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A Brief Review of Interpersonal Sensitivity: Measuring Accuracy in Perceiving Others

Marianne Schmid Mast, University of Fribourg, Nora A. Murphy, Brandeis University, and Judith A. Hall, Northeastern University

In many everyday situations we instantly form impressions of others that guide our behaviour. Certainly you have experienced a situation similar to the following: Choosing which of several long lines in the supermarket to stand in depends not only on how full the shopping carts are in front of you but also on how efficient and friendly you judge the cashier to be. You might choose your line according to a person assessment of whether the cashier will give you the discount on the strawberries, even though you forgot your rewards card, or whether he or she will be patient when your two-year-old won't hand over his box of biscuits.

Such impression formation of strangers is intriguing because we seem to do it constantly, despite minimal information available. Within a brief window of time we draw inferences about a person based on behaviour, both verbal and nonverbal, and on appearance. And although we make mistakes, we are quite good (and oftentimes at better than chance level) at decoding other people's states and traits (e.g., Ambady, Hallahan, & Rosenthal, 1995; Bernieri, Gillis, Davis, & Grahe, 1996; Borkenau & Liebler, 1995; Carney, Colvin, & Hall, 2006; Costanzo & Archer, 1989; Murphy, Hall, & Colvin, 2003; Nowicki & Duke, 1994; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979; Schmid Mast & Hall, 2004; Schmid Mast, Hall, Murphy, & Colvin, 2003; Zebrowitz, Hall, Murphy, & Rhodes, 2002).

In the present chapter we give an overview of the research on interpersonal sensitivity, with an emphasis on existing findings (What do we know about accuracy in judging others?) and an outlook on open and unexplored questions (What do we still want to find out about accuracy in judging others?).

Why Is It Important to Study Accuracy in Judging Others?

Perceiving, judging and understanding others in their social environment are central aspects of our lives as social agents. It is important to understand the mechanisms responsible for interpersonal judgement, because we are constantly forming impressions of other people or social situations. Research on interpersonal sensitivity provides insight into the mechanisms that – sometimes implicitly – organize our social perception. To be functional, our making sense of the world needs to correspond to some extent to reality. This correspondence is what we call *accuracy*. Being *accurate* about assessing others has adaptive value. Correctly concluding that a

not-so-friendly-looking group of adolescents in a deserted street seems dangerous can prevent bodily harm if you decide to avoid entering that street based on your assessment. Or, less dramatically, correctly assessing whether two people are lovers or just friends can prevent a social faux pas.

Finding out how people achieve an accurate judgement has far-reaching consequences. For instance, people could then be trained to become better judges of others. This is important not only for smooth social interactions in general, but more specifically for all professionals whose work is centred around human interaction, such as human resource managers selecting people based on job interviews, or in the realm of the legal system, where judges and jurors gauge not only a case but a person. We believe that accurately perceiving others has adaptive value in getting our social needs met, whether that means choosing a lawyer, accepting an interviewee for a position or evaluating another's potential as a friend or lover.

Process Model of Person-perception Accuracy

What is accurate person perception? To answer this question, it is worthwhile looking at the mechanism of how we reach an accurate judgement. In this realm we suggest a process model of person-perception accuracy (Figure 10.1). When judging, for instance, whether a target person is happy (Figure 10.1, actual state or trait), the perceiver relies on an array of cues emitted by the target (Figure 10.1, expressed cue). As an example, let us assume the target person smiles because he or she is happy. In this case happiness is conveyed, encoded or expressed in corresponding behaviour – smiling. However, the target might send flawed or confusing messages by (intentionally or unintentionally) concealing his or her happiness. In order for person perception to be accurate, the actual state or trait must be expressed by corresponding relevant behaviour (Figure 10.1, expressed cue). Unless the perceiver's view is obstructed or he or she does not look at the target, the expressed cue will reach the perceiver. However, even if the perceiver sees that the target person is smiling (in the sense that the perceiver's retina receives that information), the perceiver might still not "see" that the target is smiling if he or she pays attention to something else, such as what the target person is wearing. In this case the perceiver might not pick up on the target person's smile. Additionally, factors such as motivation, expectations, stereotypes or cognitive schemas can affect how much attention is paid to a specific cue and/or how a specific cue is interpreted. For instance, if a perceiver expects women to smile more than men (which would be an accurate expectation, because women do smile more than men; Hall, 1984; LaFrance, Hecht, & Paluck, 2003), he or she might be prone to overlook a smile emitted by a man. More important, smiling as a cue is interpreted to mean something – for instance, happiness (Figure 10.1, inferred state or trait). Only a perceiver who knows (implicitly or explicitly) that smiling can be a sign of happiness will be able to accurately assess happiness in others from this cue. The inferred state or trait (in our example, the target person's happiness) can then be compared with the actual state or trait. Accuracy is attained if both the inferred construct and the actual construct match. In

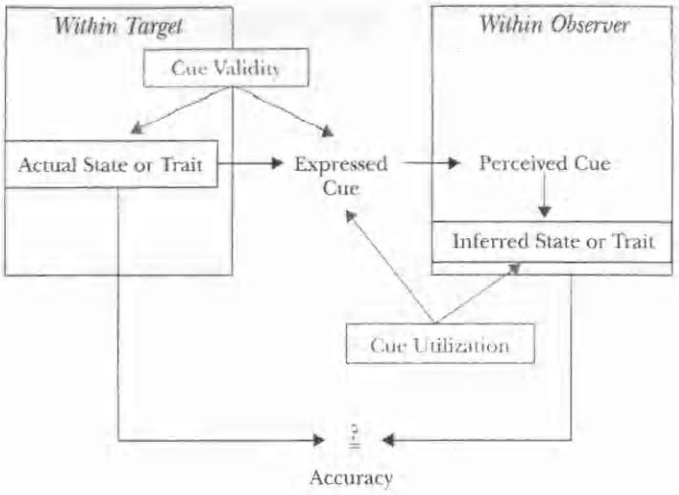

FIGURE 10.1
Process model of person-perception accuracy. Actual state or trait results in cue expression. Observers perceive the expressed cues and infer the state or trait of the target. Actual state or trait is then compared with inferred state or trait and, only if there is correspondence, accuracy is achieved. According to a Brunswik lens model approach, the relation between actual state or trait and expressed cue is called *cue validity* and the relation between perceived cue and expressed cue is called *cue utilization*.

terms of goodness of match, an operational criterion rule would be applied to decide whether "accuracy" had in fact been obtained.

