ception and Performance, 26, 1797–1813.

Juslin, P.N., & Sloboda, J.A. (2001). Music and emotion: Theory and research. New York: Oxford University Press.

Peretz, I., Gagnon, L., & Bouchard, B. (1998). Music and emotion: Perceptual determinants, immediacy, and isolation after brain damage. *Cognition*, 68, 111–141.

Sloboda, J. (1999). Music—where cognition and emotion meet. *The Psychologist*, 12, 450–455.

Note

1. Address correspondence to Carol L. Krumhansl, Department of Psychology, Uris Hall, Cornell University, Ithaca, NY 14853; e-mail: clk4@cornell.edu.

References

Agawu, V.K. (1991). *Playing with signs*. Princeton, NJ: Princeton University Press.

Hevner, K. (1936). Experimental studies of the elements of expression in music. American Journal of Psychology, 48, 246–268.

Krumhansl, C.L. (1995). Music psychology and music theory: Problems and prospects. Music Theory Spectrum, 17, 53–80.

Krumhansl, C.L. (1996). A perceptual analysis of Mozart's *Piano Sonata K*. 282: Segmentation, tension, and musical ideas. *Music Perception*, 13, 401–432.

Krumhansl, C.L. (1997). An exploratory study of musical emotions and psychophysiology. Canadian Journal of Experimental Psychology, 51, 336–352.

Krumhansl, C.L. (1998). Topic in music: An empirical study of memorability, openness, and emotion in Mozart's String Quintet in C major and Beethoven's String Quartet in A minor. Music Perception, 16, 119–134.

Krumhansl, C.L. (2000). Music and affect: Empirical and theoretical contributions from experimental psychology. In D. Greer (Ed.), Musicology and sister disciplines: Past, present, and future (pp. 88–99). New York: Oxford University Press.

Krumhansl, C.L., Louhivuori, J., Toiviainen, P., Järvinen, T., & Eerola, T. (1999). Melodic expectation in Finnish spiritual folk hymns: Convergence of statistical, behavioral, and computational approaches. Music Perception, 17, 151–195.

Krumhansl, C.L., & Schenck, D.L. (1997). Can dance reflect the structural and expressive qualities of music? A perceptual experiment on Balanchine's choreography of Mozart's Divertimento No. 15. Musicae Scientiae, 1, 63–85.

Krumhansl, C.L., Toivanen, P., Eerola, T., Toiviainen, P., Järvinen, T., & Louhivuori, J. (2000). Cross-cultural music cognition: Cognitive methodology applied to North Sami yoiks. Cognition, 76, 13–58.

Lerdahl, F. (2001). Tonal pitch space. New York: Oxford University Press.

Lerdahl, F., & Jackendoff, R. (1983). A generative theory of tonal music. Cambridge, MA: MIT Press

Meyer, L.B. (1956). *Emotion and meaning in music*. Chicago: University of Chicago Press.

Meyer, L.B. (1967). Music, the arts, and ideas. Chicago: University of Chicago Press.

Narmour, E. (1990). The analysis and cognition of basic melodic structures: The implication-realization model. Chicago: University of Chicago Press.

Situation-Behavior Profiles as a Locus of Consistency in Personality

Walter Mischel, 1 Yuichi Shoda, and Rodolfo Mendoza-Denton

Psychology Department, Columbia University, New York, New York (W.M., R.M.-D.), and Psychology Department, University of Washington, Seattle, Washington (Y.S.)

Abstract

Traditional approaches have long considered situations as "noise" or "error" that obscures the consistency of personality and its invariance. Therefore, it has been customary to average the individual's behavior on any given dimension (e.g., conscientiousness) across different situations. Contradicting this assumption and practice, recent studies have demonstrated that by incorporating the situation into the search for consistency, a new locus of stability is found. Namely, people are characterized not only by stable individual differences in their overall levels of behavior, but also by distinctive and stable patterns of situation-behavior relations (e.g., she does *X* when *A* but *Y* when *B*). These *if* . . . *then* . . . *profiles* constitute behavioral "signatures" that provide potential windows into the individual's underlying dynamics. Processing models that can account for such signatures provide a new route for studying personality types in terms of their shared dynamics and characteristic defining profiles.

