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Nonverbal Behavior in Social Psychology Research: The Good, the Bad, and the Ugly

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As a nonverbal behavior researcher for the past 30 years, I can take some comfort from the fact that my field is undeniably built on the study of behavior. This behavior is measured not just in laboratories but very often in naturalistic settings. Even in the laboratory, the behavior that is studied is often high on naturalism because observation is likely to be unobtrusive. Furthermore, nonverbal behavior—by which I mean both emitted behaviors and measured skills in nonverbal communication—has obvious social psychological relevance. On these points, no defenses need be made, and no soul-searching examinations of what we mean by "behavior" are required. Still, there is much to be said about the place of nonverbal behavior research in the field of social psychology, as well as about unresolved problems and difficulties.

The goal of this chapter is to give a short overview of nonverbal research within social psychology. Of course, there is far too much accumulated knowledge about nonverbal communication to attempt much of a summary. The chapter starts with definitions and moves to a description of the two main research traditions—describing behavior and measuring communication accuracy. Then it moves to the themes of "the good, the bad, and the ugly" to convey the mixture of blessings and curses that confront researchers who take on nonverbal communication as their topic.

The "And then a miracle occurs" cartoon helps us to see why nonverbal communication has broad relevance within social psychology. Understanding the process by which a phenomenon unfolds—that is, identifying mediating variables—often requires consideration of nonverbal behavior. An excellent example is interpersonal expectancy effects. How does it happen that one person's expectation can produce a change in another person? Following the path of cause and effect often leads to nonverbal cues that are inadvertently conveyed by the expecter and nonconsciously received and acted on by the target (Harris & Rosenthal, 1985). Nonverbal behavior plays a ubiquitous role in mediating many social psychological phenomena, including conformity, persuasion, bystander effects, and many more. As social psychology has matured as a field, it has progressed from simply documenting phenomena to trying to understand exactly what happens in the causal stream—that is, filling in the "Step 2" in the cartoon. Nonverbal behavior has an important place there, as well as elsewhere within social psychology.

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Defining Nonverbal Behavior

Nonverbal cues can be defined as all potentially informative behaviors that are not purely linguistic in content. Visible nonverbal cues include facial expressions, head movements, posture, body and hand movements, self- and other-touching, leg positions and movements, interpersonal gaze, directness of interpersonal orientation, interpersonal distance, and synchrony or mimicry between people. Auditory nonverbal cues include discrete nonlinguistic vocal sounds (e.g., sighs) as well as qualities of the voice such as pitch and pitch variation, loudness, speed and speed variation, and tonal qualities (e.g., nasality, breathiness). Several additional behaviors are often included among nonverbal cues even though they are closely related to speech: interruptions, pauses and hesitations, listener responses (such as "uh-huh" uttered while another is speaking), and dysfluencies in speech. Clothing, hair style, and adornments, as well as physiognomy (such as height or facial features) are also typically considered to represent nonverbal information channels.

The distinction between nonverbal *behavior* and nonverbal *communication* is important (Wiener, Devoe, Rubinow, & Geller, 1972), but not easy to apply in practice. Nonverbal behavior is simply emitted, and is subject to interpretation by others even if the expressor (encoder) is unaware of having done it. In contrast, nonverbal communication refers to a more active process whereby encoder and decoder emit and interpret behaviors according to a shared meaning code. Making this distinction inevitably founders on the inability to know what was intended and what was not. Both the process of drawing inferences from nonverbal cues and the enactment of nonverbal behaviors are often not in conscious awareness. The unintentional conveyance of veridical information through nonverbal cues is called "leakage" (Ekman & Friesen, 1969). Because it is so difficult to identify degrees of intentionality, I use the terms nonverbal behavior and nonverbal communication interchangeably in this chapter, even though conceptually this is an important distinction.

Tradition #1: The Study of Nonverbal Behavior

The first of the two main research traditions involves describing nonverbal behavior. Once it is described, it can be studied with respect to its meaning (intended or perceived) and in relation to countless different person and situation variables. Nonverbal behavior is measured using naïve raters, trained coders, and instruments. There are few standardized, "off the shelf" measurement systems. Most often, researchers decide on what to measure and how to measure it based on the nature of the research question being investigated. This section can give only a very broad picture of methodology; for a more comprehensive account see Harrigan, Rosenthal, and Scherer (2005) and Rosenthal (1987).

Methodology

Naïve raters. Sometimes naïve raters are used to measure specific cues and when this is done it may take more raters, whose ratings are aggregated, to achieve adequate interrater reliability (see Hall, Horgan, & Carter, 2002, for an example in the case of

measuring smiling). Just as with the internal consistency reliability of a set of items on a test, the reliability of a set of raters is a joint function of the average interrater correlation and how many of them there are (Rosenthal, 1987). Though untrained raters may have more random error and therefore lower interrater correlations than would be the case for trained coders, this can be compensated for by adding more untrained raters.

