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Beliefs, Confidence and the Widows Ademoski: On Knowing What We Know about Others

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For Irene Ademoski, the shock of learning that her husband of ten years had been found strangled in the trunk of his car was bad enough. Worse yet, the news station had not only failed to contact her prior to broadcasting the grim story, they had even gotten the family's address wrong. When she called the station to complain, the startled manager insisted that he *had* confirmed the address – with a woman who had identified herself as John Ademoski's wife. Mutual accusations ensued, but when the dust finally settled it became clear that the real villain was the deceased: For seven years, John Ademoski had led two parallel lives, one with his first wife and the two children he had sired with her, the other with his second wife and *their* children. Neither wife suspected anything, despite the fact that each of them slept with John for many years, raised his children, and shared numerous life experiences with him.

Most of us find it easy to empathize with the surprise and consternation of the Ademoski widows, for we all have a powerful intuition that we know our relationship partners. In fact, when it comes to lovers, this feeling of mutual understanding and "knowing" is so powerful that we have invented phrases like "soul mate" and "other half" to describe relationships characterized by it.

Despite the pervasive *feeling* that we come to know one another better as relationships progress from casual to intimate, there is little evidence to suggest that this feeling is based on true gains in accuracy. For example, longitudinal studies have shown that if accuracy increases over time at all, after the initial phases of the relationship such gains are minimal (for a review, see Kenny, 1994). Furthermore, evidence from cross-sectional studies that seemingly indicate that acquaintanceship fosters accuracy (e.g. Colvin & Funder, 1991; Funder & Colvin, 1988) may in reality reflect a tendency for people to break off relationships in which inaccuracy reigns; if so, although people in older relationships may enjoy *relatively* high levels of accuracy, their perceptions may be no more accurate than they were when their relationships began. Alternatively, the inherent non-diagnosticity of the small amounts of information available in new relationships may push

accuracy *below* levels expected among unacquainted persons (Kenny, 1994); if accuracy later improves to the (quite modest) levels common among unacquainted persons, it may lead to the mistaken impression that accuracy has improved to substantial levels.

The lack of clear evidence that people's perceptions grow increasingly accurate as relationships progress is so surprising because such gains in accuracy seem self-evident to most of us. This state of affairs is also troubling, for insofar as people are blissfully unaware of the accuracy of their impressions, they may grow bullish about beliefs that ought to be treated with a grain of salt. Two studies, for example, indicate that as clinicians acquire information about clients, they believe that their impressions become progressively more accurate *even when* there is no such improvement (Oskamp, 1965; Ryback, 1967). Of course, this evidence does not establish that *everyday person perceivers* will display a similar dissociation between the confidence and accuracy of their impressions. If, for example, clinicians indicate growing confidence in their impressions over time because they sense that perceptions of their expertise are on the line, then everyday person perceivers should display no such shift because they do not feel that they are under scrutiny.

This chapter is devoted to articulating the nature and generality of such dissociations between confidence and accuracy in person perception. To this end, we have developed a conceptual model that articulates one process that may give rise to such dissociations. The concept of *representational richness* lies at the heart of this model.

Confidence, accuracy and representational richness: Investigation 1

We suggest that as people integrate information about their relationship partners into coherent impressions, their representations of those persons become "richer." One way to increase representational richness is by adding novel information. The longer we are acquainted with people, for example, the more information we gather about them and the richer our representations of them become. Representational richness will also increase as our impressions become better integrated and more coherent. As we become more deeply involved with someone, we may carefully organize and integrate what we know about them even though individual elements may be incongruous with one another (e.g. Murray & Holmes, 1993).¹ Whatever the source of increments in representational richness may be, richness will foster accessibility (Bower, 1970; Klein & Loftus, 1991; Sherman & Klein, 1994; Smith, Adams, & Schorr, 1978) and accessibility will, in turn, promote confidence (Koriat, 1993; Kelley & Lindsay, 1993; Nelson & Narens, 1990).