Keywords

personality; consistency; interactionism; if . . . then . . . profiles

Traditionally, personality psychology has been devoted to understanding the dispositional characteristics of the person that remain invariant across contexts and situations. Further, it has been assumed that the manifestations of invariance in personality should be seen in consistent differences between individuals in their behavior across many different situations. For example, a person who is high in conscientiousness should be more conscientious than most people in many different kinds of situations (at home, at school, with a boss, with friends). The data over the course of a century, however, made it increasingly evident that the individual's behavior on any dimension varies considerably across different types of situations, thus greatly limiting the ability to make situation-specific predictions and raising deep questions about the nature and locus of consistency in personality (Mischel, 1968; Mischel & Peake, 1982).

By the 1970s, the discrepancy between the data and the field's fundamental assumptions precipitated a paradigm crisis (Bem & Allen, 1974). The crux of this crisis was captured in the so-called personality paradox: How can our in-

tuitions about the stability of personality be reconciled with the evidence for its variability across situations? A long-term research program was launched to try to resolve this paradox (Mischel & Peake, 1982; Mischel & Shoda, 1995). This program was motivated by the proposition that the variability of behavior across situations, at least partly, may be a meaningful expression of the enduring but dynamic personality system itself and its stable underlying organization. The findings that emerged have led to a reconceptualization of the nature and locus of personality invariance, reconciling the variability of behavior on the one hand with the stability of the personality structure on the other.

EVIDENCE FOR
THE CONTEXTUALIZED
IF ... THEN ... EXPRESSION
OF PERSONALITY
INVARIANCE

Figure 1 shows behavioral data that are typical of those found for any two individuals in a given domain of behavior across many different situations. In traditional conceptions, the variability in an individual's behavior across situations (the ups and downs along the y-axis) is seen as unwanted, uninformative variance reflecting either situational influences or measurement error. In dealing with this variability, the most widely accepted approach has been to aggregate the individual's behavior on a given dimension across many situations to arrive at the person's "true score." The average summary score that results allows one to ask whether individuals are different in their overall level of a disposition, and is useful for many purposes-yet it may conceal potentially valuable information about where and when individuals differ in their unique patterns of behavior. If these patterns of situation-behavior relations are indeed stable and meaningful, rather than just measurement error, they may be thought of as if . . . then . . . (if situation A, then the person does X, but if situation B, then the person does Y) "signatures" that contain clues about the underlying personality system that produces them.

In a study testing for the stability and meaningfulness of such situation-behavior profiles, the behavior of children was observed *in vivo* over the course of a summer within a residential camp setting (Shoda, Mischel, & Wright, 1994). The data collection yielded an extensive archival database that allowed systematic analyses of coherence in behavior as it unfolded across naturalistic situations and over many occasions, under unusually well-controlled research conditions that ensured the reliability and density of measurement.

In selecting situations for the analysis, it was important to move beyond the nominal situations specific to any given setting (such as the woodworking room, dining hall, or playground) that would necessarily be of limited generalizability and usefulness outside the specific setting. Rather, the relevant psychological features of situations—the "active ingredients" that exert a significant impact on the behavior of the person and that cut across nominal settings-were identified. Within this camp setting, five types of psychological situations that could be objectively recorded emerged: three negative situations ("teased, provoked, or threatened by peer," "warned by adult," and "punished by adult") and two positive situations ("praised by adult" and "approached socially by peer"). The children's social behavior (e.g., verbal aggression, with-

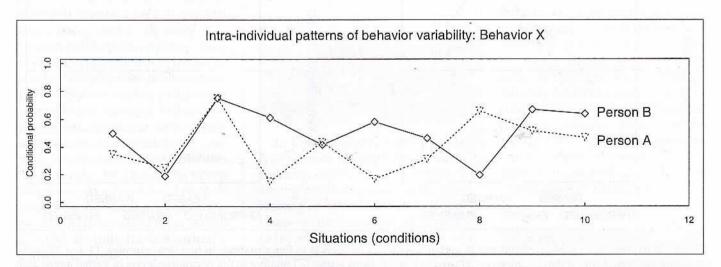


Fig. 1. Typical individual differences in the conditional probability of a type of behavior in different situations. Reprinted by permission from Mischel and Shoda (1995, Fig. 1, p. 247).

drawal, friendly behavior, prosocial behavior) was unobtrusively observed and recorded as it occurred in relation to each of the selected interpersonal situations, with an average of 167 hr of observation per child over the course of the 6-week camp.

