuit explains trait manifestation across ten days of everyday life. An experiment tests whether manipulated goal pursuit causes trait manifestation. An observer study tests whether goal to trait manifestation relationships are present in

1 This chapter is based on an earlier draft of McCabe, K. O., & Fleeson, W. (revise & resubmit). What are they trying to accomplish? Explaining trait manifestations as tools in the pursuit of goals. Journal of Personality and Social Psychology.
observer ratings. All three studies test whether goal pursuit affects manifestation of two different traits (extraversion and conscientiousness), and also whether different goals affect manifestation of different traits, linked by means-end relationships that are conceptually sensible.

We believe this purpose may be interesting for at least three reasons. First, this study bridges the two historically divergent domains of traits and motivation by suggesting a new plausible answer to the long-standing question of their conceptual relations, and clarifying each concept in the process. The proposed answer is that traits have two parts, each part standing in a different conceptual relationship to goals (Fleeson, 2012; McCabe & Fleeson, 2012). One part of traits is explanatory, latent, and dispositional, and this part encompasses goals. The second part of traits is the descriptive, actual manifestation of traits, and this part of traits is proposed to be instrumentally in the service of goals, that is, to be useful behaviors employed to improve lives.

Second, this paper demonstrates that the relationship between goals and trait manifestations is a causal one, flowing at least in part from goals to trait manifestations. The claims that goal pursuit partly explains trait manifestation and that trait manifestation is a tool employed to facilitate goal achievement require not only that goal pursuit is associated with trait manifestation but also that goal pursuit also actively brings about trait manifestation.

Third, this study clarifies and elaborates the meaning and nature of extraversion and conscientiousness, two key traits within the Big 5 model. It does so by providing specific functions for each trait’s manifestations, by distinguishing the functions between the two traits, and by showing that goals are not related to trait manifestations for method variance reasons but are discriminatively predictive of trait manifestations in accordance with the usefulness of the trait manifestations for the goals. It answers the question, if traits are useful, what are they useful for?
Bridging the Trait & Motivation Concepts

The trait concept (Allport, 1937) and the motive (or goal) concept (Murray, 1938) have a rich history in psychology, although the literatures of these concepts have remained largely distinct (Winter, John, Stewart, Klohnen, & Duncan, 1998).

Trait Concept

Traits can be defined as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions” (McCrae and Costa, 2003, p. 25). Recently, researchers have rallied around one specific trait approach: the Big Five model of personality (Goldberg, 1981; McCrae & John, 1992). A core strength of this approach is that the Big Five model has a clear structure and organization. The results from factor analyses extract the five fundamental personality traits, as well as any lower-order traits (i.e., facets or subcomponents). The fundamental weakness of the Big Five model is that it does not explain personality function—it only describes these individual differences. In its current form, the five-factor model does not explain why people differ on traits or how traits become manifest in behavior.

Goal Concept

We deal with a subset of motivational concepts–goals–in this paper, because we believe goals provide a trailhead for linking traits to motivation. 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). Unlike the Big Five model, goals have a clear function and process. People pursue goals though strategy development (cognitive representation), commitment to action (goal commitment), and attainment of an end-point (future object). However, it is not clear how best to describe people in terms of goals, nor how individual differences in goals are structured and organized. Despite several excellent structures, there is still not consensus (Ford & Nichols, 1987; Kuhl, 1994, Read et al., 2010; Sheldon, Elliot, Kim, & Kasser, 2001). Past attempts at goal structure may organize goals by content similarities in future, by intrinsic or extrinsic orientation, or by approach or avoidance orientations (Austin & Vancouver, 1996). For example, hedonistic goals are categorized together, separately from social goals, career goals, and so on.
Two Distinct Traditions

Traits and goals thus appear to be at least somewhat conceptually distinct entities. Traits are descriptive of how people are acting, thinking, and feeling in the present, whereas goals refer to unrealized end-points in the future. Traits may not have a direction of movement, whereas goals direct a person in a trajectory to reach the desired end-point. Traits have no comparative component, whereas goals involve comparing the present to the desired end-point with the intent to reduce any discrepancies. Trait theory has yet to provide accounts of traits processes, whereas goals are inherently process-based concepts. Traits have a clear structure but unclear functions; conversely, goals have an unclear structure but a clear function (McClelland, 1951; Roberts & Robins, 2000; Winter et al., 1998).

Perhaps as a result of their conceptual differences, these constructs are explored in divergent traditions in psychology. The origin of this split dates back at least as far as Allport and Murray. Allport (1937) asserted that one’s personality could be defined in terms of traits that describe how people behave in general (but included motivational traits among them). Alternatively, Murray (1938) proposed that motives were more fundamental and more essential in explaining behavior. While the trait and motive traditions acknowledged the importance of and the mutual compatibility of each other, advancements in traits and motives remained mainly independent and lacked strong development of their relationships (McClelland, 1951).

Traits and Goals: Separate but Related?

Several proposals have allowed for some connection between the two constructs but have usually maintained a clear distinction between the two constructs as being from different domains of psychological functioning. McAdams and Olson (2010) suggested that traits and goals make up different levels of analysis, although allowed the possibility of a still unspecified connection across the levels. Roberts and Wood (2006) kept traits and goals as at the same level of analysis, but maintained traits and goals as distinct domains of functioning, and also suggested that traits and goals are associated with each other. Five Factor Theory proposed that traits are the basic tendencies, and that traits cause characteristic adaptations to the
environment, which include motivation (McCrae & Costa, 1999). In a clever proposal, Winter and colleagues (1998) suggested that traits and motives do two different jobs, but are related in that they do their job at the same time, specifically, motives provide the direction of behavior whereas traits provide the style of behavior.

Empirical work has demonstrated concurrent associations between major life goals and Big 5 traits, such that extraversion predicted interpersonal, hedonistic, growth and political goals, agreeableness predicted interpersonal goals, conscientiousness predicted health, academic, and career goals, neuroticism predicted image goals, and openness predicted growth goals (Reisz & Ozer, 2011; Roberts & Robins, 2000; Roberts, O’Donnell, & Robins, 2004). Little, Lecci, & Watkins (1992) showed that traits predicted appraisals of goals. Ludtke, Trautwein, and Husemann (2009) also reported longitudinal evidence showing a causal direction from traits to life goals but rarely the reverse.

Two exceptions have proposed closer connections between traits and motivation. In the first exception, Carver, Sutton, and Scheier (2000), Elliot and Thrash (2002), and Read, Monroe, Brownstein, Yang, Chopra, & Miller (2010) identified two traits -- extraversion and neuroticism -- with two motivational systems -- approach and withdrawal, respectively. In these systems, the behaviors, affects, cognitions, and motivations of extraversion and neuroticism work together closely to facilitate approaches and avoidances, respectively. The other exception comes from a group of recent researchers proposing the reverse causal direction and trying to predict momentary states rather than traits (Bleidorn, 2009; Heller, Komar, & Lee, 2007; Heller, Perunovic, & Reich, 2009; McCabe & Fleeson, 2012). This paper proposes a conception in line with this recent direction of research.

Although these proposals suggest that integrating traits and goals promises to be a fruitful endeavor and may be compatible with many theories of traits and goals, most of the work of integration remains to be done (Wilt, Condon, Brown-Riddell, & Revelle, 2012). Are traits and motivational constructs separate and related, integrated, or identical? Is there a causal
connection between traits and motivation, and in which direction or directions does it flow? What is the mechanism that connects motivations to traits? What types of motivational units (e.g. motives, life goals, or motivational systems) are related to traits? Which motives or goals distinguish between the traits?

Whole Trait Theory

In this paper, we use a model that integrates traits and motivation in a novel and intimate way to address these questions. Whole Trait Theory (Fleeson, 2012; Fleeson & Jolley, 2006) does this by proposing that traits have two parts, a descriptive part and an explanatory part, and by detailing the connection between the two parts.

The Descriptive Side of Traits: Density Distributions of Personality States

Whole Trait Theory proposes that the descriptive parts of traits are accumulations of trait manifestations in everyday life. A manifestation is also known as a “personality state” (Fleeson, 2001). A manifestation is a way of being, including behavior, affect, cognition (Pytlik-Zillig, Hemenover, & Dienstbier, 2002), which operates on the world or oneself. A manifestation operates on the world by changing it in some particular way. It is a manifestation of the trait because its features and operations on the world are describable by the trait term and distinguishable by the trait term (e.g., the operation of expressing wishes to others is a manifestation of extraversion because it is describable by terms such as dominant). A manifestation makes the latent trait content into an active state. Manifestations 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 the person in the moment rather than in general.

