



The future of person–situation integration in the interface between traits and goals: A bottom-up framework

Daniel Heller^{a,*}, Wei Qi Elaine Perunovic^b, Daniel Reichman^a

^aTel Aviv University, Israel

^bUniversity of New Brunswick, Canada

ARTICLE INFO

Article history:

Available online 29 December 2009

Keywords:

Bottom-up model

Personality states

Contextualized personality

Social roles

ABSTRACT

In this paper, we theorize a bottom-up model of personality and delineate ways in which personality traits can develop and change from the accumulation of daily situations and behaviors over time. We posit that social roles, which represent important classes of situations, could elicit different types of short-term goals. We then argue that these goals can serve as psychological components of situations, thus exerting an influence on personality states, which aggregated over the long-term can shape broad personality traits. We discuss both the long-term processes involved in the transformation of personality traits as a function of roles, as well as the micro-level processes that occur in people's daily lives, linking social roles, short-term goals, and personality states. Finally, we discuss future directions extending the scope of our model.

© 2008 Elsevier Inc. All rights reserved.

1. Overview

Personality psychologists generally agree that an important mission for the field of personality is to understand how persons, situations, and (broadly construed) behaviors are inter-related (e.g., Funder, 2001; Mayer, 2007). In exploring and investigating personality psychology, the most influential framework has been the top-down approach, which mainly pertains to the investigation of ways in which person level internal constructs (i.e., personality traits) exert a causal influence on behavior (for a recent review see Ozer & Benet-Martinez, 2006). Personality traits, which can be defined as broad characteristics referring to typical patterns of thoughts, feelings, and behaviors, can be easily assessed by standard self- or other-report personality tests that employ “in general” or “typically” instructions. According to the top-down approach personality traits are: (a) to a large extent biologically based and heritable (McCrae et al., 2000); and (b) linked concurrently and over time with a wide-range of important outcomes and behaviors such as well-being, job performance, and longevity (e.g., Heller, Watson, & Ilies, 2004; Ozer & Benet-Martinez, 2006). This stream of research has led to important and useful discoveries, not only related to the continuity of personality, but also regarding the causal influence of traits on behavioral outcomes. For instance, there is ample evidence for a clear link between early childhood temperament and personality and behavior several years later (Graziano, 2003; McCrae & Costa, 1994).

Although personality change, in addition to personality stability, is also of great interest to personality psychologists (e.g., Caspi, Roberts, & Shiner, 2005), theoretical models and empirical examination of how personality development and change occur is relatively lacking, when compared to the voluminous work taking a top-down approach. Despite the initial heated person–situation debate of the 1970s and 1980s (Mischel, 1968) and the recent accumulation of research findings regarding the development and change in personality traits across adulthood (Caspi et al., 2005), to date still relatively little is known about the processes through which personality traits can be shaped and modified by situational characteristics and behaviors over time (Fleeson, 2007).

Note that, given the probable bidirectional association between general personality and context-specific experiences, we are not arguing for the position that either a top-down or a bottom-up approach to personality is accurate. Instead we feel that theoretical models and empirical examination of the micro-level processes through which personality can be shaped are needed for a more comprehensive understanding of personality psychology (Roberts & Mroczek, 2008).

To say that “personality can be shaped” clearly suggests that personality can change, begging the question to what degree does personality change? Despite top-down assumptions regarding the fixed and biologically based nature of personality traits, accumulating empirical evidence indicates a more complex picture providing substantial evidence for change as well as stability. Moreover, there are different types of change and consistency researchers focus on with corresponding statistical techniques for estimation that may yield very different answers to this question (Funder &

* Corresponding author.

E-mail address: dheller@post.tau.ac.il (D. Heller).

Colvin, 1991; Roberts & Pomerantz, 2004). When examining individuals' relative rank-order stability over time (e.g., If John is more extraverted than Bob at time 1, is John more or less extraverted than Bob at time 2 and to what degree?), the general finding here is one of high levels of consistency across the life span (Caspi & Roberts, 2001). If the focus centers on whether people, as a group, change their personality at the mean-level (e.g., Do people become more emotionally stable over time as they age?), then the answer is generally yes, such that people become more nice and mature over time, although the strength of change depends on other factors such as age, time interval, and the specific personality variable being investigated (e.g., McCrae et al., 1999). It has been shown that generally mean-level of change is strongest during adulthood, although people continue to change in their old age (Roberts & DelVecchio, 2000). People also tend to show more changes on certain trait domains than others (Roberts & Mroczek, 2008). For example, the changes in conscientiousness levels over time are greater than the parallel temporal changes observed in openness to experience.

A third method for investigating personality change refers to individual differences in the unique pattern of change in personality traits over time; that is, do some people change more than others or in a way that is different from others? The limited available empirical evidence using this method has established the existence of considerable individual differences in both degree and direction of change: up to 25% of people demonstrate "reliable change" for any given trait, and most people demonstrate reliable change on one in five traits over time spans from 4 to 8 years (Robins, Fraley, Roberts, & Trzesniewski, 2001). Furthermore, preliminary research findings have shown links between these individual differences in personality trait change and life experiences such as role experiences in the workplace or in close relationships (Roberts, Caspi, & Moffitt, 2003; Vaidya, Gray, Haig, & Watson, 2002).