The model of person-perception accuracy we propose includes the four steps of Funder's realistic accuracy model (RAM; 1995, 1999) – relevance, availability, detection, utilization – but it is more comprehensive because we incorporate accuracy of states as well as the RAM's trait accuracy. *Relevance*, the first of four steps of the RAM, means that the target must do something that is relevant to the trait, which is reflected in our model by the transition from actual state or trait to expressed cues. *Availability*, the second RAM step, means that the relevant behaviour must be available to the perceiver, corresponding to the transition from expressed cue to perceived cue in our model. *Detection*, the third RAM step, means that the perceiver must detect the relevant behaviour, which is also included in the transition from expressed to perceived cue in our model. Finally, *utilization* means that the perceiver must use the relevant information correctly, described in our model through the transition from perceived cue to inferred state or trait. Thus we extend Funder's RAM to incorporate both state and trait assessments as applied to accurate person perception.

Clarification of Terms

According to Figure 10.1, accuracy in judging others is a comparison of the impression a perceiver forms (inferred state or trait) with the criterion, the gold standard or the actual state of affairs (actual state or trait). Many researchers use the term *interpersonal sensitivity* (Hall & Bernieri, 2001). In the present article we use *interpersonal*

sensitivity interchangeably with *person-perception accuracy* and *accuracy in judging others*. Note that *person perception* (without the word *accuracy*) refers only to what we perceive of the other person and how we interpret it (perceived cue and inferred state or trait).

Historical Background: A Brief Review

Person-perception accuracy and interpersonal sensitivity as a whole have had a long history in psychology. Many researchers have been interested in how well individuals can assess a stranger's states or traits. In an early review of such accuracy, Taft (1955) summarized the methods of assessing accuracy, including types of tests for judging others and characteristics of good judges of others. He noted how age, gender, intelligence, social skill and self-insight may all influence a perceiver's ability to accurately judge others. Taft's early review is surprisingly applicable to current-day research approaches, as many researchers are interested in these very constructs. For instance, interpersonal sensitivity research has established the superiority of females in accurately judging others' nonverbal communication (Hall, 1984); social skill has been hypothesized to explain at least part of the variance associated with interpersonal sensitivity (Lancelot & Nowicki, 1997); and a perceiver's intelligence has influenced accuracy in some instances (Lippa & Dietz, 2000).

In the same year as Taft's review, Cronbach (1955) published an influential article regarding the methodological artefacts in the social perception of others. For instance, the difference between a target's self-report score and the judge's perception was often considered an accuracy score. Cronbach noted that such measurement techniques led to statistical artefacts that camouflaged the intended accuracy measurement. Cronbach was well-intentioned; he wanted researchers to be aware of such artefacts in order to avoid them: "It is important for studies of clinical judgment to measure these errors as separate components, and for clinicians to train themselves to avoid these errors" (1955, p. 183). Yet the end result of Cronbach's article was a decline in the study of accurate person perception.

Funder and others (1995; Funder & West, 1993) note that, in addition to Cronbach's critique, two other factors contributed to the drop in research on person-perception accuracy. Early research often yielded disappointing or inconsistent results, and there was a shift from judgemental ability to the processes associated with person perception. Ultimately, research on accuracy lay dormant for several decades.

Fortunately, a renewed interest in accuracy has arisen in the past two decades or so. A transition from a focus on pathology in psychology to positive psychology (Seligman & Csikszentmihalyi, 2000) increased interest in understanding how well individuals can perceive others. In the past, person-perception researchers may have focused on inaccurate person perception, whereas most modern-day researchers are interested in learning about how and when judges are accurate. A variety of theoretical paradigms and methodological techniques by which to study person-perception accuracy have been presented, including the aforementioned realistic accuracy model (Funder, 1995), the social relations model (Kenny & Albright,

1987), a Brunswik lens model approach (Gifford, 1994), a Gibsonian ecological approach (Funder & Sneed, 1993; Zebrowitz & Collins, 1997) and a thin-slice paradigm (Ambady & Rosenthal, 1992). Several of these approaches are discussed in more detail in the following section.

Assessment of Interpersonal Sensitivity

Interpersonal sensitivity is contingent upon the availability and use of emitted cues in the assessment of others. Whether participants use verbal and nonverbal cues on which to base their judgements most likely depends on the task at hand. For instance, if participants are asked to make inferences about others' thoughts and feelings, they rely more on verbal than on nonverbal cues (Gesn & Ickes, 1999). On the other hand, Archer and Akert (1977) demonstrated that individuals needed nonverbal cues to accurately decode a variety of situations in which there was a clear criterion of accuracy. In their study, participants viewed a variety of naturalistic videotaped social interactions and then answered questions regarding the videotaped situation. For example, one video clip showed two women playing with a baby, and participants were asked to identify which woman was the mother of the child. Participants who viewed the interactions with both visual and auditory information were significantly more accurate than participants who simply read a transcript of the interactions.

The advantage of having both auditory and visual information available for accurate person perception has also been demonstrated in assessing traits. Murphy et al. (2003) showed that participants who read transcripts of social interactions did not accurately perceive intelligence in targets, whereas participants who viewed videotapes of the same interactions with auditory information present were accurate at better-than-chance levels. Other research also demonstrates the importance of nonverbal behaviour in the accurate assessment of another (e.g., Grahe & Bernieri, 1999; Reynolds & Gifford, 2001).

