

Chapter 10

Intra-individual variability in personality: A methodological review

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Introduction

The notion that personality traits represent relatively stable and enduring patterns of behavior does not preclude variability in trait-related behavior across situations. For example, a friend you would generally consider to be friendly will certainly, due to a bad mood, a lack of sleep, an argument with a loved one, etc., behave in a manner that is a bit gruff on occasion. Recognizing that largely enduring behavioral patterns and behavioral variability are not mutually exclusive, work conducted by interactionist theorists, such as [Mischel and Shoda's \(1999\)](#) cognitive-affect personality system (CAPS) and [Fleeson and Jayawickreme's \(2015\)](#) whole trait theory (WTT) has begun to expand the concept of personality by differentiating personality “traits” from within-person variability in personality “states.” Personality traits reflect the notion of stable behavioral patterns, whereas personality states reflect the variability in trait-related behavior across situations.

Theory and research on personality states has only emerged over the last two decades, and there remains no agreed upon definition of what personality states are and what they are not. In a recent theory paper, [Fleeson \(2017\)](#) highlighted

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this sentiment, posing the question: “what actually is the key variable in a within-person study of personality?” (p. 4). For the purposes of this book chapter, *state personality*, similar to Wilt and Revelle’s (2015) conception of personality, is defined as an individual’s affect, behavior, cognition, and desire at a particular point in time contained within a particular situation, context, or occasion. Observation of such moment-to-moment expressions of trait-related behavior is termed *intra-individual variability in personality (IIVP)*.

Research on personality states and IIVP has shown that some people demonstrate rather narrow ranges of trait-related behaviors across observations whereas others show considerable variability (Fleeson & Gallagher, 2009). For example, some people, regardless of the situational context, behave in ways that are indicative of moderate levels of extraversion, whereas other people will be quite introverted in some situations and quite extraverted in others. Further, the extent to which levels of IIVP are general or trait specific is not yet fully known, but there is some evidence that a person who expresses higher levels of IIVP in a particular trait may be more likely to express higher levels of IIVP in other traits (Jones, Brown, Serfass, & Sherman, 2017). For example, a person who expresses a wide range of agreeableness-related behaviors over time and across situations may also be likely to express a wide range of conscientiousness-related behaviors over time and across situations. Although this new way of thinking about and conceptualizing personality traits has provided some intriguing findings, our science has only scratched the surface of understanding the nature of IIVP and its potential for predicting human behavior. Much work remains to address even the most fundamental issues, such as how to define, measure, and analyze personality states and IIVP.

In this chapter, we provide a review of current theoretical perspectives, measurement issues, and analytic approaches associated with the study of IIVP. The first section outlines theoretical perspectives that have provided the foundation upon which IIVP rests. We then present a careful examination of the emerging IIVP literature to summarize its key findings and to make recommendations for moving the research base forward. Specifically, we coded 82 empirical examinations of IIVP to identify the theoretical perspective on which the research was founded, the methods employed, how personality states were assessed, and the analytic approaches used. Following the discussion of our findings, we present some thoughts for future directions in developing theory, methods, and analytic techniques. Last, we summarize the key findings within the IIVP literature.

Foundational issues and approaches underlying IIVP

The concept of personality traits as a way to describe and distinguish individuals’ typical ways of thinking, feeling, and behaving has guided personality research from the very beginning (Allport, 1937; Carr & Kingsbury, 1938; Johnson, Johnson, & Stanne, 1985). While the field has only rather recently

begun to vigorously investigate personality states, the distinction between personality traits and personality states is not a new idea. In fact, the concept of personality states was introduced more than 50 years ago (e.g., Cattell, 1966; Cattell & Scheier, 1961; Nesselroade & Bartsch, 1977; Spielberger, 1972; see also Chapters 11 and 14). But the foundations for the study of IIVP were laid well before the concept of personality states was discussed. That is, although the language we use today is different and the research methodologies are more sophisticated, today's IIVP researchers are wrestling with the same fundamental issue that Gordon Allport and Henry Murray wrestled with in the first half of the 1900s.

Allport (1937) defined personality as “the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment” (p. 48) and explained “novel and somewhat daring methods will be required” (p. 20) to study personality. Allport's work was also the precursor to modern day personality research on life stories. Specifically, he advocated the use of personal documents to study personality in both general (nomothetic) and specific (idiographic) methods (Allport, 1937). Research on life stories emphasizes examining personality at the individual level by capturing meaning and understanding of an individual's life. Life stories lend themselves as an idiographic method to study intra-individual variability because they capture the minute detail of how one's personality changes and develops over time. Allport speculated on the factors that might lead people to engage in different levels of trait-related behavior from one occasion to the next, which is something that IIVP researchers are still striving to understand.

In his 1938 book, *Explorations in Psychology*, Henry Murray described an ambitious study where he recruited a small group of individuals to participate in a series of lab experiments and information gathering sessions, which allowed Murray and his collaborators to observe their behavior multiple times across various situations. Murray identified nine factors that interfered with the study of these individuals, including “variability of the subject's personality”. Here he explained that inconsistencies in an individual's behavior is their characteristic range of variability, which itself is an aspect of personality. Murray (1938) described how the individual's previous experiences influence how they behave in the experimental session and that there is “little opportunity... to discover what daily shocks, victories, jobs and sorrows occur in the subject's life” (p. 16). His colleagues were prone to discounting this variability as ‘getting to know’ the individual better over the course of a study (i.e., a figment of measurement error), but Murray suggested that within-person differences in personality could arise from a variety of environmental and intrapersonal influences, such as societal pressures to behave in certain ways in certain contexts. While the examples provided by Murray (i.e., victories, jobs, and sorrows) could be interpreted as aspects of the person causing variability for a short period of time, understanding the amount one changes as a result of smaller daily “shocks,” could provide a better understanding of them as an individual. This behavioral

variability could be considered an early observation of what IIVP research would come to call a personality state.

In the decade following Murray's (1938) book, Raymond Cattell and Alfred Baldwin introduced theoretical and methodological approaches to studying variability in personality. Cattell advocated the use of the P-technique to study IIVP or what he referred to as identifying "functionally unitary personality traits" (Cattell, Cattell, & Rhymer, 1947, p. 267). The P-technique is a method for studying a single individual by applying measurement with covariational analysis. In other words, one person is measured on multiple variables at multiple occasions. Correlation clusters demonstrate information about surface traits and rotated factors provide information about source traits (Cattell et al., 1947). Alfred Baldwin used a similar approach, but his theoretical framework differed. Specifically, Baldwin examined the difference between an individual's personality traits and traits common to a group. As part of his work, he introduced the intra-individual correlation coefficient as "a measure of the relationship between two variables (from time to time) within the behavior of a single individual" (Baldwin, 1946, pp. 164–165). Baldwin argued that one individual may interpret several situations as equivalent and respond similarly in each situation, but another individual might respond differently in each situation. Thus, he advocated that to measure an individual's personality, one must obtain "knowledge of the environmental situations which are equivalent to him" and that "these categories of the equivalent situations may be objectively obtained by the intra-individual correlation analysis" (Baldwin, 1946, p. 166).

The perspectives outlined by Baldwin and Cattell did not immediately take hold in mainstream psychology, primarily due to the difficulty in implementing studies of these phenomenon at that time (Nesselroade & Ford, 1985) and the emerging dominance of the individual differences (i.e., trait) approach. In fact, Baldwin himself described the intra-individual statistical method as "too time consuming and laborious to be of much practical use" (Baldwin, 1946, pp. 164–165). While these approaches were largely forgotten as trait models began to dominate the study of personality (Digman, 1990), the work by Baldwin and Cattell established a strong theoretical and empirical foundation for future considerations of IIVP.

Research on personality states and personality variability began to gain speed after one particularly important turning point in our understanding of personality, the "person-situation debate," which pitted the psychometric, person-based approach (e.g., Allport, 1931) against the social, situational perspective (e.g., Mischel, 1968) in a debate about the key drivers of human behavior. In Walter Mischel's, 1968 book, "*Personality and Assessment*," which provided a thorough review of the literature on personality traits and behavior, Mischel made two crucial observations. First, he noted that self-report measures of personality rarely, if ever, correlate with behavior at a level above 0.30. He argued that if personality traits were useful constructs, then we would expect higher correlations between trait measures and behavior. Second, he noted that when

peoples' behaviors (said to be indicative of the same trait) across multiple situations were correlated, those correlations were small. Again, he argued that if personality traits are defined as relatively stable characteristics, then a person's behavior in one situation should be similar to their behavior in other, similar situations. Based on these observations, [Mischel \(1968\)](#) concluded, "behavioral consistencies have not been demonstrated, and the concept of personality traits as broad predispositions is thus untenable" (p. 140). In fact, he suggested that the lack of consistency in behavior across situations meant that behavior should be considered highly situationally specific, saying, "it is evident that the behaviors which are often construed as stable personality trait indicators actually are highly specific and depend on the details of the evoking situations" ([Mischel, 1968](#), p. 37).

Mischel's assertion that it was the situation and not the person that is primarily responsible for behavior made a significant impact on the field of personality psychology ([Donnellan, Lucas, & Fleeson, 2009](#); [Mischel, 2009](#)). As personality psychologists struggled to mount a response, others continued to attack the concept of traits, even coming to question whether the concept of personality was a viable area of study within psychology. Reflecting on that period of time, [Jackson and Paunonen \(1980\)](#), for example, wrote that trait theorists were like "witches of 300 years ago...there is confidence in their existence, and even possibly their sinister properties, although one is hard pressed to find one in the flesh or even meet someone who has" (p. 523). Although it took about a decade, personality psychologists mustered a compelling argument in the form of the principle of aggregation (e.g., [Epstein & O'Brien, 1985](#)).