With this unusually extensive data archive, it was possible to assess the stability of the hypothesized situation-behavior relationships for each person. Figure 2 shows illustrative profiles for two children's verbally aggressive behavior across the five types of situations. The frequencies of behavior were first standardized, so that the remaining intraindividual variance in the profiles reflects behavior above and beyond what would be normally expected in the situation indicated—and is thus attributable to the individual's distinctive personal qualities. The two lines within each panel indicate the profiles based on two separate, nonoverlapping samples of situations.

As the figure shows, compared with the other children at the camp, Child 9 showed a distinctively higher level of verbal aggression when warned by adults, but a lower-than-average level when approached positively by a peer. In contrast, Child 28 displayed higher levels of verbal aggression in comparison with others when approached positively by a peer, not when warned by an adult. In contrast to the prediction that intraindividual variability in behavior across situations reflects noise and should thus have an average stability of zero, the results provided strong evidence that participants' if . . . then . . . profiles were both distinctive and stable.

THE PERSONALITY PARADOX RECONSIDERED

Further analyses tested the hypothesis that individuals' self-perceptions of consistency are related to the stability of their situationbehavior profiles (Mischel & Shoda, 1995). These analyses utilized data from a field study in which college students were repeatedly observed on campus in various situations relevant to their conscientiousness in the college setting (Mischel & Peake, 1982). The results revealed that students who perceived themselves as consistent did not show greater overall crosssituational consistency than those who did not. However, the average correlation for situation-behavior profile stability was near .5 for individuals who perceived themselves as consistent, whereas it was trivial for those who viewed themselves as inconsistent. It is the stability in the situation-behavior profile and not the cross-situational consistency of behavior that seems to be related to the perception of consistency.

The intuition of consistency, then, seems to be neither paradoxical nor illusory. It is in fact based on a different type of behavioral

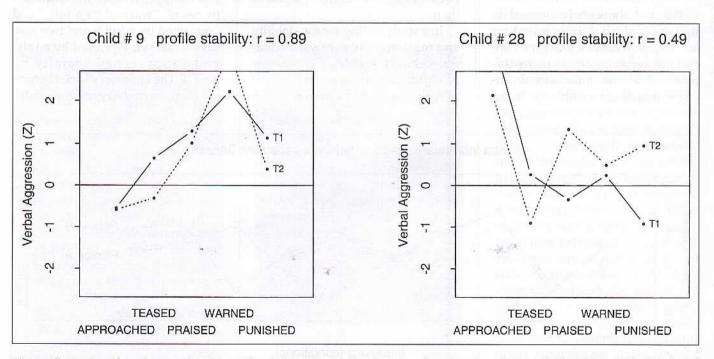


Fig. 2. Illustrative *if* . . . *then* . . . signatures of verbal aggression in relation to five situations in two time samples, T1 and T2 (solid and dotted lines). Data for two children are shown in standardized scores (*Z*) relative to the normative levels of verbal aggression in each situation. The profile stability coefficients for the children are shown above the graphs. Reprinted by permission from Mischel and Shoda (1995, Fig. 2, p. 249).

consistency than has been sought for so many years. Cross-situational variability seems to be an essential expression of the enduring but dynamic personality system itself and its stable underlying organization. Given such findings, the need arose for a conception of personality that could generate—and allow one to predict and understand—not only the overall average differences between people, but also their stable and unique patterns of intraindividual variability.