Theoretical Models

Before delving into specific measures of interpersonal sensitivity and person-perception accuracy, a discussion of the theoretical paradigms is relevant. Those who study accurate person perception usually focus on a given target's (or a group of targets') state or trait (Hall & Bernieri, 2001). In some instances, a Brunswikian lens model approach has proved useful in its application to accurate person perception (Brunswik, 1956). Brunswik's book proposed a visual perception model that has proved useful to those analysing social interactions. A Brunswikian approach to social interaction posits that an individual can function as both a perceiver and a target. Brunswik proposed that a perceiver takes in information about a target from several of many cues (i.e., nonverbal behaviour) because no one cue is likely to be a perfect predictor of the trait being assessed.

Figure 10.1 presents a modified Brunswik lens model as it applies to social perception. *Actual state or trait*, *expressed cue* and *perceived cue* represent sources of information

for accurate perception. On the left exists the target's true (actual) personality trait, state or characteristic that is being assessed. On the right, the perceiver views a target and forms an impression. Presumably this impression can be shaped by the middle construct, the cues emitted by the target (see Figure 10.1). The researcher can investigate which cues are influential in a perceiver's impression by comparing the emitted cues with the perceiver rating. We call this comparison *cue utilization*. On the other hand, a researcher can also explore which cues actually indicate the construct of interest by comparing emitted cues with the target's characteristic. We call this comparison *cue validity*, as any given cue that relates to the personality construct can be considered a valid cue to that construct. Finally, the comparison between the perceiver's impression and the target's true characteristic reveals how well the perceiver was able to assess the target. While some researchers label this relation as *achievement*, for simplicity's sake we prefer the term *accuracy*.

The Brunswik lens model has been successfully applied to a variety of social perception judgement tasks, including personality dispositions (Gifford, 1994), assertiveness (Schmid Mast et al., 2003), rapport (Bernieri et al., 1996), status (Schmid Mast & Hall, 2004), the Big Five personality traits (Borkenau & Liebler, 1995) and intelligence (Murphy et al., 2003). Researchers employing this paradigm find it useful because it incorporates the roles of the perceiver and the target with the dynamic nature of social interaction, including nonverbal behaviour.

Some have argued that the Brunswik lens model is not the best model for understanding accurate person perception. In particular, Zebrowitz and Collins (1997) suggest that a lens model has narrow usefulness because the end result consists of a collection of piecemeal correlations. Instead the authors propose that a Gibsonian ecological approach is more appropriate (see also McArthur & Baron, 1983). This model, based on Gibson's visual perception model (1986), is grounded in a theoretical perspective that has four distinct attributes. First, social perception is adaptive. Second, stimulus information (in this case, personality or target characteristic) is revealed in social interactions. Third, opportunities for accuracy occur when the stimulus (e.g., an individual in a social interaction) is able to act or be acted upon by objects, such as another individual in the environment. Such opportunities are termed *affordances*. And fourth, a perceiver must be attuned to the social interaction and relevant stimulus information for accurate person perception to occur. The Gibsonian approach relies on the specific combination of physical qualities and behaviours that may reveal personality. For instance, if a researcher is interested in studying extraversion, he or she may choose to investigate the relevance of hand gestures and loud voice to the accuracy of perceiving extraversion, because these cues have been correlated with extraversion in previous research. Zebrowitz and Collins propose that researchers studying accurate person perception should investigate particular sets of behaviours and the context in which they are emitted, rather than measuring an exhaustive list of nonverbal behaviours. The authors imply that the Gibsonian approach provides needed theoretical groundwork for person-perception researchers, which may be lacking in research involving a lens model method.

We believe that both the Brunswikian and Gibsonian approaches are useful to researchers interested in understanding accurate person perception. These approaches both posit that features of a person's behaviour are fruitful suppliers of data about the individual's state or trait (Berry & Finch Wero, 1993). Both

approaches acknowledge the roles of targets, perceivers and the social interaction itself as contributors to accuracy. On the one hand, the Brunswik lens model proposes a methodological model. On the other hand, the Gibsonian approach could provide a theoretical grounding for choosing cues to measure in a lens model. For instance, a researcher may be interested in studying the trait of naivety. In order to investigate behavioural cues associated with naivety, the researcher might choose features associated with age for a lens model approach. The researcher would use those age-related features, reasoning that people who have those features might be perceived as naïve and (perhaps by self-fulfilling prophecy) might actually be more naïve. However, if there is not a theoretical grounding (such as cues related to age) from which to start when undertaking a lens model approach, the researcher could perform an exploratory study by coding many behaviours without much theoretical basis, because he or she would need to start somewhere. After the researcher obtains results, he or she could start theorizing about why certain cues or combinations of cues show relations to the state/trait. Thus the Brunswik and Gibson approaches need not be independent or contradictory; rather, both can be integrated for understanding accurate person perception (Murphy, 2003).

Description of Paradigms

A variety of approaches has been used to study accurate person perception and interpersonal sensitivity as a whole. Generally researchers collect information about a target through questionnaires, photographs and videotaping. This information is then presented to perceivers or judges. The evaluations given by the judges are then compared with a given criterion (i.e., the target's measured personality or characteristic). For instance, in studying the accuracy of detecting deception, targets were videotaped making honest or dishonest statements, and judges rated each target on honesty (Forrest & Feldman, 2000). The methodology of presenting videotaped stimuli to judges is modelled on a thin-slice paradigm (Ambady & Rosenthal, 1992). A thin slice is a brief (less than 5-minute) portion of a target's behaviour, usually presented in video- or audiotape format, that is submitted for evaluation. Numerous studies have shown that the thin-slice methodology has successfully measured accuracy in person perception (see Ambady, Bernieri, & Richeson, 2000, for a review).

Other research methods have been used as well. These include presenting target information in the form of short written descriptions, transcripts or photographs. While photographs have yielded accuracy (e.g., accurate intelligence assessments; Zebrowitz et al., 2002), transcripts have not produced accuracy (Archer & Akert, 1977; Murphy et al., 2003). Thus it remains unclear whether such methods are appropriate for use by person-perception researchers.