Though naïve raters can be used to measure specific behaviors, the most common use for naïve raters is to gather their impressions. This is done when the researcher wants to take advantage of a viewer's or listener's inferential abilities so that the measurements tap into dimensions of meaning. The use of naïve raters implies that the researcher is interested in how "ordinary" people would respond to the nonverbal stimuli, that is, to approximate nonverbal communication processes as they might take place in "real life." Such ratings occupy positions on a continuum in terms of how much inference is asked for. To give illustrations, at a low level of inference would be ratings of speed of speech or pitch (subjective renditions of objective parameters); at a somewhat more inferential level would be ratings of fidgetiness or hurriedness of behavioral style (subjective amalgamation across different cues); at a higher level of inference would be ratings of affect such as anger or happiness (translation of perceived cues into the perception of an immediate psychological state); and at a higher level inference would be ratings of personality (translation of perceived immediate states into inferences about latent psychological characteristics). At each advancing level of inference, information from a lower level is integrated, entailing more guesswork and/or more influence of perceivers' individual characteristics. Different raters could integrate differently, or apply different judgment policies. The choice of level of inference must follow from the research question. Naïve perceivers' ratings can have high validity in terms of capturing the conveyed meaning of cues, assuming of course that interrater reliability is satisfactory.

Trained coders. When the researcher wants to describe specific cues, without an interest in how they are interpreted, the likely choice is to use coders who are trained according to standard criteria, with the goal being that they apply the criteria in a homogeneous fashion. Examples would be timing the duration of gaze at an interaction partner, counting the frequency of smiles, or calculating the angle at which two people interact. Ideally, the choice of behaviors to measure is guided by theoretical concerns; however, researchers sometimes measure an extensive catalogue of behaviors in order to be comprehensive, sometimes without clearcut ideas about what to expect for each of them.

Many nonverbal behaviors are rather easy to measure and do not require extensive training. An exception is the Facial Action Coding System (Ekman & Rosenberg, 1997), an anatomically based system which requires the coder to identify the action and intensity of movements of the facial muscles. Extensive training is required and coders receive certification of competence. Other systems based on muscle movements also exist (Cohn & Ekman, 2005).

Instrumentation. Finally, instrumentation can be used to measure some kinds of nonverbal cues. Computers can quantify an assortment of acoustic variables, such as fundamental frequency, amplitude, and duration of silence, and these can be averaged over time or analyzed in terms of temporal contours or variability (Juslin & Scherer,

2005). Another kind of automation involves measuring facial EMG as a way to detect facial muscle activation that is not visible to the naked eye (Dimberg, Thunberg, & Grunedal, 2002). Finally, work is progressing on artificial intelligence approaches to recognition of emotion from nonverbal cues (Cohn & Ekman, 2005).

Choices about measurement. Regardless of which of the approaches just listed is used, the researcher still faces choices and, unfortunately, often comes to realize that there is little established wisdom to guide these choices. Consider the researcher who wants to measure smiling. Should she measure overall smile frequency, smile frequency separately while listening versus speaking, rate of smiling, total smile duration, smile duration per smile, different kinds of smiles (e.g., those with eye and mouth muscles engaged versus only mouth muscles engaged; Ekman, Friesen, & Davidson, 1990), smile intensity, or overall "how much" smiling the person displayed (which could subsume frequency, duration, and intensity)? Should she measure smiling for the entire duration of the recorded interaction, or should she measure smiling within successive bins (e.g., first 30 seconds, second 30 seconds, and so forth) so that temporal trends can be examined? If so, how long should the bins be? Or, should she code only samples and not the whole interaction? If so, how long should the samples be and how should they be chosen?

All too often, researchers feel that they are stabbing in the dark when making these decisions. Perhaps the field will someday be advanced enough so that answers can be found in a textbook, but probably this will not happen. And this is not entirely bad, because measurement should be guided by theory rather than by formulas or by past tradition. The design choices made by others may not be appropriate for one's own research.

Meanings and Functions of Nonverbal Behavior

Some nonverbal behaviors are discrete (i.e., have distinct on-off properties), examples being nodding, blinking, pausing, and gestural emblems (see below). Others are continuous, such as the fluid movements of the hands while speaking (called speech-dependent gestures), vocal qualities, and movement style. Nonverbal cues often accompany spoken words, and when they do the nonverbal cues can augment or contradict the meanings of the words as well as combine with the words to produce unique messages, as in sarcasm, which involves the pairing of contradictory messages through verbal and nonverbal channels. Research has explored the impact of mixed verbal and nonverbal messages (Argyle, Alkema, & Gilmour, 1971).

Some nonverbal behaviors have distinct meanings, most notably the hand gestures called emblems that have direct verbal translations (such as the "A-okay" sign or the "thumbs up" sign in North American usage) (Morris, Collett, Marsh, & O'Shaughnessy, 1979). However, most nonverbal cues have multiple and often ambiguous meanings that are dependent on other information for correct interpretation (associated words, situational context, antecedent events, other nonverbal cues, etc.). There is, alas, no "nonverbal cue dictionary" in existence and likely there will never be one.