Although representational richness should make people more confident of their perceptions, it will not necessarily contribute to the accuracy of their perceptions. The reason is that *any* information may increase representational richness but only information that is truly diagnostic will foster

accuracy (Funder, 1995). Moreover, there is ample evidence that people use non-diagnostic information as a basis for forming impressions of others. For example, people are inclined to infer dispositions from behaviors that are, in reality, constrained by situational factors (e.g. Jones, 1979; Jones & Harris, 1967; Ross, Amabile, & Steinmetz, 1977; Snyder & Jones, 1974), attribute characteristics based on dubious "implicit theories" of personality (Dion, Berscheid, & Walster, 1972; Schneider, 1973), and fail to revise their initial opinions of others even when the evidence suggests they should (Ross, Lepper, & Hubbard, 1975). This tendency to make inferences from *non-diagnostic information* (e.g. category membership, situationally produced behavior, implicit theories of personality), in conjunction with a tendency to use such information as a basis for increasing confidence, could result in people being highly confident of beliefs that are inaccurate and misleading.

To test this conceptualization of confidence and accuracy, we have conducted a series of field and laboratory studies. The first study was an investigation of 57 heterosexual couples aged from 17 to 41 (Swann & Gill, 1997). Participants had been dating from three weeks to just over six years, with an average of one and one-half years.

We arbitrarily designated one member of each couple the perceiver and the other member the target. The task of targets was to rate themselves on a series of four questionnaires, including the Sexual History Questionnaire (SHQ; which includes 10 open-ended questions concerning the respondents' past sexual behavior), the Self-Liking/Competence Scale (SLC; a measure of global self-esteem), the Self-Attributes Questionnaire (SAQ; a measure of self-perceived intelligence, social competence, artistic/musical ability, athleticism, and physical attractiveness), and the Activity Preferences Questionnaire (APQ; a measure of enjoyment of 37 leisure activities). While targets rated themselves, perceivers guessed how targets would rate themselves and indicated their confidence that their guesses were correct. Perceivers also estimated how many "hits" they had made (i.e. the number of items on which they had exactly predicted their partner's response).

We tapped representational richness in two ways. First, we measured time in the relationship as a proxy for amount of information. Second, we measured involvement in the relationship as a proxy for motivation to integrate information.

To determine the accuracy of perceivers' knowledge of their partners, we computed separate intraclass correlations (Shrout & Fleiss, 1979) *within each target/perceiver pair* across the items of the SHQ, SLC, SAQ, and the APQ. This statistic measures the extent to which perceivers guessed the self-ratings of targets correctly. Our major prediction was that representational richness would increase confidence but not necessarily accuracy. Regression analyses confirmed that relationship length and involvement were both associated with confidence but had virtually no relation to the accuracy of perceivers' knowledge of their partners' self-ratings. These data supported

the idea that representational richness, as gauged by relationship length and involvement, fostered confidence but not accuracy.

To assess directly the relation between confidence and accuracy, we computed two separate statistics. First, we correlated measures of confidence with measures of accuracy. These correlations were tiny and non-significant for three of the four scales, although accuracy and confidence *were* related on the SLC. Second, we compared the number of times perceivers *thought* that they correctly predicted the target's response with the number of times they *actually* predicted the target's response correctly. We discovered that they consistently overestimated the frequency of accurate predictions. In fact, the magnitude of participants' overestimation was striking: perceivers overestimated their success at predicting their partners' responses by 50% on the SHQ (they predicted 6 hits out of 10 when their actual hit rate was 4), 44% on the SLC (they predicted 13 of 20 hits when the actual rate was 9), 60% on the SAQ (they predicted 8 of 15 hits when the actual rate was 5), and 91% on the APQ (they predicted 21 of 37 hits when the actual rate was 11).

In general, then, there was little evidence of close linkages between confidence and accuracy. In addition, confidence ran high while accuracy remained rather modest.