The principle of aggregation argues that "the sum of a set of multiple measurements is a more stable and unbiased estimator than any single measurement from the set" ([Ossenkopp & Mazmanian, 1985](#), p. 339). Ultimately, the principle suggests that patterns of behavior will emerge when multiple instances of behavior are considered. For example, in trying to predict how friendly someone will be a week from next Tuesday, we would do a pretty poor job if we based that prediction only on how friendly that person was to us when we saw them at 4:30 pm yesterday afternoon. We would likely make a far better prediction if we were to consider observations of their friendliness over the course of 10 to 15 different interactions. Reacting to the findings and conclusions of [Mischel \(1968\)](#), [Epstein and O'Brien \(1985\)](#) found that when behavior was aggregated over time, the average level of trait expression was often very highly correlated with scores from a personality test. They also showed that when several behavioral ratings were considered together (like items in an internal consistency reliability analysis), a considerable degree of reliability could be found even though the individual correlations among the behaviors were rather low. Thus, Mischel's criticisms of personality research could be addressed directly by considering aggregated behavioral observations rather than single behavioral observations. Importantly, the principle of aggregation explicitly acknowledged that behavior varies from situation to situation and that behaviors

within situations can be thought of as personality states (not traits). The principle of aggregation also makes clear that such variability does not invalidate the concept of personality traits but defines them. As such, the person-situation debate and the response from personality psychologists laid a foundation for considering both states and traits and, therefore, for studying patterns of states over time, or IIVP.

Key contemporary theoretical perspectives on IIVP

There are two key contemporary theoretical perspectives to studying IIVP in current literature, the CAPS model of personality (Mischel & Shoda, 1995, 1998, 1999) and WTT (Fleeson & Jayawickreme, 2015). Additionally, there are several other theoretical perspectives used as foundations for studying IIVP. Each of these theoretical perspectives are discussed below.

Cognitive-affective processing system (CAPS)

Mischel and Shoda's (1995, 1998, 1999) CAPS model of personality is a process approach to personality which explains how traits are activated within situations, while accounting for both stability and variability in personality. CAPS posits that individuals display considerable behavioral variability across situations and that this variability is an expression of a stable underlying personality system. The model outlines a set of mediating processes whose interactions result in predictable situation-behavior relations (Mischel & Shoda, 1995, 1998; see also Chapter 5).

According to CAPS, within-person variability is a function of how a person cognitively and affectively processes the situational characteristics they encounter. This process is a function of situation-response contingencies in the form of "if" this situation, "then" that response. Specifically, CAPS posits that people encode the psychological characteristics of the situation, which in turn activates their cognitions and emotions, which leads to a behavioral reaction. Due to individual differences in these situation-cognition/emotion-behavior links, each individual can be characterized by a unique profile that consists of stable clusters of "if [situation], then [behavior]"-prepositions, which represent how specific situational characteristics ("if...") trigger specific behavioral responses ("then..."). Mischel, Shoda, and Mendoza-Denton (2002) called these "personality signatures," but these prepositions are also denoted as "behavioral signatures" (Furr, 2009). The CAPS model uses the term "coherence" to refer to "the stable patterns of systematic behavior variation across situations characterizing individuals," in contrast to the term "consistency," which refers to variation "from one type of situation to another" (Shoda, Mischel, & Wright, 1993, p. 1023).

Recent research has provided empirical support for the notion of behavioral signatures. Specifically, studies have shown that contextualized

situation-behavior patterns can be more stable predictors than average trait levels (Furr & Funder, 2004), with the predictive validity of the contextualized situation-behavior patterns increasing when situations become more similar (Furr & Funder, 2004; Sherman, Nave, & Funder, 2010). For example, Minbashian, Wood, and Beckmann (2010) demonstrated that people differ in the extent to which their level of conscientiousness varies as a function of task demands at work and showed that these individual differences in “if...then...”-contingencies predict adaptive performance on a lab task, over and beyond the level of trait conscientiousness. This type of empirical work suggests that assessing how personality is expressed as a function of situational demands has the potential to substantially improve the predictive validity of personality. For instance, a better understanding of how situational factors in a job (such as task demands) lead to personality variability may yield better insights into who is more or less likely to perform well on the job.

Whole trait theory and density distributions

Fleeson’s (2001, 2007) concept of “density distributions” laid the foundation for WTT (Fleeson & Jayawickreme, 2015), which remains one of the (if not the most) common theories of IIVP. Fleeson’s work describes personality as a dynamic system that consists of both between-person stability and within-person variability (Fleeson, 2001, 2007; Fleeson & Jayawickreme, 2015). This perspective is a “compromise” between the structural (e.g., Big Five) and process approaches (e.g., CAPS) to personality because it integrates the two and demonstrates that personality traits can be simultaneously characterized as having high levels of stability and situation specific variability (Fleeson, 2001). While most researchers agree that both the nature of the situation and a person’s trait influences the degree of trait-related behavior expressed in the given situation, there is less consensus about the relationship between states and traits. WTT maintains that momentary expressions of traits should be referred to as the individual’s personality states.

In his initial foray into describing an integrated view of personality, Fleeson (2001) posited that personality traits can be conceptualized in terms of “density distributions” that characterize an individual’s trait-level personality as a distribution of state-level behavioral expressions. Consider observing a person in a number of social situations, in the first situation their behavior evidences a high degree of extraversion. In the second situation they still behave in an extraverted way, but to less of a degree than the first situation. In the third situation they are neither particularly introverted nor extraverted. In a fourth situation, they behave in a modestly introverted way. Continuing these observations over a large number of situations, the person’s extraverted-related behaviors would form a (density) distribution.

An assumption made in the density distribution approach is that states are essentially one-to-one reflections of traits. Thus, whole trait theorists, who rely

on this idea of density distributions, assume that state personality can be characterized with the same content and scales that have been used to assess traits for decades after making minor edits to survey questions (e.g., modifying item stems to ask respondents about their thoughts, feelings, and behavior “right now” as opposed to “in general”). This assumption allows behavior to be assessed at the state level and the combination of multiple “trait-relevant states” forms a distribution. A simple average across instances is “among the most predictable variables in psychology” (Fleeson, 2001, p. 1011). However, meaningful information about a given personality trait for an individual can also be obtained from other parameters used to describe the distribution of states, such as standard deviation, minimum, and maximum, for an individual for a particular trait domain (e.g., extroversion). Research has shown that people differ reliably from one another in all of these and other basic parameters (e.g., Dalal et al., 2015; Fleeson, 2001, 2007; Fleeson & Gallagher, 2009; Fournier, Moskowitz, & Zuroff, 2009).

Fleeson and Jayawickreme (2015) expanded the idea of density distributions to propose WTT, which argues that in order to obtain an adequate understanding of an individual’s personality, scholars must consider not only the descriptive side of traits (i.e., density distributions of states) but also the explanatory nature of traits (i.e., social-cognitive mechanisms that produce behaviors). WTT claims that the two separate components of description and explanation should be integrated into a “whole traits” perspective that considers the specific explanatory mechanisms responsible for the descriptive side of traits. Given that Fleeson’s (2001, 2007) concept of density distributions addresses the descriptive side of traits, Fleeson and Jayawickreme (2015) use WTT to expand on the explanatory side by integrating the trait approach with the social-cognitive approach (e.g., Allport, 1937; Mischel & Shoda, 1995). Specifically, WTT poses that social-cognitive mechanisms—the “information processing mechanisms that are connected to affect and motivation and that have to do with interpreting changing situations and events...e.g., goals, beliefs, values, scripts, life stories” (Fleeson & Jayawickreme, 2015, p. 84)—are what predicts the nature of an individual’s density distribution for a given personality trait. In sum, the key argument underlying WTT is that while density distributions of states describe *what* people do, it is also important to examine *why* people differ from each other in the moment and across situations by identifying specific social-cognitive mechanisms that explain state-level interactions between situations and persons.

It should be noted that both density distribution and WTT were developed under the assumption that personality is best defined according to the Big Five Factor (BFF) structural model (Fleeson & Jayawickreme, 2015). While Fleeson and colleagues do criticize the BFF for its incomplete description of how the five traits manifest in daily life, they argue that descriptions of factors such as extroversion and conscientiousness are a crucial starting point to understanding personality. And the BFF has allowed for great progress in our

understanding of density distributions, WTT, and many of the theories that came before (e.g., CAPS); however, a reliance on the BFF may (or may not) act as a hindrance to the study of IIVP in other types of personality such as the core-self evaluations model or the interpersonal circumplex. As [Fleeson and Jayawickreme \(2015\)](#) note, “the evidence in favor of the Big 5 is just too good. However, science requires that the Big 5 move beyond merely describing individual differences and begin to explain the mechanisms underlying the Big 5” (p. 84).