The accumulation of an individual’s states over a reasonable period of time (e.g., one week) builds up distribution of states for a given dimension: the number of occasions on which the individual manifested the trait 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. For example,
people have the capacity to behave either extraverted or introverted in a given moment, even if they generally are introverts or extraverts (Fleeson and Gallagher 2009). Second, despite the fact that individuals manifest states all along the dimensions of most traits, they have differing frequencies with which their states manifest different levels of the dimension, and these differing frequencies are very stable.

The Explanatory Part of Traits

Whole trait theory does not limit traits to descriptive entities, but rather also includes a second, explanatory part to the traits themselves. The second part of whole traits is the explanatory part, and it consists of the causal machinery that produces distributions of states.² Based on Allport (1937) and CAPS (Mischel & Shoda, 1995), the explanatory part is made up of links between trait-relevant nodes. This idea is in contrast to temperamental, stylistic, or habitual explanations of trait manifestations. Explanatory links in whole trait theory connect inputs such as goals, situation interpretations, and expectations to the output trait manifestations. A primary type of link is the link connecting pursuit of a goal to manifestation of a corresponding trait. These links are stable parts of a person, but latent, and explain trait manifestation partially as being caused by pursuit of a goal flowing along the link to manifestation of the trait.

We test the existence of these links by testing whether activated pursuit of a goal leads to manifestation of the trait. For example, if a person has the goal of trying to have fun, he or she may increase his or her state sociability (a subcomponent of extraversion), as a means to reach his or her goal. 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. Thus, an individual’s current states should be predictable from the individual’s current goals, and variation within a person 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

² It also would be possible to term the explanatory part of traits the “dispositional” part of traits, and it also would be possible to term the descriptive part of traits as the “manifest” part of traits. In this paper, we will continue with the terminology used in previous papers in order to avoid confusion.
states should be due to differences between people in their habitual goals.

**Whole Traits**

Because individuals differ in the explanatory links, they will differ in the outputs of the links and ultimately will differ in the distribution of states they manifest in their behavior. Thus, the descriptive, manifesting part of traits is intimately linked to the explanatory, causal part of traits, and, individual differences in the descriptive, manifesting part of traits are intimately linked to individual differences in the explanatory, causal part of traits. Putting the two parts together results in what we are calling “whole traits.”

Traits and motivation are thus proposed to be integrated in two ways. First, goals are key inputs in the links making up the explanatory part of traits. Second, goals cause the manifestations of traits, meaning that the causal direction is from goals to states and one mechanism linking traits to motivation is that trait manifestations are tools for goal pursuit.

**Specific States and Functions Hypothesis: Identifying What a Trait is For**

Testing this proposal that Big Five states are tools for accomplishing goals requires identifying the goals that the states facilitate. That is, if the trait is manifested as a tool, what is it a tool for? Trying to identify goals at the trait level is a difficult task. For example, trying to identify the goals of being an extravert is so daunting that many theorists have concluded that traits do not have a purpose (Pervin, 1994). Based on Whole Trait Theory, the Specific States and Functions Hypothesis (SSFH) offers the proposal that attending to the manifestation of specific subcomponents of traits and specific goals will lead to identifying the purposes of traits. Rather than trying to identify the different broad goals that people with different broad traits have, the SSFH is action-oriented – it is the specific, focused activity that binds goals to traits.

There are three key features to this hypothesis. First, because manifestations consist of actual operations on the world (actions, beliefs, and emotions), these operations can be seen as potentially useful for and guided by intentions to change the world in specific ways. For
example, being dominant for the moment can be seen as an operation on the world that changes the world in a specific way, a way which might be useful for specific goals. Latent trait content is turned into actions (i.e., manifested into states) when the states’ potentials as tools is needed for a particular goal. Second, SSFH uses the specificity of subcomponents (aka “facets”) to make it clearer that states are useful operations on the world. For example, the usefulness of extraversion as a whole is less clear than is the usefulness of being talkative or assertive. Examining the content of the subcomponents suggests the kinds of goals they might be useful for. Just as a hammer’s shape and composition makes it good for some purposes and less good for other purposes, the content and operations of states are good for some purposes and less good for other purposes. Third, SSFH attends to specific short-term goals rather than large-scale life goals to make it easier to see the connections to specific operations that need to be completed to accomplish the goal. For example, it is easier to see what specific operations are needed for the specific goal of conveying information than what specific operations that are needed for the life goal of becoming a teacher.

To instantiate these features, the specific states and functions identification procedure uses a template to identify specific goals: “I am intentionally (subcomponent means) in order to (goal end) in a given moment.” By substituting in a specific subcomponent, it is possible to generate candidate specific goals. For example, “I am intentionally assertive in order to be the center of attention in a given moment,” or “I am intentionally assertive in order to avoid being ignored by others in a given moment.”

This hypothesis is tentatively inclusive of approach and avoidance goals and of goals for the high end and for the low end of the state dimension. Since goals can include moving toward or moving away from an object, both approach and avoidance goals are possibly causal of states (Elliot & Fryer, 2008). Because it is possible that the high end and low ends of traits represent different operations on the world, it is possible that they are tools for distinct goals.

McCabe and Fleeson (2012) provided the first test of the SSFH, using the trait of extraversion.
and an experience-sampling study. They generated three goals for each of six extraversion subcomponents and tested whether variation in momentary extraversion states was predictable from variation in goals. They found that 74% of the variation in extraversion states, both between- and within-person, was explained by the goals people were pursuing at the moment. Heller, Komar, and Lee (2007) have also shown that within-person state variation is associated with goal variation, although they used broad approach and avoidance motivations.

However, McCabe and Fleeson (2012) tested only one trait, whereas the hypothesis claims that all of the Big Five traits have functions. Furthermore, there was a positive manifold in their study, in that all but one of the goals positively related to all of the subcomponents. Thus, the results could have been due to a general positive responding style or social desirability. Because the hypothesis predicts that different states have at least some different functions, it is a critical test whether goals show discriminative relationships to the traits. More importantly, because their study was an experience-sampling study, they were not able to test the critical tenet that goals actually cause trait manifestation. The hypothesis is clear that states are tools serving the function of the goals, so it is clear that goals have to be causes of states.

**Extraversion and Conscientiousness**

We tested the specific state and function hypothesis by identifying goals for two traits—extraversion and conscientiousness. These traits were also used because they have clearly distinct content, allowing a critical test of the SSFH.

**Extraversion**

Generally, extraversion is a quality or disposition that describes active people who are sociable, talkative, and assertive. Researchers have proposed different possibilities for extraversion’s core, including sociability (McCrae & Costa, 2003, p. 46), positive affect (Watson & Clark, 1997), and sensitivity to reward (Depue & Collins, 1999), and a “fusion of assertiveness and activity level” (Goldberg, 1993, p. 30). The specific extraversion subcomponents also are a debated issue. For example, McCrae and Costa (2003, p. 47) assert six facets of extraversion:
gregariousness, assertiveness, warmth, activity, excitement-seeking, and positive emotions. In this study, we focused on three primary subcomponents of extraversion—sociability (Study 1 and study 2), assertiveness (Study 1 and study 3), and talkativeness (Study 2 and Study 3)—based on previous work and past research (Saucier & Ostendorf, 1999).

In our scheme, these subcomponents represent operations on the world (actions, cognitions, feelings) that may be intended to change the world in goal-facilitating ways. It is not so difficult to see being sociable, assertive, or talkative as changes to the world that may realize desired goals. For each subcomponent, we constructed a template sentence in order to generate candidate goals.

**Conscientiousness**

Conscientiousness can be described as the tendency to follow the rules, to be goal-directed, and to delay gratification (John & Strivastava, 1999). The core element of conscientiousness also is debated, with some theorists stressing the importance of achievement striving while others emphasize impulse control (McCrae & John, 1992). This trait is likely a synthesis of persistence and diligence in various everyday situations. There are several theorized structures of conscientiousness subcomponents, ranging from four facets (Peabody and DeRaad, 2002), six facets (McCrae and Costa, 2003), to seven facets (Roberts et al., 2004). In this study, we focused on two primary subcomponents of conscientiousness—organization and industriousness—based on past research (Roberts et al., 2004; Saucier & Ostendorf, 1999). It is not too difficult to see organization and industriousness as operations on the world that have the potential to facilitate goal pursuit.

**Overview of Studies**

We tested the subcomponent state function hypothesis across three different studies. Study 1 was an experience-sampling study to test whether momentary goals predict changes in personality states, and in particular, whether state extraversion and state conscientiousness were clearly related to distinct goals. Study 2 is an experiment to test whether goal assignment
caused changes in personality states in everyday life. Study 3 includes observers, to test the validity of the goal and trait manifestation ratings and to see whether observable aspects of targets’ goals and trait manifestations stand in the same relationships to each other as evidenced in self-reported goals and trait manifestations.

**Study 1: Method**

**Participants & Procedure**

**Participants.** Forty-four undergraduate students participated in the fulfillment of an introductory psychology course requirement (two enrolled but withdrew).