Although we acknowledge the top-down influence of dispositions on life experiences, such that dispositions may influence the type of life experience that people may actively seek, in this paper we will focus on the other side of the coin – ways in which life experiences may serve as an antecedent of change in global personality traits. More specifically, we propose a bottom-up theoretical framework examining the underlying micro-level mechanism (e.g., short-term goals and personality states) underlying personality traits' change as a function of (changes in) social roles. Personality states are defined as one's short-term, concrete conceptions of acting, feeling, and thinking, or, more simply, syndromes that indi-

cate what the person as a whole perceives he or she is doing at present (Fleeson, 2001; Fleeson & Leicht, 2006). Roles are defined as positions in society that are associated with characteristic expectations, goals, and behaviors (Stryker, 1986). Goals, in turn, are defined as mental representations of desired states (Austin & Vancouver, 1996). We posit that in everyday life the social roles people occupy represent important classes of life experiences that influence the pursuit of short-term goals and thus the adoption of momentary personality states. When aggregated over time, personality states can then transform individuals' general personality traits (see Fig. 1). It is our hope that this new bottom-up perspective can provide insight into the basic nature of personality traits, as well as to their developmental course.

Our proposed bottom-up model is novel in that it represents a cross-level integration of within-individual constructs and processes with between person characteristics and processes. The within-individual constructs that we focus on include social roles, short-term goals, and personality states naturally occurring in people's day-to-day lives. The within-individual processes involve shifts in within-individual constructs (e.g., shifts in social roles within the same person) as well as within-individual associations between these constructs (e.g., the link between shifts in social roles and alteration of short-term goals within the same person). The between person level characteristics we consider include individual differences in mean-levels of role adoption, goals, personality states, and global personality traits. The between person processes involved in long-term global personality change we focus on include individual differences in aggregated within-individual constructs (e.g., individual differences in the type and frequency of the social roles they occupy) and individual differences in within-individual processes (e.g., individual differences in ways and degree to which their social roles exert influence on their personality trait over time). Specifically, in integrating intra- and between individual levels of processes, we reason that there are individual differences in: (a) types of roles and frequencies of occupying in each role (e.g., Ross & Nisbett, 1991) and (b) type and number of goals pursued, and c) reactions elicited in response to similar roles or goals (see also Fleeson, 2007). Therefore, we postulate that recurring categories of situations such as social roles or goals pursued, as well as regularities in individuals' reactions to these situations, act together to create corresponding idiosyncratic stable behavioral patterns.

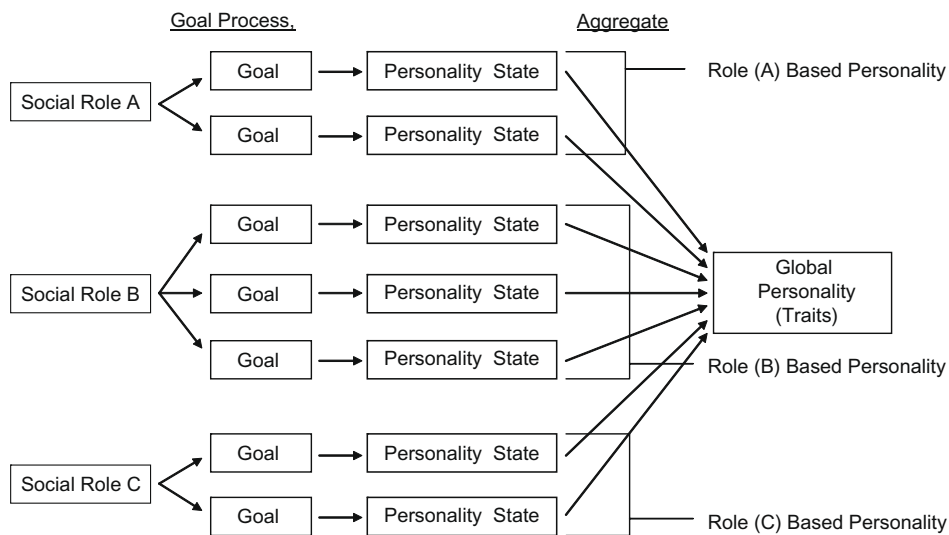


Fig. 1. A bottom-up conceptual model linking social roles, short-term goals, personality states, and global personality.

In what follows, we will discuss the various links presented in our model. We will begin with a focus on how social roles are related to personality. Next, we will introduce our bottom-up model in more detail focusing on the micro-level processes that can explain the link between social roles and personality traits. Specifically, we will discuss how social roles may dictate short-term goals, and how short-term goals may exert an influence on personality states, which, aggregated over the long-term, can shape broad personality traits.

2. Social roles and their association with personality

Earlier we defined roles as positions in society that are associated with characteristic expectations, goals, and behaviors (Stryker, 1986). That is, according to sociological thinking, cultural forces can mold behavior within a particular context in accordance with the normative prescriptions. (Biddle, 1979). Universally, people repeatedly occupy many social roles (e.g., student, son, spouse, and club member) and they can switch rapidly between them within a given day (e.g., employee to spouse; Heller & Watson, 2005). Furthermore, individuals also switch roles both voluntarily and involuntarily over their life course, for instance, by getting married or retiring. Thus, roles can represent relatively stable mid-level categories for describing and capturing many molecular situations that individuals encounter in their daily lives. Note that social roles go beyond a “nominal” description of situations in that they capture the psychological features of situations for people. That is, roles can serve as the “active ingredients” of the situations by prescribing normative behavioral expectations within the context such as being affectionate towards one’s family (Mischel & Shoda, 1995). It is worth noting, though, that despite these powerful normative expectations, there are substantial individual differences in how people enact and experience similar roles (Robins, Caspi, & Moffitt, 2002; Wrzesniewski & Dutton, 2001).

In recent years, important links have been uncovered between social roles and global personality, as well as with its more contextualized version—role-based personality. First, empirical findings are showing important links between the occupation of certain roles and differences in the direction and magnitude of trait changes over extended periods of time (e.g., several years. For instance, individuals who experience higher career satisfaction tend to become more conscientious and less neurotic over time to a greater degree than their peers (Roberts, 1997; Roberts et al., 2003). Healthier marriages, too, are linked to increases in conscientiousness and lower neuroticism (Robins et al., 2002). Beyond role satisfaction, Costa, Herbst, McCrae, and Siegler (2000) found job and marital status to influence the stability of a number of traits. Individuals who had been fired from their jobs showed significant increases on a number of neuroticism facet scales and decreases on a number of conscientiousness facets as well as the activity facet of extraversion. As for marital status, divorced women exhibited increases in extraversion and openness compared with women who got married.