Additional theoretical perspectives

IIVP in interpersonal behavior. In the social psychology literature, Debbie S. Moskowitz and colleagues have examined IIVP in social situations. Much like how WTT draws on the Big Five, this work on IIVP in interpersonal behavior is based on the interpersonal circumplex, which defines personality as a combination of two dimensions: (1) dominance versus submissiveness and (2) agreeableness versus quarrelsomeness (see [Moskowitz, 1994](#)). According to this perspective, individuals’ personality traits are scored by plotting their location on a grid created by the two dimensions. IIVP in interpersonal circumplex scores is defined by [Moskowitz and Zuroff \(2004\)](#) as interpersonal signatures of flux, pulse, and spin. Flux refers to “variability about an individual’s mean score on an interpersonal behavior” ([Moskowitz & Zuroff, 2004](#), p. 880) which can be measured by calculating the standard deviation of one’s average across the distribution of state scores. Pulse refers to variability in the intensity of personality scores (e.g., Jane is generally more agreeable than quarrelsome, but she is highly agreeable in meetings with her coworkers but less agreeable at parties with her friends). Pulse is calculated as the standard deviation of “an individual’s mean extremity of behavior scores on the interpersonal circumplex” ([Moskowitz & Zuroff, 2004](#), p. 880). Finally, spin refers to the extent to which an individual’s interpersonal behavior spins around the four quadrants of the interpersonal circumplex (e.g., in some situations an individual falls under dominant-agreeable but in others dominant-quarrelsome). This is measured as the “variability about an individual’s mean angular coordinate on the interpersonal circumplex” ([Moskowitz & Zuroff, 2004](#), p. 880). Spin is unique to research that adopts the interpersonal circumplex definition of personality. However, flux is similar to how IIVP is conceptualized by WTT (both are focused on the variability of an individual’s mean scores) and pulse is similar to the skew and kurtoses of a density distribution in WTT. The scores of flux, pulse, and spin could be expanded to other personality characteristics that are amenable to being measured on a grid.

Personality strength theory. [Dalal et al.’s \(2015\)](#) personality strength theory can be thought of as the person-related counterpart of situation strength. According to the theory, “a strong personality reduces variability in behavior across situations within persons” (p. 263). In other words, an individual’s

personality is stronger when it promotes similar behaviors across different situations but weaker if it does not have as much of an influence across situations. An individual with a strong personality is considered to be inoculated from the influence of the situation. The strength of one's personality characteristics is thought to influence behavior by determining what situational cues individuals notice and the extent to which those cues elicit the corresponding personality-related behavior. Consequently, strong personality traits lead to high consistency in personality across situations with similar cues. The concept of personality strength is highly related to IIVP in terms of consistency across situations; however, it should be noted that an individual's personality strength and IIVP on a given characteristic are related but independent constructs. In other words, personality strength may be an explanation for or antecedent of IIVP.

Personality triad theory. Funder's (2006) personality triad theory builds on Lewin's hypothesis that behavior (B) is a function of the person (P) and the environment (E), often represented by the formula $B = f(P, E)$. The basic premise is that the study of personality must consider the person, the situation, and behavior as three interconnected elements (i.e., the personality triad). In order to understand any element of the personality triad, information is needed about the other two elements. As Funder (2001) claims,

if we know everything about a person, and everything about his or her situation, and we should be able to predict what he or she will do. By the same token, a knowledge of a person and his or her behavior should lead us to understand the situation, and a knowledge of a situation and a behavior should lead us to understand the person (p. 210).

Funder's theory highlights the inadequacy of attempting to understand behavior based on only knowledge of the situation or the person. Thus, IIVP studies can adopt this perspective in order to understand the multiple sources of within-person variability. For example, while it is useful to study an individual's variability in behavior in a specific situation in order to demonstrate IIVP and it is useful to study an individual's variability in behavior across several situations to demonstrate how a person's IIVP varies across situations, we must not forget the interrelatedness of the person, the situation, and behavior. As research on IIVP progresses, it will be important for studies to study IIVP by examining the person, the situation, and behavior simultaneously.

Trait activation theory (TAT). An interactionist approach to personality, TAT suggests that people are sensitive to situational cues and, as a result, change their behavior in response to the situations they encounter (Tett & Burnett, 2003; Tett & Guterman, 2000). The expression of traits is therefore situation-bound, with psychologically active characteristics of situations triggering trait-relevant behavior (Mischel, 1973; Mischel & Shoda, 1995, 2008; Sherman, Rauthmann, Brown, Serfass, & Jones, 2015; Tett & Burnett, 2003; Tett & Guterman, 2000). TAT draws heavily from the concept of situational strength; strong situations are those that have strong norms and expectations

for behavior so that most people, despite personal tendencies, act fairly similarly. Very strong situations, where socially acceptable behaviors are constrained, can cause an individual to behave in a way that is not consistent with the way they would normally act (i.e., their trait level). In contrast, weak situations have few constraints on what is considered socially acceptable and, therefore, allow individuals to express behaviors that are consistent with their traits. Hence, the link between personality and trait-relevant behavior is stronger in situations that are relatively weak but highly relevant to the trait under consideration (i.e., situations that contain more cues for trait-relevant behavior), which suggests that situational trait relevance moderates the relation between personality and behavior. For example, in a work context, an individual's standing on a particular trait is more predictive of their performance when the job or task is highly relevant for that particular trait, such as conscientiousness and situations that require an extreme amount of attention to details (Kell, Rittmayer, Crook, & Motowidlo, 2010).

Latent state-trait theory (LST). LST was developed as a reaction to person-situation debate. Similar to Funder's (2006) personality triad theory, LST asserts that persons, situations, and the interaction between persons and situations are all important sources of variance in determining behavior (Steyer, Schmitt, & Eid, 1999). Uniquely, this perspective advocates against manipulating situation characteristics experimentally and crossing situation factors with personality factors in a single design, as has been commonly done in interactionist studies (cf. Bowers, 1973; Endler & Hunt, 1966; Sarason, Smith, & Diener, 1975). In order to consider sources of variance, LST represents traits, situations, and their interactions in structural equation models (SEMs) as integral parts rather than using aggregation. These factors create a psychological state that varies over time as things change, which is closer to how real life occurs. States and traits, as well as situations and/or interaction effects and measurement errors, are explicit components of the SEMs with latent variables. LST aides in pushing research in IIVP forward because it provides an alternative way of conceptualizing and modeling variability in personality.

Examining the current state of the literature and future recommendations

In order to determine where the science of IIVP should go, it is necessary to know the present state of the science. To this end, we gathered articles that reported empirical examinations of IIVP and coded them to gain information about the theoretical perspectives, research designs, and statistical methods used in each study. In this section, we first describe our coding procedure. Then we describe the results of our review which is organized into four sections.

To identify articles for coding, we searched Academic Search Complete, Business Search Complete, PsychINFO, and PsychARTICLES databases. We conducted the search by pairing the term "personality" with each of the

following terms: “intra-individual variability,” “within-person,” “intra-individual,” “ecological sampling method,” “experience sampling,” “momentary assessment,” “diary study,” “everyday experience methods,” “daily diary,” or “event sampling.” We also searched for articles published in five top-tier^a personality psychology journals (e.g., *Journal of Personality and Social Psychology*) that mentioned any of our search terms except “personality.” These searches resulted in the identification of 976 articles. We read each articles’ abstract to determine whether it included empirical data relevant to the study of IIVP, which resulted in 96 articles retained. We obtained full text versions of the 96 articles and reviewed them to ensure they met the following inclusion criteria: (a) written in English; (b) captured IIVP by measuring personality states at more than two time-points; (c) the sample consisted of healthy adults (i.e., studies were excluded if the sample was individuals under the age of 18 and/or focused on individuals with a specific psychological disorders); and (d) the results were not based on data reported in another article (e.g., dissertations that were later published). In total, 82 studies from 62 articles met our inclusion criteria.^b

The articles included in our sample were published between 1994 and 2019, but most ($N = 64$; 78%) were published in the last decade 2009–19. Although most of the research was based on samples drawn in the U.S. ($N = 42$, 51%) or Canada ($N = 16$, 20%), there were samples from a number of other countries, including Australia, Austria, Belgium, Finland, Germany, Italy, Switzerland, and the U.K.

A coding scheme was developed based on themes from previous work, including McCormick, Reeves, Downes, Li, and Ilies’s (2018) recommendations and Fleeson and Gallagher’s (2009) internal meta-analysis. We used a subsample of 10 articles to calibrate our coding, and then coded the remaining articles independently. Checks were done throughout the coding process; articles were randomly selected to be coded by both coders and the results compared to ensure coding accuracy remained high. Any disagreements between coders were discussed until consensus was reached. Coding required assessment of the full article. Additional codes were added throughout the coding process. In other words, coding categories were both developed a-priori and emerged from the analyses. Codes included the IIVP theory on which the research was based type of intensive repeated measurement design, signaling strategy, measurement of key variables, and data analytic techniques used.

Information gleaned from our review of IIVP personality studies tells four stories. First, theoretical person-centric perspectives of personality have grown in number but have not been adequately tested, compared, or integrated. Second, there are both commonalities and distinctions in the methods researchers

a. Journals were chosen based on 2018 1-year impact factors reported by Web of Science.

b. Individual studies reported in a single manuscript were separated in order to capture the unique methodological features of each data collection and analysis.

have used to collect within-person data. Third, there is a concerning lack of agreement across prior empirical studies of IIVP in how to define and measure within-person personality. Finally, there are emerging analytical techniques that allow for more powerful and meaningful ways of modeling repeated within-person assessments. We organize our results according to these four themes: (a) theories of IIVP; (b) research designs for intensive longitudinal data (ILD); (c) personality state measurement; and (d) statistical techniques for examining IIVP. Within each section, future research directions are discussed. Rather than separating our recommendations for future directions as a standalone part of the chapter, we chose to dive right into our recommendations for future directions within each section.

