



## On Being Consistent: The Role of Verbal–Nonverbal Consistency in First Impressions

Max Weisbuch , Nalini Ambady , Asha L. Clarke , Shawn Achor & Jeremy Veenstra-Vander Weele

**To cite this article:** Max Weisbuch , Nalini Ambady , Asha L. Clarke , Shawn Achor & Jeremy Veenstra-Vander Weele (2010) On Being Consistent: The Role of Verbal–Nonverbal Consistency in First Impressions, Basic and Applied Social Psychology, 32:3, 261-268, DOI: [10.1080/01973533.2010.495659](https://doi.org/10.1080/01973533.2010.495659)

**To link to this article:** <http://dx.doi.org/10.1080/01973533.2010.495659>



Published online: 18 Aug 2010.



Submit your article to this journal [↗](#)



Article views: 199



View related articles [↗](#)



Citing articles: 3 View citing articles [↗](#)

# On Being Consistent: The Role of Verbal–Nonverbal Consistency in First Impressions

Max Weisbuch, Nalini Ambady, Asha L. Clarke, and Shawn Achor  
*Tufts University*

Jeremy Veenstra-Vander Weele  
*Vanderbilt University*

Extant research suggests that people seem deceitful and difficult to understand when their verbal behavior is inconsistent with their nonverbal behavior. Building on this literature, **we examined the impact of behavioral coherence on impression formation: We expected people to be likeable to the extent that their verbal and nonverbal behavior was consistent (i.e., coherent).** In two studies, participants were videotaped during interpersonal interactions. In both studies, judges with access to only transcripts *or* silent videos rated participants with respect to emotions (Study 1) or interpersonal concern (Study 2). Other judges—with access to full-audio video—rated participants' likeability. **Consistency across verbal (transcript) and nonverbal (silent video) channels was associated with likeability.** Discussion focuses on the role of behavioral coherence in impression formation.

From early in life and continuing through adulthood, the coherence of others' behavior plays a crucial role in our understanding of those people. For example, infant judgments of others' emotions depend on the consistency of others' behavior, such as consistent facial and vocal behavior (Kahana-Kalman & Walker-Andrews, 2001; Walker-Andrews, 1997, 2008). Even after people reach adulthood, behavioral coherence remains important: Adult judgments of facial emotion are strongly disrupted by inconsistent emotional information from other channels of communication (Aviezer et al., 2008; de Gelder & Vroomen, 2000; de Gelder, Bocker, Tuomainen, Hensen, & Vroomen, 1999; Ethofer et al., 2006; Massaro & Egan, 1996; Van den Stock, Grezes, & de Gelder, 2008). In fact, adults often believe that others are being deceptive when the words and nonverbal behaviors of those others are inconsistent (Fleming & Rudman, 1993; Heinrich & Borkenau, 1998; Zuckerman, Driver, & Koestner, 1982). In general, then, the absence of behavioral coherence impairs

the clarity and perceived validity of communication. Despite the clear importance of coherence for communication, there is little research on the impression formation consequences of behavioral coherence. Because confusion, distrust, and inconsistency are typically undesirable, we hypothesized that people with less coherent behavioral styles would produce undesirable impressions. In the current research, we examine the impressions formed of people who exhibit varying levels of coherence between verbal and nonverbal communication.

## THE IMPORTANCE OF COHERENCE FOR SOCIAL PERCEPTION

Inconsistent input to the perceptual system disrupts judgment. This fact is illustrated by the so-called McGurk effect: When people are asked to identify a vocal utterance and to ignore an image of a person moving their lips, they are unable to do so. These participants often misidentify the vocal utterance ("ba") in the direction of the lip movement ("ga"; McGurk & MacDonald, 1976). Basic perceptual demonstrations of