**Experience sampling methodology.** Participants attended a forty-five minute information session. At the end of the information session, participants could withdraw from the study for partial credit. Participants then completed a consent form and a questionnaire. Following the information session, participants carried personal digital assistants (PDAs) for ten days. Each report took 1 to 3 minutes to complete. The participants answered questions 5 times each day, with each report divided in 3-hour intervals (noon, 3pm, 6pm, 9pm, and midnight). All questions asked participants to reflect on their goals and behavior within the last half-hour. During the study, we asked participants to come to the lab two separate times to download data. After ten days, participants returned the PDA and completed a final questionnaire.

**Data quality.** The experience-sampling data was cleaned following recommended techniques (McCabe, Mack, & Fleeson, 2011). Participants were informed to skip a report if the scheduled time was a major inconvenience (e.g., if they were driving or sleeping). Participants could complete a report up to an hour after the scheduled time, reflecting on the 30 minutes before the new time of the report. If participants completed 35 or more (of 50 possible) valid reports (70% response rate), they were rewarded with additional research credit.

We excluded reports from analyses if they did not meet specific criteria (McCabe et al., 2011). These criteria include: a) reports outside the fixed schedule, b) more than one report within a
period, c) individual questions completed too quickly (less than 50 ticks, or 5 tenths of a second), and d) reports completed too quickly (half the questions answered in less than 50 ticks). After excluding the reports that did not meet this criteria, participants on average completed 36 reports (72% response rate), with a range of 10 to 47 reports. Of the 1,772 reports, 181 reports (10.2 percent of the data) were excluded, leaving 1,591 valid reports.

Materials
When answering questions on the PDAs, participants were asked to answer questions about their momentary goals and personality states in the last 30 minutes. In addition to completing the experience-sampling reports, participants completed questionnaires before and after the study that are not used in this paper.

Extraversion and conscientiousness items. Extraversion and conscientiousness were assessed with adjectives used in Big Five research (Roberts et al., 2004; Saucier & Goldberg, 1996; Saucier & Ostendorf, 1999). These adjectives were used in question form (e.g., “How sociable were you in the last 30 minutes?”), with response options on a six-point scale (1 = Not at all; 6 = Very, with 7 = Not Applicable). Three extraversion adjectives were selected for each of the two subcomponents (sociability: sociable, outgoing, unsociable; assertiveness: assertive, bold, unassertive). Three conscientiousness adjectives were selected for each the two subcomponents (organization: organized, systematic, disorganized; industriousness: persistent, purposeful, lazy). Reliability for the states and subcomponents were acceptable (Extraversion: Cronbach’s $\alpha = .82$; Conscientiousness: $\alpha = .82$; Assertive: $\alpha = .70$, Sociable: $\alpha = .88$; Organized: $\alpha = .72$; Industrious: $\alpha = .70$).

Goal pursuit. Participants were asked how frequently they pursued the sixteen goals throughout the study. Following the SSFH, we identified goals relevant to state extraversion and state conscientiousness. For each subcomponent, two approach goals and two avoidance goals were selected. Within each subcomponent, one approach goal and one avoidance goal were predicted for the high valence end of the state (e.g., in consciously trying to be sociable, I
am trying to have fun). The other approach goal and the other avoidance goal were predicted for the low valence end of the state (e.g., in consciously trying to be unsociable, I am trying to regain energy). This structure was developed to tap the full range of motivation and the full range of the personality state. A list of all goals with their hypothesized subcomponent relationships and valences can be found in the Results tables. During the experience-sampling portion of the study, participants answered questions on goal pursuit frequency (e.g., how much were you trying to have fun in the last 30 minutes?). Responses were on a 6-point scale (1 = Never; 6 = All the Time, with 7 = Not Applicable). We also had additional goal measures before and after the experience-sampling period, but they were not used in these analyses.

**Study 1 Results**

**Descriptive Statistics**

Table 2.1 shows the means and standard deviations for the personality states. These analyses show a general distribution of the states over the experience-sampling period. On average, participants were more conscientious than extraverted. Specifically, they were more organized and industrious then sociable and assertive.

**Table 2.1**

*Descriptive Statistics of Personality States*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>3.59</td>
<td>1.18</td>
</tr>
<tr>
<td>Sociable Subcomponent</td>
<td>3.66</td>
<td>1.45</td>
</tr>
<tr>
<td>Assertive Subcomponent</td>
<td>3.53</td>
<td>1.15</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>4.10</td>
<td>1.02</td>
</tr>
<tr>
<td>Organization Subcomponent</td>
<td>4.19</td>
<td>1.10</td>
</tr>
<tr>
<td>Industriousness Subcomponent</td>
<td>4.01</td>
<td>1.15</td>
</tr>
</tbody>
</table>

*Notes:* Participants rated their personality states on a six-point scale from 1 “Not at all” to 6 “Very (adjective), with a Not Applicable option.
Table 2.2 shows the means and standard deviations for all sixteen momentary goals. Participants’ ratings of goal pursuit were in the middle of the scale on average. The results show that the goals varied in frequency, with the lowest mean being for trying to be the center of attention and the highest mean being for trying to direct energy where it is needed most. High standard deviations indicate that goal pursuit varied from moment to moment.

Table 2.2

*Descriptive Statistics of Goals*

<table>
<thead>
<tr>
<th>Goal</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have fun (S+)</td>
<td>3.18</td>
<td>1.68</td>
</tr>
<tr>
<td>Avoid missing an opportunity (S+)</td>
<td>2.96</td>
<td>1.55</td>
</tr>
<tr>
<td>Regain energy/Recharge Batteries (S-)</td>
<td>3.05</td>
<td>1.65</td>
</tr>
<tr>
<td>Avoid embarrassing yourself (S-)</td>
<td>2.46</td>
<td>1.51</td>
</tr>
<tr>
<td>Center of attention (A+)</td>
<td>2.10</td>
<td>1.33</td>
</tr>
<tr>
<td>Avoid being ignored by others (A+)</td>
<td>2.42</td>
<td>1.40</td>
</tr>
<tr>
<td>Fit in (A-)</td>
<td>2.45</td>
<td>1.42</td>
</tr>
<tr>
<td>Avoid conflict (A-)</td>
<td>2.36</td>
<td>1.44</td>
</tr>
<tr>
<td>Use time effectively (O+)</td>
<td>2.42</td>
<td>1.40</td>
</tr>
<tr>
<td>Avoid forgetting to do something (O+)</td>
<td>3.12</td>
<td>1.62</td>
</tr>
<tr>
<td>Direct your energy where it is needed most (O-)</td>
<td>4.15</td>
<td>1.50</td>
</tr>
<tr>
<td>Avoid being uptight (O-)</td>
<td>3.98</td>
<td>1.61</td>
</tr>
<tr>
<td>Get tasks done (I+)</td>
<td>3.99</td>
<td>1.67</td>
</tr>
<tr>
<td>Avoid making mistakes (I+)</td>
<td>3.24</td>
<td>1.63</td>
</tr>
<tr>
<td>Put off worrying about something (I-)</td>
<td>3.14</td>
<td>1.48</td>
</tr>
<tr>
<td>Avoid a challenge (I-)</td>
<td>2.60</td>
<td>1.44</td>
</tr>
</tbody>
</table>

*Notes:* Personality States Extraversion (E), Conscientiousness (C). Extraversion Subcomponents: Sociable (S), Assertive (A). Conscientiousness Subcomponents: Organization (O), Industrious (I). The notation next to each goal reflects the hypothesized relationship to each subcomponent and the direction of this hypothesized relationship (e.g., S+ positively valenced relationship with the sociable subcomponent).

**Approach to Data Analysis**

In Study 1, the main test of the SSFH is whether the hypothesized state functions (i.e., the momentary goals) predicted changes in the corresponding personality states. We analyzed the
data using multilevel modeling to test the hypothesis in two ways. First, we used a model in which all hypothesized state functions predicted changes in the personality states to determine the overall variance explained by the goals. Second, we ran models with each hypothesized state function predicting each personality state to test the individual, bivariate relationships.