Accuracy of impressions

Although our primary concern was with the relation between confidence and accuracy, we were also interested in the *magnitude of accuracy* among our couples. Alas, one must be cautious in interpreting the magnitude of any given intraclass correlation. One problem is that intraclass correlation coefficients may represent a mixture of several different components of accuracy (e.g. Cronbach, 1955) that may be derived quite differently. For example, a high intraclass correlation may be based on veridical knowledge of the idiosyncratic qualities of a specific target person, such as when Mary correctly infers that Tom is sexually promiscuous upon observing him leer at women. Alternatively, a high correlation may be based on knowledge of the group to which the target person belongs, such as when Mary infers that Tom is promiscuous based on his membership in a fraternity. We refer loosely to this latter form of accuracy as "stereotype accuracy." To distinguish these two components, we used Corsini's (1956) pseudo-couple technique, which involves devising an index of stereotype accuracy by randomly assigning target persons to opposite-sex perceivers and recomputing all correlations. The resulting estimates of stereotype accuracy were lower than the total accuracy scores based on pairing perceivers with their actual relationship partners. Hence, perceivers' impressions represented a combination of stereotype accuracy and accuracy based on idiosyncratic experiences with the partner.²

Although it may be fair to say that most perceivers' impressions were at least somewhat accurate, the range of accuracy scores was quite large,

including a low of -0.45 and a high of 0.99 . There was no evidence for the existence of a group of "accurate perceivers" who consistently made valid inferences about their partners: those who were accurate on one questionnaire were not more likely to be accurate on the other questionnaires. Furthermore, none of the variables we thought might be associated with accuracy – including gender, target self-disclosure, and age – were in fact associated with accuracy.

An important caveat

Although our findings support the notion that representational richness increases confidence but not accuracy, the cross-sectional design we employed is open to a plausible rival hypothesis. If people who were unconfident of their beliefs tended to leave their relationships early, this "differential attrition" would result in relatively high levels of confidence among couples in older relationships – exactly what we found. From this vantage point, people who remained in their relationships might not have grown more confident over time, it was just that they were quite confident of their beliefs to begin with. To test the viability of this rival hypothesis we (Swann & Gill, 1997) conducted a companion study using a longitudinal design. Furthermore, to determine if the confidence/accuracy dissociation would generalize to a distinct group making different judgments, we had a different sample (college roommates) make judgments on a new dimension (i.e. personality traits).

Confidence and accuracy in roommate relationships: Investigation 2

Forty roommates residing in dormitories at the University of Texas at Austin participated. They ranged in age from 17 to 22, with a mean age of 18. None of the roommates knew one another before cohabiting.

During the first week of the semester, participants rated themselves and attempted to predict the self-ratings of their roommates. Participants thus played the role of both perceiver and target.³ Most of the questionnaires were slightly shortened versions of those completed by the dating couples in Investigation 1. One exception was that we replaced the SHQ with the SAQ-R, a measure that focused on 10 personality characteristics (sense of humor, extroversion, assertiveness, etc.)

In addition to predicting their roommates' self-ratings, participants reported how confident they were that their predictions were correct. To save time, confidence ratings were made once for each of the four questionnaires rather than for each item within each questionnaire. At the end of each questionnaire, participants also estimated the number of items on which they accurately predicted their roommate's response.

We collected these ratings during the first week of the semester and again six weeks later. During the second session participants also answered four questions about their level of involvement in the relationship with their

roommate (how much time they spent doing things with their roommate, how many conversations they had, how often these conversations dealt with relatively private issues, and how much they liked their roommate).

Once again, our accuracy measures comprised separate intraclass correlations computed within each target/perceiver pair across the items of the SAQ, SAQ-R, SLC, and APQ. As in the dating couples study, our major prediction was that confidence would increase as a function of representational richness (as gauged by relationship length and involvement), whereas accuracy would not.

Relation of representational richness to confidence and accuracy

As anticipated, relationship length was associated with confidence on the SAQ, the SAQ-R, and the APQ; there was also a weak trend in the predicted direction on the remaining measure, the SLC. This suggests that participants became increasingly confident that they knew their roommates as their representations became richer.

We also expected – and found – that heightened involvement in the relationship was associated with increased confidence on all four measures. Nevertheless, because perceivers made both the involvement and confidence ratings, we worried that response bias might have created an artifactual relation between involvement and confidence. To get an uncontaminated index of the relation between involvement and confidence, we correlated the confidence of perceivers with the involvement ratings of *targets*. Involvement and confidence were still related, suggesting that involvement in the relationship did indeed contribute to the confidence of perceivers.