Another methodological approach in interpersonal sensitivity assessment is the use of standardized tests. Such measures include the Diagnostic Analysis of Nonverbal Accuracy scale (DANVA; Nowicki & Duke, 1994), the Interpersonal Perception Task (IPT; Costanzo & Archer, 1989) and the Profile of Nonverbal Sensitivity (PONS; Rosenthal et al., 1979). These measures are described at length elsewhere, so it is not necessary to elaborate on their details here (see Hall, 2001). However, it is worth noting that such measures are commonly used to assess interpersonal sensitivity.

The Criterion Issue

One subject particularly relevant to accurate person perception is what we designate *the criterion issue*. In order for an individual to be accurate or to be deemed interpersonally sensitive, he or she must achieve some score or answer that is considered correct. In some research the correct answer is clear. The IPT, for example, presents videotaped segments where judges are asked to decide whether an individual is telling the truth or to evaluate the relationship between two individuals (e.g., which target is the boss of the other). In such instances the criterion is clear: The target is either telling the truth or lying; the target is either the boss of the subordinate or not. In other instances, achieving accuracy becomes more subjective. When perceivers are asked to determine a target's extraversion level, what becomes the criterion of extraversion? The target's level of extraversion can be assessed using a self-report measure such as the NEO (Costa & McCrae, 1992), or it could be collected from a variety of sources, including peer and parent ratings or behavioural observation(s). How the researcher measures extraversion will obviously influence whether extraversion is judged to be accurately perceived in others. Person-perception researchers have used all of these methods in their attempts to further understand accuracy.

Some researchers use consensus as the criterion (e.g., Kenny, Horner, Kashy, & Chu, 1992; Marcus & Lehman, 2002). That is, a group of judges is asked to rate a target (or group of targets) and the mean level assigned to a given target is considered the criterion. This consensus approach, while informative to person perception, is not necessarily appropriate for the study of *accurate* person perception. Referring back to Taft's early review, he aptly noted that "the degree to which [the judge] conforms to the criterion group" (1955, p. 2) will affect the judge's accuracy score. On the other hand, "the nonconformist would score poorly, but might in fact be a good judge" (Taft, 1955, p. 2). We believe it is important to distinguish between accuracy defined as the consensus of a given judge with a criterion group (of which the judge is a member) versus the assessment of accurate person perception based on a criterion outside the group of judges.

Domains of Person Perception Accuracy and Research Findings

A relatively unsatisfying issue in person-perception accuracy regards the broadness of the construct. We can be accurate at remembering someone's appearance (Horgan, Schmid Mast, Hall, & Carter, 2004), at estimating a stranger's extraversion (Borkenau & Liebler, 1995) or at judging someone's status (Schmid Mast & Hall, 2004), to mention just a few. Ickes (1993) has suggested distinguishing between judgements of (1) personality traits; (2) attitudes, values and self-conceptions; (3) emotional states; and (4) mental contents, including thoughts and feelings. A fifth category has been added by Bernieri, Davis, Rosenthal and Knee (1994): interpersonally defined constructs (e.g., status, rapport).

More recently, Bernieri (2001) summarized existing research on things being judged in 11 categories:

1. features (e.g., accurate recall of a target's appearance),
2. characteristics (e.g., accurate identification of a target's gender or age),
3. behaviours (e.g., accurate recall of a how much a target smiled),
4. internal states (e.g., accurate detection of a target's mood or cognition),
5. interpersonal intentions (e.g., accurate recognition of when a target wants to end the interaction),
6. deceptive intent and self-presentation (e.g., accurate detection of a lie),
7. traits and dispositions (e.g., accurate identification of a target's personality and skills),
8. social relations (e.g., accurate recognition of whether two people are friends or lovers),
9. situation and cultural context (e.g., accurate recognition of an activity as cooperative or competitive),
10. role fulfilment (e.g., accurate judgement of whether someone is conforming to a role appropriately), and
11. future behaviour and outcomes (e.g., accurate prediction of a target's future actions).

This list demonstrates impressively that interpersonal sensitivity is a research area encompassing many different domains. A detailed review of findings pertaining to each of these domains is beyond the scope of the present chapter. To summarize the most important existing findings, we therefore selected some of the above categories and suggest an alternative classification, which is discussed in more detail below. Each domain is presented with corresponding research examples. Note that not all of these domains are researched equally well. For instance, traits have been looked at for quite some time, but accuracy research on recall of one's own or another's behaviour is a rather new development in interpersonal sensitivity research. Also, to date it remains unclear whether the ability to judge accurately within one domain transfers to other domains or, in other words, whether person-perception accuracy is an overall construct (or skill) or whether it has to be looked at in a domain-specific way (Hall, 2001; Zebrowitz, 2001).

Person and Personality Characteristics

When we describe another person, it comes quite naturally to us to talk about her in terms of traits, how nice she is and how extraverted she seems, and in terms of person characteristics such as her intelligence and age or gender, to mention a few. And we do a pretty good job at it (e.g., Ambady et al., 1995; Borkenau & Liebler, 1992; Funder & Colvin, 1988, 1997). However, not all traits are judged equally accurately. For instance, traits that are more observable – that is, involving more visible behaviour, such as extraversion or assertiveness, are judged more accurately than less observable traits, such as openness to experience (Funder & Colvin, 1988). Most impressively, we do not even have to be acquainted with a person to assess him accurately. Research has demonstrated that accuracy does occur in so-called zero-acquaintance situations (Albright, Kenny, & Malloy, 1988; Ambady et al., 1995).

Nevertheless, accuracy increases the better we know the person we are assessing (Colvin & Funder, 1991).

Usually we base our personality assessment on brief exposure to the target (e.g., Ambady et al., 1995; Borkenau & Liebler, 1992). More recently, researchers have demonstrated that we do not even have to see the person to infer her personality correctly; relying on traces of her behaviour – left behind deliberately or not – is enough. Gosling and colleagues have shown that we can judge other people's personality based on how their bedrooms or offices look (Gosling, Ko, Mannarelli, & Morris, 2002) or on their musical preferences (Rentfrow & Gosling, 2003).