**Calculating the variance in states.** Multilevel modeling does not provide a direct calculation of the overall variance explained by the predictors (e.g., ΔR² in hierarchical regression). Therefore, we used a series of equations to determine the variance in the personality states that was explained by the goals. First, we ran an unconditioned model of state extraversion, which revealed the total amount of variance in state extraversion without any of the predictors in the model. This analysis reveals how much variance in extraversion is due to differences between people (between-person variance) or to an individual’s changes from moment to moment (within-person variance). By using the residual and intercept estimates from the random effects calculations, the between-person variance for the unconditioned model, which we called Model 0 (M0), can be calculated as follows:

\[
\% \text{ Between Person Variance}_{M0} = \frac{\text{Intercept Variance}_{M0}}{\text{Intercept Variance}_{M0} + \text{Residual Variance}_{M0}} \quad (1)
\]

Similarly, the within-person variance for the unconditioned model can be calculated as follows:

\[
\% \text{ Within Person Variance}_{M0} = \frac{\text{Residual Variance}_{M0}}{\text{Intercept Variance}_{M0} + \text{Residual Variance}_{M0}} \quad (2)
\]

Second, we ran additional multilevel models with predictors. In the first model, we added the eight hypothesized extraversion functions as Level 1 predictors of state extraversion. We calculated the between-person variance and within-person variance in a similar way, using the new intercept₁ and new residual₁ values in the numerator. However, the denominator remained the same from the unconditional model. The equation to determine the percentage
of the original total variance that remained unexplained between person variance in this model, which we called Model 1 (M1), was calculated as follows:

\[
\text{% Between Person Variance}_{M1} = \frac{\text{Intercept Variance}_{M1}}{\text{Intercept Variance}_{M0} + \text{Residual Variance}_{M0}} \quad (3)
\]

Similarly, the percentage of the original total variance that remained unexplained within-person variance for this model was calculated as follows:

\[
\text{% Within Person Variance}_{M1} = \frac{\text{Residual Variance}_{M1}}{\text{Intercept Variance}_{M0} + \text{Residual Variance}_{M0}} \quad (4)
\]

To calculate the amount of variance in state extraversion explained by the goals, we added the unexplained between-person variance_{M1} and the unexplained within-person variance_{M1}, and subtracted this total from the original total variance. This method can be repeated for multiple models, as long as the residual and intercept estimates from the unconditional model are in the denominator.

**Partitioning Variance in State Extraversion**

Table 2.3 shows the all the results of partitioning the variance in state extraversion using this procedure. In the unconditioned model, most of the variance can be attributed to within-person fluctuations, meaning that most of the changes in extraversion manifestation involve people changing their level of extraversion from moment to moment (Fleeson, 2001; McCabe & Fleeson, 2012). When the 8 hypothesized extraversion functions were added to the model, the unexplained within-person variability reduced substantially from 82.45 percent to 41.21 percent, while the unexplained between-person variability reduced from 17.35 percent to 13.59 percent. Thus, the 8 goals explained 45.19 percent of the variance in state extraversion, a substantial part of both within-person and between-person variability in state extraversion.
Table 2.3

Partitioning the Variance in State Extraversion

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unconditioned Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.25</td>
<td>17.56%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>1.16</td>
<td>82.45%</td>
</tr>
<tr>
<td><strong>Hypothesized Extraversion Functions Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.19</td>
<td>13.59%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>0.58</td>
<td>41.21%</td>
</tr>
<tr>
<td>Variance Explained by Goals</td>
<td>--</td>
<td>45.19%</td>
</tr>
<tr>
<td><strong>All Hypothesized State Functions Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.18</td>
<td>12.87%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>0.55</td>
<td>39.14%</td>
</tr>
<tr>
<td>Variance Explained by Goals</td>
<td>--</td>
<td>47.98%</td>
</tr>
</tbody>
</table>

Notes: All analyses were conducted through multilevel modeling, using the equations outlined in the section above.

Partitioning Variance in Conscientiousness

Table 2.4 shows the results of partitioning the variance in state conscientiousness. As for state extraversion, most of the state conscientiousness variance can be attributed to within-person fluctuations over the study period. When the 8 hypothesized conscientiousness goals were added to the model, the unexplained within-person variability reduced substantially from 82.36 percent to 39.08 percent, while the unexplained between-person variability reduced from 17.64 percent to 11.57 percent. The 8 goals explained 49.35 percent of the variance in conscientiousness, a substantial part of both within-person and between-person variability in state conscientiousness. Thus, this result shows that substantial amounts of variance in trait manifestation are predicted by goals for multiple traits, not just extraversion, and that this finding appears to be a trait-general finding.
Table 2.4

Partitioning the Variance in State Conscientiousness

<table>
<thead>
<tr>
<th>Model</th>
<th>Estimate</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unconditioned Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.18</td>
<td>17.54%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>0.85</td>
<td>82.36%</td>
</tr>
<tr>
<td><strong>Hypothesized Conscientiousness Functions Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.12</td>
<td>11.57%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>0.40</td>
<td>39.08%</td>
</tr>
<tr>
<td>Variance Explained by Goals</td>
<td>--</td>
<td>49.35%</td>
</tr>
<tr>
<td><strong>All Hypothesized State Functions Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-Person Variance</td>
<td>0.09</td>
<td>9.07%</td>
</tr>
<tr>
<td>Within-Person Variance</td>
<td>0.34</td>
<td>32.70%</td>
</tr>
<tr>
<td>Variance Explained by Goals</td>
<td>--</td>
<td>58.23%</td>
</tr>
</tbody>
</table>

Notes: All analyses were conducted through multilevel modeling, using the equations outlined in the section above.

**Bivariate and Determinant Predictions of All Goals and All States**

Beyond the shared variance, we also predicted that certain goals had specific, hypothesized state functions. We tested these predictions by analyzing the bivariate relationships between each goal and each state. Rather than conducting correlations, we ran a series of multilevel models with one goal predicting one personality state or personality subcomponent. This process controlled for between-person variance and within-person variance in the experience-sampling data. Each goal had a specific relationship with a state (extraversion or conscientiousness) and valence (positive relationship with the state or a negative relationship with the state). Table 2.5 shows the unstandardized beta weights of all these analyses, showing the degree to which the goals predict changes in the personality state for the average participant.
<table>
<thead>
<tr>
<th>Goals</th>
<th>States</th>
<th>Subcomponents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>Have fun (S+)</td>
<td>.36**</td>
<td>-.06</td>
</tr>
<tr>
<td>Avoid missing an opportunity (S+)</td>
<td>.16**</td>
<td>.18**</td>
</tr>
<tr>
<td>Regain energy/Recharge Batteries (S-)</td>
<td>-.11**</td>
<td>-.26**</td>
</tr>
<tr>
<td>Avoid embarrassing yourself (S-)</td>
<td>.34**</td>
<td>.05</td>
</tr>
<tr>
<td>Center of attention (A+)</td>
<td>.47**</td>
<td>.01</td>
</tr>
<tr>
<td>Avoid being ignored by others (A+)</td>
<td>.33**</td>
<td>.00</td>
</tr>
<tr>
<td>Fit in (A-)</td>
<td>.42**</td>
<td>.03</td>
</tr>
<tr>
<td>Avoid conflict (A-)</td>
<td>.14**</td>
<td>.03</td>
</tr>
<tr>
<td>Use time effectively (O+)</td>
<td>.00</td>
<td>.35**</td>
</tr>
<tr>
<td>Avoid forgetting to do something (O+)</td>
<td>.02</td>
<td>.21*</td>
</tr>
<tr>
<td>Direct energy where it is needed (O-)</td>
<td>.04</td>
<td>.40**</td>
</tr>
<tr>
<td>Avoid being uptight (O-)</td>
<td>.21**</td>
<td>.03</td>
</tr>
<tr>
<td>Get tasks done (I+)</td>
<td>-.01</td>
<td>.36**</td>
</tr>
<tr>
<td>Avoid making mistakes (I+)</td>
<td>.07*</td>
<td>.26**</td>
</tr>
<tr>
<td>Put off worrying about something (I-)</td>
<td>.05</td>
<td>-.04</td>
</tr>
<tr>
<td>Avoid a challenge (I-)</td>
<td>-.06</td>
<td>-.18**</td>
</tr>
</tbody>
</table>

**Notes:** Personality States Extraversion (E), Conscientiousness (C). Extraversion Subcomponents: Sociable (S), Assertive (A). Conscientiousness Subcomponents: Organization (O), Industrious (I). The notation next to each goal reflects the hypothesized relationship to each subcomponent and the direction of this hypothesized relationship (e.g., S+ positively valenced relationship with the sociable subcomponent). All unstandardized beta coefficients were calculated through multilevel modeling, with one goal as a predictor variable and the trait or subcomponent as the outcome variable.

*p < .05

**p < .01

**Hypothesized extraversion functions.** All eight hypothesized extraversion functions were significantly related to state extraversion. The strongest relationship was for the goal of trying to be the center of attention (b = .47, p < .01). When checking the valence of these
relationships, the four positively valenced goals had significant, positive relationships with state extraversion. However, only one of the four negatively valenced goals had a significant, negative relationship with extraversion (to regain energy/to recharge batteries: $b = -.11, p < .01$). The results at the subcomponent level reflected the trait level pattern with all eight goals relating to both talkative and assertive subcomponents. The strongest relationship for both subcomponents was to the goal of trying to be the center of attention (talkative $b = .60, p < .01$; assertive $b = .32, p < .01$). The results mostly supported the hypothesized directions, and supported previous findings (McCabe & Fleeson, 2012).