Having established that both time and involvement were linked to confidence, we went on to ask if either was related to accuracy. For the most part, time was unrelated to accuracy, although there was a slight tendency for accuracy on the SAQ to improve over time. Similarly, there was virtually no relation between involvement and accuracy on the SAQ-R or the SLC and a slight *negative* relation between involvement and accuracy on the SAQ and the APQ. On the latter two measures, then, involvement was associated with increased confidence but *decreased* accuracy. Why? Perhaps involvement encourages perceivers to attend selectively to positive qualities of their partners (Berscheid, Graziano, Monson, & Dermer, 1976) and thus develop representations based on biased samples of information. Consistent with this idea, we found that relationship involvement correlated with the positivity of perceivers' ratings of their roommates.

Our evidence that relationship length and involvement fostered confidence but not accuracy suggests that confidence and accuracy are independent. To evaluate this possibility more directly, we calculated correlations between measures of confidence and accuracy collected both early and late in the semester. Confidence and accuracy were unrelated on the SAQ, the SAQ-R, and the APQ; confidence was associated with higher accuracy on the SLC late but not early in the semester. This replicates the pattern of correlations

we found among dating couples, demonstrating once again that people are sensitive to the accuracy of their knowledge of their partners' self-esteem but little else.

As a further index of the relation between confidence and accuracy, we compared the number of times perceivers *thought* that they correctly predicted the target's response with the number of times they *actually* correctly predicted the target's response. These analyses suggested that overconfidence was even higher than it was among dating couples: perceivers overestimated their success at predicting their roommates' responses by 144% on the SAQ, 200% on the SAQ-R, 50% on the SLC, and 100% on the APQ.

Taken together, the results of our studies of dating couples and roommates provide converging evidence that relationship length and involvement foster confidence. Furthermore, the link between time and confidence does not seem to reflect artifactual processes such as a tendency for people who are unconfident to end their relationships. Finally, the fact that relationship length and involvement were associated with increases in confidence but had little impact on accuracy supports our suggestion that confidence grows out of processes that are unrelated to accuracy.

Accuracy of perceivers' impressions

As in the study of dating couples, accuracy among roommates was moderate. Average accuracy on each of our four questionnaires ranged from 0.31 to 0.45 early in the semester and from 0.27 to 0.53 later. Although some people were quite accurate ($r = 0.99$), accuracy on a given questionnaire was unrelated to accuracy on the other questionnaires, thus undermining the idea that there were "accurate perceivers" who were consistently good at inferring their roommates' characteristics. Interestingly, the magnitude of accuracy displayed by roommates often approached the accuracy levels among our dating couples – despite the fact that couples were acquainted for an average of one and one-half years!

We performed analyses of stereotype accuracy paralleling those performed on the responses of dating couples. Total accuracy exceeded stereotype accuracy on every measure except the SLC, suggesting that there was some element of true accuracy in roommates' perceptions of one another.

Impact of amount and integration of information on confidence and accuracy: Investigation 3

As provocative as the results of the foregoing studies may be, they left several issues unresolved. Because we used proxies for representational richness (i.e. relationship length and involvement), we can only infer that richness would influence confidence if manipulated more directly. To remedy this shortcoming, in the next study we (Gill, Swann, & Silvera, 1997) independently manipulated the amount of information received by

participants as well as the manner in which they integrated information about a target person.

To manipulate amount of information, we simply varied how much information people received about targets. To manipulate information integration, we told some participants which judgments they would be making about the target. Presumably, knowing which judgments they will be required to make encourages people to integrate information they receive in judgment-relevant ways (Ostrom, Lingle, Pryor, & Geva, 1980). For example, if Joan is asked to "form an impression of the target person's suitability for graduate school," whereas Katherine is asked only to "form an impression of the target person," Joan will be more likely to form an integrated, coherent representation of the target's suitability for graduate school than Katherine. We propose that such coherent, integrated representations will foster greater confidence in judging the target's suitability for graduate school.⁴

To test these ideas, we told participants that they would be watching a videotape in which the target (an opposite-sex stranger) described him or herself. After watching the videotape, participants attempted to predict the target's responses to a sexual history questionnaire as well as a self-concept questionnaire and indicated how confident they were of their predictions.