---

Correspondence should be sent to Max Weisbuch, Psychology Department, Tufts University, Medford, MA 02155. E-mail: max.weisbuch@tufts.edu

the importance of coherence have analogues in social perception, most notably in emotion recognition. Indeed, the development of social perception depends on some degree of coherence in social stimuli. Walker-Andrews and colleagues (for a review, see Walker-Andrews, 2008) have demonstrated, for example, that 3-month-old infants can recognize facial expressions of emotion but only when accompanied by a corresponding vocal expression. Only later do infants develop the ability to recognize facial expressions in the absence of other communicative channels. At least with regard to emotion recognition, then, developing humans require some degree of consistency to recognize the emotional meaning of any particular channel. The importance of coherence extends to adulthood. For example, recent research has demonstrated that emotions that are clearly expressed in one channel (e.g., the face) are difficult to interpret when another channel (e.g., the body) presents inconsistent emotional information (Aviezer et al., 2008; de Gelder et al., 1999; de Gelder & Vroomen, 2000; Ethofer et al., 2006; Massaro & Egan, 1996; Van den Stock et al., 2008).

#### THE CURRENT RESEARCH: VERBAL–NONVERBAL COHERENCE AND IMPRESSION FORMATION

Although behavioral coherence appears to play an important role in perception and social perception, little is known about the importance of coherence for impression formation. Decades of research have revealed a great deal about the impact of stereotypes, situations, and more on the dispositional inferences we make about other people, yet much of this research carefully controlled for confounding variables and in so doing often limited stimuli to written descriptions (often of “Donald”) or more recently, pictures of faces (for a review, see Macrae & Bodenhausen, 2000). Exceptions to the single modality approach also exist—research on the lens model (Gifford, 1994; Gifford, Ng, & Wilkinson, 1985), the social relations model (Kenny, 1994), and on thin-slices (Ambady, Bernieri, & Richeson, 2000; Weisbuch & Ambady, in press) often record perceivers’ first impressions based on real interaction or audiovisual stimuli. Some of these latter approaches examine the relative contribution of observable cues (e.g., smiles) or particular channels of communication (e.g., the body) to a final impression (Borkenau & Liebler, 1992, 1993). Yet the evidence described earlier suggests that it is imperative to move beyond comparing the contributions of single channels or cues and instead to investigate the contribution of the relative *coherence* among several cues or channels of communication. The current research is a first step in that direction.

In the current research, we examined the contribution of verbal–nonverbal consistency to impression formation. Extant research suggests that people who exhibit behavioral inconsistency are likely to elicit negative evaluations. For example, individuals who exhibit discrepant verbal and nonverbal behavior appear to be deceptive or confused (Argyle, Alkema, & Gilmour, 1971; Fleming & Rudman, 1993; Heinrich & Borkenau, 1998; Zuckerman et al., 1982). Dishonesty is associated with negative evaluations (e.g., Fiske, Cuddy, & Glick, 2007), and there may be evolutionary precedents for such patterns (cf. Cosmides & Tooby, 1992)—hence, discrepant behavior may lead to negative impressions because discrepancies imply deceit. Moreover, perceivers of inconsistent communication experience relatively negative effects, such as confusion (Rotenberg, Simourd, & Moore, 1989; Sonnenschein, 1986; Volkmar & Siegel, 1979), and research suggests that targets elicit negative evaluations from unhappy perceivers (e.g., Forgas & Bower, 1987). For these reasons, we hypothesized that people who exhibited incoherence across verbal and nonverbal channels would appear to be unlikeable.

Following prior treatments (cf. DePaulo & Friedman, 1998), verbal behavior was defined strictly with respect to verbal content. Hence, verbal behavior was operationalized by transcribing video clips so as to remove any effects of nonverbal or paraverbal behavior. Nonverbal behavior was operationalized as silent behavior. In both studies reported here, participants were videotaped and these videotapes were later edited to isolate nonverbal behavior (silent video) or verbal behavior (transcripts). Coherence was operationalized as the absolute difference between ratings derived from strictly nonverbal versus strictly verbal behavior; hence, a smaller absolute difference indexed greater coherence.