Theories of IIVP

Table 1 presents the theoretical perspectives underlying each of the studies, including a brief description of each and information about how often each perspective was used. Most of the studies reviewed draw upon Fleeson and Jayawickreme's (2015) WTT ($N = 56$, 68%) or Mischel and Shoda's (1995) CAPS model ($N = 19$, 23%), both of which were described in detail earlier. The popularity of Fleeson's density distributions and WTT is in part due to the number of articles he co-authored; of the 56 studies using one of these theoretical approaches, Fleeson co-authored 17 of them. However, even when considering those studies for which he was not a co-author ($N = 39$), the number of studies based on WTT was still far higher than any other theoretical perspective. Several studies used a combination of theoretical perspectives ($N = 11$, 13%) and three additional theoretical perspectives were referenced: (a) Moskowitz and Zuroff's (2004) concept of IIVP in interpersonal signatures ($N = 6$, 7%), (b) Dalal et al.'s (2015) personality strength theory ($N = 4$, 5%), and (c) Funder's (2006) personality triad theory ($N = 2$, 2%).

Future directions for theories of IIVP

As research on IIVP continues, current theory will need to be pruned and refined to reflect advances in knowledge. Aspects of the theoretical perspectives discussed in this chapter could be integrated to create a more comprehensive person-centric personality framework. There are at least three reasons why such an integrative framework would be of value to the literature. First, the existing theoretical perspectives pull from the same basic perspectives but have yet to be integrated in a meaningful way. Second, these theoretical perspectives could expand on how time can and should be taken into account across situations. Last, there needs to be more careful alignment between IIVP theory and methods used to investigate that theory.

Many of the studies in our review reference both Mischel and Shoda's (1995) CAPS and Fleeson and Jayawickreme's (2015) WTT to set the stage

TABLE 1 Theories of intra-individual variability in personality over short timeframes.

Theory	Percent of total studies (<i>n</i> = 82)	Description
Whole-trait/density distributions theory (Fleeson, 2001; Fleeson & Jayawickreme, 2015)	68%	An individual's trait-level on a given personality characteristic can be conceptualized as "density distributions" of state-level behavioral expressions across situations and short periods. While these density distributions are themselves a type of individual difference, personality traits can be operationalized as distribution parameters (mean, standard deviation, minimum, maximum)
Cognitive-affective processing system (Mischel & Shoda, 1995)	23%	Individuals display variability in their behaviors across situations and time because of individual-specific, stable "if [situation], then [behavior]" signatures. These personality signatures allow the same situation to elicit different behaviors across individuals due to differences in how individuals cognitively and affectively respond to situation characteristics, which can be understood as mediating mechanisms (e.g., encoding strategies; self-regulatory strategies)
Interpersonal Signatures of Flux, Pulse, & Spin (Moskowitz & Zuroff, 2004)	7%	An individual's IIVP in social situations occurs in response to the perceived variations in social behavior of others (Fournier et al., 2009). These interpersonal signatures are characterized by three components: interpersonal flux, pulse, and spin (Moskowitz & Zuroff, 2004). Flux refers to variability in trait standing. Pulse refers to variability in the intensity of personality scores. Spin refers to variability in the which of the four quadrants of the interpersonal circumplex individuals fall
Personality strength theory (Dalal et al., 2015)	5%	Individuals differ in the strength of their personality characteristics, or in "the forcefulness of internal cues regarding the desirability of potential behaviors" (Dalal et al., 2015, p. 7). Stronger personality begets lower variability in situations experienced over time (via situational choice, shaping, and interpretation) and, consequently, lower variability over time. This concept of a person's tendency to vary on a given attribute across time has also been termed traitedness (Baumeister & Tice, 1988) or personality stability
Personality triad theory (Funder, 2006)	2%	Personality should be understood as the result three interconnected elements: (a) the person; (b) the situation; and (c) the behavior. This triad can be operationalized as a formula such that knowledge about any two of the three components leads to an understanding of the third component

for exploring IIVP. These two major theoretical perspectives both take a process approach to examining personality variability, with [Fleeson \(2001\)](#) integrating both structure and process views of personality. Fleeson's density distribution approach demonstrates that there is a need for both views and provides a method for investigating those domains. Additionally, there has been a lack of distinction in the literature between true personality states and what [Fleeson \(2017\)](#) calls "false states." Within WTT, momentary behaviors are assumed to be the reflection of trait-level personality; however, momentary state personality can cause momentary behaviors that do not fit the definition of personality, either because the behavior fits the description of personality but is not reflective of the individual's trait-levels (e.g., extroversion in response to situational pressures not as a function of one's own trait-level tendencies) or the behavior is caused by the trait but does not fit the description of personality (e.g., an individual high in trait-level consciousness might engage in more impression management). This aspect of WTT is theoretically rich and quite interesting but needs to be investigated empirically.

[Sherman et al. \(2015\)](#) drew upon four theoretical perspectives, five factor theory (FFT; [McCrae & Costa Jr, 1994](#)), CAPS ([Mischel, 1973](#); [Mischel & Shoda, 1995, 2008](#)), TAT ([Tett & Guterman, 2000](#)), and WTT ([Fleeson & Jayawickreme, 2015](#)). Their study, which used situation assessment and experience sampling methodology, found support for an additive model in which both personality traits and situation characteristics independently predict real time expressions of behavior and emotion. These findings have implications for the four prominent theoretical perspectives, but additional work could continue to integrate the good from existing theoretical perspectives in order to guide future research. For example, future empirical studies of IIVP could draw on the ideas of TAT and situational strength theory to expand our understanding of IIVP. Information about the strength of the situation could be gathered as part of the experience sampling method (ESM) survey, allowing researchers to explore whether IIVP is a result of people spending time in strong situations that are not consistent with their traits. Consider an individual who is extraverted but who works in a situation where there are strong social norms for introversion. Participating in an ESM study, perhaps half of the times that they are surveyed they are in weak situations which allow them to express their typical levels of extraversion. The other half of the times they are surveyed they are in the work situation (with strong social norms for introversion). In this case, the person could show a rather high level of IIVP for extraversion. While that information would be an accurate reflection of the person's personality states over the course of the study, it would likely tell us more about the nature of the situations that he/she was in than it would be the nature of his/her extraversion.

An integrative perspective should take the role of time into account, however; few of the studies we coded incorporated temporal elements to their within-person hypotheses (e.g., [McCormick et al., 2018](#)). Historically, time is conceptualized as an unbroken continuum and "standard models characterize

effects of the passage of time as accumulating at a uniform rate” (Walls & Schafer, 2006, p. 6). However, as more sophisticated analytical techniques are now possible, it is important to consider the heterogeneity of time in our theoretical frameworks. Behavior can differ simply due to the time of day (e.g., morning vs. night), day of the week (e.g., a Monday or a Wednesday), or the season (e.g., Winter vs. Summer). Effects of time can be cyclical, periodic, or vary randomly depending on the biological and social processes involved in the construct of interest.

Pitariu and Ployhart (2010) recommend a framework for evaluating the temporal precision of hypotheses, which has three categories for how hypotheses can incorporate the dynamics of change over time. Incorporating time, shape, and duration into within-person hypotheses should allow for greater theoretical advancement because it provides specific evidence that can be contributed to the general knowledge about a construct, in this case-IIVP. When we assess states, we do so at a given point in time. Simply looking at a set of states together, such as to calculate IIVP, fails to take into account that the states can be ordered with respect to time. Considering time may allow researchers to examine the extent to which states fluctuate from assessment to assessment (not just across all assessments), allowing researchers to look more deeply at dynamic processes that shape the expression of personality from occasion to occasion within a particular individual. Technology allows us to easily capture the times at which the person responded to the questionnaire. Incorporating temporal elements in the hypotheses also allows for the incorporation for the correct method to be used to examine the question at hand.

We suggest that scholars need to more carefully consider the alignment between IIVP theory and the methods they use to investigate that theory. Many of the studies in our sample examined between-person research questions despite collecting person-centric data. For example, Debusscher, Hofmans, and De Fruyt (2016b) examined how state-levels of core self-evaluations (a personality composite that refers to a person’s fundamental evaluation of his/her own self-worth, capabilities, and competences) relates to momentary job performance, seeking to replicate the positive relationship that has been found at the trait-level at the state-level. The purpose of this type of between-person study is to understand generally how individuals differ from each other when IIVP is taken into account. This type of research provides general information about the nature of IIVP but does not address potentially meaningful patterns in state personality that may be idiosyncratic to individuals or subgroups of the population. A more developed understanding of state personality and within-person variability in personality could be achieved through the creation of a refined person-centric personality framework that includes time as an important factor. Such a framework would also aid research on the subfacets of personality and move us beyond the Big Five.

Research designs for intensive longitudinal data

IIVP is typically studied using ILD collection strategies, which allow for measures of personality states to be collected on several occasions from each participant. There are three widely used forms of ILD designs: the ESM, the daily diary method, and event-contingent recording (ECR). Of the studies reviewed, the ESM was the most common research design used to study IIVP ($N = 43$, 52% of the sample), followed by the daily diary method ($N = 17$ or 21%), and the event-contingent recording method (ECR; $N = 14$ or 17%). While ESM, the daily diary method, and ECR differ in their approach, all three methods allow researchers to assess personality states with real-time, in-the-moment assessments. The following sections provide an overview of how state personality and IIVP have been defined and operationalized within ESM and non-ESM designs, followed by a description of the methodological choices, such as signaling strategies and sample size, that researchers must consider when using these designs. Table 2 provides an overview of the signaling strategies used within each method.

TABLE 2 Methodological trends in studies of intra-individual variability in personality by type of intensive repeated measurement design.