**Hypothesized conscientiousness functions.** Six of the eight hypothesized goals were significantly related to state conscientiousness. The goal with the strongest relationship to state conscientiousness was to direct energy where it was needed most ($b = .40, p < .01$). The four positively valenced hypothesized conscientiousness functions had significant, positive relationships to state conscientiousness. Of the four negatively valenced hypothesized contentiousness functions, two had the hypothesized negative direction, and one of these was significant (avoid a challenge). The results at the subcomponent level reflected the trait level with all eight goals relating to both organization and industrious subcomponents. The strongest relationships for both subcomponents was to the goal of trying to use time effectively and trying to get tasks done (organized $b = .32, p < .01$; industriousness $b = .39, p < .01$). Most of the goals significantly predicted variance in state conscientiousness, extending support for the subcomponent-state function analysis to conscientiousness.

**Goal Distinctiveness.** A central part of the SSFH is that different traits have different functions, and that people make meaningful distinctions between the functions. Because the different traits’ manifestations perform different operations on the world, they are useful for different goals, and thus goals that predict one trait’s manifestations should not predict other traits’ manifestations. We tested this by examining cross-associations from one trait’s goal to the other trait’s manifestations. Hypothesized extraversion functions should predict only state extraversion, while hypothesized conscientiousness functions should predict only state
conscientiousness. Table 2.5 shows that almost all goals hypothesized to be conscientiousness functions had nearly zero predictive relationship to extraversion states -- only two goals hypothesized as conscientiousness functions had significant relationships with state extraversion. Furthermore, these relationships were weaker than most of the hypothesized extraversion functions. Likewise, only two hypothesized extraversion functions had significant relationships with state conscientiousness, whereas the majority of them had close to zero predictive relationship with state conscientiousness. Generally, most goals related only to their hypothesized state, but there was a small amount of overlap in goal content between the states.

To further test the distinctiveness of the goals, we ran models testing for additional variance explained by the cross-traits, goals. These additional goals raised the explained variance to 47.98% of the variance in state extraversion, which is only an increase of 2.8% in explained extraversion variance from the previous model. When predicting conscientiousness states, the extraversion goals raised the explained variance to 58.23, an increase of 7.9% in explained variance. Combined with the previous results, these findings support our hypothesis that specific, momentary goals explain a large amount of the variability to its corresponding personality state, but are only weakly or not at all predictive of non-corresponding states.

**Summary of results.** The results of these bivariate relationships supported the hypotheses. Momentary goals did predict variance in their hypothesized states, and they did so fairly strongly, accounting for close to half the variance (both between- and within-persons) in state extraversion and conscientiousness. These results were true for two very different traits, extraversion and conscientiousness, suggesting that the functional aspect of traits may be a trait-general phenomenon. These relationships were distinct, showing that extraversion and conscientiousness differed in their specific functions, that different states are used for different goals, and that participants made meaningful distinctions between goals and states with different contents.
Study 2: Method

The results from Study 1 showed that personality states were strongly related to momentary goals. However, they did not reveal the direction of causality between momentary goals and personality states. If Whole Trait Theory is correct, and traits are tools for the pursuit of goals, then goals should determine the states which individuals enact. That is, pursuing different goals should lead to different states. Study 2 tests whether changes in personality states are indeed responsive to goals (one hypothesized extraversion goal and one hypothesized conscientiousness goal). We wanted to test the naturalistic effect of goals on behavior, using real goals and real behavior, but we also wanted to have the control and random assignment characteristic of an experiment. Therefore, we found a way to conduct an experiment but have the behaviors occur in a natural context. This technique we created was facilitated by conducting the research on a college campus. Specifically, participants came to the lab to get the manipulation, returned to the campus or went off-campus to enact the manipulation, and finally finished the experiment back in the lab an hour later. By having participants pursue a goal in a task they would normally do in their daily lives, we combined the strengths of laboratory assignment and manipulation with the strengths of an ecologically-valid study.

Participants. Ninety undergraduate students participated in this study in the fulfillment of an introductory psychology course requirement.

Procedure

Goal Assignment. When participants signed up for the study, they were all instructed to bring homework assignments with them. After entering the lab, participants were instructed in the experimental procedure prior to goal assignment. We emphasized that the participants faithfully commit to the pursuit of their goal over the course of 45 minutes.

Participants were randomly assigned into one of two conditions. In the extraversion condition, participants were informed “Your goal for the next 45 minutes: to connect with people and to make others laugh.” In the conscientiousness condition, participants were informed “Your goal
for the next 45 minutes: to get the task done and to use time effectively.” After goal assignment, we included goal elaboration and goal commitment measures that applied principles from Locke & Latham (2002) to increase goal commitment. After finishing these measures, participants left the laboratory to pursue their goal for forty-five minutes. They were instructed to return after forty-five minutes to complete questionnaires and to receive credit for the study.

Post-goal assessment. After the forty-five minutes, participants returned to the laboratory to complete a questionnaire. They described what they did during the forty-five minutes, answered questions about their goal pursuit, state personality, and state affect.

Design
The experimental design consisted of a single two-level between-subjects factor (extraversion goal versus conscientiousness goal), and two dependent variables (level of enacted extraversion state and level of enacted conscientiousness state).

Materials
Goal commitment. Goal commitment measures were completed by participants to enhance their commitment to enacting the manipulations. Our measures were based on research for assigned goals (Locke & Latham, 2002), by ensuring that participants had clear, specific tasks during the 45 minutes and personal reasons to commit to goal pursuit.

For each condition, participants were asked to list three things that they could do in the next 45 minutes to pursue their goal. For the extraversion goals, they were asked to write down three ways they could accomplish this goal, and for the conscientiousness goals, they were asked to write down three homework assignments they could do to accomplish this goal. Both conditions were asked to write down a reason why pursuing this goal would be “a good thing for you to do in the next 45 minutes.” This question served both as a goal elaboration and a personal reason to comply with the study procedure. On a separate page, they were asked
explicitly to write down what they planned to do in the next 45 minutes, to make sure they had a plan to pursue the goal. Finally, participants were asked “How committed are you to pursuing this goal?” answering on a 6-point scale, from 1 “Not at all committed” to 6 “Very committed.” Participants were excluded from the analyses if they failed to recall their goal or if they responded as “Not at All” to goal commitment and time on the goal.

Post-goal pursuit manipulation checks. After the 45 minutes, participants completed several measures of goal pursuit. First, they were asked to describe what they did for the past 45 minutes. Second, they answered a recall manipulation check of their assigned goal. Third, participants answered questions about their goal, including a) effort into the goal, b) time spent on the goal, c) commitment to the goal, and d) success of the goal. All four questions were on a 6-point scale, from 1, “Not at all” or “None”, to 6 “All the Time” or “Very”. Based on these commitment checks and manipulation checks, we excluded six participants from the study (1 from the extraversion condition, 5 from the conscientiousness condition).

State Big Five measures. We used the items from Study 1 to measure state conscientiousness and state extraversion with one exception. Because assertiveness had a high correlation with state conscientiousness in Study 1, we replaced it with the talkative subcomponent adjectives (talkative, verbal, and quiet). Six additional adjectives related to the other traits of the Big Five (warm, relaxed, and imaginative) were added as distracter items. These adjectives were used in question form (e.g., “How sociable were in the last 45 minutes?”), with response options on a 6-point scale (1 = Not at all; 6 = Very). The reliabilities were in an acceptable range (Extraversion: Cronbach’s $\alpha = .97$; Conscientiousness: $\alpha = .78$; Talkative Subcomponent: $\alpha = .94$, Sociability Subcomponent: $\alpha = .95$; Organized Subcomponent: $\alpha = .71$; Industrious Subcomponent: $\alpha = .65$).

Study 2 Results

Mean Differences in Personality States

The point of Study 2 is to test whether the association revealed in Study 1 is a causal one, by
testing whether assigned goals caused changes in personality states. We believe these goals are best served by the manifesting the corresponding trait, but the findings could also go otherwise. It is possible to connect with others and make them laugh without being talkative, verbal, sociable, or outgoing. For example, it may be possible to connect with others by sitting quietly with them, or by writing poems or letters to them, or by doing something for them. Participants might also try to connect with others in a very organized and industrious way. Similarly, simply having the goal of trying to get something done and use time effectively might lead to less organized behavior in an attempt to rush to the goal or might have no effect on how industrious a person is, because industry may be a temperamental feature.