## STUDY 1

### Method

#### *Overview and Hypotheses*

Participants were videotaped as they completed a brief “getting to know you” conversation with a confederate. Three stimulus sets were created from these conversations: videos with audio, silent videos, and transcripts. Undergraduate raters were randomly assigned to judge participants from only one of these stimulus sets. Raters assigned to judge silent videos and transcripts rated each participant’s emotional state. Raters assigned to judge videos with audio rated each participant’s likeability. The absolute discrepancy between silent video and transcript judgments was taken as an inverse index of behavioral coherence. To the extent that participants were judged similarly by judges with access to only

nonverbal (silent video) or verbal (transcript) behavior, the absolute discrepancy between these two types of ratings would be small. We expected that participants exhibiting greater discrepancies between nonverbal and verbal emotion would be judged as relatively unlikeable.

### *Participants*

Forty freshmen (22 male) at a private university in the northeastern United States were recruited through advertisements in the dining hall and in their Introduction to Psychology class. They were paid for their participation.

### *Procedure*

Participants were run individually in a small bare room containing two chairs separated by a table, one video camera placed behind one of the chairs, and a second (unused) video camera placed across the room. Each participant was told that another student was also participating but that she had not yet arrived and they would meet later. Consequently, participants were asked to complete several surveys for an unrelated study. Shortly after the surveys were completed, a confederate was escorted to the room and introduced to the participant. The confederate was seated in front of a video camera, so that the video camera recorded from behind the confederate's left shoulder. Five female research assistants served as confederates during the course of this investigation, and all were trained to describe themselves with basic demographic information and to respond naturally but consistently (across participants) to participant inquiries. The experimenter then addressed both the participant and the confederate and told them they would be taking part in a "getting to know you" task. They were told that they would be given a total of 3 min to get to know each other as well as possible, by asking questions. They were not given any more specific instruction. After the interaction was over, each participant was thanked, reimbursed, and debriefed.

### *Video Editing*

Digitized video clips were imported into Adobe Premiere Pro and "thin-sliced" into several 10- to 15-s segments. Thin-slicing was utilized here as research suggests considerable correspondence in impressions formed from brief clips (1–30 s) and impressions formed from 5-min clips, regardless of whether those clips are video, audio, or transcribed text (e.g., Ambady & Rosenthal, 1992). Three types of thin-slices were created: video clips including the audio channel, silent video clips, and transcripts. Two clips were created for each participant—one clip from the beginning of the interaction and one clip from the end of the interaction.

The primary requirement for both clips was that the majority of on-screen time included the participant speaking. In sum, three sets of thin-slices were created and each set included 80 thin-slices. Of importance, all three sets came from the same portion of the interview and differed only in the behavioral information available to coders (verbal, nonverbal, or both verbal and nonverbal).

The different types of thin-slices were created to obtain independent ratings of verbal (transcript) and nonverbal (silent video) behavior: The consistency between these ratings constituted our index of coherence, as described in the next section. This method of measurement had the advantage of not relying on subjective coherence ratings (e.g., "How consistent is this person's verbal and nonverbal behavior?"). Such subjective ratings might confound actual coherence with naïve theories of coherence. For example, raters could have a naïve theory that (a) people they don't like are incoherent, (b) people who are difficult to judge are incoherent, or (c) people with some other trait are incoherent. Hence, the use of subjective ratings might lead us to confirm or reject the hypothesis on the basis of methodological confounds rather than on the basis of the participant's behavior. Conversely, the use of absolute difference scores appropriately centers the construct of coherence on the participant's own behavior and allows for a more precise evaluation of the hypothesis that exhibiting behavioral coherence elicits liking.

### *Impressions of Participants*

Forty-eight undergraduate raters (17 male) from a separate but nearby university were randomly assigned to judge full-audio video clips, silent video clips, or transcripts. Raters were told that we were interested in whether and how people make accurate judgments of other people from small pieces of information. One group of raters ( $N=18$ ) judged the likability of participants from the full audio video clips. For each participant to be judged, raters saw both thin-slice clips and then made an overall rating. They were asked to simply rate how much they liked the person and to base their rating on their "gut feeling" rather than a deliberative analysis. A second group of raters ( $N=14$ ) read over the words (transcripts) from the thin-slices and judged the happiness and sadness exhibited by the participant. The third group of raters ( $N=16$ ) viewed the silent video thin-slices and judged the happiness and sadness exhibited within each clip (for each target participant, ratings of the two clips were averaged). The silent video and transcript raters were asked to make their ratings on the basis of the target participant's behavior. All ratings were completed on a 0 (*not at all*) to 5 (*extremely*) scale.