The face and voice have been extensively studied in terms of emotional expression, with seven or so emotions having characteristic configurations of facial muscle movements and a variety of acoustic correlates (Ekman, 1982; Laukka, Juslin, &

Bresin, 2005; Scherer, Banse, & Wallbott, 2001). Nonverbal cues can also contribute to a person's emotional experience and self-regulation via physiological feedback processes; engaging in certain behaviors can produce the associated emotions (Strack, Martin, & Stepper, 1988). Although it is commonly assumed that the main function of nonverbal behavior is to convey emotions, this is only one of several important purposes served by nonverbal behavior in daily life. Nonverbal cues are used to convey interpersonal attitudes, such as dominance, affiliation, or insult (Andersen, 1985; Hall, Coats, & Smith LeBeau, 2005). Nonverbal cues of the face, eyes, voice, and hands are used in the regulation of turn-taking in conversation, and also for purposes of providing feedback regarding comprehension and interest to a speaker. Face and hand movements serve dialogic functions, for example to illustrate, comment, refer, and dramatize (Bavelas & Chovil, 1997). Speech-dependent gestures also contribute to fluent speech by facilitating word retrieval; speakers lose fluency and complexity if they are constrained from gesturing while speaking (Krauss, 1998). Nonverbal cues can also reflect ongoing cognitive activity (Barroso & Freedman, 1992).

The coordination of nonverbal behavior between people helps to produce and maintain desired levels of arousal and intimacy (Argyle & Dean, 1966; Patterson, Jordan, Hogan, & Frerker, 1981). People often mimic or reciprocate others' behavior, or adapt their movements and speech style to match an interaction partner. Such behavior matching can contribute to rapport (Chartrand & Bargh, 1999). However, behavioral compensation is also a common occurrence; one person adjusts his or her behavior to compensate for another's behaviors, for example by gazing less at another, or backing up, if the other is standing too close.

Another important function of nonverbal behavior is self-presentation, that is, to represent oneself in a desired way (e.g., as smart, honest, nice, brave, or competent; DePaulo, 1992). Related to self-presentation are societal display rules, conventions regarding what kinds of expressions are appropriate at what times and by whom (Ekman, 1982). Examples are norms for how to behave nonverbally in different social situations (when disappointed, at a funeral, etc.) and norms that produce different degrees of outward emotional expressiveness in men and women. At one extreme of self-presentation is deliberate deception (DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003).

Nonverbal cues convey information, both intentionally and unintentionally, about emotions, attitudes, personality traits, intelligence, intentions, mental and physical health, physical characteristics, sociodemographic characteristics, social group membership, relationships, deception, dominance and status, and social roles, to give a few examples. Nonverbal cues play a role in social influence, for example persuasion and interpersonal expectancy effects as noted earlier.

Tradition #2: Nonverbal Communication Accuracy

The second major tradition in nonverbal studies, one that originated early in the 20th century, concerns the accurate expression and judgment of nonverbal cues. Individuals and groups differ in the accuracy with which they convey information via nonverbal cues (called encoding, expression, or sending accuracy) and interpret others' nonverbal cues (called decoding or receiving accuracy, or nonverbal sensitivity).

Encoding Accuracy

Researchers measure encoding accuracy using several different paradigms, which include asking expressors to imagine or pose the intended message, observing them in specific situations that arouse an intended state, or observing them displaying their characteristic behavior styles (Friedman, Riggio, & Segall, 1980; Wagner, Buck, & Winterbotham, 1993). The cues that form the basis of generating encoding accuracy scores may be purely nonverbal or may be mixed with verbal cues. The cues may be deliberately or spontaneously conveyed. In any case, criteria must be developed so that it is clear what a "right answer" should be, such as the emotion that was intended (on an emotion recognition task), or the encoder's score on a personality scale (on a personality judgment task). Typically, observers make judgments about the encoders, which are scored for accuracy according to the criterion, and then averaged across observers for each encoder. This value becomes the operational definition of how accurate the encoder is (i.e., how well he/she can be judged). Encoding accuracy can be related to individual difference characteristics of the encoders (e.g., gender, personality) or to experimental manipulations (e.g., social power role). The measurement of encoding accuracy is laborious and methodologically nonstandard.

Decoding Accuracy

Accuracy in decoding nonverbal cues is studied far more often than encoding accuracy because it is far less individualized and time-consuming in its measurement. Decoding tests can be standardized, making them easy to administer in groups and easy to score. Decoding accuracy is measured by asking perceivers to watch and/or listen to nonverbal behaviors, either live or recorded, and to make assessments of the meanings of the cues (or to recall what behaviors occurred) (Hall, Bernieri, & Carney, 2005). The content of such assessment is most often emotional or affective states, but it can also be personality, intelligence, social of ethnic group membership, deception, relationships, kinship, and hierarchical position, among others (Bernieri, 2001). If the definition of nonverbal behavior is extended beyond the physical person, then one would also include accuracy at judging manifestations of self such as are reflected in living environments and offices (Gosling, Ko, Mannarelli, & Morris, 2002).