Participants in the low-information condition listened to the target answer a few background questions only (e.g. hometown, major, career plans); those in the high-information condition listened to this background information and then heard the target describe how he/she would respond to some hypothetical situations (e.g. criticism from a significant other, an invitation to engage in an illegal prank), and reveal his/her attitudes on certain topics (e.g. welfare; the value of "home"). We selected this additional information because it seemed to provide ample fodder for personality inferences about the target.

Participants in the guided-integration condition learned that they would be asked to indicate their impression of the target person's sexual history as well as the target's self-perceived intelligence, social skill, athleticism, artistic ability, and attractiveness. Participants in the unguided-integration condition read only that they would be asked to indicate their impression of the target person.

We expected that: (a) the combination of guided integration and relatively large amounts of information would be especially likely to foster confidence and (b) accuracy would not follow the same pattern of confidence. Planned contrasts supported both of the predictions. On both the SHQ and SAQ, planned contrasts revealed that people in the high-information/guided-integration condition were more confident than the remaining three conditions combined. Accuracy did not differ by condition.

Analyzing our data using a 2 (amount of information: low, high) \times 2 (integration: unguided, guided) ANOVA sheds further light on the nature of our confidence effects. When we analyzed SAQ confidence, an interaction between amount of information and nature of integration emerged.

Whereas participants in the guided-integration condition became much more confident when they received high as compared to low information, this difference was smaller in the unguided-integration condition. Apparently, participants in the high-information, guided-integration condition used the additional information they received (i.e. the 15 items) to enrich their representations of the target person's self-concept, whereas participants in the unguided-integration condition enriched their representations of some other aspect of the target. Re-examination of participants' confidence in their sex-history predictions showed a similar, albeit weaker and non-significant, trend.

A full factorial analysis of accuracy corroborated the finding that confidence and accuracy were differentially affected by our manipulation. Examination of the accuracy of sexual-history judgments revealed that participants in the guided-integration condition were slightly *less* accurate than those in the unguided-integration condition. Conceivably, participants in the guided-integration condition based their predictions on what the target said on the videotape (which was non-diagnostic of sexual history), whereas participants in the unguided-integration condition relied on stereotypes and base rates (which may have been somewhat more diagnostic of sexual history). Overall, accuracy on the SHQ was low (average intraclass $r = 0.26$).

Accuracy scores on the SAQ also bore no relation to confidence. Accuracy was moderate (intraclass $r = 0.54$) and was not influenced by the manipulations of amount and integration of information. Somewhat surprisingly, the level of SAQ accuracy among the virtual strangers in this study was quite comparable to that among dating couples who had known one another for an average of one and one-half years.

Gender effects

Males were more confident than females in their ratings of the sexual history of targets. This could be due to a tendency for males to think about sex more than females (Leitenberg & Henning, 1995), and thus to develop relatively rich representations of others' probable or possible sexual histories. This possibility is difficult to evaluate, however, because the sex of perceivers is confounded with the sex of targets, which means that the effect may also be due to a tendency for judgments of female targets to be made more confidently than judgments of male targets. In addition, men's judgments of sexual history were more accurate than women's. This could reflect a tendency for men to be better at inferring targets' sexual histories, or for female targets to be easier to judge than male targets, or for the particular female targets used for this study to be especially easy to judge. The lack of similar gender effects in the study of dating couples favors the third possibility over the first two. In any event, this is one of the few instances in our research in which confidence and accuracy followed in a similar pattern.

In any event, there was no gender effect on confidence ratings on the SAQ, suggesting that men are not uniformly more confident than women in their interpersonal judgments. When we examined the accuracy of judgments on the SAQ we discovered that women were more accurate than men, indicating that the accuracy advantage enjoyed by men on the SHQ was not a general one.