### Interrater Reliability

Raters of silent video clips were consistent in their ratings of participants' happiness ( $\alpha = .91$ ) and sadness ( $\alpha = .84$ ). Raters of the transcripts were also consistent in their ratings of participants' happiness ( $\alpha = .82$ ) and sadness ( $\alpha = .76$ ). Finally, raters of the full-audio video clips were consistent in their ratings of participants' likeability ( $\alpha = .80$ ). In general, there was consensus in judgments of participants' affective expression and likeability. Consequently, participant scores for each dimension (e.g., transcript happiness) were derived by averaging the ratings of all judges for that dimension (see Table 1 for descriptive statistics). The silent video and transcript ratings were combined to form the coherence score (see below) and the likability scores (full audio-video) were subsequently correlated with these scores.

## Results

### Affective Expression Indices

Sadness and happiness scores were highly and inversely correlated for both silent video ratings ( $r = -.79$ ) and transcript ratings ( $r = -.75$ ). Consequently, sadness scores were subtracted from happiness scores to form indices of affective expression for both verbal (transcript;  $M = 1.56$ ,  $SD = 1.01$ ) and nonverbal (silent video;  $M = 1.62$ ,  $SD = 1.01$ ) channels. These affective scores were uncorrelated ( $r = .01$ ,  $p = .96$ ) and were subsequently standardized to ensure equal weighting of nonverbal and verbal expressions in the later construction of consistency scores.

### Likeability and Affective Expression

**Direct effects.** As in previous research (e.g., Knutson, 1996), people who exhibited more positive affect were judged to be more likeable than those who exhibited less positive affect. This relationship held for both nonverbal affective expressions ( $r = .69$ ,  $p < .001$ )

and verbal affective expressions ( $r = .38$ ,  $p < .05$ ), although the relationship with likeability was stronger for nonverbal than verbal affective expressions, Fisher's  $Z = 1.93$ ,  $p = .05$ . These results are noteworthy in being some of the first to compare the relative contributions of communication channels in producing positive impressions.

**Directional difference.** Before examining the relationship between inconsistency (in general) and likeability, it was important to examine whether a directional difference could account for likeability. For example, it could be the case that people appear to be likeable when they express more positive affect in their nonverbal than verbal behavior. Such a relationship would not speak to inconsistency per se but rather to the importance of appearing especially happy in one's nonverbal behavior. To examine this possibility, we created a simple difference score in which the standardized nonverbal affective expression score was subtracted from standardized verbal affective expression score ( $SD = 1.41$ ). A positive correlation with likeability would indicate that participants were liked to the extent that they exhibited more positive affect in the verbal (vs. nonverbal) channel. A negative correlation with likeability would indicate that participants were liked to the extent that they exhibited more positive affect in the nonverbal channel. However, this directional difference index was not reliably correlated with likeability ( $r = -.22$ ,  $p = .18$ ).

**Inconsistency.** The primary analysis was the extent to which consistency (coherence) between verbal and nonverbal affective expression made people appear to be more likeable. To this end, previously computed directional differences were transformed into absolute scores such that negative scores became positive ( $M = 1.13$ ,  $SD = .86$ ). In this way, regardless of the direction, a lack of consistency between verbal and nonverbal expression would result in similarly high scores. As expected, greater inconsistency between verbal and nonverbal affect was associated with reduced likeability judgments ( $r = -.34$ ,  $p < .05$ ). These results remained significant even after a logarithmic transformation of the slightly skewed inconsistency index ( $r = -.34$ ,  $p < .05$ ).

## Discussion

Overall then, inconsistency between nonverbal and verbal affect resulted in a negative impression. Hence, this is the first demonstration that inconsistency between verbal and nonverbal behavior has important implications for impression formation.