Accuracy of interpersonal judgment is measured by researchers in a variety of ways, but, as with measuring encoding accuracy, such a test requires a criterion against which judgments can be scored as right or wrong. Thus, for example, on a test of judging the extraversion of a set of persons (targets) shown on videotape, the researcher must have a good measure of the targets' actual extraversion in order to score the test. Nonverbal decoding tests vary in how many target persons are shown, how many different kinds of content are represented, and what cue channels are included. As an example, such a test might present six targets each expressing four different emotions using facial expressions, for a total of 24 test items. On some tests, perceivers judge a full audiovisual stimulus, while on others they judge single channels such as face only or voice only. The test stimuli are typically short, ranging from less than a second to a few

minutes in duration. Accuracy can be high, even when exposure to the stimulus is very brief, though this depends on what is being judged. Accuracy levels depend on many factors and are notably low for judging deceptiveness (Bond & DePaulo, 2006) and high for judging prototypical facial expressions of emotion (e.g., happy, sad, angry) (Ekman et al., 1987).

Most research on decoding accuracy is based on administering tests using recorded stimuli such as described above. A variety of validated tests of this kind are available (e.g., Costanzo & Archer, 1989; Nowicki & Duke, 1994; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). Some research is quite different in that it is based on judgments made during or right after a live interaction. In one such method, called the empathic accuracy paradigm, a person watches a video replay of one's own interaction with a partner and makes inferences about the partner's thoughts and feelings, which are scored against the partner's self-described thoughts and feelings (Ickes, Stinson, Bissonnette, & Garcia, 1990). In a variation of this method, the video is turned into a standardized test that new viewers can take. In the empathic accuracy paradigm, decoding accuracy has been shown to be based much more on verbal than nonverbal cues (Gesn & Ickes, 1999; Hall & Schmid Mast, 2007).

Nonverbal decoding skills advance during childhood and are typically higher in females than in males (Hall, 1984). There is also evidence for cultural expression "dialects" that allow expressions of emotions to be more accurately judged by other members of that culture, or by people with greater exposure to that culture, than by outsiders (Elfenbein & Ambady, 2002). Research shows that nonverbal decoding skills are higher in individuals with healthy mental and social functioning (Davis & Kraus, 1997; Hall, Andrzejewski, & Yopchick, in press). This includes higher empathy, affiliation, extraversion, dominance, conscientiousness, openness, tolerance for ambiguity, need to belong, better personal relationships, and internal locus of control. Decoding skill is negatively related to neuroticism, shyness, depression, and an insecure attachment style. Such individuals are also less likely to be prejudiced against minority groups (Andrzejewski, in press).

Persons with higher decoding skill are rated by acquaintances as more interpersonally sensitive. Higher self- and acquaintance-ratings of social and emotional competence are also positively related to decoding skill, as are indices of competence in workplace and clinical settings, according to supervisor or peer ratings as well as more objective indices of performance (e.g., Byron & Terranova, 2007; Elfenbein, Foo, White, Tan, & Aik, 2007).

Research Designs Using Nonverbal Behavior and Nonverbal Communication Accuracy

Depending on the research question, nonverbal variables are either independent or dependent variables, mediator variables, or are used in correlational designs.

Independent Variable Designs

Nonverbal behavior can be an experimentally manipulated independent variable in judgment studies (e.g., where photos or experimentally created videos are shown to participants), in confederate designs, or in studies where participants are led to position

facial or body parts according to the experimenter's wishes. In most such studies, it is generally important for the participants not to realize that the manipulation has taken place or not to be consciously aware of the psychological significance of the manipulated behavior. In the confederate paradigm one has to worry whether confederates are actually able to vary certain desired nonverbal behaviors without unintentionally varying others, too (Lewis, Derlega, Shankar, Cochard, & Finkel, 1997).

Some illustrative studies from social psychology can be briefly mentioned. If persons in photographs are shown touching another person, they are perceived as more dominant and more friendly than if they do not touch (Major & Heslin, 1982). If waitpersons in restaurants touch their customers, they receive higher tips (Hubbard, Tsuji, Williams, & Seatriz, 2003). If participants in a dyadic interaction sit with postural complementarity suggestive of high and low power (sitting in an expanded vs. constricted posture, respectively), they feel more comfort in the interaction than if the postures match (Tiedens & Fragale, 2003). If children are required to use hand gestures while learning new material, they learn it better (Cook, Mitchell, & Goldin-Meadow, 2008). If people are induced to activate the Zygomaticus major muscle (i.e., the "smile" muscle) while viewing cartoons, they rate the cartoons as funnier (Strack et al., 1988). If White job applicants are treated according to how Black job applicants were observed to be treated (e.g., larger interpersonal distances, more speech dysfluencies), they perform more poorly in the interview (Word, Zanna, & Cooper, 1974). And if negotiators are instructed to mimic the movements of their partner, they achieve more favorable negotiation outcomes (Maddux, Mullen, & Galinsky, 2008).