Moreover, there is evidence that roles can influence one’s contextual personality—defined as one’s pattern of thoughts, feeling, and behavior while in a certain context. Specifically, evidence is showing mean-level differences between roles on the big-5 personality dimensions (e.g., Heller, Ferris, Brown, & Watson, *in press*; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). For instance, in a cross-sectional sample of 117 newlyweds, employed couples from the Iowa City community who were asked explicitly to report their personality at work and at home, findings indicated significant differences in personality dimensions between work and home identities (Heller et al., *in press*). For example, participants reported being more conscientious at work compared to home.

In addition, in a series of two diary studies, Heller and his colleagues (Heller, Komar, Lee, & McInnis, 2007; Heller & Perunovic, 2007) extended previous work by incorporating a more subtle approach for assessing role-based personality that is potentially less susceptible to the influence of stereotypes, social desirability, and demand characteristics (Heller, Watson, Komar, Min, & Perunovic, 2007). Instead of asking participants explicitly or hypothetically to describe their personality characteristics in different roles, they repeatedly asked participants to report their personality states, as well as the roles they are currently occupying over a period of time. They then used this information to aggregate these states in a bottom-up fashion within a role. More specifically, Heller et al. examined in these two studies whether student and friend roles differed from each other in their aggregated, mean-levels of neuroticism and extraversion. Given the fundamental volitional and social nature of the friend role compared to the non-volitional achievement oriented and low power characteristics of a student role, these authors predicted and observed that people report higher levels of extraversion and lower levels of neuroticism while occupying a friend role compared to a student role. Hence, role entry or exit as well as other changes in social roles (e.g., getting promoted) may represent a particularly interesting arena in which to examine the developmental dynamics of stability and change in personality traits. Indeed, Wood and Roberts (2006) observed that within-person changes in role experiences were associated with changes in role-based personality over time, which were, in turn, associated with changes in global personality traits.

Although the findings described above do not yet directly attest to the directionality of these processes (e.g., whether goals influence personality states or rather personality states influence goals), recent experiments indicate that priming social roles can exert a causal influence on participants’ personality states. For instance, an explicit reminder of their friend role led participants to rate themselves significantly higher on agreeableness, as well as to exhibit more cooperative behavior, in comparison to being reminded of their student role (Steele & Heller, 2005). Moreover, subliminally priming roles can impact participants’ ratings of their personality states: participants who had just been subliminally exposed to student-role-related words rated themselves higher on openness to experience and conscientiousness than participants who did not receive the prime (Heller, Perunovic, Komar, Weinblatt, & Shay, 2008). Taken together, these cross-sectional, longitudinal, and experimental findings provide supporting evidence for the causal influence of role-based experiences on both contextual and global personality.

3. The influence of social roles on short-term goals

While the discovery of these causal associations between social roles and both role-based and global personality is both informative and important, it remains unknown how shifts in social roles can give rise to the transformation of broad personality traits over time. That is, what are the micro-level within-individual processes underlying personality traits change? We posit that short-term self-regulatory processes—such as goal selection and pursuit—through which people adapt their behaviors in order to interact successfully within their social roles, can eventually give rise to long-term personality transformation. Put simply, short-term goals, to a large extent, may mediate the effects of roles on personality states and traits.

The concept of goals has played an important role in personality and social psychology in general, and in motivation science, in particular (Austin & Vancouver, 1996; Emmons, 1997). Goals perform an important self-regulatory function; the discrepancy between desired and current personal states directs or guides behavior

and effort to reach the goal (Bandura, 1997; Locke & Latham, 1990). Goals can be conceptualized at different levels of abstraction from global motives to rudimentary reflexes, and likewise can span temporally from the moment to a life span (Elliot & Friedman, 2006).

Importantly, given that much of human behavior is goal driven, goals and their processes can be used to represent fundamental psychological components of situations that people use to conceptualize, organize, and evaluate situations (see also Cantor, 1994; Mischel, 1973; Pervin, 1982; Read & Miller, 1989; Ross & Nisbett, 1991; Yang, Read, & Miller, 2006). Thus, we propose that although a comprehensive taxonomy of situations is very much lacking (Funder, 2001; Read & Miller, 1989), goals and their processes may provide an initial answer to this enduring quest (e.g., Cantor, 1994; Read & Miller, 1989). Taxonomies, defined as “a useful way of classifying phenomena, whether they are books, plants, people or ideas,” (Frederiksen, 1972, p. 116) can help in organizing information and have predictive value: presumably, if we know an object belongs to a certain category of a taxonomy we are better able to predict other characteristics that are of interest (Ten Berge & De Raad, 1999).

We argue conceptually that goals can help people organize information in social situations. Most importantly, situations can be distinguished by the specific goals whose satisfaction they afford or constrain (Argyle, Furnham, & Graham, 1981; Read & Miller, 1989). Different situations can make certain goals more accessible (e.g., a mother role may make the goal of being nurturing and responsible salient) and inhibit others (e.g., a mother role may inhibit the goal of attending parties to get drunk). Moreover, situations can shape the methods used for goal pursuit by determining which resources are available and which behaviors are appropriate; and goals, in turn, can influence which situations or aspects of the situation are considered important and attended to.

Recent empirical findings support the notions of goals as the active organizing ingredients of situations. For instance, Yang et al. (2006) have recently shown that across diverse nominal settings, situations are perceived as similar when they afford goal attainment to a similar degree, and are perceived as dissimilar when they afford goal attainment to a dissimilar degree. In a similar manner, Edwards and Templeton (2005) identified three main foci strongly related to goal pursuit that are applied by people when classifying and evaluating situations: (a) the extent to which they lead to favorable or unfavorable outcomes, (b) the extent to which they foster or hinder attainment of desirable goals, and (c) the amount of effort needed to deal with the constraints of the situations.