Also, there is evidence that other person characteristics can be judged with greater-than-chance accuracy. For instance, research has demonstrated that a person's intelligence can be assessed by observing him during a very short social interaction (e.g., Borkenau & Liebler, 1992; Murphy et al., 2003). Ambady, Hallahan and Conner (1999) videotaped heterosexual and homosexual targets discussing their academic and extracurricular lives and created a 10-second segment, a 1-second segment and still photographs of each target. People were accurate at assessing the targets' sexual orientation when exposed to the 10-second or the 1-second silent clip, but not for the still photographs.

Social Relations

Whereas person and personality characteristics pertain to one person, social relations involve more than one person. While judging social relations, the perceiver has to pick up on something that goes on between two or more people. Mostly two types of social relations have been the research focus on judgement accuracy: rapport and status.

Bernieri and colleagues have developed an extensive research program to investigate whether and how people are able to judge rapport (Bernieri et al., 1994; Bernieri & Gillis, 1995, 2001; Bernieri et al., 1996). They understand rapport as a pleasant and harmonious connection between people during an interaction and found that observers assess rapport at better-than-chance level (Bernieri & Gillis, 2001; Bernieri et al., 1996). In judging rapport, observers rely on synchrony, expressivity and smiling of the targets (Bernieri & Gillis, 2001). They were, however, not necessarily correct in doing so.

Status or dominance is one of the most important dimensions of social interactions and relationships (e.g., Gifford, 1991), and there are distinct advantages in being able to assess another's status accurately: Knowing whom to address with a specific concern, for instance, can improve and facilitate interactions. Sternberg and Smith (1985) showed that people can accurately tell from photographs which of two target people is the other's boss. In the same vein, people could indicate at better-than-chance level the relative status difference between pairs of university employees, again from photographs (Schmid Mast & Hall, 2004). In the latter study, although perceivers did not differ in how accurately they assessed status in women and in men, results showed that perceivers differed in how much they relied on specific cues, depending on whether the target was female or male. Perceivers used downward head tilt and lowered eyebrows significantly more as a sign of high status

in women than in men. And formal dress was used as a sign of high status in men significantly more than in women.

Emotions

Correctly assessing the affective state of a social-interaction partner can have distinct advantages. For instance, in preventing escalation of violence, my first step is to correctly infer that my social-interaction partner is angry. If the appropriate reaction in the situation is to withdraw and leave him alone, I can only choose to do so if I know (i.e., if I am able to detect) that he is angry. In general, accuracy for identifying emotions is high, especially for posed facial expressions showing basic emotions.

A well-established measure of accuracy in emotion recognition is the Diagnostic Analysis of Nonverbal Accuracy (DANVA; Nowicki & Duke, 1994). This test measures individual differences in accuracy in interpreting facial expressions of happiness, sadness, anger and fearfulness. For all four emotions, the accuracy of test-takers is above chance level. Scores on the DANVA increase with age and personal and social adjustment.

Taking cultural differences in emotion expression and recognition into account, Matsumoto, Ekman and colleagues created the Japanese and Caucasian Brief Affect Recognition Test (JACBART; Matsumoto et al., 2000). In the JACBART, test-takers see Japanese and Caucasian targets posing different emotions (anger, contempt, disgust, fear, happiness, sadness and surprise) and are asked to judge which emotion is expressed. Target race (Japanese or Caucasian) and sex are fully crossed with all seven emotions. For each judgement, test-takers first see the target's neutral face, then the posed emotion for a very brief exposure time (a fifth of a second), and then the neutral face of the target again. Even at such short exposures, accuracy is above chance.

Motives and Intentions

Behaviour per se is not unequivocal, meaning that we can, for instance, smile at another person because we like her, because we want to ingratiate, because we are happy and the other just happened to be around, and so on. For successful social interactions it seems important to be able to infer the motives and intentions underlying actions. One of the most widely used standardized tests to assess how well a test-taker can infer motives and intentions of others is the Profile of Nonverbal Sensitivity or PONS (Rosenthal et al., 1979). The PONS consists of short (2-second) video and audio clips of a single target enacting different scenarios. Participants indicate on a multiple-choice measure which of two scenarios describes best what the target is expressing: talking to a lost child, expressing motherly love, criticizing someone for being late, and so on. Affect recognition undoubtedly plays a large part in accuracy on the PONS. The PONS has many correlates in terms of socio-emotional characteristics and performance.

Quite often a person desires to hide his or her true motives and intentions in order to deceive others. The task of accurately assessing the deceiver's motives and intentions therefore becomes especially important. The most commonly used paradigm in

research on deception detection consists of having a target either tell the truth or not (e.g., about themselves, about what they feel or about their opinion) and perceivers try to find out whether the message was deceptive or not, or to what degree they think the message was deceptive. Most studies find that people are able to detect deception; however, in many studies people are only slightly better than chance at such detection, especially if the response format is true/false and accuracy is calculated as percentage of accuracy (Malone & DePaulo, 2001).

Cognition

Can we read other people's minds? To some extent, yes, we can. Ickes (1993, 1997, 2001) has introduced an interesting paradigm to measure how well people can infer another's thoughts or feelings, called *empathic accuracy*. Targets are videotaped in a social interaction and then review the videotape after the interaction to indicate when they had a particular thought or feeling. The tape is then presented to participants and stopped every time at the exact moment where the target reported having had a thought or feeling. Each time the tape is stopped, participants are asked to "read the target's mind" and to indicate what they think the target thought or felt at that particular moment. Because the actual thoughts and feelings of the targets are available to the researchers, accuracy can be assessed. Although Ickes, Stinson, Bissonnette and Garcia (1990) report that, on average, people are able to infer others' thoughts and feelings correctly, empathic accuracy depends, of course, on many factors, such as how expressive the target is (Ickes, Marangoni, & Garcia, 1997) or how acquainted the perceiver and the target are with each other (Stinson & Ickes, 1992). As noted earlier, accuracy on this task seems to rest more on verbal than on nonverbal cues.