Dependent Variable Designs

Nonverbal behavior also serves as a dependent variable in social psychological experiments. Occasionally the coding of behavior is done by live observers but the more common approach is to record the behavior and analyze it later. When participants are assigned to have low power in a dyadic interaction, they suffer expressive deficits that make their affective state harder to judge (Hall, Rosip, Smith LeBeau, Horgan, & Carter, 2006). If participants are subtly primed with the concept of elderly persons, they walk more slowly when leaving the experiment (Bargh, Chen, & Burrows, 1996). If participants experience cognitive load while taking a nonverbal sensitivity test, it may or may not affect their accuracy, depending on which test they are taking (Phillips, Tunstall, & Channon, 2007; Tracy & Robins, 2008a). And when participants tell lies, their faces are less pleasant than when telling the truth (DePaulo et al., 2003).

Correlational Designs

Many studies using nonverbal variables are correlational, with no experimental manipulations. Though there are ambiguities about causal interpretation, these studies are often very interesting and provocative. As examples, physicians' and patients' voices are correlated in terms of anger and anxiety (Hall, Roter, & Rand, 1981). Higher nonverbal sensitivity predicts better negotiation outcomes (Elfenbein et al., 2007). Implicit anxiety as measured with a reaction time task is correlated with speech dysfluencies, nervous mouth movements, and fidgeting (Egloff & Schmukle, 2002). And persons with more

dominant personalities are better at expressing various facial emotions than persons with less dominant personalities (Friedman et al., 1980).

Mediator Designs

The self-fulfilling prophecy has already been mentioned as a preeminent (and very well studied) example of how nonverbal behavior can be the medium through which social influence occurs. Teachers with high expectations for a pupil, for example, behave more warmly through nonverbal cues than teachers with lower expectations and such behavior can, in turn, influence performance. The research of Word et al. (1970) mentioned above falls within the mediator tradition, for those authors' goal was to show that White interviewers engage in certain nonverbal behaviors towards Black interviewees which, in turn, produce deficient performance in those interviewees.

One type of design, the lens model (Brunswik, 1956), is intrisically mediational in that it measures both accuracy of communication and the cues themselves, in order to understand the process by which accuracy is achieved. Using this approach, one can find out whether accuracy exists for judging a given construct (such as a personality trait or an emotion), whether a given nonverbal cue is or is not diagnostic of that construct, and whether perceivers use a given nonverbal cue in making inferences about the construct. Putting these elements together can shed light on how perceivers are able to achieve accuracy.

The study by Murphy, Hall, and Colvin (2003) illustrates this approach for the trait of intelligence as measured by a standard IQ test. Perceivers achieved a significant degree of accuracy in judging intelligence from one-minute excerpts of conversational behavior. Though many nonverbal cues were measured in the investigation of mediation, the following three serve to illustrate the approach. Fast speech was not a mediating cue, because although perceivers rated fast speakers as being more intelligent, that cue was not in fact diagnostic of higher measured intelligence. Less fidgeting was not a mediating cue, because although it was diagnostic of higher intelligence, perceivers did not rate it as such. But responsive gazing was a mediator: it was diagnostic of measured intelligence and was recognized as such by accurate perceivers.

Having provided a quick description of nonverbal methods and some illustrative findings, I now return to the tripartite theme of the chapter whereby the nonverbal field is evaluated for its qualities that are good, bad, and ugly.

The Good

It Is Truly About Behavior

As already said, it is good that in this field we *do* study behavior. There is very little paper-and-pencil research in this field. Researchers and laypeople alike would agree that nonverbal behavior, both what we engage in ourselves and what we see others do, is difficult to describe in words and is often not processed at a high enough level of consciousness to justify an introspective or self-descriptive approach to its study. The relatively rare instances of paper-and-pencil research typically address questions that either intrinsically require such an approach or that cannot ethically or practically be

handled otherwise. As examples, one can ask people about their patterns of intimate interpersonal touching (Jourard, 1966), about their personal liking or disliking of being touched (Andersen & Leibowitz, 1978), about how they would behave in situations too numerous or far-flung to be captured experimentally or observationally (Nagashima & Schellenberg, 1997; Hall, Schmid Mast, & Banno, 2008), about their knowledge of nonverbal communication (scored for accuracy against findings in the literature; Vrij & Semin, 1996; Rosip & Hall, 2004), or about their stereotypes regarding nonverbal behavior (e.g., men versus women, Briton & Hall, 1995; persons high versus low in social power, Carney, Hall, & Smith LeBeau, 2005). Sometimes the self-reports are of interest only in relation to behavioral measurements, as when assessing how accurately people can report on their own nonverbal behavior (Hall, Murphy, & Schmid Mast, 2008) or how accurately they can appraise their own nonverbal skills (Ames & Kammrath, 2002; Patterson, Foster, & Bellmer, 2001).