How people perceive and evaluate situations is then considerably based on their goals and motives. Applying these ideas to the study of social roles, we argue that the rules, expectations, and tasks associated with different roles can make certain goals salient, while simultaneously restricting or inhibiting other goals (Read & Miller, 1989; Sheldon & Elliot, 2000). Consider a spouse role with its focus on interpersonal tasks, intimacy related goals, and inherently intrinsically motivating nature, compared to an employee role that is more focused on tasks and rewards, achievement related goals, and relatively more extrinsic in locus of causality. Hence, the social role that one is currently occupying may play an important role in individuals' adoption of a particular type of goal. For instance, a comparison of the norms associated with student and friend roles reveals that while a student role is often accompanied with a relatively non-volitional, strong, grade-based reward orientation, a friend role often entails a volitional interpersonal relationship and leisure activities (Sheldon & Elliot, 2000). Consistent with this notion, Sheldon and Elliot's within-individuals analysis of (mid-long term) personal strivings and projects has shown that academic tasks are perceived as less enjoyable and are pursued more for extrinsic reasons, whereas friendship

based interpersonal tasks and goals are perceived as more intrinsically motivating (Sheldon & Elliot, 2000).

Moreover, research that examines within-person momentary shifts in role and goal pursuit has identified important differences in goal pursuit as a function of shifting in roles. For instance, in two diary studies in which participants' momentary occupation of social roles and short-term goals were assessed repeatedly over time, Heller and colleagues observed important differences in goal pursuit as a function of role shifts: participants reported pursuing more intrinsic and less extrinsic (thus more self-concordant goals) during the times they occupied a friend role, relative to a student one (Heller & Perunovic, 2007; Heller, Komar, Lee, et al., 2007). In sum, these findings provide initial support for the hypothesized link between social roles and goals, although the existing data does not rule out the reverse causal sequence wherein goals may also influence the type of role participants seek to occupy (e.g., having self-concordant goals triggers people to seek situations that allow them to adopt a friend role) or that a third variable, such as mood, may influence both goals and roles (e.g., being in a good mood may lead people to interact with their friends, as well as pursue more self-concordant goals) thus yielding a spurious association between the goals and roles.¹ Additional experimental research is required to further ascertain the causal direction. Next we shift our focus to goals and personality, examining the pertinent within-individual processes; that is, the link between changes in goals and shifts in personality states within-person over time.

4. Short-term goals and their association with personality states and traits

The links between various goal constructs and personality have been not only theorized extensively in personality science (Allport, 1961), but also subjected to more recent empirical investigation. For example, Little, Lecci, and Watkinson (1992) identified interrelationships between the big-5 model and both the academic and interpersonal projects pursued by undergraduates in their first term of university. Similarly, Elliot, Sheldon, and their colleagues (Elliot, Sheldon, & Church, 1997; Elliot & Thrash, 2002) have shown that neuroticism and extraversion are positively associated with avoidance and approach goals, respectively. Moreover, in a longitudinal study of college students conducted over the course of four years, Roberts, O'Donnell, and Robins (2004) found that, within-person over time, changes in life goals were associated with corresponding changes in big-5 personality traits. For instance, when life goals were more focused on social issues (e.g., helping others), levels of extraversion and agreeableness increased. Although not establishing a causal direction with confidence, these findings suggest that over time shifts in people's goals are clearly linked to the development of their personality traits.

While the aforementioned research has been useful for identifying links between personality traits and various goal dimensions and content, these studies have been limited by a focus on relatively long-term goals. Because previous research has, with few exceptions, essentially collapsed assessments over time and across situations by not taking into account rapid intra-individual changes in both personality, as well as changes in short-term goals that occur in people's daily lives, it does not inform us about within-person micro-level processes linking goals and personality.

As mentioned briefly above, however, we maintain, that short-term goals represent for individuals the active, meaningful psychological ingredient of situations, and, consequently, should exert a significant impact on the behavior of the person within that situation (Yang et al., 2006). In other words, we propose that various

¹ We thank an anonymous reviewer for raising these possibilities.

dimensions of short-term goals, such as approach-avoidance and self-concordance, can influence the distribution of personality states over time.

Acknowledging the substantive variability in behavior and self-concept within-person over short periods of time in addition to variability between individuals, personality researchers are turning their attention to the study of personality states (e.g., Fleeson & Leicht, 2006). Indeed, when personality states are assessed using the big-5 dimensions, a considerable amount of within-individual variability can be observed that is equal or larger than that observed between individuals (Fleeson, 2001; Heller, Komar, & Lee, 2007).

In investigating the link between goals and personality states as a within-individual level process, to date there are only a few studies that have assessed short-term goals and personality states in the same person repeatedly over time (Heller et al., 2007; Heller, Komar, Lee, et al., 2007; Heller & Perunovic, 2007). More specifically, in a 10-day interval contingent diary study, Heller et al. (2007) examined ways in which daily changes in approach and/or avoidance goals were related to intra-individual fluctuations in state reports of both neuroticism and extraversion. Approach and avoidance goals, put simply, differ as a function of the valence associated with the outcome: With approach goals, the focus is on pursuing a positive outcome, whereas avoidance goals focus effort and attention toward avoiding a negative outcome (Elliot & Friedman, 2006; Gray, 1982). Accordingly, Heller et al. (2007) predicted and found that approach goals, relative to avoidance goals, were associated with elevated levels of self-reported extraversion and a decrease in self-reported neuroticism within-person over time. Furthermore, in two diary studies (Heller & Perunovic, 2007; Heller, Komar, Lee, et al., 2007), Heller and his colleagues observed that, at the within-individual level, participants reported higher levels of state neuroticism when pursuing extrinsic goals, and lower levels when pursuing intrinsic goals. These studies are the first ones to examine the within-individual processes pertaining to the covariation between goals and personality states. Although the available empirical evidence is correlational at this stage, these findings are consistent with the possibility that shifts in short-term goals can influence personality states. The precise causal influence of short-term goals on personality states still needs to be demonstrated through experiments in which participants' short-term goals are manipulated repeatedly and subsequent personality states are observed.