TABLE 1  
Study 1 Behavioral Rating Means and Standard Deviations

Rating	Average	SD: Participants	SD: Judges
Happiness			
Nonverbal	3.68	.77	1.02
Verbal	3.74	.59	1.13
Sadness			
Nonverbal	2.07	.58	1.15
Verbal	2.12	.49	1.16
Liking	3.90	.60	1.20

Note. SD: Participants = variability across participants from average judge ratings; SD: Judges = indicates the average variability across judges in their ratings of each participant.

It was not a coincidence that judgments of affective states were utilized in this first study as the channel-specific judgments. Research on nonverbal behavior in humans overwhelmingly emphasizes emotion expression and recognition. Yet much of what is known about the role of emotion expressions in impression formation regards the face or another single behavioral channel. Nonetheless, a burgeoning literature on multimodal communication has clearly demonstrated that emotion recognition occurs by integrating several behavioral channels (e.g., Aviezer et al., 2008; Walker-Andrews, 1997, 2008). The current research is a natural extension of this revised understanding of emotion communication: Both emotion recognition *and* impression formation may be understood as the result of a perceiver integrating emotional information from multiple behavioral channels. In both emotion recognition and impression formation, social perceivers consider behavioral coherence in forming judgments of the target.

To provide converging evidence for the importance of consistency in impression formation, we conducted a second study that extended the examination of consistency beyond affect, utilized a more naturalistic setting and an older group of participants.

## STUDY 2

### Method

#### *Overview and Hypotheses*

Medical students were videotaped during clinical evaluations that they conducted as part of their medical school training. Medical students performed a standardized patient interview as part of their introductory clinical skills class. Because behavior was recorded during clinical education rather than laboratory-based experiments, this study was high in ecological validity. Moreover, the fact that the students were evaluated on their performance should have made the situation heavily engaging. Undergraduate raters judged these medical students on the basis of (a) the unedited video clips, (b) silent video clips, or (c) transcribed verbal content of the video clips. We expected medical students to appear more *likable* in the unedited clips to the extent that they appeared equally *concerned* in the silent videos and verbal transcripts. That is, as in Study 1, we expected likability to be a function of verbal–nonverbal consistency.

#### *Participants*

Forty-nine medical students (26 female) at a private university in the Midwestern United States participated

on a voluntary basis during standardized patient interviews.

### *Procedure*

Medical students were video-recorded during standardized patient interviews as part of the students' 1st-year clinical training. The students were expected to interview actresses who portrayed patients with particular symptoms and conditions. An unobtrusive video camera was aimed at the medical student and the actresses portrayed the same symptoms and conditions for each medical student. For the purpose of this study we standardized one important aspect of the patient's behavior: In all interviews, the patient-actress verbally expressed that she had been experiencing stress. This *empathic cue* occurred when the patient indicated that symptoms of her disease condition (Crohn's disease) were causing her embarrassment at work.

### *Behavioral Coding*

**Creation of video clips and transcripts.** The relevant portion of the clinical exam videotape was the period following the introduction of the empathic cue. We digitally edited the videos to reduce the sample for each participant to the 10 s following the introduction of the empathic cue. From these 10-s clips, three types of behavioral samples were created. Sound videos were the full 10-s clip including audio. Silent videos simply removed the audio track from the clips. Transcripts were written records of medical students' words during the clip.

**Judges and ratings.** As in Study 1, molar ratings were generated. In an effort to generalize beyond the Study 1 findings for simple affect, we utilized ratings of interpersonal engagement in Study 2. Thirty-eight undergraduate students (21 female) participated as judges in exchange for money or credit toward a requirement for a lower-level psychology course, divided as follows: Sound video ( $n = 12$ ), silent video ( $n = 13$ ), and transcripts ( $n = 13$ ). The sound video group rated medical students on likability, from 0 (*not at all liked*) to 6 (*extremely liked*); they were asked to simply rate how much they liked the person and they were asked to respond according to their "gut feeling" rather than a deliberative analysis. The other groups rated medical students on "concern for the patient," from 0 (*no concern at all*) to 6 (*extremely concerned*), and they were asked to focus on the medical student's behavior. All stimuli were presented on computer screens via Media-Lab software; video clips remained on the screen for their duration and were replaced by rating scales. Transcripts remained on the screen until the "continue"

option was selected, at which point the transcripts were replaced by rating scales.