A series of independent samples t-tests revealed a significant difference between the groups on state extraversion $t(82) = 14.69, p < .001, d = 3.24$ and on state conscientiousness $t(82) = 3.32, p = .001, d = 0.73$. Figure 2.1 shows the means of both personality states for both conditions. Participants were substantially more extraverted when pursuing the goals of connecting with people and making others’ laugh ($M = 5.14, SD = 0.67$) than when pursuing the goals of getting tasks done and using time effectively ($M = 2.22, SD = 1.11$). Similarly, participants were more conscientious when pursuing the goals of getting tasks done and using time effectively ($M = 4.88, SD = 0.72$) than participants pursuing the goals of connecting with people and making other’s laugh ($M = 4.31, SD = 0.86$).

We also conducted within-person t-tests to check the differences within each goal condition on levels of state conscientiousness and state extraversion. When trying to connect with others and make others’ laugh, participants were significantly more extraverted than conscientious $t(42) = 7.74, p < .001, d = 0.62$. When participants were trying to get tasks done and use time effectively, they were significantly more conscientious than extraverted $t(40) = -11.15, p < .001, d = 1.97$. These findings strongly support the hypothesis that assigned goals can cause specific changes in personality states relevant to the pursuit and achievement of the goal.
Study 3

The robust results from Study 1 and Study 2 supported our hypotheses that momentary goals cause changes in personality states that are relevant to goal attainment. Study 3 tested this hypothesis further in two ways. First, participants assessed their goals and states in a controlled, laboratory environment. The ecologically valid methods used in Study 1 and Study 2 allowed participants to rate their goals and states that reflected the fluctuations of daily living. Our hypotheses can gain additional support if the same pattern is found when all participants have similar experiences during ratings. Second, participants provided both self-report ratings and observer report ratings. All previous work testing the specific-states-and-functions hypothesis used self-reported ratings of states and goals, and Study 3 determined whether the same patterns are present in observer ratings.

Figure 2.1. Personality State Means in Each Goal Condition
Study 3 Methods

Participants

Participants (N = 58) were undergraduate or graduate students who were recruited for this study via campus flyers or online campus advertising. Participants were mostly female (N = 37) and Caucasian (N = 36). They were paid for participation ($15 per session), and they were compensated to promote attendance and punctuality. They were given a bonus for perfect attendance to all five sessions ($25 extra, for a total of $100) or for one absence ($5 extra, for $65). Tardy participants (less than ten minutes late) were waived for the first offense and given half-pay ($7.50) for future offenses.

Procedure

Participants either e-mailed or called the lab to sign up for this study. They attended an information session to inform them of the study procedure (including payment criteria), sign consent forms, and complete preliminary questionnaires. They also scheduled an appointment time for their group session.

Participants attended five one-hour group sessions for five weeks. Most groups had four people (two groups had three participants). At the beginning of each session, a research assistant gave participants instruction sheets that explained the session activities. These activities changed across the five sessions to allow for variance in behavior and to represent different activities. These activities included (1) word activity (definitions of rating adjectives), (2) painting, (3) organizational committee decision task, (4) art analysis, (5) group homework session, (6) free activity (either games or homework).

Each session was split into two parts, lasting twenty minutes each. After an alarm beeped, the lab assistant instructed the participants to move to different locations in the room to complete their rating forms. Participants answered self-reports describing their behavior and goals, and they provided observer reports describing the behavior and goals of the other group members. Participants placed completed rating sheets into a sealed container to ensure confidentiality.
Once all participants completed their ratings, they returned to their original seats for the next part, and afterward completed ratings of the second part. Over the five sessions, there were ten self-ratings ($M = 9.67, SD = 0.87$), and for most participants, up to thirty observer ratings ($M = 27.00, SD = 3.48$).

**Measures**

For all sessions, participants were assigned with an ID number and a participant letter (A, B, C, or D). The rating sheets organized items in a grid format. Each row contained one state or goal item, and the four columns had the participant letters. This arrangement allowed for quick and easy responses to each rating.

**Personality states.** Personality states were assessed with 12 adjectives (Roberts et al., 2004; Saucier & Ostendorf, 1999), 6 items for the two traits. There were two extraversion facets—talkative (talkative, verbal, quiet) and assertive (assertive, bold, unassertive)—and two conscientiousness facets—organized (organized, systematic, disorganized) and industriousness (persistent, purposeful, lazy). All adjectives were added in a statement “How talkative was the participant in the last 20 minutes?” Participants responded using a 6-point scale, ranging from “Not at all” to “Very.” The reliabilities for targets and observers were in an acceptable range (Extraversion: target Cronbach’s $\alpha = .87$, observer $\alpha = .88$; Conscientiousness: target $\alpha = .77$, observer $\alpha = .79$; Talkative Subcomponent: target $\alpha = .92$, observer $\alpha = .91$, Assertiveness Subcomponent: target $\alpha = .81$, observer $\alpha = .82$; Organized Subcomponent: target $\alpha = .75$, observer $\alpha = .74$; Industrious Subcomponent: target $\alpha = .62$, observer $\alpha = .63$).

**Momentary goals.** From the list of goals in Study 1, we selected four goal items for each rating. Two hypothesized goals related to extraversion (trying to have fun and trying to be the center of attention) and two hypothesized goals related to conscientiousness (trying to get tasks done and trying to use time effectively). Participants were instructed “How often was the participant trying to (goal) in the last 20 minutes?” Participants responded using a 6-point scale, ranging from “Not at all” to “All the time.”
Study 3 Results

Explained Variance in Self-Reported Personality States

We calculated explained variance with the same procedure as described in Study 1 (subtracting the unexplained variance in the model including goals as predictors from the model with no predictors, and dividing by the unexplained variance in the model with no predictors). We used the same models as in Study 1, but predicted observer ratings of states from observer ratings of goals. The two hypothesized extraversion goals explained 27 percent of the variance in state extraversion. Adding the two conscientiousness-based goals increased the variance explained by only 2 percent. The variance in state conscientiousness explained by the two hypothesized conscientiousness goals was 38 percent, and the variance explained increased by less than 1 percent when adding the two non-hypothesized goals. Although the amount of variance explained by the goals is lower than Study 1, this calculation also used half as many goal items and a fifth as many ratings, and the explained variance with only two goals was still quite high. The pattern across the studies suggests that personality states are tools for accomplishing a wide variety of goals, because additional relevant goals explained additional cumulative variance rather than overlapping variance.

As in Study 1, we tested whether the four goals predicted personality states by conducting a series of multilevel models with each goal predicting personality states. The bivariate relationships between goals and states were very similar to the pattern from Study 1, confirming that the hypothesized extraversion goals were related to state extraversion and were unrelated to state conscientiousness. Inversely, the hypothesized conscientiousness goals were related to state conscientiousness and were unrelated to state extraversion. This pattern continued to the facet level, which parallels the findings in Study 1.

Explained Variance in Observer-Reported Personality States

The main goals of Study 3 were to test whether observer ratings of goals and states produced the same results, to examine the validity of the Study 1 and Study 2 results based on self-report and to test whether the goals and states were observable to others. Two or three peers
provided observer ratings for each participant over the course of the five sessions. We ran a series of multilevel models and used the equations outlined in Study 1, but predicting observer ratings of states from observer ratings of goals (with target as the grouping variable to account for the non-independence of ratings of the same target). These results revealed the same pattern found in Study 1 and the Study 3 self-ratings. The variance in state extraversion explained by the two hypothesized goals was 43 percent. The variance in state conscientiousness explained by the two hypothesized goals was 47 percent. These results show that goals predict a large amount variance in corresponding personality states even when rated by observers.

We conducted analyses similar to those for the targets, by running a series of multilevel models with the observed goal predicting the observed personality state. The bivariate relationships between observer-rated goals and states are shown in Table 2.6. The pattern is similar to Study 1 and the self-ratings, showing that the hypothesized extraversion goals were related only to state extraversion and were unrelated or weakly related to state conscientiousness. Inversely, the hypothesized conscientiousness goals were strongly related only to state conscientiousness and were unrelated or weakly related to state extraversion. These results demonstrate that observer ratings do have the same patterns as self-ratings for both personality states and goal pursuit, and previous findings were not an artifact of self-report.