Next, we posit that personality states serve as a bridge to understanding how traits change over time. Personality states, by definition, are conceptually similar to their corresponding traits, but describe short-term representations rather than long-term generalizations (Fleeson, 2007; Heller et al., 2007). Heller et al. (2007) observed that, with the exception of neuroticism, small to moderate correlations were obtained between the aggregate mean-levels of the personality states and their corresponding global traits ($r_s = 0.28 - 0.59$). These correlations, however, represent an underestimate that is attenuated by the relatively low reliability of the personality measures, due largely to the obvious need to use short measures within a diary design (i.e., only two items per big-5 dimension). Hence, the association between personality states and traits is likely quite substantial.

The aforementioned notion of personality states that can fluctuate from one moment to another, however, appears to conflict with the belief that traits are stable characteristics that extend to all aspects of an individual's life (McCrae & Costa, 1984). This seeming incongruence has led personality scholars to attempt to reconcile the two views. The emerging consensus is that individuals can display variability in their personality states in addition to an underlying stability in aggregated states (Fleeson, 2001, 2007; Heller et al., 2007). As such, Fleeson (2001) explained these seemingly

contradictory findings by proposing that states can be conceived as distributions with stable parameters such as central tendency and variability. An individual may behave differently in diverse situations, but these variations fall within his or her corresponding distribution, and will thus be limited in range. Applied to our bottom-up model, it would then follow that: (a) short-term goals influence fluctuations in personality states; (b) taken together these personality states form a new distribution; and (c) from this distribution an analogous trait would emerge reflected in the mean of the distribution.

5. Future directions and limitations

We have proposed a bottom-up model of personality, delineated the micro-level processes involved in the link between social roles and personality traits, and discussed the various links presented in our model. Next, we discuss the integration of research from diary, longitudinal, and experimental studies, suggesting future directions for obtaining empirical evidence necessary for filling the existing gaps within the model. We will also discuss the extension of the model's scope, including the investigation of additional mechanisms and constructs, as well as the discussion of the role of culture, to expand its generalizability.

5.1. Integration of diary, longitudinal, and experimental research

We have argued for a bottom-up model in which social roles can lead to personality traits' change over time via their influence on micro-level processes such as goals and personality states. In developing our model we have drawn on previous longitudinal research conducted over several years showing that over time life experiences such as roles and goals can change traits (e.g., Costa et al., 2000; Roberts et al., 2003; Vaidya et al., 2002; Wood & Roberts, 2006) and that there are individual differences in these changes (e.g., Roberts et al., 2003; Vaidya et al., 2002). In addition, we drew from research conducted by Fleeson (e.g., Fleeson, 2001, 2007) and our own program of research (e.g., Heller et al., 2007; Heller, Komar, Lee, et al., 2007) examining momentary micro-level changes in roles, goals, and personality states. The proposed bottom-up model integrates these two lines of research with their differential focus on short-term and long-term change showing how they can complement each other. That is, whereas the longitudinal research focuses on the big picture and on long-term change in traits, our stream of research employing diary studies focuses on the details of daily experience and describes the micro-level processes occurring at the state level. Thus, a cross-level integration of the two enables us to see both the "forest" and the "trees" of personality change (i.e., both the long-term change in traits, as well as the short-term change in states that underlies the long-term change).

Nevertheless, research to date related to our model has been mostly piecemeal, focusing on one link at a time and taking either a short-term diary approach or a longer-term longitudinal design conducted over years. We recommend that future studies use a more integrative approach that tests several pieces of the model and uses combinations of longitudinal and diary designs. One possibility for such a study would include the following quasi-experimental study design, assuming only part of the sample undergoes a large natural role change (e.g., retirement or major job change, getting divorced, and parenthood) between T2 and T3: (1) Assessing base-line traits at T1; (2) Conducting, a few weeks later at T2, a diary study assessing short-term role characteristics, goals pursued, and personality states; (3) Conducting a diary study at T3, after the role change, and (4) reassessing the trait at T4. In this approach, the intensive and rich on-line data obtained in the two

diary studies can be used to investigate whether micro-level changes between the two diary studies in mean-level states (e.g., role characteristics, goals, and personality states) or changes in within-individual slopes (e.g., links between roles and goals) can predict long-term between individual changes in traits.

Additional experimental research, beyond the current available correlational research, could also be added in future work to further support the causal links included in the model. Indeed, although we discussed experimental work showing the causal link between roles and personality states (Heller et al., 2008; Steele & Heller, 2005), empirical evidence pointing to the causal influence of the proposed micro-level mechanisms involved (i.e., roles exerting a causal influence on goals, and goals, in turn, exerting a causal influence on personality states) are yet to be demonstrated. Thus, through future experimental studies, in which lower level constructs (e.g., momentarily occupied roles) are experimentally varied (e.g., by priming a specific role or by experimentally creating a role for participants to adopt) and next higher level constructs (e.g., short-term goals) are subsequently assessed, we aim to provide further empirical evidence for our theorized bottom-up processes. Currently, we are conducting experiments in which participants' social roles are manipulated within the laboratory and their short-term goals are subsequently measured, and, in which, short-term goals are varied in the laboratory and personality states are assessed shortly afterwards.