**Interobserver reliability.** In general, judges were consistent in their ratings. Judges of transcripts exhibited interrater reliability ( $\alpha = .80$ ) as did judges of sound videos ( $\alpha = .73$ ). The adequate but relatively lower reliability of silent video judges ( $\alpha = .56$ ) was *not* accompanied by greater variability in judges' ratings (see Table 2). Hence, we calculated concern and likability scores by averaging ratings over the relevant judges. The silent video and transcript ratings were combined to form the coherence score (see next) and the likability scores (full audio) were subsequently correlated with these scores.

## Results and Discussion

### Likeability and Concern

**Direct effects.** As in previous research (e.g., Ambady & Rosenthal, 1993), people who exhibited more concern were judged to be more likeable than those who exhibited less concern, though this effect was only significant for verbal concern ( $r = .49$ ,  $p < .001$ ; silent concern:  $r = .19$ ,  $p = .20$ ).

**Directional difference.** Before examining the relationship between inconsistency (in general) and likeability, it was important to examine whether a directional difference could account for likeability. For example, it could be the case that people appear to be likeable when they express more concern in their nonverbal than verbal behavior. Such a relationship would not speak to inconsistency per se but rather to the importance of appearing especially concerned in one's nonverbal behavior. To examine this possibility, we first standardized the uncorrelated ( $r = -.08$ ,  $p = .58$ ) nonverbal and verbal concern ratings by calculating  $z$  scores for each. With these standardized ratings, we then created a simple difference score in which standardized nonverbal concern was subtracted from standardized

verbal concern ( $SD = 1.47$ ). A positive correlation with likeability would indicate that participants were liked to the extent that they exhibited more concern in the verbal (vs. nonverbal) channel. A negative correlation with likeability would indicate that participants were liked to the extent that they exhibited more concern in the *nonverbal* channel. This index was not reliably correlated with likeability ( $r = .20$ ,  $p = .17$ ).

**Inconsistency.** The primary analysis was the extent to which consistency (coherence) between verbal and nonverbal concern made people appear to be more likeable. To this end, previously computed directional differences were transformed into absolute scores such that negative scores became positive ( $M = 1.13$ ,  $SD = .92$ ). In this way, regardless of the direction, a lack of consistency between verbal and nonverbal expression would result in similar (and high) scores. However, this index exhibited a very strong negative skew, such that a logarithmic transformation was appropriate. As expected, greater inconsistency between verbal and nonverbal concern was associated with reduced likeability judgments ( $r = -.33$ ,  $p < .05$ ).

## GENERAL DISCUSSION

To the extent that their nonverbal behavior mirrored their verbal behavior, people in two studies were judged to be likeable. Inconsistency between verbal and nonverbal behavior was generally antithetical to producing a positive first impression, and this was true for inconsistency in affective expression and in expressed concern. Whereas previous research illustrated the importance of behavioral coherence in communicating clearly and in appearing truthful, the current research demonstrates that behavioral coherence may be important to impression formation as well.

Both studies examined impressions formed of real individuals, as opposed to written descriptions or fully scripted interactions. Furthermore, Study 2 examined impressions of formed of these individuals as they engaged in a subjectively important, real-world interaction—a clinical exam. Hence, the signal of behavioral coherence emerged as an important factor despite the considerable noise characteristic of naturally occurring, ecologically valid settings. That perceivers extracted this signal amidst considerable noise suggests that the processes recruited by exposure to behavioral coherence (and its absence) are important to impression formation. For example, behavioral coherence may impact impression via its relevance to adaptively important judgments of deception (Zuckerman et al., 1982). Or incoherent behavior may prompt negative affect in

TABLE 2  
Study 2 Behavioral Rating Means and Standard Deviations

Rating	<i>M</i>	<i>SD Across Participants</i>	<i>SD Across Judges</i>
Nonverbal concern	4.69	.47	1.22
Verbal concern	4.26	.77	1.35
Liking	4.20	.63	1.14

*Note.* *SD*: Participants = variability across participants from average judge ratings; *SD*: Judges = the average variability across judges in their ratings of each participant.

perceivers trying to understand that behavior. An understanding of the mechanism that accounts for the relationship between coherence and likability should thus also be informative with respect to the function of this relationship; hence, this is an important issue to examine going forward.