Behaviour

What we remember about our interaction partner's behaviour and what we eventually remember about our own behaviour are relatively new avenues in person-perception research. We might remember whether we liked a specific interaction partner or what her opinion was, but do we have a clue to how she behaved during the interaction? Indeed we do. In a study by Hall, Carter and Horgan (2001), participants interacted in dyads in which one occupied a high status position and the other a low status position. After the interaction, participants were asked to recall the hand gestures, self-touch, gazing, smiling and nodding of their interaction partner. Across two studies, individuals could accurately recall their interaction partner's behavior (Hall, Murphy, & Schmid Mast, in press). Additionally, this skill showed discriminant validity in comparison to cognitive ability and was related to certain types of nonverbal behavior displayed in the interaction.

Recent research suggests that individuals can accurately remember their own nonverbal behavior in a social interaction but this ability is influenced by the nonverbal behaviors expressed, the status of the interaction participants, and the individual's focus of attention (Hall, Murphy, & Schmid Mast, 2006).

Features

Features such as hairstyle or clothes play an important role in research on face recognition and person identification (Shapiro & Penrod, 1986), in the sense that one has to abstract from them to be able to identify someone. Recently these features have taken centre stage and researchers have become interested in whether people pay attention to and recall features and other static characteristics of others. In a series of studies conducted by Horgan et al. (2004), participants were asked to recall the appearance (e.g., hairstyle, clothes, accessories) of a target person after having either interacted with that person or watched that person interacting in a video clip. Results showed that female perceivers were more accurate at recalling targets' appearance than male perceivers, and female targets' appearance was recalled better than male targets' appearance. This was true regardless of whether perceivers were involved in the interaction or just observing a target.

Summary

In a nutshell, research has provided support for person-perception accuracy in all of the above domains. Of course, attaining accuracy can be a matter of test difficulty. For instance, sexual orientation of targets could be assessed accurately based on 1-second silent video clips but not based on photographs of the same targets (Ambady et al., 1999). In terms of exposure length, results show that observing thin slices of social interaction (less than 5 minutes) is enough to come to an accurate judgement (Ambady, LaPlante, & Johnson, 2001), and even judgements based on segments as short as 1 second (Ambady et al., 1999), a fifth of a second (Matsumoto et al., 2000) or in some instances, photographs (e.g., Schmid Mast & Hall, 2004; Sternberg & Smith, 1985; Zebrowitz & Collins, 1997; Zebrowitz et al., 2002) can be accurate. Contrary to intuition, slices longer than 1 minute do not result in much more accurate judgements (Ambady & Rosenthal, 1992; Carney et al., 2006), although for more extended periods of observation, Blackman and Funder (1998) found that self/other accuracy in personality assessment was more accurate after 25 to 30 minutes of observation than after 5 to 10 minutes. Also, some constructs are much easier to judge than others. Deception is harder to judge than basic emotions, and some personality traits are easier to assess than others; for example, extraversion is easier to judge than agreeableness (Blackman & Funder, 1998).

How Accurate Is "Accurate"?

So far in this chapter we have repeatedly said that perceivers are accurate or not accurate in judging emotions and traits from short exposures to the behaviour of target individuals. In the published literature too it is often said in a fairly categorical manner that perceivers are accurate when making thin-slice judgements of others. This categorical phrasing is efficient if everyone understands exactly what is meant, but it can be misleading or confusing. In what sense exactly do we mean "accuracy", and can broad statements justifiably be made?

What is broadly true is that perceivers can make such judgements with a degree of accuracy that is better than just guessing. For example, on the PONS test, if people guessed, their accuracy rate would approach 50% (because the responses are two-alternative multiple choices); however, for normative samples the attained level of accuracy is about 78%, very significantly above the guessing level (Rosenthal et al., 1979). In a meta-analysis of studies in which perceivers guessed the intelligence of target persons from photographs or videotape, with accuracy being expressed as the correlation between guessed intelligence and the targets' actual intelligence, the average accuracy correlation – about .30 – was statistically significant (Zebrowitz et al., 2002). Since the correlation would be .00 if people were just guessing, this figure shows substantial accuracy above chance.

Most tests that have been validated, or at least used repeatedly, have accuracy in excess of chance because the investigator intended it to be that way. In other words, if the test in its initial versions was too difficult (for example, the test-takers were not shown a long enough video clip to glean meaningful information), the investigator might adjust the test characteristics to make it a bit easier. On the other end of the scoring distribution the same concerns hold, because a test that is too easy is not useful (i.e., cannot show much inter-individual variation).

Often, however, the investigator develops a cue set or a measurement paradigm for the explicit purpose of finding out how accurate people are, without predetermining the accuracy levels. For example, Schmid Mast and Hall (2004) assembled photographs of people of varying status in an organization and asked perceivers to guess their relative status. In that study the perceivers were very accurate, with the correlation between actual status difference and perceived status difference being .71. Sometimes the overall level of accuracy is not overwhelmingly high but is impressive because of the small amount of information displayed to perceivers. Matsumoto et al. (2000) showed people photographs of prototypical facial expressions for as briefly as a fifth of a second and found accuracy to be typically greater than 60%, when the guessing level was 50%. On the other hand, sometimes accuracy is very low. As we indicated earlier, accuracy in detecting deception is rather low, hovering not far above the 50% guessing level (Malone & DePaulo, 2001).

However, even when accuracy is low in an absolute sense, it can still exceed chance according to a significance test if the sample size is adequate. Thus the question of magnitude and the question of statistical significance are different. This is true whether the subject matter is accuracy of judging interpersonal cues or any other situation in which null-hypothesis significance testing is done (Rosenthal & Rosnow, 1991).

So in answer to the question "How accurate is 'accurate'"? we can say that a great deal of research shows that accuracy can be greater than chance even when people are exposed to only small amounts of information about the target individuals. Studies show a very wide range of accuracy in terms of magnitude, and comparing magnitude across studies can be difficult because different scoring techniques yield answers in different metrics (e.g., percentage vs. correlation). When reporting or reading about rates of accuracy, we should be careful to keep in mind that even when accuracy exceeds chance, the level of accuracy might not be very high. On the other hand, if the stimulus is impoverished enough – such as very short excerpts of facial expressions or zero-acquaintance ratings made of people you have just laid eyes on – finding any accuracy in excess of chance can be very impressive indeed.