Moreover, as part of our program research, we also plan to incorporate experimental designs within diary approaches. For instance, we will repeatedly experimentally vary roles (e.g., via alternating between different role primes across a period of time) and observe participants subsequent goals each time after a role prime. Through combining experimental and diary designs, we hope to provide an empirical demonstration of our proposed causal link between the within-person level constructs and, thus, have a better understanding of the directionality of the within-person level processes involved in personality traits change.

5.2. Extending the scope of the current model

Next, we propose three possible extensions of the model, including antecedents, goal constructs, and additional mediators, as well as culture. In terms of extending the scope of constructs employed in the model, additional antecedents of short-term goals, beyond social roles, should be examined. For example, interpersonal relationships with significant others are known to exert a considerable influence on goal pursuit (Andersen & Chen, 2002). A warm relationship with a supportive significant other is likely to foster approach and self-concordant goals, whereas a contentious one with a scolding person may give rise to avoidance and non self-concordant goals. Future research should examine the generalizability of our findings to additional roles, antecedents of goals, personality dimensions and samples.

Another important opportunity for future research is the examination of the link between additional goal based constructs and personality states and traits. Goal content refers to the types of goals individuals typically strive to attain, such as experiencing joy and well-being, building friendships with others, increasing the amount of money one has, and so forth (Elliot & Friedman, 2006; Emmons, 1997). Paralleling the limited research on the effect of long-term goals on personality traits (e.g., Roberts et al., 2004), future research should attempt to identify how the content of short-term goals can affect personality states. Moreover, additional dimensions of goals worth investigating in relation to personality states include: (a) goal difficulty—defined as one's subjective probability for attaining a goal (Austin & Vancouver, 1996)—and (b) performance versus mastery goal orientation—defined as an orientation toward developing or demonstrating one's

ability (Dweck & Leggett, 1988). For example, are goal difficulty, and the resultant low self-efficacy (Bandura, 1997), associated with high levels of state neuroticism? Are mastery goals, relative to performance ones, linked to elevated levels of states conscientiousness and openness, and reduced levels of state neuroticism? These novel and intriguing questions should be subject to empirical scrutiny.

Furthermore, other mediators, beyond goals, of the link between social roles and personality states and traits should be examined. Role shifts may exert their influence on personality through several other potential mechanisms. For instance, in the case of a woman who has recently adopted a new mother role, she may experience processes such as internalization of the mother role (e.g., "I am a nurturing mother"), observation of her own actions (e.g., "I see that I care about my child"), receiving feedback from others (e.g., "I was told that I am warm"), and the development of a new identity (e.g., "I identify with being gentle"), that could influence her personality (Caspi & Roberts, 2001). These additional potential mechanisms clearly deserve future research attention as well.

The inclusion of culture in bottom-up models of personality represents another exciting avenue that can considerably extend the generalizability and comprehensiveness of our model. To the extent that cultures may differ in the type and frequency of various prescribed social roles that vary in behavioral expectations (Matsumoto, 2007), different motivations (e.g., self-criticism and self-improvement vs. self-enhancement; Heine, Lehman, Markus, & Kitayama, 1999) associated with satisfying these expectations may predominate in different cultures. Indeed, existing literature suggests that cultures vary in goal adoption (e.g., East Asians adopt more avoidance, relative to approach, goals than Americans; Elliot, Chirkov, Kim, & Sheldon, 2001), as well as in the types of goal pursuit and attainment that predict subjective well-being (Elliot et al., 2001; Oishi & Diener, 2001). Specifically, the pursuit of avoidance goals is a predictor of lower levels of subjective well-being in individualistic cultures, but not in collectivistic ones (Elliot et al., 2001). In a similar manner, whereas goal attainment is beneficial to subjective well-being for European Americans who pursue independent goals, for Asian Americans the pursuit of interdependent goals is more beneficial for their well-being (Oishi & Diener, 2001). Because cultures differ in their emphasis on acting in accordance with the prevailing behavioral norms and expectations associated with various roles, individuals from dissimilar cultural environments may engage in distinct styles of goal pursuit in response to their role adaptation. Hence, culture may moderate the ways in which, and the extent to which, social roles influence goal pursuit.

Finally, an especially intriguing opportunity for studying the influence of culture in personality processes is the investigation of bicultural experiences. With increasing globalization and immigration, many individuals are now residing in culturally mixed environments and have adopted more than one cultural identity. Recent research on cultural frame switching suggests that bicultural individuals are often capable of shifting between their different cultural selves and are able to think, feel, and behave consistent with the demands of their immediate cultural context (Hong, Morris, Chiu, & Benet-Martinez, 2000; Perunovic, Heller, & Rafaelli, 2007; Ross, Xun, & Wilson, 2002). Thus, culture can also be examined as a situated context that may vary from moment to moment within bicultural individuals' everyday life. As such, their current cultural context may not only serve to influence bicultural individuals' social roles, short-term goals, and personality states, but may also serve to moderate the various links between these factors. Thus, future research may examine new issues in the study of intra-individual variability in culture and personality, including: (a) the investigation of the degree to which bicultural individuals

adopt one type of role more frequently in one cultural context than another, (b) the ways in which bicultural individuals pursue different goals as a function of their momentary salient cultural cues, and (c) the impact of shifting between cultural contexts on bicultural individuals' personality states.

6. Summary

Research using a top-down approach has led to important findings regarding the stability of personality traits and the causal influence of personality on behavioral outcomes. In particular, there is a compelling rationale and empirical evidence for personality traits: (a) being manifested or realized in personality states (Fleeson & Leicht, 2006), (b) influencing the selection, pursuit, and attainment of goals (e.g., Elliot et al., 1997; Roberts et al., 2004), as well as (c) influencing role (or situation) selection (Emmons, Diener, & Larsen, 1985; Ickes, Snyder, & Garcia, 1997) and role enactment in ways that are consistent with or enable the expression of personality traits (Wrzesniewski & Dutton, 2001).