Because behavioral coherence is a broad topic there are other issues not addressed by the current article. One important issue is the form of behavior examined in the current research. Specifically, we took a molar approach to examining nonverbal and verbal behavior, relying on impressions created by those behaviors rather than on a molecular analysis of facial configurations and pronoun use (for example). Indeed, research suggests that stable behavioral patterns are better communicated through molar as opposed to molecular behavior (Funder & Colvin, 1991) and behavior considered at the molar level reliably indexes internal states in a manner that cannot be attributed to chance (cf. Ambady et al., 2000). Nonetheless, a molecular approach would be informative with respect to isolating the cues most relevant to the coherence–likability relationship.

Of course, verbal–nonverbal coherence is not the only means by which an individual can exhibit similar or dissimilar behavior. A person may be inconsistent in their behavior over time, and the implications of such consistency for liking may itself depend on the channel of communication (verbal, nonverbal, paraverbal). Similarly, people can behave quite differently in different contexts (for a review, see Mischel & Shoda, 1995) and such inconsistency may have implications for liking. For example, people may behave differently on social networking Web sites than they do in interpersonal interaction and the extent to which they do so might have important implications for liking, an effect which would have considerable implications for increasingly popular online dating sites. In each case, and for the reasons described at the outset, we would expect consistency (coherence) to be associated with greater liking.

In both studies, some people were more coherent than others. Of interest, though, in neither study was there a general tendency for consistency in verbal and nonverbal behavior. Verbal and nonverbal behaviors were not significantly correlated. To the extent that college students and medical students were interested in creating positive impressions for their peers and patients, respectively, knowledge of the importance of behavioral coherence might have enabled these individuals to forge more positive impressions—this would seem to be especially important for budding health professionals, for whom patient satisfaction may play a role in adherence to treatment regimen, the likelihood of bringing a malpractice lawsuit, and health outcomes (e.g., Hickson et al., 1994).

More generally, the current research highlights the importance of behavioral coherence for creating

a positive impression. Clearly, the creation of a positive impression is important in a variety of domains, from getting a job to attracting a spouse. Unsurprisingly, for each of these domains a variety of popular books and periodicals describe the words and the nonverbal cues especially crucial to gaining a positive evaluation. Although many of these sentences and cues may indeed be crucial to creating a positive impression, the current research suggests that it is perhaps the coherence in a person's behavior that gives her or him a social advantage.

## REFERENCES

- Ambady, N., Bernieri, F. J., & Richeson, J. A. (2000). Toward a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, 32 (pp. 201–272). San Diego, CA: Academic Press.
- Ambady, N., & Rosenthal, R. (1992). Thin slices of expressive behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, 111, 256–274.
- Ambady, N., & Rosenthal, R. (1993). Half a minute: Predicting teacher evaluations from thin slices of nonverbal behavior and physical attractiveness. *Journal of Personality and Social Psychology*, 64, 431–441.
- Argyle, M., Alkema, F., & Gilmour, R. (1971). The communication of friendly and hostile attitudes by verbal and nonverbal signals. *European Journal of Social Psychology*, 1, 385–402.
- Aviezer, H., Hassin, R., Ryan, J., Grady, C., Susskind, J., Anderson, A., Moscovitch, M., & Bentin, S. (2008). Angry, disgusted or afraid? Studies on the malleability of emotion perception. *Psychological Science*, 19, 724–732.
- Borkenau, P., & Liebler, A. (1992). The cross-modal consistency of personality: Inferring strangers' traits from visual or acoustic information. *Journal of Research in Personality*, 26, 183–204.
- Borkenau, P., & Liebler, A. (1993). Convergence of stranger ratings of personality and intelligence with self-ratings, partner ratings, and measured intelligence. *Journal of Personality and Social Psychology*, 65, 546–553.
- Cosmides, L., & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 163–228). New York: Oxford University Press.
- de Gelder, B., Bocker, K. B., Tuomainen, J., Hensen, M., & Vroomen, J. (1999). The combined perception of emotion from voice and face: Early interaction revealed by electric brain responses. *Neuroscience Letters*, 260, 133–136.
- de Gelder, B., & Vroomen, J. (2000). The perception of emotions by ear and by eye. *Cognition and Emotion*, 14, 289–311.
- DePaulo, B. M., & Friedman, H. S. (1998). Nonverbal communication. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 2, pp. 3–40). New York: McGraw-Hill.
- Ethofer, T., Anders, S., Erb, M., Droll, C., Royen, L., Saur, R., et al. (2006). Impact of the voice on emotional judgment of faces: An event-related fMRI study. *Human Brain Mapping*, 27, 707–714.
- Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, 11, 77–83.
- Fleming, J. H., & Rudman, L. A. (1993). Between a rock and a hard place: Self-concept regulating and communicative properties of