TOWARD A DYNAMIC CONCEPTION OF PERSONALITY

To address this need, psychologists are beginning to reconceptualize personality not as a mere collection of attributes, but as a coherent organization of mentalemotional representations interacting within a network of relationships and constraints (e.g., Hinton, McClelland, & Rumelhart, 1986). This type of model, familiar in cognitive science, provides a framework for conceptualizing an organized personality processing system that is sensitive to different features of situations and can respond discriminatively to them in characteristic and stable ways.

Cognitive-affective personality system (CAPS) theory (Mischel & Shoda, 1995) represents one instantiation of how such a processing system might function. Within this framework, the stable units of personality consist of mental representations whose activation or inhibition leads to the behaviors displayed. At a molar level of analysis, these mental representations, or cognitive-affective units (CAUs), include the individual's construals, goals, expectations, beliefs, and affects, as well as self-regulatory standards, competencies, plans, and strategies. Each individual is characterized by a relatively stable activation network among the units within the system, reflecting the culture and subculture (Mendoza-Denton, Shoda, Ayduk, & Mischel, 1999), as well as the individual's social learning history, genetic endowment, and biological history (e.g., temperament).

Individual differences in this model arise not only from differences in the chronic accessibility of CAUs, but also from the distinctive organization of interrelationships among them within each person. As the individual moves across situations that contain different psychological features, different mediating units and their characteristic interrelationships become activated. When the ifs posed by the situation change, so do the thens generated by the personality system, but the if . . . then . . . relationships remain the same, reflecting the stable organization of CAUs distinctive for that individual. Computer simulations drawing from such a conceptualization of personality have demonstrated that the CAPS model can account for both interindividual differences in mean levels of behavior and stable intraindividual variability of behavior across psychological situations (Mischel & Shoda, 1995).

FROM IDIOGRAPHIC TO NOMOTHETIC ASSESSMENT OF PROCESSING DISPOSITIONS

In CAPS theory, a personality type consists of people who share a common organization of relations among mediating units in the processing of certain situational features—a common network of interrelated CAUs. The kinds of assessment tools needed to study such personality types can range from situation-specific question-

naires (e.g., Chiu, Hong, Mischel, & Shoda, 1995) to rigorously monitored daily diary studies (e.g., Ayduk, Downey, Testa, Yen, & Shoda, 1999), to experimental studies of the impact of various situational triggers on the individual's behavior (e.g., Shoda & Tiernan, in press). Such assessments can be undertaken through either a topdown or a bottom-up approach. In top-down approaches, the researcher begins with a theory of the internal processing dynamics that may characterize a type, and then hypothesizes the distinctive if . . . then . . . profile for that type, as well as the psychological triggers that define the profile (e.g., Downey & Feldman, 1996; Morf & Rhodewalt, 2001). Bottom-up approaches, by contrast, take advantage of recent advances in statistical techniques to extract person classes, behavior classes, and situation classes from people's responses to standardized inventories (Vansteelandt & Van Mechelen, 1998).

Such research programs are steps toward building a personality typology that takes account of both the situation and the characteristic organization of the underlying system that distinguishes each type. The CAPS model provides a framework for outlining the particular networks that distinctively characterize different individuals and personality types. From such an approach to typologies, psychologists may be able ultimately to meet a central goal in personality assessment articulated years ago (Mischel, 1968): to make specific predictions about how certain subtypes of individuals are likely to think, feel, and behave in certain kinds of situations.

Recommended Reading

Cervone, D., & Shoda, Y. (1999). The coherence of personality: Social-cognitive bases of consistency, variability, and organization. New York: Guilford.

Mischel, W., & Shoda, Y. (1995). (See References)

Shoda, Y., & Mischel, W. (1998). Personality as a stable cognitive-affective activation network: Characteristic patterns of behavior variation emerge from a stable personality structure. In S. Read & L.C. Miller (Eds.), Connectionist models of social reasoning and social behavior (pp. 175–208). Mahwah, NJ: Erlbaum.

Shoda, Y., Mischel, W., & Wright, J.C. (1994). (See References)

Acknowledgments—Preparation of this article was supported by National Institute of Mental Health Grant MH39349.