A bottom-up model of personality trait development can serve to supplement the existing top-down model of personality for a more comprehensive understanding of the links between persons, situations, and behavior. Due to the relative neglect of bottom-up processes compared to top-down processes in personality psychology, the present paper proposes a bottom-up model of personality trait development. We hope that our proposed bottom-up model will encourage more investigations pertaining to the role of situations in the development and change in personality, as well as the development of appropriate statistical and methodological approaches for testing longitudinal bottom-up approaches in which higher level constructs emerge from the aggregation of lower level ones (Chan, 1998; Krull & MacKinnon, 2001). Moreover, we hope that it is useful in increasing understanding of the interface between persons and situations, as well as stimulates future research addressing the integration of process approaches with dispositional-structural ones. Finally, we feel a better understanding of bottom-up processes in personality can elucidate how personality can change naturally, and how individuals seeking self-change as well as clinicians can bring about deliberately such important changes in traits.

Acknowledgments

This research was supported by grants from the Israel Science Foundation and European Union Marie Currie International Reintegration Grant to the first author, and the University of New Brunswick's Start-up Funds to the second author. We thank Penny Deeth, Jennifer Komar, Shawn Komar, and Justin Mullin for their assistance with this research.

References

- Allport, G. W. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart & Winston, Inc.
- Andersen, S. M., & Chen, S. (2002). The relational self: An interpersonal social-cognitive theory. *Psychological Review*, *109*, 619–645.
- Argyle, M., Furnham, A., & Graham, J. A. (1981). *Social situations*. Cambridge: Cambridge University Press.
- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, *120*, 338–375.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Biddle, B. J. (1979). *Role theory: Expectations, identities and behaviors*. New York, NY: Academic Press.
- Cantor, N. (1994). Life task problem-solving: Situational affordances and personal needs. *Personality and Social Psychology Bulletin*, *20*, 235–243.
- Caspi, A., & Roberts, B. W. (2001). Personality development across the life course: The argument for change and continuity. *Psychological Inquiry*, *12*, 49–66.
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, *56*, 453–484.
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, *83*, 234–246.
- Costa, P. T., Jr., Herbst, J. H., McCrae, R. R., & Siegler, I. C. (2000). Personality at midlife: Stability, intrinsic motivation and responses to life events. *Assessment*, *7*, 365–378.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*, 256–273.
- Edwards, J. A., & Templeton, A. (2005). The structure of perceived qualities of situations. *European Journal of Social Psychology*, *35*, 705–723.
- Elliot, A. J., Chirkov, V. I., Kim, Y., & Sheldon, K. M. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science*, *12*, 505–510.
- Elliot, A. J., & Friedman, R. (2006). Approach and avoidance personal goals. In B. Little, K. Salmela-Aro, J. Nurmi, & S. Phillips (Eds.), *Personal project pursuit: Goals, action, and human flourishing* (pp. 97–118). Hillsdale, NJ: Lawrence Erlbaum.
- Elliot, A. J., Sheldon, K. M., & Church, M. A. (1997). Avoidance personal goals and subjective well-being. *Personality and Social Psychology Bulletin*, *23*, 915–927.
- Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology*, *82*, 804–818.
- Emmons, R. A. (1997). Motives and life goals. In S. Briggs, R. Hogan, & J. A. Johnson (Eds.), *Handbook of personality psychology* (pp. 485–512). San Diego, CA: Academic Press.
- Emmons, R. A., Diener, E., & Larsen, R. J. (1985). Choice of situations and congruence models of interactionism. *Personality and Individual Differences*, *6*, 693–702.
- Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology*, *80*, 1011–1027.
- Fleeson, W. (2007). Situation-based contingencies underlying trait-content manifestation in behavior. *Journal of Personality*, *75*, 825–862.
- Fleeson, W., & Leicht, C. (2006). On delineating and integrating the study of variability and stability in personality psychology: Interpersonal trust as an illustration. *Journal of Research in Personality*, *40*, 5–20.
- Frederiksen, N. (1972). Toward a taxonomy of situations. *American Psychologist*, *27*, 114–123.
- Funder, D. C. (2001). Personality. *Annual Review of Psychology*, *52*, 197–221.
- Funder, D. C., & Colvin, C. R. (1991). Explorations in behavioral consistency: Properties of persons, situations, and behaviors. *Journal of Personality and Social Psychology*, *60*, 773–794.
- Gray, J. (1982). *The neuropsychology of anxiety*. Oxford, England: Oxford University Press.
- Graziano, W. G. (2003). Personality development: An introduction toward process approaches to long-term stability and change in persons. *Journal of Personality*, *71*, 893–903.
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766–794.
- Heller, D., & Perunovic, W. Q. E. (2007). *Culture, roles, goals, emotions and personality states*. Unpublished data.
- Heller, D., Komar, J., Lee, W. B., & McInnis, K. (2007). *Roles, goals, and personality states: A diary study*. Unpublished data.
- Heller, D., Perunovic, W. Q. E., Komar, S., Weinblatt, N., & Shay, G. (2008). *Subliminal priming of social roles*. Unpublished data.
- Heller, D., Ferris, D. L., Brown, D. J., & Watson, D. (in press). The influence of work personality on job satisfaction: Incremental validity and mediation effects. *Journal of Personality*.
- Heller, D., Komar, J., & Lee, W. B. (2007). The dynamics of personality states, goals and well-being. *Personality and Social Psychology Bulletin*, *33*, 898–910.
- Heller, D., & Watson, D. (2005). The dynamic spillover of satisfaction between work and marriage: The role of time and mood. *Journal of Applied Psychology*, *90*, 1273–1279.
- Heller, D., Watson, D., & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin*, *130*, 574–600.
- Heller, D., Watson, D., Komar, J., Min, J., & Perunovic, W. Q. E. (2007). Contextualized personality: Traditional and new assessment procedures. *Journal of Personality*, *75*, 1229–1254.
- Hong, Y.-y., Morris, M. W., Chiu, C.-y., & Benet-Martinez, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. *American Psychologist*, *55*, 709–720.
- Ickes, W., Snyder, M., & Garcia, S. (1997). Personality influences on the choice of situations. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 165–195). San Diego, CA: Academic Press.
- Krull, J. L., & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. *Multivariate Behavioral Research*, *36*, 249–277.
- Little, B. R., Lecci, L., & Watkinson, B. (1992). Personality and personal projects: Linking big five and PAC units of analysis. *Journal of Personality*, *60*, 501–525.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Upper Saddle River, NJ: Prentice-Hall.
- Matsumoto, D. (2007). Culture, context and behavior. *Journal of Personality*, *75*, 1285–1320.
- Mayer, J. (2007). The big questions of personality psychology: Defining common pursuits of the discipline. *Imagination, Cognition and Personality*, *27*, 3–26.
- McCrae, R. R., & Costa, P. T. Jr., (1984). Personality is transcultural: A reply to Veroff. *Personality and Social Psychology Bulletin*, *10*, 175–179.
- McCrae, R. R., & Costa, P. T. Jr., (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science*, *3*, 173–175.