**Target-Reported Goals Predicting Observer-Reported Personality States**

As a final, conservative test of whether the pursuit of goals predicts observable changes in personality states, we predicted the observers’ ratings of the personality states from the targets’ ratings of their own goals. This is a conservative test because the prediction crosses over from self-reports of internal goals to observer reports of external states, and because observers can report only on part of the personality states, namely the observable parts. However, it is a strong test, because it decouples the reports of the goals from the reports of the personality states by using different raters for the two constructs.
Table 2.6

Relationships between Goals and Personality States (Observer Reports)

<table>
<thead>
<tr>
<th></th>
<th>E</th>
<th>C</th>
<th>T</th>
<th>A</th>
<th>O</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Fun</td>
<td>.23**</td>
<td>-.05</td>
<td>.30**</td>
<td>.16**</td>
<td>-.06*</td>
<td>-.04</td>
</tr>
<tr>
<td>Center of Attention</td>
<td>.35**</td>
<td>-.03</td>
<td>.41**</td>
<td>.29**</td>
<td>-.04</td>
<td>-.02</td>
</tr>
<tr>
<td>Use Time Effectively</td>
<td>-.03</td>
<td>.29**</td>
<td>-.07</td>
<td>.01</td>
<td>.31**</td>
<td>.28**</td>
</tr>
<tr>
<td>Get Tasks Done</td>
<td>-.04</td>
<td>.30**</td>
<td>-.10*</td>
<td>.02</td>
<td>.30**</td>
<td>.30**</td>
</tr>
</tbody>
</table>

Notes: Personality States: E = State Extraversion (subcomponents: T = Talkative, A = Assertive), C = State Conscientiousness (subcomponents: O = Organization, I = Industriousness). All analyses were conducted using multilevel modeling, and the unstandardized beta weights are the fixed effects of the observer-rated goals predicting the observer-rated personality states in bivariate models. Observer ratings were the average of the three observers in the session.

We used the same procedures as in the previous analyses, but used the averaged observer ratings of personality states as the dependent variable and the target ratings of goals as the independent variables. In support of the hypothesis, the targets’ reports of how much they were trying to have fun and trying to be the center of attention significantly predicted the observers’ reports of how extraverted those targets were acting, accounting for 14% of the variance in observer reports of extraversion. The targets’ reports of how much they were trying to use time effectively and to trying to get tasks done significantly predicted the observers’ reports of how conscientious they were acting, accounting for 11% of the variance in observer reports of conscientiousness. Although these percentages of variance were smaller than in the other results, they were still substantial, despite the conservative nature of the test.

Table 2.7 shows the bivariate results, produced from several multilevel models in each of which one goal predicted one personality state. These findings revealed the same pattern as shown in the pure self-report and in the pure observer-report findings. Goals significantly predicted their corresponding state, but did not or only weakly predicted the other personality state. Thus,
goals are predictive of states, and the discriminatory pattern emerged even in observer reports of personality states as a function of self-reports of goals.

Table 7

*Relationships between Target-Reported Goals and Observer-Reported Personality States*

<table>
<thead>
<tr>
<th>Goal</th>
<th>E</th>
<th>C</th>
<th>T</th>
<th>A</th>
<th>O</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Fun</td>
<td>.16**</td>
<td>.05**</td>
<td>.23**</td>
<td>.10**</td>
<td>.05*</td>
<td>.05*</td>
</tr>
<tr>
<td>Center of Attention</td>
<td>.19**</td>
<td>.01</td>
<td>.24**</td>
<td>.15**</td>
<td>.03</td>
<td>.01</td>
</tr>
<tr>
<td>Use Time Effectively</td>
<td>-.00</td>
<td>.16**</td>
<td>-.06</td>
<td>.06*</td>
<td>.14**</td>
<td>.18**</td>
</tr>
<tr>
<td>Get Tasks Done</td>
<td>-.02</td>
<td>.17**</td>
<td>-.08**</td>
<td>.04</td>
<td>.16**</td>
<td>.19**</td>
</tr>
</tbody>
</table>

Notes: Personality States: E = State Extraversion (subcomponents: T = Talkative, A = Assertive), C = State Conscientiousness (subcomponents: O = Organization, I = Industriousness). All analyses were conducted using multilevel modeling, and the unstandardized beta weights are the fixed effects of the target-rated goals predicting the observer-rated personality states in bivariate models. Observer ratings were the average of the three observers in the session.

General Discussion

Results from these studies reveal five aspects of state-goal relations. First, the hypothesized goals predicted nearly half the variance in state conscientiousness and state extraversion, showing that goal pursuit is one predominant explanation for differences both between and within people in trait manifestation. People sometimes act extraverted or conscientious because they have goals that need those manifestations, and some people are more extraverted or conscientious than others because they have the associated goals more often than do others. Second, the content of the goals revealed some of the functions of state extraversion and state conscientiousness, that is, what the manifestations of extraversion and conscientiousness are useful for. These functions included both approach functions and avoidance functions. Third, personality states had distinct functions that had almost no overlap,
confirming that different states have different uses, presumably because the different states enact different operations on the world, and different operations are needed for different goals. Fourth, the effect of goals on states was shown to be a causal effect, confirming the whole trait theory implication that goals should cause part of traits, adding to evidence for the usually hypothesized reverse causal direction (e.g., McCrae & Costa, 1999; Ludtke et al., 2009). Fifth, the relationships between goals and trait manifestations were found even in observable aspects of goals and trait manifestations.

**Implications for the Relations Between Motivation and Traits**

These findings suggest that traits and motivation are closely integrated with each other. The specific mechanism of this integration is that pursuit of momentary and specific goals causes changes in the manifestation of personality traits in actions, cognitions, and emotions. In Study 1, the eight hypothesized goals for each state explained nearly half of the variance in manifestation of the corresponding trait. Study 2 revealed that the effect was causal, at least in part flowing from goals to trait manifestations. These results move the theoretical understanding an important step beyond the vague suggestion that goals and traits are related to the specific explication of the mechanism of that relationship.

Causality was demonstrated with the novel procedure of randomly assigning a goal condition to participants, sending them back to their everyday lives to accomplish the goal, and then showing that their trait manifestations changed accordingly. Furthermore, this causal direction was contrary to the causal direction of most previous theories. This is not to deny that the causal relationship could be bidirectional, and in fact Luedtke et al (2010) provided empirical evidence that traits cause major life goals. However, the present studies addressed the specific causal direction flowing from goals to trait manifestations, and provided supportive evidence in an ecologically valid setting.

These findings are in contrast to theories that either keep motivations and traits separate or theories that make them identical. It is distinct from theories that keep motivations and traits
as separate but related constructs (e.g., McAdams & Olson, 2010; Roberts & Wood, 2006) because it makes goals part of the traits (part of their causal machinery) and because it specifies a particular causal mechanism connecting motivations to traits. Whole trait theory is more similar to theories that identify traits with motive systems (Carver et al., 2000; Elliot & Thrash, 2002; Read et al., 2010). However, whole trait theory does not go so far as to identify traits with motive systems, because it proposes that traits are broader than their included goals and that motivational systems cut across traits. For example, extraversion is not identified with approach goals, but rather includes both approach and avoidance goals identified by their content rather than by their type.

The results suggest that one of the main motivational units connected to traits is the small-sized, specific, and momentary goal. When using such specific goals, we were able to discover very strong relationships between motivation and traits. Other motivational units, such as life goals (Cantor et al., 1987), personal projects (Little et al., 1992), personal strivings (Emmons, 1986), values (Schwarz & Bilsky, 1987), or motives and needs (Brunstein, Schultheiss, & Grässman, 1998; Deci & Ryan, 2008) might also be connected to traits. Such broad units might also be related to traits indirectly, by first being related to specific goals, which in turn relate to trait manifestations.

**Implications for the Nature of Traits**

The findings suggest that traits are instrumental, dynamic, and adaptive. Within-person variation in trait manifestation is not merely a result of error. Rather, trait manifestations vary across daily life because goals vary across daily life, and different manifestations are used for accomplishing different goals. Variability in behavior represents attempts at adaptation. Thus, it may be necessary to incorporate how people act, the variability in how they act, and the causal forces on those actions in order to provide a complete account of traits.

Whole trait theory (Fleeson, 2012) is an attempt to organize past findings and ideas about traits into a coherent whole, and it led to the hypotheses for these studies about the nature of traits.
Whole trait theory starts with the manifestation of the trait, in an attempt to study what people actually do that expresses their traits. Whole trait theory suggests that trait content becomes manifest in a state, which is presumed to have the same content as the trait it manifests, including the behavioral, affective, and cognitive content. It assumes that states affect the world by changing the world in specific ways based on the states’ content. Trait manifestations are not only styles or adverbial characteristics that give each person a different appearance in the world. Trait manifestations are not arbitrary responses to stimuli, but rather impact those stimuli. The distributions of these trait manifestations are then studied empirically, including their variability. Whole trait theory organizes these implications into the descriptive part of traits, which consists of the totality of the states the person actually manifests.

Whole trait theory also proposes an explanatory part to traits. The explanatory part consists of the causal machinery that leads to the trait manifestations. This explanatory part of traits is logically implicated by the consistent individual differences in the descriptive part of traits – because people reliably differ in the traits they manifest, they must also differ in some explanatory machinery. The large variability in trait manifestations suggests that this machinery may not be limited to automatic, habitual expressions of temperament.