Rival hypotheses

In designing the foregoing study, we realized that our manipulation of amount of information could cause confidence to increase due to *meta-informational cues* – cues that tell someone how informed they are (as compared to cues that contain information relevant to the impression; see Yzerbyt, Schadron, Leyens, & Rocher, 1994, for a discussion of meta-informational cues). From this vantage point, the knowledge that they had received information may have made participants *think* that they ought to be knowledgeable about the target even if they didn't attend to the information, and this belief may have convinced them to indicate relatively high levels of confidence. We included a control condition to address this meta-informational explanation of our data. In this control condition participants received a discounting cue in addition to the manipulation of high information and guided-integration: They were cautioned that the information they would receive might or might not enable them to make accurate judgments of the target. We reasoned that if participants report high levels of confidence merely because meta-informational cues suggest that they should, then this new meta-informational cue should undermine that confidence. In contrast, if participants base their confidence on the richness of their representations of targets, then the discounting cue should not influence confidence (as perceivers will still possess the information). In support of the representational richness explanation we found that the discounting cue had no effect – participants in the discounting-cue condition were just as confident as participants in the identical condition in which no discounting cue was provided. This suggests that meta-informational cues were not responsible for our findings.

We also addressed an ambiguity imposed by our methodology. Whereas in their actual social relationships people attempt to infer what others are *really like*, in our research they sought to infer how participants would answer questionnaires (thus providing a measure of "true" accuracy). To test whether or not our confidence effects would generalize to the types of judgments made in the "real world," we included two additional comparison conditions in which people rated "what the target is really like" rather than "how the target would describe him/herself on questionnaires." In one condition, the procedure was identical to that in the low-information, guided-integration condition; in the other, the procedure was identical to that in the high-information, guided-integration condition. The results

paralleled the effects in the original design: The more information participants heard, the more confident they were. Apparently, the tendency for information to foster confidence is not limited to the rather unusual behavior of estimating another person's responses on questionnaires.

The independent contributions of meta-information and representational richness: Investigation 4

Our findings offer converging evidence that information and the manner in which it is integrated can bolster confidence and that this effect is not due to nuances of our methodology or to meta-informational cues. This is not to say, however, that we believe that meta-informational cues play no role in confidence. Rather, we believe that actual information typically contains meta-informational cues (Yzerbyt et al., 1994) and that these cues, in combination with representational richness, exert independent additive effects on confidence. As such, participants receiving meta-informational cues should be more confident than participants who receive no information, and participants receiving *actual* information should be more confident than those who receive only meta-information.

To test these ideas, we (Gill et al., 1997) began by introducing male participants to a study of the impact of "auditory experiences" on impression formation. We told participants that the impressions we form can be affected by things we hear, and that the current study would involve listening to an audiotape and then predicting how a target woman would rate herself on a measure of self-concept and sexual history.

We included three conditions. In the baseline control condition, we told participants that the audiotape contained no information about the target. In the meta-information condition, we told participants that the audiotape contained information about the target when, in reality, it did not. Finally, in the actual-information condition, we correctly informed participants that the audiotape contained information about the target.

The critical manipulation in this study was the nature of the audiotape. Participants in the control condition listened to excerpts from *The prophet* by Kahlil Gibran. Participants in the meta-information condition heard a version of this same tape that was accompanied by quiet, incomprehensible male and female voices in the background. The experimenter encouraged participants to believe that these voices included excerpts from a subliminally presented interview "revealing personality and background information about the target person" and that this information would enter their mind without their awareness (Yzerbyt et al., 1994 have used this procedure effectively in a related context). Finally, participants in the actual-information condition learned that they would hear an interview containing "personality and background information about the target person." They then listened to the target discuss her personality and background. All audiotapes lasted just over three minutes.

Following the audiotapes, participants predicted the target's responses to the Sexual History Questionnaire (SHQ) and the Self-Attributes Questionnaire (SAQ). Participants also indicated how confident they were of each of their predictions. Following completion of these measures, participants completed a thought-listing task as an index of representational richness.