- McCrae, R. R., Costa, P. T., Jr., de Lima, M. P., Simões, A., Ostendorf, F., Angleitner, A., et al. (1999). Age differences in personality across the adult lifespan: Parallels in five cultures. *Developmental Psychology, 35*, 466–477.
- McCrae, R. R., Costa, P. T., Jr., Ostendorf, F., Angleitner, A., Hrebickova, M., Avia, M. D., et al. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology, 78*, 173–186.
- Mischel, W. (1968). *Personality and assessment*. New York: Wiley.
- Mischel, W. (1973). Toward a cognitive–social learning reconceptualization of personality. *Psychological Review, 80*, 252–283.
- Mischel, W., & Shoda, Y. (1995). A cognitive–affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review, 102*, 246–286.
- Oishi, S., & Diener, E. (2001). Goals, culture, and subjective well-being. *Personality and Social Psychology Bulletin, 27*, 1674–1682.
- Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57*, 401–421.
- Perunovic, W. Q. E., Heller, D., & Rafaeli, E. (2007). Within-person changes in the structure of emotion: The role of cultural identification and language. *Psychological Science, 18*, 607–613.
- Pervin, L. A. (1982). The stasis and flow of behavior: Toward a theory of goals. In *Nebraska symposium on motivation* (pp. 1–53). Lincoln, NE: University of Nebraska Press.
- Read, S. J., & Miller, L. C. (1989). The importance of goals in personality: Toward a coherent model of persons. In *Advances in social cognition*. In R. S. Wyer, Jr. & T. K. Srull (Eds.), *Social intelligence and cognitive assessments of personality* (Vol. 2). Hillsdale, NJ: Erlbaum.
- Roberts, B. W. (1997). Plaster or plasticity: Are work experiences associated with personality change in women? *Journal of Personality, 65*, 205–232.
- Roberts, B. W., Caspi, A., & Moffitt, T. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology, 84*, 582–593.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality trait from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25.
- Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current Directions in Psychological Science, 17*, 31–35.
- Roberts, B. W., O'Donnell, M., & Robins, R. W. (2004). Goal and personality trait development in emerging adulthood. *Journal of Personality and Social Psychology, 87*, 541–550.
- Roberts, B. W., & Pomerantz, E. M. (2004). On traits, situations and their integration: A developmental perspective. *Personality and Social Psychology Review, 8*, 402–416.
- Robins, R. W., Caspi, A., & Moffitt, T. (2002). It's not just who you're with, it's who you are: Personality and relationship experiences across multiple relationships. *Journal of Personality, 70*, 925–964.
- Robins, R. W., Fraley, R. C., Roberts, B. W., & Trzesniewski, K. H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality, 69*, 617–640.
- Ross, L., & Nisbett, R. E. (1991). *The person and the situation: Perspectives of social psychology*. New York: McGraw-Hill.
- Ross, M., Xun, E., & Wilson, A. E. (2002). Language and the bicultural self. *Personality Social Psychology Bulletin, 28*, 1040–1050.
- Sheldon, K. M., & Elliot, A. J. (2000). Personal goals in social roles: Divergences and convergences across roles and levels of analysis. *Journal of Personality, 68*, 51–84.
- Sheldon, K. M., Ryan, R. M., Rawsthorne, L. J., & Ilardi, B. (1997). Trait self and true self: Cross-role variation in the big five personality traits and its relations with psychological authenticity and subjective wellbeing. *Journal of Personality and Social Psychology, 73*, 1380–1393.
- Steele, J., & Heller, D. (2005). *Friend or foe? Contextualizing personality through identity activation*. Poster session presented at the annual meeting of the society of personality and social psychology, New Orleans, LA.
- Stryker, S. (1986). Identity theory: Developments and extensions. In K. Yardley & T. Honess (Eds.), *Self and identity* (pp. 89–104). New York: Wiley.
- Ten Berge, M. A., & De Raad, B. (1999). Taxonomies of situations from a trait psychological perspective: A review. *European Journal of Personality, 13*, 337–360.
- Vaidya, J. G., Gray, E. K., Haig, J., & Watson, D. (2002). On the temporal stability of personality: Evidence for differential stability and the role of life experiences. *Journal of Personality and Social Psychology, 83*, 1469–1484.
- Wood, D., & Roberts, B. W. (2006). Cross-sectional and longitudinal tests of the personality and role identity structural model (PRISM). *Journal of Personality, 74*, 779–809.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*, 179–201.
- Yang, Y., Read, S. J., & Miller, L. C. (2006). A taxonomy of situations from Chinese idioms. *Journal of Research in Personality, 40*, 750–778.