	Percent of all studies	ESM	Daily Diary	ECR	Experimental	Other
	($n = 82$) ^a	($n = 43$)	($n = 17$)	($n = 14$)	($n = 4$)	($n = 4$)
Signaling strategy						
Event-contingent only	13%	–	–	71%	–	–
Interval-contingent only	43%	26%	82%	–	100%	100%
Signal-contingent only	23%	37%	–	14%	–	–
Event- & signal-contingent	3%	2%	–	7%	–	–
Interval- & signal-contingent	17%	23%	18%	–	–	–
Interval- & event-contingent	1%	–	–	7%		

Continued

TABLE 2 Methodological trends in studies of intra-individual variability in personality by type of intensive repeated measurement design—cont'd

	Percent of all studies	ESM	Daily Diary	ECR	Experimental	Other
Measurement of state personality						
Trait scales adapted to measure states						
Ames, Rose, and Anderson's (2006) narcissism	2%	—	12%	—	—	—
Bateman and Crant's (1993) proactivity	2%	—	6%	—	—	25%
Church et al.'s (2008) TRQ	1%	—	—	7%	—	—
Costa and McCrae's (1992) NEO	6%	12%	—	—	—	—
Donahue, Robins, Roberts, and John's (1993) BFAS	2%	5%	—	—	—	—
Frese, Fay, Hilburger, Leng, and Tag's (1997) proactivity	1%	—	6%	—	—	—
Goldberg's (1992) markers	29%	33%	18%	7%	75%	75%
Gosling, Rentfrow, and Swann Jr's (2003) TIPI	5%	9%	—	—	—	—
Konrath, Meier, and Bushman's (2014) SINS	1%	—	6%	—	—	—
John and Srivastava's (1999) BFI	9%	9%	18%	—	—	—
Judge, Erez, Bono, and Thoresen's (2003) CSE	4%	5%	6%	—	—	—

TABLE 2 Methodological trends in studies of intra-individual variability in personality by type of intensive repeated measurement design—cont'd

	Percent of all studies	ESM	Daily Diary	ECR	Experimental	Other
Saucier's (1994) mini-markers	1%	2%	—	—	—	—
State scales used and developed						
Church et al.'s (2008) DBQ	4%	—	18%	—	—	—
Moskowitz's (1994) SBI	13%	—	—	79%	—	—
New/Developed	22%	26%	29%	7%	25%	—
Data analysis						
Correlation	13%	12%	12%	21%	25%	—
Multilevel modeling	66%	74%	76%	43%	75%	—
MLSM	2%	—	6%	7%	—	—
MSEM	2%	2%	6%	—	—	—
Traditional MLM	61%	72%	65%	36%	75%	—
Regression	13%	12%	6%	14%	—	75%
SEM	5%	—	6%	14%	—	25%
Social networking analysis	1%	2%	—	—	—	—
Spectral analysis	1%	—	—	7%	—	—

Abbreviations: TRQ, trait-role questionnaire (Church et al., 2008); BFAS, big five aspects scale (Donahue et al., 1993); TIPI, ten item personality inventory (Gosling et al., 2003); SINS, the single item narcissism scale (Konrath et al., 2014); BFI, big five inventory (John & Srivastava, 1999); CSE, core self evaluations scale (Judge et al., 2003); DBQ, daily behavior questionnaire (Church et al., 2008); SBI, the social behavior inventory (Moskowitz, 1994); SEM, structural equation modeling; MLM, multilevel modeling; MSEM, multilevel structural equation modeling; MLSM, mixed effect location scale modeling.

^aPercentages were calculated using the n for that code. Only 77 out of 82 studies provided enough information to code for signaling strategy.

Experience sampling method

ESM, also called ecological sampling methods or ecological momentary assessments, are often touted as the “gold standard” data collection strategy for research on within-person change in psychological phenomena over the course of short periods of time (e.g., a single 5-day work week). ESM designs typically include measurements of state personality taken multiple times per day over the course of many consecutive days. For example, participants in an ESM study might receive a link to an online survey via text-message four times per day at scheduled times (e.g., 9 am, 12 pm, 3 pm, and 6 pm) for 10 consecutive days. This type of data collection method allows researchers to capture large amounts of within-person data with little intrusion on natural rhythms of daily life as participants are able to answer questions (typically short adjective checklists) in the moment with little disruption to what they are currently doing.

Despite the benefits of ESM, as with any method there are negative aspects to consider. ESM is time consuming and costly to both researcher and participant. Due to the burden of responding to multiple surveys across multiple days, it is often necessary to use monetary incentives to ensure participation throughout the study. Administering shorter measures in order to lessen the time it takes to complete surveys may help lessen the burden placed on participants but can also threaten construct validity. These concerns have led scholars to develop a number of alternative methods to meet their specific needs including, but not limited to, the daily diary and event-contingent recording methods.

Daily diary method

The daily diary method is a special case of ESM. Daily diary studies resemble traditional ESM studies in that they use measurements from multiple consecutive days but differ from ESM in that they only require a single measurement per day (Ohly, Sonnentag, Niessen, & Zapf, 2010). For example, in a typical diary study, participants might be provided with 12 survey forms during an initial recruitment meeting and asked to fill out one survey per day for the next 12 evenings. The daily forms might ask participants to record personality in reference to the past 24 h, in the current moment, or in the past 5 min to 3 h, but what is consistent across daily diary studies is that measures are obtained daily. While the daily diary method is less burdensome on participants than designs with multiple surveys per day, the need to recall the past day may introduce biases (e.g., recall bias or social desirability bias; Bolger, Davis, & Rafaeli, 2003). Another benefit to daily diaries is the lower technology requirements, which can be particularly advantageous (or even necessary) for some respondent populations. In fact, early daily diary studies were conducted before advancements in mobile technology enabled in-the-moment assessments; surveys in these early studies were administered in a paper-and-pencil format and were either mailed or given directly to the researches (Bolger et al., 2003).

Event contingent recording method

ECR is another special case of ESM. ECR is similar to traditional ESM in that it requires repeated measurements of state personality taken multiple times per day over the course of many days. ECR differs from traditional ESM, however, in that it focuses on measuring constructs of interest (e.g., personality states) during naturally occurring events. ECR studies tend to rely on participants themselves to identify events of interest as they occur and to report personality in the context of those specific events. For example, an ECR study may be used to examine personality states within specific types of situations (e.g., social events with at least one other person present that lasted at least 5 min). Typically, participants are invited to initial training sessions where they are instructed how to identify the type of situation or event that is of interest to the researchers. Then, researchers might provide participants with 20 survey forms to be completed up to four times per day for the next 5 days within 5 min of encountering the situation of interest. ECR studies provide some of the same benefits as ESM (e.g., obtain large amounts of within-person data); however, they may introduce unique issues (e.g., measurement invariance) given the burden of identifying a key variable of interest (i.e., the situation or event) is placed on participants.

Methodological choices in ILD research designs

Signaling strategies. An important aspect of the various methods for collecting ILD is that they often allow researchers to assess personality states with real-time assessments that occur in the moment via prompts contingent on intervals, signals, and/or naturally occurring events. Signaling schedules determine when and why participants respond to surveys throughout the duration of the study. Timing of measurement occasions may vary from day to day, but studies typically group state-level assessments into either meaningful time-periods to assess IIVP across time and/or contextual categories to assess IIVP across situations. There are three main types of signaling strategies used in ILD designs: signal-, interval-, and event-contingent recording. *Signal-contingent recording* relies on communications from the researcher to participants that reminds them to take a survey. Signals can be randomized, dependent on some naturally occurring event, or scheduled to occur at preplanned time-points. *Interval-contingent recording* schedules are used to prompt responses at specific time-points with specific amount of time between testing administrations. *Event-contingent recording* schedules rely on naturally occurring events to prompt participants to record their survey responses in reference to those events. Across the studies we reviewed, researchers use at least one of these three main types—signal- ($N = 34\%$ or 44%), interval- ($N = 47\%$ or 61%), and event-contingent ($N = 13\%$ or 17%)—and many studies ($N = 16$, 21%) used more than one type of strategy.

Sampling size. A second important methodological choice in ILD studies is sampling size. Researchers must decide not only how many participants to recruit but also how many observations of the construct of interest (e.g., personality states). In other words, given that many IIVP studies are multilevel in nature, sample size must be considered at multiple levels of analysis, e.g., observations of personality (Level 1) are nested within people (Level 2). There was considerable variability in the number of individuals sampled, number of measurement occasions per day, number of days the study lasted, and the total number of measurement occasions per participant across the studies that we reviewed. Participant sample sizes ranged from 26 to 494 ($M = 131.22$, $SD = 92.19$). Studies assessed state personality between 1 and 10 times each day with an average of 4.16 ($SD = 2.84$) occasions per day.^c Studies lasted an average of 14.14 days ($SD = 7.22$), with the shortest study taking 3 days and the longest study taking 45 days.^d The number of measurement occasions per person for the entire study ranged from 3 to 200 with an average of 58.71 ($SD = 53.88$) occasions.^e

The majority of studies reviewed ($N = 76\%$ or 92.68%) did not report using power analyses to determine the minimum sample size of participants or observations required to find hypothesized effects. Interestingly, those few studies ($N = 6\%$ or 7.32%) that reported power analyses did so in reference to participant sample size and relied on similarly sized participant samples of individuals ($M = 128.83$, $SD = 65.93$) compared to studies that did not report power analyses ($M = 131.41$, $SD = 94.28$). While the minimum number of assessments and individuals required to accurately assess IIVP will depend on the exact theoretical perspective employed and type of measurement used in a given study, a conversation about best practices for statistical power at all levels of analysis (i.e., personality states and individuals) should continue within the literature (see [Beal, 2015](#)).