It Is Interesting

But, going beyond the good fact that the nonverbal field is based on behavior, there are many other good things to be said about it. For starters, practically any finding involving nonverbal communication is interesting. Articles about nonverbal communication are hardly ever dull. Perhaps we are reminded of how close we are to our animal cousins, or perhaps we feel we are reaching towards the experience of "real life." Perhaps we are simply fascinated by the possibility of getting an empirical grip on phenomena that seem so elusive. Or, perhaps the often nonconscious or semiconscious nature of nonverbal behavior makes us believe (or hope) that it is a window into people's true inner states or character. For whatever reason, people are attracted to the topic.

It Is Widely Relevant

Researchers' interest in nonverbal communication stems from many theoretical and substantive directions. Nonverbal communication is seen as important to many different disciplines, not just psychology but also sociology, anthropology, communication studies, medicine, and ethology (to name some). Examples are the role of nonverbal cues in self-presentation (sociology: Goffman, 1959, 1979), cultural differences in nonverbal behavior (anthropology: E. T. Hall, 1966), the process of interpersonal deception (communication: Burgoon, Buller, Floyd, & Grandpre, 1996; Knapp, 2006), nonverbal communication in the social life of primates (ethology: de Waal, 2005), and the design of lifelike avatars for human-computer interaction (computer science: Bickmore & Picard, 2005).

Within psychology, though nonverbal behavior is more closely identified with social psychology than with other areas, the topic is actually studied in all areas of the discipline. This includes personality, developmental, industrial/organizational, comparative, cognitive, clinical/counseling, educational psychology, and neuropsychology. Across psychology, the list of topics related to nonverbal behavior is extremely long, but the following provides a sampling: emotions, social influence, ongoing cognition, speech production, learning, psychotherapy, psychopathology, gender differences and gender roles, cultural differences, social attitudes, relationships,

interpersonal expectancies, conversational regulation, brain function, parent-child bonding, social adjustment, and individual differences of all kinds.

Its Star Is Rising

There is no question that nonverbal communication is gaining prominence as a research topic. Table 1 shows results from a PsycINFO search of a few relevant terms, by decades. Clearly, there is a surge in the past two decades. This research appears in a huge assortment of different journals, many of which are not in social psychology per se, and it is conducted by many kinds of scholars, not just social psychologists. This wide diversity of publication outlets, reflecting the wide relevance of nonverbal communication within the behavioral sciences, is perhaps one reason why Baumeister, Vohs, and Funder (2007) did not mention nonverbal behavior in their review of behavioral variables reported on in one mainstream social psychology journal, the *Journal of Personality and Social Psychology*. (In fact, nonverbal behavior appears regularly in that journal as well as all social psychology journals.)

Other evidence for the progress of nonverbal communication as a scientific discipline is the appearance of integrative chapters and books. There is a chapter on this topic in the *Handbook of Social Psychology* (DePaulo & Friedman, 1998). Integrative books include *The New Handbook of Methods in Nonverbal Behavior Research* (edited by Harrigan, Rosenthal, & Scherer, 2005), *The Sourcebook of Nonverbal Measures* (edited by Manusov, 2005), the *Handbook of Nonverbal Communication* (edited by Manusov & Patterson, 2006), and *Interpersonal Sensitivity: Theory and Measurement* (edited by Hall & Bernieri, 2001). Many other monographs and edited books also exist, as well as textbooks (Hickson, Stacks, & Moore, 2004; Knapp & Hall, 2005).

Another potent indicator of a field's progress is the publication of meta-analyses. These exist in abundance, on many nonverbal communication topics including predictive validity of thin slices of behavior (Ambady & Rosenthal, 1992), culture of perceivers and targets (Elfenbein & Ambady, 2002), gender (lie detection, Aamodt & Custer, 2006; interpersonal sensitivity and various nonverbal behaviors, Hall, 1978, 1984; smiling, LaFrance, Hecht, & Levy Paluck, 2003; face processing, McClure, 2000), power, status, and dominance (interpersonal sensitivity, Hall, Halberstadt, & O'Brien, 1997; various nonverbal behaviors, Hall et al., 2005), deception (accuracy of lie detection, Bond & DePaulo, 2006; cues to deception, DePaulo et al., 2003), psychosocial correlates of interpersonal sensitivity (Davis & Kraus, 1997; Hall et al., in press), personality correlates of expressiveness (Riggio & Riggio, 2002), and anti-Semitism and accuracy in distinguishing Jews from non-Jews (Andrzejewski, Hall, & Salib, in press).

Finally, though the *Journal of Nonverbal Behavior* is not new (it has been in existence for 30 years), its impact factor is the highest it has ever been as of this writing.

Why Is Its Star Rising?