Specific Aspects of Research on Interpersonal Sensitivity

Besides accumulating evidence for accuracy in judging others in all sorts of different domains and for all sorts of different constructs, research on interpersonal sensitivity has been refined by (1) taking an individual-differences approach and identifying characteristics of good judges (perceiver accuracy) and characteristics of easy-to-judge targets (target accuracy), (2) searching for correlates of accuracy (e.g., gender), and (3) investigating the mechanism of accurate judgements by trying to identify the cues people rely on when judging others.

Perceiver and Target Accuracy

Perceiver accuracy asks, "Who are the good judges?" Davis and Kraus (1997) looked at research on states (e.g., inferring others' emotions, thoughts or relationships) and found that perceiver accuracy was related to intellectual functioning, cognitive style (cognitive complexity, field independence, internal locus of control, and less dogmatism), positive adjustment (e.g., higher self-esteem and maturity), social sensitivity, and interpersonal orientation (e.g., interpersonal trust). In a similar vein, Rosenthal et al. (1979) report that people who score high on the PONS are more democratic and socially adjusted, and they are judged by others as being more interpersonally sensitive and more popular. Also, Vogt and Colvin (2003) found that perceivers high in communion were better judges of personality than perceivers low in communion.

Although Davis and Kraus (1997) report that cognitive ability is related to empathic accuracy, many studies suggest that intelligence is unrelated to interpersonal sensitivity. For instance, intelligence was unrelated to performance on the PONS (Rosenthal et al., 1979), the DANVA (Nowicki & Duke, 1994), judging rapport (Bernieri & Gillis, 1995) and judging intelligence (Murphy, 2003).

Comparatively less research has looked at target accuracy: Which people are more legible than others? With reference to personality, Colvin (1993) reports that people who are psychologically well-adjusted, extraverted, agreeable, conscientious and emotionally stable are easier to judge. Ambady et al. (1995) found that extraverted and more expressive targets were judged more accurately on different personality characteristics. Because perceivers base their judgements on expressed behaviour, it seems only logical that more expressive targets are more easily read. This goes hand in hand with the aforementioned finding that more observable personality characteristics (e.g., extraversion) are judged more accurately (Funder & Colvin, 1988). It follows that people possessing these characteristics are judged more accurately.

Gender

There is a wide array of explored and unexplored correlates of person-perception accuracy. For instance, people are most accurate at judging targets from their own culture (Elfenbein & Ambady, 2002; Rosenthal et al., 1979) and Gangestad, Simpson, DiGeronimo and Biek (1992) demonstrated that the relevance of the construct

to the perceiver might influence accuracy. In the present section we will focus on one of the most broadly investigated correlates of accuracy – gender.

In terms of perceiver accuracy, the nonverbal literature generally shows that women are better decoders than men (Hall, 1978, 1984, 1998) in almost all of the aforementioned domains. compared with men, women typically are better judges of others' personality traits (e.g., Ambady et al., 1995; Colvin & Bundick, 2001). However, the dimension on which a person is assessed seems to interact with perceiver gender. Ambady et al. (1995) found women to be more accurate perceivers than men for the dimensions of extraversion and positive affect, whereas no gender difference was found for conscientiousness, and men judged agreeableness marginally better than women did. Lippa and Dietz (2000) report that, although women were more accurate in judging neuroticism, no gender difference emerged in assessing extraversion and masculinity or femininity. In terms of judging intelligence, Murphy et al. (2003) showed that female judges outperformed male judges. Women also did a better job at inferring social relations (e.g., Costanzo & Archer, 1989); however, there was no gender difference in judging status (e.g., Schmid Mast & Hall, 2004; Sternberg & Smith, 1985). Women did a better job at correctly inferring others' emotions (e.g., Hall, Carter, & Horgan, 2000; McClure, 2000) and assessing others' intentions and motives (e.g., Rosenthal et al., 1979). In terms of reading others' minds, Ickes, Gesn and Graham (2000) found no overall advantage for women in empathic accuracy but found that women outperformed men if participants were required to reflect on how well they were doing on the test. For accurately recalling others' behaviours, Hall et al. (2001) found no effects of gender, but Hall, Murphy and Schmid Mast (in press) found women to be more accurate. Women were also better at recalling other people's appearance (e.g., hairstyle, clothes) than men were (Horgan et al., 2004).

In sum, women seem to be more accurate at judging others than are men (with a few exceptions, mostly showing no gender difference). This might be explained by the more pronounced interpersonal orientation of women as compared with men. Women's greater interest in and experience with others (e.g., Bakan, 1966; Bem, 1974; Deaux, 1998; Eagly, 1987) might be responsible for their better performance when it comes to judging others, regardless of the domain in which a person is judged (i.e., traits, emotions, relations, etc.). It might, however, be interesting to investigate accuracy on more male-stereotypical dimensions such as dominance, assertiveness and the like. On these, men might have an edge over women and might catch up in performance. Indeed, there is some evidence that when judging male-stereotypical dimensions the gender difference disappears. No difference in accurately assessing relative status among targets emerged in a study by Schmid Mast and Hall (2004). And Schmid Mast et al. (2003) found no gender difference in accurately judging a target's assertiveness. Future research will have to tackle the question as to whether gender stereotypicality affects women's and men's accuracy differentially.

It appears that women are also judged more accurately than men, meaning that they are more "legible." Looking at gender differences in target accuracy, the nonverbal literature suggests that women are better at conveying information than are men; they have better encoding abilities (Hall, 1978, 1984). It has to be noted, however, that there has been markedly less research on the effects on accuracy of target gender versus perceiver gender.

Whether women are more legible in terms of personality traits is a question that has hardly been explored. As examples, Ambady et al. (1995) found no gender differences in target accuracy in a study where strangers had to rate each other on various personality dimensions. Contrary to this finding, women were judged more accurately in terms of sexual orientation than men (Ambady et al., 1999). Interestingly, men were more accurately assessed in regard to intelligence as compared with females (Murphy et al., 2003). Horgan et al. (2004) found that women's appearance was recalled more accurately by both women and men. Overall, women again seem to be judged more accurately. This does not come as a surprise, because research has generally found that women are more expressive than men (Buck, 1984; Buck, Baron, & Barrette, 1982; Hall, 1984).