Note

1. Address correspondence to Walter Mischel, Department of Psychology, Columbia University, 406 Schermerhorn Hall, 1190 Amsterdam Ave., Mail

Code 5501, New York, NY 10027; e-mail: wm@psych.columbia.edu.

References

- Ayduk, O., Downey, G., Testa, A., Yen, Y., & Shoda, Y. (1999). Does rejection elicit hostility in rejection-sensitive women? Social Cognition, 17, 245–271.
- Bem, D.J., & Allen, A. (1974). On predicting some of the people some of the time: The search for cross-situational consistencies in behavior. *Psychological Review*, 81, 506–520.
- Chiu, C., Hong, Y., Mischel, W., & Shoda, Y. (1995). Discriminative facility in social competence: Conditional versus dispositional encoding and monitoring-blunting of information. Social Cognition, 13, 49–70.
- Downey, G., & Feldman, S. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70, 1327–1343.
- Hinton, G.E., McClelland, J.L., & Rumelhart, D.E. (1986). Distributed representations. In D.E. Rumelhart & J.L. McClelland (Eds.), Parallel distributed processing: Explorations in the microstructures of cognition, Vol. I: Foundations (pp. 77–109). Cambridge, MA: MIT Press/Bradford Books.
- Mendoza-Denton, R., Shoda, Y., Ayduk, O., & Mischel, W. (1999). Applying cognitive-affective processing system theory to cultural differences in social behavior. In W.L. Lonner,

- D.L. Dinnel, D.K. Forgays, & S.A. Hayes (Eds.), Merging past, present, and future in cross-cultural psychology: Selected proceedings from the 14th International Congress of the International Association for Cross-Cultural Psychology (pp. 205–217). Lisse, Netherlands: Swets & Zeitlinger.
- Mischel, W. (1968). Personality and assessment. New York: Wiley.
- Mischel, W., & Peake, P.K. (1982). Beyond deja vu in the search for cross-situational consistency. Psychological Review, 89, 730–755.
- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. Psychological Review, 102, 246–268.
- Morf, C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12, 177–196.
- Shoda, Y., Mischel, W., & Wright, J.C. (1994). Intraindividual stability in the organization and patterning of behavior: Incorporating psychological situations into the idiographic analysis of personality. Journal of Personality and Social Psychology, 65, 1023–1035.
- Shoda, Y., & Tiernan, S. (in press). Searching for order within a person's stream of thoughts, feelings, and behaviors over time and across situations. In D. Cervone & W. Mischel (Eds.), Advances in personality science (Vol. 1). New York: Guilford.
- Vansteelandt, K., & Van Mechelen, I. (1998). Individual differences in situation-behavior profiles: A triple typology model. *Journal of Personality and Social Psychology*, 75, 751–765.

Gender and Group Process: A Developmental Perspective

Eleanor E. Maccoby¹

Department of Psychology, Stanford University, Stanford, California

Abstract

Until recently, the study of gender development has focused mainly on sex typing as an attribute of the individual. Although this perspective continues to be enlightening, recent work has focused increasingly on children's tendency to congregate in same-sex groups. This self-segregation of the two sexes implies that much of childhood gender enactment occurs in the context of samesex dyads or larger groups. There are emergent properties of such groups, so that certain

sex-distinctive qualities occur at the level of the group rather than at the level of the individual. There is increasing research interest in the distinctive nature of the group structures, activities, and interactions that typify all-male as compared with all-female groups, and in the socialization that occurs within these groups. Next steps in research will surely call for the integration of the individual and group perspectives.

Keywords

sex; gender; groups; socialization

Among researchers who study the psychology of gender, a central viewpoint has always been that individuals progressively acquire a set of behaviors, interests, personality traits, and cognitive biases that are more typical of their own sex than of the other sex. And the individual's sense of being either a male or a female person (gender identity) is thought to be a core element in the developing sense of self. The acquisition of these sexdistinctive characteristics has been called sex typing, and much research has focused on how and why the processes of sex typing occur. A favorite strategy has been to examine differences among individuals in how sex typed they are at a given age, searching for factors associated with a person's becoming more or less "masculine" or more or less "feminine" than other individuals. In early work, there was a heavy emphasis on the fam-