One reason for the growing recognition of nonverbal studies is the general maturation of the field. A second reason, especially relevant for social psychology, is that nonverbal behavior is relevant to many of the currently important themes within the discipline. Thus, what was once a topic of slightly oddball interest is now more than

respectable and young investigators with skills in nonverbal research are now in demand. Some of the new interest in nonverbal behavior can be traced to the "warming up" of mainstream social psychology (that is, interest in motivation and emotion, not just "cold" social cognitive processes). Examples of such mainstream work include emotional expression (Tracy & Robins, 2008), emotional intelligence (Mayer, Salovey, Caruso, & Sitarenios, 2003), attitude formation (Wells & Petty, 1980), manifestations of racial attitudes (McConnell & Leibold, 2001), contagion/mimicry (Chartrand & Bargh, 1999), and power/dominance (Tiedens & Fragale, 2003). Some mainstream research that includes nonverbal behavior reflects efforts to unite cognition with more emotional and motivational themes; examples include implicit versus controlled processes (Dovidio, Kawakami, & Gaertner, 2002), embodied cognition (Niedenthal, 2005), and ideomotor processes (Wegner, 2002). Evolutionary social psychologists are also interested in nonverbal behavior (Floyd, 2006).

The Bad

Clearly, nonverbal communication has a large role to play in the future of social psychology. However, there are some elements that can be called "bad," at least from some perspectives.

How Do We Fit In?

Despite a growing place for nonverbal research in social psychology, there are ambiguities about how it fits in, which has implications for professional identity. At this stage in the development of social psychology as a field, there is great emphasis placed on theory development and theory-driven research. Theory-driven research is considered prestigious and the suggestion that a piece of research is "not theoretical enough" dooms it in mainstream journals. Nonverbal communication research, within this evaluative framework, can sometimes come up short because, speaking broadly, it is more bottom-up than top-down—that is, it is more likely to start with the exploration of interesting phenomena (nonverbal behavior or nonverbal communication skills) rather than with testing a theory. Bottom-up research, though essential in the production of knowledge and in hypothesis generation and theory generation, is not held in the highest esteem in social psychology. Thus, we are confronted with the ironic situation that, all too often, our reward for studying actual behavior is to be told by reviewers and editors that our research is deficient on theoretical grounds, or, at least, that it can't stand on its own but should rather serve the validation of higher-level theories.

Another issue for the field's identity and reputation stems from the fact that nonverbal researchers might be seen mainly as the providers of behavioral measures to be used as dependent variables in social psychological research. While not diminishing the value of this service to social psychology, I would not want the nonverbal field to be defined mainly in terms of its methodological toolbox. Nonverbal communication as a field has much more substance to offer than this.

The fact that nonverbal behavior is relevant in so many disciplines and to so many questions within social psychology creates a challenge to professional identity and to the definition of the field. The field does not have core questions or core theories; these tend

to be particular to the nonverbal phenomenon being studied. Therefore, nonverbal behavior researchers may have more trouble finding common ground than those who identify as, say, social cognition researchers or as attitude researchers. This, in fact, may be a negative byproduct of being a field that is defined in terms of the behavior it studies. If I study gazing, it could be in relation to many different substantive issues (e.g., physiological arousal, dominance, attraction, conversational regulation, emotion, affiliation, culture, gender, race, personality, or psychopathology). Nonverbal behavior thus cuts across substantive areas and theoretical traditions, creating ambiguity over where it belongs. Indeed, this tension is manifest in nonverbal communication textbooks, because the authors have to decide whether to divide the chapters up by cue channels (face, body, voice, etc.) or by thematic topics (e.g., attraction, deception, relationships, social influence, gender and culture, etc.).

Labor Intensiveness

It is an understatement to say that nonverbal research can take a lot of time and effort. It can take years to complete a study that involves nonverbal coding. Sometimes extensive formal training and certification are required (as with the FACS), but even training research assistants in one's lab to do relatively simple coding is very time-consuming. Furthermore, they find the work to be boring so it is hard to retain assistants. And because coding takes a long time, turnover among assistants (between semesters, for example) can set a project back because they leave before the coding is done and new ones need to be recruited and trained. Even those supervising the assistants find the process exhausting and aversive. And if graduate students are involved, they may be reluctant to commit to studies that take a long time to complete, and if they do, they may end up sorry that they did.

Fortunately, there are indications that to some extent this process can be streamlined. Though much more research is needed, it is now clear that valid results can be obtained from coding less than the total amount of behavior at one's disposal. Ambady and Rosenthal (1992), in a meta-analysis, reviewed many studies showing that meaningful outcomes can be predicted from very short "slices" of behavior (five minutes or less, sometimes much less). Ambady and Rosenthal (1993) showed that ratings and nonverbal coding made on excerpts of teacher behavior as short as six seconds predicted end-of-semester student evaluations and school principals' evaluations. Murphy (2005) showed that three minutes of coded nonverbal behavior (smiles, nods, gazing, self-touching, and gesturing) correlated highly with the same behaviors coded for 15 minutes, and that for some behaviors one-minute excerpts were adequate. And Carney, Colvin, and Hall (2007) showed that accuracy for judging various personality traits was often as good for one-minute as for five-minute clips, and in some cases as good for five seconds as for five minutes.

Other evidence that long durations of behavior are not necessarily required stems from tests of judging the meanings of nonverbal cues, such as described in an earlier section. Some of the most widely used tests present stimuli for only two seconds. Matsumoto et al. (2000) based a reliable and predictive test on stimulus exposures of far less than one second. Of course, how much information is required to measure behavior adequately cannot be standardized. It will depend on what one is seeking to measure.