Mechanisms of Accurate Person Perception

Although we know that people can assess others accurately even with minimal information available, we do not know much about how people form impressions of others. Relatively scarce research has looked at which verbal and nonverbal cues are associated with expressed states and traits (cue validity), which cues people use to judge others (cue utilization), and whether the cues they use are really the ones that are diagnostic of the state or trait to be assessed (see Figure 10.1). The role of different verbal and nonverbal behaviours in cue validity and cue utilization has been investigated for traits (e.g., Ambady et al., 1995; Borkenau & Liebler, 1995; Gifford, 1994; Gifford & Hine, 1994), intelligence (e.g., Borkenau & Liebler, 1995; Murphy et al., 2003; Reynolds & Gifford, 2001), social relations such as rapport (e.g., Bernieri et al., 1996) and status (Schmid Mast & Hall, 2004), and deception (e.g., DePaulo et al., 2003). Results show that, in general, cue utilization is more pronounced than cue validity. This means that perceivers rely on more cues to assess a certain state or trait than targets use to express that specific state or trait. This is particularly noteworthy because perceivers are accurate nevertheless. Thus accuracy occurs despite using cues that are not diagnostic. The reasons for such findings are currently poorly understood. It is possible that researchers might have measured the wrong cues, meaning that perceivers used diagnostic cues but the researchers failed to measure them. Or perhaps perceivers might rely on an array of different cues and, although some cues are misused, they have little effect on overall accuracy. Perhaps accuracy would be higher if cues were not misused. Training perceivers to use the correct cues for a given judgement task is an interesting challenge for future research and could enlighten our understanding of the relation between cue validity and cue utilization.

Future Directions

We are excited about the renewed interest in interpersonal sensitivity. Understanding how and when an individual is accurate has clear implications for knowledge about social interactions and effective communication. Although researchers have accumulated a wealth of knowledge on interpersonal sensitivity, many questions

remain unanswered. It is, for instance, unclear whether the ability to accurately judge others is domain specific. Is a person who is accurate in assessing others' traits also more accurate when it comes to reading others' emotions? Or, even within a domain, is a person who is accurate at judging others' extraversion also accurate at judging others' agreeableness? In other words, we still lack a broad understanding of the interpersonal sensitivity construct (Hall & Bernieri, 2001). Evidence points to the possibility that existing sensitivity tests measure different constructs because they usually do not correlate well with each other (e.g., Colvin & Bundick, 2001; Hall, 2001). A comprehensive research program that systematically tests the interrelations among different sensitivity measures, and therefore aims at uncovering the structure of the interpersonal sensitivity construct, is one of the goals the authors and their colleagues are currently working on.

To date it is unclear whether and how motivational factors affect performance on tests of interpersonal sensitivity. Ickes et al. (2000) suggested that when women outperform men in interpersonal sensitivity, it is because they try harder, meaning they are more motivated. This assumption has not successfully been put to the test, however, and future research should try to shed light on how (if at all) motivation affects accuracy in judging others.

To be able to accurately assess others, a perceiver needs to possess cue knowledge (e.g., knowing that speaking time is an indicator of dominance). Although considerable research has looked at behavioural correlates of expressed and perceived traits and states (many using a lens model framework; see Figure 10.1), little research has examined whether people have explicit cue knowledge and whether that knowledge predicts accuracy. However, preliminary evidence does suggest that explicit cue knowledge is measurable and relates to person-perception accuracy. For example, a paper-and-pencil test designed to measure individuals' ability to identify nonverbal cues, correlated with measured intelligence, showed above-chance levels of accurate identification of those cues (Murphy, 2003), and scores on that measure were significantly positively correlated ($r = .17$, $p < .05$) with accuracy in assessing strangers' intelligence (thin slices of videotaped targets engaged in social interaction). In addition, Rosip and Hall (2004) developed a paper-and-pencil test of overall nonverbal cue knowledge, drawing the test content from a review of well-established findings. This test, called the Test of Nonverbal Cue Knowledge (TONCK), includes items on different channels of communication (face, voice, etc.) and covers a number of domains of relevance (e.g., gender differences, deception, conversational regulation, emotion, relationships). Accuracy on the TONCK is significantly above chance levels and the test correlates significantly with accuracy on the voice, face and body items of the PONS test. In addition, women score higher than men on this test of explicit knowledge of nonverbal communication. This and the Murphy (2003) findings suggest that people possess explicit knowledge of the meanings of nonverbal cues and that this knowledge seems to play a role in the ability to make accurate judgements of nonverbal cues in dynamic stimuli.

We are particularly intrigued about the latest developments that involve a social cognition approach. For instance, Ambady and Gray (2002) have explored the effects of mood on person perception. The authors posit that accuracy is an automatic process that may involve little conscious processing. Their results showed that judges in happy or neutral moods were more accurate as compared with judges in

sad moods. The authors propose that a sad mood contributes to a reflective or rumination state. Such rumination actually interferes with the judges' ability to accurately assess an individual. Similarly, research with the IPT showed that participants under high cognitive demand were more accurate than participants under low cognitive demand (Patterson & Stockbridge, 1998). Such results suggest automatic processing, since cognitive load may prevent participants from rumination or conscious processing that could interfere with the more accurate initial impression. The extent to which person-perception accuracy is automatic or conscious, or both, is yet to be known, but future research in the processing of accuracy could be informative and revealing.

Conclusions

In research on interpersonal sensitivity, we know so much and yet we know so little. The topic is so broad that researchers have accumulated considerable evidence for the existence of accuracy in person judgement for many different domains, under many different perspectives (e.g., target and perceiver accuracy). However, the study of potential correlates of interpersonal sensitivity, mechanisms of attaining accuracy and an integrative understanding of the concept of interpersonal sensitivity are only beginning to refine our picture of this fascinating area of research.

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