Future directions for ILD research designs

Advances in mobile technology have enabled the viability of the ESM approach. Many early ESM studies used pager technology to signal when participants were to complete questionnaires, which were often administered in a paper-and-pencil format. Now, with the proliferation of smartphone technology, participants can be signaled to take a questionnaire at any time and once they do, the data can be made immediately available to the researcher.

A key drawback of the ESM studies is that they require concerted investments of time from both the researcher and the participant. Our review of the literature indicated that ESM studies last, on average 14.14 days

c. Five studies did not provide enough information on the number of measurement occasions per day.

d. Five studies did not provide enough information on the length of the study.

e. Two studies did not provide enough information on the number of assessments per person.

($SD = 7.22$), though we saw one study that lasted 45 days. This drawback is particularly challenging when IIVP in one or more individual differences covers only a subset of variables that must be examined to answer a research question. For example, consider the hypothesis that individual differences in variability on a particular trait (e.g., affect) will moderate the relationship between two between-persons variables (e.g., conscientiousness and job performance). While data on individuals' conscientiousness and job performance could be gathered quickly with a one-time survey, the amount of effort to collect data on the IIVP in affect would be significant. As such, it would be valuable if there were less effortful means of measuring IIVP in individual differences that could be administered alongside measures of between-person variables.

To this end, there has been some work on frequency estimation of personality states (Edwards & Woehr, 2007; Fleisher, Woehr, Edwards, & Cullen, 2011). Rather than having participants report their overall personality, participants are asked to recall the relative frequency of specific behaviors within a specified time. For example, a participant would indicate how frequently the statement such as "I pay attention to details" is descriptive of their behavior at three levels (% very inaccurate, % neither inaccurate nor accurate, and % very accurate). If the individual frequently pays attention to details, they may respond by indicating that "I pay attention to detail" is descriptive of their behavior 75% of the time, somewhat descriptive of their behavior 20% of the time, and not at all descriptive of their behavior 5% of the time. The frequency-based response method has been shown to increase the predicative validity of personality in explaining work outcomes (Edwards & Woehr, 2007; Fleisher et al., 2011). Although this work is promising, additional evidence for the construct validity of scores from frequency measures is needed. For example, how do frequency scores compare to observed variability on the same trait as captured from an ESM study?

Another promising method for assessing IIVP in a single testing administration is the modified day reconstruction method. The day reconstruction method (DRM; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004) was originally proposed and has been used regularly as a means of studying subjective well-being within the context of individuals' daily lives. However, some researchers have adapted the method to capture other constructs that vary within-person throughout the course of a single day, including affect (e.g., Srivastava, Angelo, & Vallereux, 2008), mental health (e.g., Catalino & Fredrickson, 2011), and even personality (e.g., Newton, Pladevall-Guyer, Gonzalez, & Smith, 2018). DRM asks participants to reconstruct each event episode from the previous day. Specifically, participants are asked to recall the previous day and describe it in detail. Following the reconstruction of the previous day, participants answer a series of questions in reference to the events that they have recalled from the previous day. In a study of IIVP, participants could be asked to complete a questionnaire measure of their personality for each of the events they report for a given day. Such an approach provides a comprehensive

account of an individual's experience, but also allows for the situational context to be taken into account in both within- and between-person analyses. While DRM has been criticized for being overly sensitive to memory bias (Diener & Tay, 2014), it has also been shown to produce state affect scores that show evidence of reliability and validity (Anusic, Lucas, & Donnellan, 2017; Dockray et al., 2010).

New advances in technology allow for even more sophisticated ways to assess variability. For example, one recently proposed method is the electronically activated recorder which is worn by a participant during their daily life activities and records ambient sounds that are later coded by researchers (Mehl, Pennebaker, Crow, Dabbs, & Price, 2001; Nofle & Fleeson, 2010). This technology could be used to obtain personality data through various means that would not be dependent on researchers signaling participants or on participant's availability/willingness to complete a questionnaire at a particular point in time. For example, tracking the movement that an individual is engaged in or the sounds in their environment could identify the short-term variability in the types of situations and activities in which the individual participates. Rather than being collected at discrete moments in time, this type of data would be continuous in nature. Such rich datasets have various applications including, but not limited to, machine learning based analyses (e.g., key words and patterns can be identified from transcripts via natural language processing algorithms). However, researchers who choose to use this method must carefully weigh the serious ethical considerations for gathering, examining, and reporting such data.

Personality state measurement

One of the main challenges in studying IIVP is how to conceptualize personality at the state level (Vazire & Sherman, 2017; Chapter 14). In our review, we observed a large number of scales used to assess state variability, which can make comparing and generalizing findings across studies difficult. While commenting on a similar problem with assessing personality traits in general, John and Srivastava (1999) aptly used a quotation from Allport (1958), who wrote that "each assessor has his own pet units and uses a pet battery of diagnostic devices" (p. 258). This certainly applies to measurement of state personality within the literature (see Table 2). In our sample of 82 studies, 32 different scales were used to measure state personality.

Many researchers have eluded the challenge of conceptualizing personality at the state level (e.g., Vazire & Sherman, 2017) by simply adapting extant trait measures. Almost two-thirds of our sample ($N = 53\%$ or 64.6%) reported using an adapted version of an existing trait scale to measure states. The most commonly adapted scale was Goldberg's (1992) Markers, but studies in our sample also used adapted versions of eleven other trait scales (see Table 2). Interestingly, trait personality scales were adapted to capture state personality in a variety of ways. One common adaptation we observed was to modify the

instructions to direct participants to rate their behavior over a recent period of time (e.g., the past hour) rather than their behavior in general (as the scale was originally developed to assess). For example, [Biesanz, West, and Graziano \(1998\)](#) adapted the [Goldberg's \(1992\)](#) unipolar markers by simply replacing “as you are generally or typically” with “as you were during the past week” in the directions. [Hadden, Smith, and Webster \(2017\)](#) chose to modify the directions of [John and Srivastava's \(1999\)](#) BFI by adding the word “today” to the item stem. In contrast, [Magee and Biesanz \(2018\)](#) and [Magee, Buchtel, Human, Murray, and Biesanz \(2018\)](#) modified the BFI instructions by asking participants to rate themselves as someone else would describe their behavior in the past 30 min. While such changes to established scales has allowed for the rapid proliferation of IIVP research, it is necessary to consider the fact that simply adapting existing measures can have consequences for the validity of the resulting scores. We would encourage authors who alter the time frame of a trait measure in order to assess personality states—or any other adaptation for that matter—to provide evidence to support the validity of the adapted scales (for a deeper discussion of this issue, see [Heggestad et al., 2019](#)).

In some studies we reviewed, researchers chose to develop new scales to assess state-level personality (18 studies; 22%). For example, [Minbashian et al. \(2010\)](#) assessed momentary conscientiousness on a 7-point scale to assess task efficiency (“How efficiently are you working on this task?”), task systematicity (“How systematically are you approaching this task?”), task effort (“How hard are you working on this task?”), and task focus (“How focused are you on this task?”). The creation of new scales allows researchers to get at the specific aspect of state personality they are interested in examining, but it also provides the opportunity to develop alternative measurement approaches. For instance, [Lievens et al. \(2018\)](#) designed a situational judgement test to assess state variability. Of course, the establishment of new measures to assess state personality comes with the challenge of validation; however, we would note that evidence to support the validity of trait scales adapted for states is needed as well.

Future directions for personality state measurement

There are a number of questions that require additional attention when it comes to measuring IIVP. This section addresses the following three questions: (a) What is the minimum number of time points needed to obtain an accurate measure of an individual's average level on a given personality characteristic when using state-based measures? (b) What is the minimum number of time points required for establishing stable estimates of IIVP? (c) Is there an optimal measure of state personality and how does it compare to trait personality measurement?

First, there is currently no established best practice for aggregating state-level measures to obtain an accurate measure of mean level personality. Some evidence to address this question was provided by [Augustine and Larsen \(2012\)](#),

who used the mean inter-occasion personality correlations and the Spearman-Brown prophecy formula to determine that 17 extraversion, 7 agreeableness, 10 conscientiousness, 7 neuroticism, and 5 openness assessments would be required to obtain a reliability of $\alpha = 0.80$. Jones et al. (2017) concluded that reliably detecting individual differences in density distributions would require a substantial number of repeated measures. For their study, the average stability of density distribution parameters was 0.65 and participants were measured 40 times over the course of a week. It seems quite clear that additional work is needed to provide researchers with guidance regarding the number of state assessments that are necessary to provide estimates of mean trait levels that are stable and generalizable. A related question for future research is the time frame for assessment. The time frame varied greatly over the studies we reviewed (from “right now” to “early today” to “in the past month”). Research is necessary to understand if the relationship between trait and mean state personality varies depending on the time period provided to respondents over which to consider their behavior (Fleeson & Gallagher, 2009).

Second, research is needed to establish recommendations regarding the number of repeated measures necessary for obtaining stable estimates of IIVP (i.e., estimates of how much a person’s states vary). Currently, no research has directly addressed this issue. However, Fleeson (2007) conducted a split half reliability analysis with data obtain from a 2-week ESM study by dividing individual’s states into two groups, the first week and the second week of data collection, and then comparing the mean and standard deviation for an individual in each half of their data (i.e., essentially an evaluation of split-half reliability). Stability correlations showed average state levels and amount of variation were pretty similar (0.58–0.68 and 0.46–0.60, respectively) across the two sets of data. Participants in this study completed, on average, 46 of 56 possible assessments, meaning that parameter estimates in each half of the data were based on about 23 assessments. Thus, it doesn’t appear that an exceptionally large number of observations are necessary in order to obtain reliable parameter estimates for IIVP.