Finally, it has to be added that the measurement of nonverbal behavior or nonverbal skill is not a perfected science. Often, we measure behavior crudely or shallowly; for example, we might simply count the frequency of occurrence without measuring qualitative nuances or more complex temporal relations. Reliability is not always good; this is often true of tests of nonverbal decoding accuracy (Hall, 2001). Even if we measure a collection of discrete behaviors well, we are not good at reassembling them to form a coherent picture of a behaving person. The behaving person is emitting many behaviors all at once, and they occur in relation to each other, unfolding in patterns over time. The behaving person is not, therefore, simply the sum of how often she smiles, gestures, fidgets, and so forth.

The Ugly

By "ugly" I mean complex and confusing. That is how I would describe the challenge of assigning meaning to nonverbal cues. Nonverbal cues gain meaning in context, as discussed earlier. The same behavior can mean different things or serve different functions, depending on what the expressor's inner state or intention is, or on what else is happening in the situation. Even if contextual factors are known, establishing meaning is hard because often there is no gold standard. The expressor's own opinion on the subject is hardly a gold standard, considering that often people are not aware of their own nonverbal behavior.

Furthermore, does the criterion of a cue's meaning lie in the expressor's intention or in how it is interpreted by others? To illustrate, a White person might attempt to show respect to an African American by keeping a large interpersonal distance, but this same behavior may be interpreted by the African American as a sign of rejection. The behavior "means" different things, depending on whose perspective is taken. Even when it is possible to develop a general or normative understanding of the meaning of cues, there can still be great uncertainty in specific cases.

The fact that nonverbal behavior often takes its meaning from context means that one may need to know far more than morphology and a few rules of thumb, and this is a much broader and more demanding research endeavor. Understanding the meaning of nonverbal behavior often takes us into the territory of motives and goals—*why* is the person putting on this expression? If, for example, observing that women smile more than men do tells us something, but not much. (LaFrance et al., 2003). Are women happier than men? Are they behaving submissively? Are they simply responding to others' pleasant behaviors directed at them? Are they displaying their higher level of social communication skill? Are they trying harder to appear physically attractive? The fact that nonverbal behavior can be deliberately used for many purposes including self-presentation and deception makes the determination of "meaning" an even more complex issue.

Thus, it is all too common for a researcher to go to a great deal of trouble to measure nonverbal behaviors, only to find that their meaning is obscure. Perhaps it is partly because researchers often have to be agnostic about meaning that their work sometimes appears to be "not theoretical enough." In pointing out these difficulties, I do not intend to discourage researchers from measuring cues. But I am suggesting that they

should not fall victim to behavioral reductionism, by which I mean making the assumption that measuring behavior is the only way to be scientific and rigorous.

What, then, is the alternative to behavioral reductionism? Can one study nonverbal behavior without measuring behavior? I suggest that often—depending, of course, on the research question—a researcher is more interested in imputed or observed meaning than in the behavior per se. A researcher interested in marital quality, for example, might gain much more from gathering naïve raters' impressions of anger in a videotaped interaction than from training coders to measure facial muscle movements or having a computer spit out a long list of acoustic measurements. If the researcher desires more channel specificity, she can gather these ratings based on silent video, voice only, or electronically filtered speech if no linguistic input is desired. As long as interrater reliability is achieved, raters' impressions can sensitively index a wide range of perceived psychological states. Authors have discussed the tradeoffs involved in the choice between a molecular approach on one hand, where you know what you've measured but are uncertain what it means, and a molar approach on the other, where you know what it means—at least from a perceiver's point of view—but you don't know exactly how the different behaviors contribute to the impression (Cohn & Ekman, 2005; Juslin & Scherer, 2005).

Conclusion

In this chapter I have tried to convey some of the excitement, as well as problems, associated with studying nonverbal communication. It is a field that is far from burned out; there are still many questions to be investigated; and there is still much room for methodological development. In one way or another, nonverbal communication is connected to virtually all of social psychology.

Although Baumeister et al. (2007), as well as Patterson (2008), who performed a similar analysis for the *Personality and Social Psychology Bulletin*, were certainly correct in noting a dearth of behavioral measures in contemporary social psychology, at least one category of behavior—nonverbal behavior—is on the rise. Furthermore, by looking only at two highly selective, mainstream journals they may have underestimated how often nonverbal behavior appears in social psychology journals, or in studies done by social psychologists that are published in other types of journals. And, of course, all of this is just a fraction of the volume of nonverbal research that is done by scholars outside of social psychology. The nonverbal field may be fragmented, but it is large.

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Table 1
Results of PsycINFO Search

Decade	"Nonverbal communication"	"Facial expression"	"Emotion recognition"
1950-59	41	48	20
1960-69	176	75	27
1970-79	1,505	206	74
1980-89	1,875	530	241
1990-99	1,814	856	381
2000-09*	2,456*	1,988*	1,361*

*projected