- distancing behaviors. *Journal of Personality and Social Psychology*, 64, 44–59.
- Forgas, J. P., & Bower, G. H. (1987). Mood effects on person perception judgments. *Journal of Personality and Social Psychology*, 53, 53–60.
- 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.
- Gifford, R. (1994). A lens-mapping framework for understanding the encoding and decoding of interpersonal dispositions in nonverbal behavior. *Journal of Personality and Social Psychology*, 66, 398–412.
- Gifford, R., Ng, C. F., & Wilkinson, M. (1985). Nonverbal cues in the employment interview: Links between applicant qualities and interviewer judgments. *Journal of Applied Psychology*, 70, 729–736.
- Heinrich, C. U., & Borkenau, P. (1998). Deception and deception detection: The role of cross-modal inconsistency. *Journal of Personality*, 66, 687–712.
- Hickson, G. B., Clayton, E. W., Entman, S. S., Miller, C. S., Githens, P. B., Whetten-Goldstein, K., et al. (1994). Obstetricians' prior malpractice experience and patients' satisfaction with care. *Journal of the American Medical Association*, 272, 1583–1587.
- Kahana-Kalman, R., & Walker-Andrews, A. S. (2001). The role of person familiarity in young infants perception of emotional expressions. *Child Development*, 72, 352–369.
- Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York: Guilford.
- Knutson, B. (1996). Facial expressions of emotion influence interpersonal trait inferences. *Journal of Nonverbal Behavior*, 20, 165–182.
- Macrae, C. N., & Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology*, 51, 93–120.
- Massaro, D. W., & Egan, P. B. (1996). Perceiving affect from the voice and the face. *Psychonomic Bulletin and Review*, 3, 215–221.
- McGurk, H., & MacDonald, J. (1976). Hearing lips and seeing voices. *Nature*, 264, 746–748.
- 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.
- Rotenberg, K. J., Simourd, L., & Moore, D. (1989). Children's use of a verbal-nonverbal consistency principle to infer truth and lying. *Child Development*, 60, 309–322.
- Sonnenschein, S. (1986). Development of referential communication: Deciding that a message is uninformative. *Developmental Psychology*, 22, 164–168.
- Van den Stock, J., Grezes, J., & de Gelder, B. (2008). Human and animal sounds influence recognition of body language. *Brain Research*, 1242, 185–190.
- Volkmar, F. R., & Siegel, A. E. (1979). Young children's responses to discrepant communications. *Journal of Child Psychology and Psychiatry*, 20, 139–149.
- Walker-Andrews, A. S. (1997). Infants' perception of expressive behaviors: Differentiation of multimodal information. *Psychological Bulletin*, 121, 437–456.
- Walker-Andrews, A. S. (2008). Intermodal emotional processes in infancy. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 364–375). New York: Guilford.
- Weisbuch, M., & Ambady, N. (in press). Thin-slice vision. In R. B. Adams, Jr., N. Ambady, K. Nakayama, & S. Shimojo (Eds.), *The science of social vision*. New York: Oxford University Press.
- Zuckerman, M., Driver, R., & Koestner, R. (1982). Discrepancy as a cue to actual and perceived deception. *Journal of Nonverbal Behavior*, 7, 95–100.