Finally, there is no agreed upon measure of state personality, or even state-levels of the BFFs. Concerns over the validity and utility of commonly used measures for assessing IIVP led Baird, Lucas, and Donnellan (2017) to call for a “programmatically effort to evaluate the validity of measures of intraindividual variability” (p. 178). Given that many studies use adapted version of trait measures, future research should focus on gathering evidence to ensure that adapting a trait measure is appropriate and construct valid. Alternatively, new technologies could be used to develop novel measures of personality states. For instance, alternatives to a lexical, adjective-based approach to assessing IIVP should be examined. The lexical approach has worked well for decades, but the drawbacks to a lexical approach to personality are well-documented (Block, 1995; Cervone & Mischel, 2002; John, Angleitner, & Ostendorf, 1988). However, emerging alternative approaches show promise and could

be extended to IIVP. Behavioral observation techniques are often used to assess the temperament of children and technology may allow us to assess personality for adults in a less time-consuming manner. For example, [Satchell et al. \(2017\)](#) examined using gait biomechanics as a method for assessing trait aggression and [Perlman et al. \(2009\)](#) found that there may be utility in using eye-tracking to detect neuroticism. Additionally, wearable electronic devices (e.g., smart watches) are another emerging technology that could open up opportunities for psychological assessment (see [Chapter 4](#)). While all of these approaches are coming from a trait perspective, they could easily be adapted for examining IIVP by altering the frequency and duration of measurement, much like how traditional trait scales have been adapted for measuring state personality. Research in these areas is still quite new and require a reliance on self-report measures of personality as a way to validate their findings so much more work is necessary in these areas.

Statistical techniques for examining IIVP

Statistical methods used in studies of IIVP depended on the types of research questions examined. Within our sample, some of the studies were largely descriptive in nature, seeking primarily to demonstrate that there was variability in the personality states examined. The majority of the studies in our sample, however, incorporated some predictive element ($N = 53\%$ or 64%), whether or not they tested formal hypotheses. Predictive studies examined within-person and between-person research questions focused on the antecedents and/or the outcomes of state personality and/or IIVP. In the following sections, we discuss two key methodological choices researchers make in how to statistically analyze ILD for predictive studies, the statistical modeling technique and level of analysis.

Statistical modeling techniques. From the results of our review, the most common IIVP study is one that examines between-person hypotheses using some kind of multilevel modeling technique. For example, [Noftle and Fleeson \(2010\)](#) examined whether or not IIVP in the Big Five was associated with age (i.e., was there more or less variability in personality states for older adults than for younger adults). Despite their research question being concerned with between-person effects, [Noftle and Fleeson \(2010\)](#) used a multilevel model to account for variability due to person and moment (i.e., momentary state personality was nested within persons). Multilevel modeling (MLM; also referred to as hierarchical linear modeling [HLM], mixed-effect models, random coefficient modeling, or covariance components models) can be particularly useful for IIVP studies because within-person variability is inherently a multilevel phenomenon (personality states are nested within persons and/or situations over time). MLM allows researchers to statistically account for the issues common to nested data structures. Observations that are multilevel in nature (e.g., students nested within classrooms; multiple measures of state personality nested within

individuals) tend to violate the assumption of independence due to cluster confounding. MLM accounts for this bias in parameter estimates and standard errors when working with nested data structures.

Most studies we examined used conventional MLM ($N = 50\%$ or 61%). However, our sample also includes studies that used two of these more sophisticated MLM techniques, namely multilevel structural equation modeling (MSEM; $N = 2\%$ or 2%) and mixed effects location scale modeling (MLSM; $N = 2\%$ or 2%). MLSM is a special case of MLM based on [Hedeker, Mermelstein, Berbaum, and Campbell's \(2009\)](#) mixed ordinal location scale modeling method. MLSM was developed to model between-person differences in intra-individual variability where there is two-level data such as repeated observations of state personality (Level 1) nested within individuals (Level 2). One study in our review that used MLSM, [Geukes, Nestler, Hutteman, Küfner, and Back \(2017\)](#), expanded [Hedeker et al.'s \(2009\)](#) approach to account for three-level data (i.e., repeated observations within situations under individuals). This allowed [Geukes et al. \(2017\)](#) to investigate individual differences in IIVP within similar situations and across different situations simultaneously. Instead of calculating each individual's cross-context and context-specific density distributions for each personality variable and treating these IIVP estimates as variables without measurement error, MLSM allowed for [Geukes et al. \(2017\)](#) to model both types of IIVP with indicators of measurement error.

MSEM can be viewed as the integration of MLM techniques and SEM. MSEM not only requires larger sample sizes (to prevent convergence problems and variability in parameter estimates), but it also provides many advantages over a conventional MLM approach ([González-Romá & Hernández, 2017](#)). Specifically, MSEM can (a) model measurement error more precisely; (b) separate between- from within-group effects at multiple levels of analysis (not just between-person variables); (c) model bottom-up effects; and (d) estimate multiple relationships directly and simultaneously ([González-Romá & Hernández, 2017](#)). In the context of the study of IIVP, being able to better model bottom-up approaches is valuable because it allows researchers to better understand the relationship between trait and state personality characteristics. For example, in a study examining the individual differences in the affective processes that underlie task-contingent conscientiousness, [Minbashian, Beckmann, and Wood \(2018\)](#) used MSEM to show that individuals differ from each other substantially in the extent to which their momentary positive affect and negative affect mediate the links between momentary task demand and state conscientiousness. MSEM enabled [Minbashian et al. \(2018\)](#) to demonstrate within-person and between-person effects simultaneously (a strength of MLM) while also testing a relatively complex statistical model with two mediators (a strength of SEM).

Despite the wide range of benefits associated with multilevel modeling techniques, some IIVP studies reviewed did not use multilevel modeling ($N = 26\%$ or 32%). These studies tended to focus on a single level of analysis (typically

between-person effects as opposed to within-person) and tested hypotheses using correlation coefficients ($N = 11\%$ or 13%), regression models ($N = 11\%$ or 13%), and/or structural equation modeling (SEM; $N = 4\%$ or 5%). We also observed single instances of social network analysis and spectral analysis. Traditional, single-level regression models can be useful when testing between-persons hypotheses with ILD that have been aggregated within-person (e.g., mean of individuals' state personality across multiple time-points). However, single-level models are only appropriate if aggregated scores are theoretically meaningful (i.e., there is some variance within groups/persons but more across groups/persons such that groups/persons are a meaningful category). In addition, an aggregated, single-level approach to analyzing nested data can be sensitive to both false positives (i.e., Type I error) and false negatives (i.e., Type II errors).

Level of analysis. Most of the IIVP studies that used some kind of multilevel model ($N = 54\%$ or 66%) considered only two levels of analysis ($N = 45\%$ or 55%), typically with multiple assessments of state personality (Level 1) nested within individuals (Level 2). However, a few studies ($N = 9\%$ or 11%) considered three levels. The studies that added a third level varied in the content and rank order of this extra level. For example, one study (Minbashian et al., 2010) nested scale items (Level 1) under measurement occasions (Level 2) within individuals (Level 3), whereas another study (Debusscher et al., 2016b) nested measurement occasions (Level 1) under the days on which the measurement occasion occurred (Level 2) within individuals (Level 3). Conceptualizing the data obtained from ESM studies in this way allowed the researchers to model directly variation due to each level. For instance, in the Debusscher et al. (2016b) study, including the day as a Level 2 variable allowed them to evaluate the extent to which state personality (specifically, core self-evaluations) varied systematically by day (specifically, they found that 11% of the variance of state core self-evaluations is due to between-day differences).

There is no general best practice recommendation about how many levels of analysis or what form of statistical technique should be used in the study of IIVP. Of course, the analytic approach selected should be commensurate with the hypotheses offered and data collected. Yet, in the study of IIVP, where personality state observations will necessarily be nested within an individual, some form of multilevel analysis is almost certainly to be preferred. Below, we offer suggestions for how these analytic techniques might be used to move the IIVP literature forward.

Future directions for statistical techniques

IIVP data are complicated and there are a number of sources of variance that could be modeled. It is important for researchers, when appropriate, to think about more than just two levels. There continues to be advances in multilevel statistical tools that should only enhance our capability to move the science of

IIVP forward by testing more sophisticated data structures. One such analytical method is dynamic structural equation modeling (DSEM; Zhou, Wang, & Zhang, 2019). DSEM leverages the strengths of four modeling techniques: multilevel modeling, time series modeling, SEM, and time-varying effects modeling (Asparouhov, Hamaker, & Muthén, 2018; Asparouhov & Muthén, 2010; Hamaker, Asparouhov, Brose, Schmiedek, & Muthén, 2018) and uses Bayesian methods in model estimation (Asparouhov et al., 2018). While DSEM allows researchers to test mediation models composed of dynamic variables and to assess causal relationships within-person over time, alternative methods (e.g., differential equations models, spectral analyses) may be more suited depending on the availability and characteristics of a given ILD.

Key findings from the literature

Extant research on IIVP can be classified as descriptive, predictive, and/or methodological. Methodological studies ($N = 8\%$ or 10%) have started to address the issues discussed above, such as the pros and cons of different ILD designs and state personality measurement development (e.g., Jackson et al., 2010; Moskowitz, 1994) and validation (e.g., Baird, Le, & Lucas, 2006). Below, we focus on descriptive and predictive studies of IIVP to summarize findings about the nature of IIVP and preliminary findings about its antecedents and outcomes. Finally, we provide a summary of trait-level relationships that have been replicated at the state-level.