If trait manifestations have impacts on the world, it is reasonable to infer that the effects of trait manifestations could be applied in deliberate, instrumental ways. This suggests that goals may be part of the explanatory machinery of traits. The results provided strong support for this conjecture. Goals explained half of the variance in which traits individuals were manifesting at any given moment. This explanation extended to between-person differences, such that people differed in how often they were extraverted or conscientious in large part because they differed in how often they pursued the associated goals. Thus, when explaining how traits work and when explaining why people differ from each other in their manifested trait levels, goal concepts may need to be invoked.
**Implications for the Nature of Extraversion and Conscientiousness**

These results suggest that two of the five Big Five traits -- extraversion and conscientiousness -- have functions. This assertion means that traits are manifested for the consequences they may bring about; traits have impacts, and those impacts might help individuals accomplish their desired ends. Evidence for this claim extends beyond just one trait, extraversion, to include a second trait, and thereby argues that the model may be general to multiple traits. It is important to note that extraversion and conscientiousness are quite different in their apparent instrumentality. Intuitively, conscientiousness seems to be an instrumental trait, since it is about working hard, whereas extraversion seems more a matter of style than of instrumentality. Conversely, extraversion is often identified with the approach motivational system (Carver et al., 2000; Elliot & Thrash, 2002; Heller et al., 2009; Read et al., 2010), whereas conscientiousness is not widely identified with a motivational system. Nonetheless, the findings for both traits supported the overall whole trait theory in which trait manifestations are functions caused by goal pursuit. It also supports the reliability and validity of using the specific states and functions identification procedure to determine specific state-goal relationships.

These results also showed that extraversion and conscientiousness had different functions. Primary functions of extraversion include trying to have fun or trying to be the center of attention. In contrast, the primary functions of conscientiousness are trying to use time effectively or trying to get tasks done. Nearly all of the strength of the goal-manifestations associations was based on specific content relations between the goals and the states. These cleanly discriminative results supported the hypothesis that traits differed in the content of their related goals. This view contrasts with theories that distinguish between traits by motivational systems (Carver, Sutton, & Scheier, 2000; Elliot & Thrash, 2002; Heller et al., 2009; Read et al., 2010). Of course, the two types of theories are not incompatible, and it is quite possible that traits are distinguished in part by the content of their associated goals and in part by the motivational system with which they are predominantly associated. The discriminative results also argue against many artifactual explanations, such as a general acquiescence bias or a lack of discrimination between the different goals.
If the trait manifestations facilitate the goals because they involve operations that create impacts conducive to the goals, then we can use the goals to help interpret the trait manifestations. Because sociability, talkativeness, and assertiveness were the subcomponents of extraversion, the results suggest that we can interpret these facets in terms of operations that are likely to facilitate the goals of trying to have fun, trying to fit in, and so on. Such operations of sociability, talkativeness, and assertiveness might be engaging with other people, announcing your presence to them, stating your interests, and ignoring potential negative outcomes. These operations might have the impacts of encouraging people to pay attention to you, of aligning your activities with the group’s activities, and of getting your interests satisfied, which would enhance the goals of trying to have fun, trying to fit in, and others. Thus, the results suggest that extraversion consists of these operations, and it consists of those operations, because those operations are needed for these goals.

Because people have the goals of trying to direct energy where it is needed most, trying to use time effectively, and so on, people enact conscientious states. Thus, conscientiousness can be interpreted as consisting of the operations on the world plausibly useful for accomplishing these goals. Such operations of organization and industriousness might be moving objects into effective positions, setting up realistic schedules, staying focused on a task, not taking breaks, and diverting resources towards specific tasks. These interpretations enhance understanding of what conscientiousness consists of and why it consists of those things.

**Limitations and Future Directions**

Although these studies confirmed the theory for two very distinct traits, it is still unclear whether the theory would also apply to the other traits of the Big Five. The SSFH predicts that new template sentences for the specific subcomponents of the other traits would identify goals predictive of those traits. For example, the template “I am intentionally creative in order to goal in a given moment” might lead to goals such as trying to solve a difficult problem or trying to break out of a routine. We expect that agreeableness manifestations will be in the service of affiliative goals, and that emotional stability manifestations will be in the service of leadership
and impression management goals. However, it is also possible that there are unique features of the other traits making them less amenable to this procedure.

A second direction for future research is investigating the origins of the goals. If people are more extraverted and conscientious in part because they pursue these goals more often, why do they pursue these goals more often? In order to find strong connections between goals and traits, we went to very small, specific, and momentary goals. We think it is very likely that these specific goals come from broader motivational units, in a hierarchical manner (Read et al., 2010). Beliefs, expectancies, competencies, worries, and other factors may also affect the specific goals individuals pursue (Mischel, 1973). What we find exciting about these findings is that they provide one wedge into the Big 5 that makes room for this broad range of characteristics to be related to the Big 5 traits.

Going to such a small goal level also raises the question of whether the relationships between goals and trait manifestations become obvious at this specific level. It is obvious, so the objection goes, that goals need actions in order to be accomplished – how else would one get things done other than by being industrious? First, that is precisely the rationale for the going to the specific level. Going to the specific level allowed the connections between goals and states to emerge more clearly, whereas relating broad goals to broad traits has always left uncertainty about the specifics of the relationship. Second, what these findings show is that the actions and operations needed by the goals are precisely those actions and operations that are present in manifestations of the Big Five. This leads to the conclusion that the Big Five are present as people’s ways of accomplishing their goals. Third, the relationships are not by logical necessity, because it is possible that people pursue the goals of having fun and connecting with others in quiet, gentle, and undemanding ways. It is possible people pursue the goal of getting things done in disorganized, hectic ways, if those are the relevant individuals’ temperaments. Finally, by demonstrating this strong link between the motivational domain and the trait domain at the specific level, these findings now open the door to bringing in the broader motivational units as precursors of the specific goals.
A limitation of Study 2’s field experiment was that it lacked full experimental control, because participants completed the experiment outside the lab. It is possible that participants may have lied about what they did. While we did add several checks to ensure compliance, and the results of Study 3 showed that observers agreed with targets about the goals they reported pursuing and the traits they reported manifesting, it would be useful in future research to conduct similar studies in the lab.

In Study 1, we identified all the positively valenced hypothesized state functions correctly, but we correctly identified only two of the negatively valenced hypothesized state functions. Four of the eight negatively valenced hypothesized state functions surprisingly had significant, positive relationships with the hypothesized personality state. This finding raises the question—are there actually momentary goals for low levels of a personality state? One possible explanation of these findings was unclear wording or incorrect goal selection. Errors in goal selection may have prevented us from finding the goals for low levels of a personality state.

An alternative explanation is that low levels of personality states do not have functions, but rather are manifest when not pursuing the goals that predict high levels of personality states. This would suggest that the part of the reason people are not conscientious or are not extraverted is that they simply don’t often pursue the goals that cause conscientiousness and extraversion. Indeed, low levels of extraversion are characterized by being quiet, unassertive, unsociable, and unenergetic; low levels of conscientiousness are characterized by being disorganized, lazy, unreliable, and irresponsible. There is no clear movement toward a desired objective in these adjectives, and thus there may be no clear function of them. Future work should further study this part of the goal-state relationships.

Conclusions
Although traits and motivation are two important and prominent concepts in personality psychology, they are treated mainly separately. Their treatment has had this uneasy separation because it is not clear how traits and motivation are related to each other. This paper argued
that traits are intricately connected to motivation. On the one hand, goals are part of a latent, explanatory part of traits, and on the other hand, that goals cause the actual manifestations of traits in momentary actions, beliefs, and cognitions, revealing the functional role of trait manifestations as the means by which people accomplish their goals. Extraversion manifestations provided the means for accomplishing the goals of trying to become the center of attention, trying to fit in, and trying to have fun, among other goals; conscientiousness manifestations provided the means for trying to direct one’s energy where it was needed most, trying to use time effectively, and for trying to get things done, among other goals.

The evidence for these conclusions was that when people changed the goals they were trying to accomplish, they rapidly changed their trait manifestations accordingly, both associatively across ten days of their daily lives and causally when randomly assigned goals in an experiment. Goal pursuit effects were strong, predicting close to half the variance in trait manifestation from just a handful of goals. Goal pursuit predicted trait manifestation variation both within-person and between-person, such that different people manifested different traits because they manifested different goals and each person manifested different traits at different times because he or she pursued different goals at different times. Goal pursuit as rated by targets predicted trait manifestation as rated by observers. Goal pursuit predicted manifestation for two different traits, one easy to see as goal-related (conscientiousness) and one not so easy to see as goal-related (extraversion). Goals predicted manifestations discriminatively, such that goals predicted only their corresponding traits and had little or no relation to non-corresponding traits. Thus, these findings provided strong evidence for a conception of traits in which traits are wholes with an explanatory part inclusive of goals and a manifested part caused by and useful for goals; they provided one answer to long-standing questions about the conceptual relations between traits and motivation; and they clarified the meaning and nature of extraversion and conscientiousness by revealing what these traits are for.