Describing the nature of IIVP

Descriptive studies ($N = 44\%$ or 54% of the sample) have explored the nature of IIVP by examining the relationship between states and traits (e.g., Augustine & Larsen, 2012; Brown & Moskowitz, 1998), defining and comparing specific types of IIVP (e.g., Biesanz et al., 1998), and defining IIVP as a relatively stable individual difference distinct from trait personality (e.g., Fleeson, 2001; Jones et al., 2017). With regard to the distinction between states and traits, studies have assessed the relationship between trait scores as assessed using traditional questionnaire measures and trait scores calculated as parameters of density distributions of state measures. Augustine and Larsen (2012), for example, examined the extent to which questionnaire scores on the BFFs differed from the calculated average across repeated measures of BFFs, finding a lack of convergence between trait scores and mean state scores beyond that expected by measurement error. While they were unable to explain this finding with their data, they proposed that trait measures are biased by individual differences in self-concept whereas state-measures are more accurate reflections of actual experience. Evidence from Baird et al. (2006) supports this idea that discrepancies between trait scores from questionnaires and mean states are an artifact of measurement precision. Specifically, they found the relationship between IIVP in

BFFs and well-being depended on the way IIVP was statistically represented. When IIVP was operationalized as the standard deviation (as is typically done) IIVP predicted well-being; however, once mean-level variance is removed from aggregated IIVP scores (using a PCA-based index), IIVP did not predict well-being. Thus, the nature of the relationship between states and traits remains an area for additional exploration.

Descriptive studies have also looked at the extent to which the variability of states within a particular trait domain is a stable characteristic of the trait. The first research looking at this issue was done by [Fleeson \(2001\)](#) assessed the Big Five attributes five times a day for 13 days. He then randomly split each participant's reports into two approximately equal groups. For each individual's state reports, he randomly assigned state scores to two groups. Within each group he calculated the means for each trait. He then correlated the means from the first group with those from the second group. These correlations approached 1.00 (Conscientiousness was the lowest at $r = 0.87$), demonstrating that individuals reliably differ in the extent to which their personality states vary over time and across situations such that IIVP should be considered a trait in and of itself. Subsequent studies have explored the boundaries between trait IIVP and trait personality. Findings have shown that IIVP in a given personality trait is distinct from trait-levels ([Jones et al., 2017](#)), thus a person with a high standing on extraversion could have the same level of IIVP in extraversion as someone who is in the middle of the trait continuum and as someone who falls to the introversion end of the continuum.

Additional descriptive research has examined the extent to which people express different degrees of IIVP across different traits. The question is whether IIVP tends to be trait-specific or more general in nature. Some argue that IIVP should be considered a trait itself. If IIVP is not specific to a given personality trait, then individuals may have one trait-level of IIVP (e.g., Jane is generally high in IIVP). However, if individuals' have trait-specific levels of IIVP, then an individual's relatively stable IIVP may be better understood as a profile of different trait specific IIVP levels (e.g., Jane is generally highly variable in her extroversion but less variable in her conscientiousness). The former could be captured via a single score useful for predicting and individual's behaviors across situations, while the latter would require a score for each trait but may be more helpful for understanding the extent to which behaviors are a result of person-situation interactions.

Another avenue of research within the descriptive studies has been to describe the nature of IIVP by identifying the source of variability or the type of IIVP. These studies assess whether variations in states is due to natural temporal dynamics (stability), situations (consistency), perspectives (coherence), or measurement precision. For example, [Biesanz et al. \(1998\)](#) assessed the relationship between personality stability (variability over time), personality coherence (self-other agreement), and IIVP due to measurement error (e.g., interitem reliability). They found that while measurement error was unrelated to the

extent to which self and other reports of personality converged, individuals whose states were more stable over time were also higher in coherence. Later, [Fleeson \(2007\)](#) found evidence that not only is state personality dependent on situation characteristics (as proposed by the CAPS model), but there are individual differences in what aspects of situation elicit states, which supports the ideas that (a) IIVP is an individual difference and (b) between-person differences in IIVP are at least partially due to between-person differences in personality consistency.

Antecedents and outcomes of IIVP

More recently, predictive studies ($N = 53%$ or $65%$) of IIVP have examined the antecedents and outcomes of both state personality (e.g., [Zacher, 2016](#)) and IIVP (e.g., [Giacomin & Jordan, 2016](#)). Over the last decade or so, studies have begun to explore what individual characteristics are related to IIVP. From these studies it seems that some individuals are inherently more prone to higher levels of IIVP (e.g., older individuals show more IIVP: [Noftle & Fleeson, 2010](#)) and that motivational differences can also influence the extent to which individuals' personality varies (e.g., self-criticism increases IIVP in interpersonal behavior: [Kopala-Sibley, Rappaport, Sutton, Moskowitz, & Zuroff, 2013](#)).

IIVP has also been found to predict a number of outcomes. For example, [Fleeson and Wilt \(2010\)](#) investigated the relationship between IIVP in the Big Five and self-reported authenticity in a series of three ESM studies. The purpose was to pit the idea that individuals feel most authentic when their actions are consistent with their traits against the hypothesis that some actions feel more authentic than others regardless of a person's trait-level of the corresponding trait. Specifically, they demonstrated support for the latter idea they found personality states predicted authenticity, even after controlling for both the effects of all other personality states on authenticity and positive and negative affect. In another example of the consequences of IIVP, [Debusscher, Hofmans, and De Fruyt \(2016a\)](#) examined IIVP as a boundary condition for state-level relationships between personality and job performance. They tested whether IIVP in conscientiousness and neuroticism affected the relationships between state-level conscientiousness and neuroticism and momentary task performance. Participants in a financial organization took part in a 10-workday ESM study. [Debusscher et al. \(2016a\)](#) found that momentary task performance was higher when individuals demonstrated less state-level neuroticism and more state-level conscientiousness; however, this relationship was moderated by IIVP in those personality constructs such that state-level personality (neuroticism and conscientiousness) was more strongly related to momentary task performance for those who are more consistent in their personality states across situations and less strongly related for those who tend to vary more in their state personality from situation to situation.

A study by [Wilson, Harris, and Vazire \(2015\)](#), took a different approach and investigated whether IIVP might mediate the relationship between trait personality and friendship satisfaction. They examined whether state personality (i.e., Extraversion, Agreeableness, Conscientiousness, and Emotional Stability) can explain more about why some individuals are more satisfied with their friendships than others. Only state-level conscientiousness was found to fully mediate the association between trait conscientiousness and friendship satisfaction. There was no evidence to support that IIVP in the other personality factors explains the relationship between the other three Big Five traits and friendship satisfaction.

Examining relationships at the state-level

Despite the interesting findings about the nature of IIVP, what predicts it, and how it impacts between-person differences in outcomes, many studies of IIVP have actually been more focused on state-level relationships. Instead of examining IIVP as the variable of interest, these studies control for IIVP in order to isolate the antecedents and effects of personality in the moment. This approach has been used to replicate findings at the state-level that have been shown to be true at the trait-level. For example, [Debusscher, Hofmans, and De Fruyt \(2017\)](#) showed that facets of conscientiousness (self-discipline and deliberation) predicted state job performance above and beyond overall state conscientiousness, just as has been found at the trait-level. Other research on state-level relationships has identified specific situational variables that predict state personality, including social situations (e.g., agreeableness of interaction partner: [Yao & Moskowitz, 2015](#); situation-specific social roles: [Bleidorn, 2009](#)) and work situations (e.g., task immediacy: [Huang & Ryan, 2011](#)). While collecting IIVP to examine IIVP can be useful for developing a better understanding of how personality (and other person factors) functions at the state-level, this type of empirical research also has the potential to move the field of personality towards a more dynamic approach. We encourage future research focused on state-level relationships to also consider the complexities of short-term variability as important variables not a source of error to control.

Conclusion

The theoretical distinction between personality states and traits appears to be as old as thinking about the human mind and behavior (for a more detailed discussion, see [Eysenck, 1983](#)); however, empirical research in this area is relatively new. An increased understanding of within-person variability in personality is important, as new insights will allow researchers and practitioners to gain a better understanding of the whole person. This chapter provides a review of current theoretical perspectives, methods, and analytic approaches for studying IIVP. In addition, we have identified a number of emerging research areas where we

believe further theoretical and empirical work is needed. Technological developments in recent years have inspired a new generation of IIVP research and as this work continues it is important to consider advancing theoretical perspectives, leveraging new, more sophisticated methods, and using the appropriate data analytical techniques. Going forward, we envision a body of IIVP research that integrates theoretical perspectives, builds consensus around how to collect IIVP and measure personality states, and carefully considers the statistical complexities of IIVP, while, at the same time, continues to creatively explore innovative research methods and questions.

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14. ABSTRACT For decades, the trait approach has dominated the field of personality. However, perspectives proposed by interactionist theorists, such as Mischel and Shoda's (1999) cognitive-affect personality system and Fleeson and Jayawickreme's (2015) whole trait theory, have begun to expand the concept of personality by differentiating between the concepts of state and trait personality. In this chapter we discuss the theoretical foundations that underline theory and research in intra-individual variability in personality (IIVP). As more sophisticated methods and analytic approaches to study IIVP have begun to emerge over the last two decades, we also take a look at how personality researchers have been studying this phenomenon. Specifically, we identified 82 studies which measured IIVP and coded key design and analytic features of the work. Based on our examinations of the theory, method, and analytic approaches to studying IIVP in personality, we offer some future directions for this interesting and important area of study.					
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