We expected that confidence would be highest among participants in the actual-information condition, as both meta-informational cues and representational richness should contribute to their levels of confidence. Confidence should be somewhat lower in the meta-informational condition and lowest in the no-information control condition. This is exactly what we found. For example, average confidences on the SHQ ratings were 70%, 55%, and 39% for participants in the actual-information, meta-information, and no-information conditions, respectively.

To determine if the meta-informational cue associated with real information was stronger than that associated with subliminal information, we included items asking participants to rate how helpful the auditory experience was in enabling them to form an accurate impression of the target person. Control subjects rated their auditory experience as not at all helpful, whereas participants in both the meta-information and actual information conditions indicated that the tapes were moderately helpful. The fact that participants in the meta-information and informed conditions perceived meta-informational cues as being of equal strength suggests that the difference between these two groups is not due to meta-informational differences between actual and subliminal information. Instead, the information received by participants in the actual-information condition must have produced their confidence.

We measured accuracy by computing intraclass correlations between participants' predictions of the target's questionnaire responses and the target's actual responses. On the SHQ, accuracy did not differ by condition. On the SAQ, meta-information participants were significantly less accurate than controls and informed participants, who did not differ. The fact that accuracy did not vary by condition but confidence did provide further evidence for the dissociation between confidence and accuracy.

As an index of representational richness, we had participants list "everything that comes to your mind when you think about why you rated the female volunteer's sexual history the way you did." We reasoned that participants with relatively rich, and thus accessible, representations should be able to recall more information relevant to their ratings (Bower, 1970; Klein & Loftus, 1991). Participants in the actual-information condition did indeed generate more reasons for their ratings of the target than participants in either of the other two conditions. Indeed, confidence differences between participants in the actual-information and the meta-information conditions disappeared when we covaried this measure of representational richness out of their confidence scores.

The foregoing findings show that representational richness and meta-informational cues make independent contributions to confidence.

Furthermore, the results of our thought-listing measure of representational richness corroborate our claim that relatively rich representations foster confidence.

In combination with the studies described earlier, the results of the foregoing study bolster our conviction that the effects of amount of information are not easily attributable to meta-informational cues. For example, in Investigation 4 actual information had effects on confidence above and beyond the effects of meta-information. And in Investigation 3 actual information made participants more confident even when they were cautioned about its diagnosticity. In the latter case, however, a skeptic could argue that our instructions to form an impression of the target's sexual history and self-concept implicitly suggested to participants that the information we presented to them would enable them to form an accurate impression of these characteristics. To rule out this meta-informational explanation of the results of Investigation 3, we needed a procedure that would cause subjects to integrate information around a particular personality construct without their awareness of doing so.

Unconscious manipulations of information integration: Investigation 5

Research on priming and impression formation (e.g. Bargh & Pietromonaco, 1982; Higgins, Rholes, & Jones, 1977) suggested a strategy for manipulating the nature of information integration without participants being aware of it. This research suggests that primed personality concepts guide the interpretation of behavior. If so, then priming should cause people to develop relatively rich representations of the target's standing on the primed concept. For example, after being primed with the concept "intelligence," one will (non-consciously) interpret ambiguous behaviors in terms of their relevance to intelligence. As a result, when asked about a target's intelligence, one will have an integrated, coherent judgment available in memory that will be relatively accessible and hence apt to foster confidence.

To test these ideas, a female experimenter escorted participants to a cubicle and explained that they would be participating in two separate experiments. She attributed the somewhat unusual procedure of combining experiments to the fact that each of the two experiments was quite brief – less than 15 minutes – and thus she and another experimenter had agreed to share participants who had signed up for a half-hour of experimental credit.

The experimenter then introduced the first study as "an investigation of the meaning of psychological concepts to non-psychologists." She noted that psychologists are often faulted for defining concepts in overly narrow ways. To determine if this was a problem, she was collecting a sample of definitions from non-psychologists. Later, she planned to identify themes in

these definitions and then determine the extent to which psychologists ignored these themes when defining psychological concepts. Participants in the ambition-prime condition received five minutes to define the concept of ambition, whereas participants in the intelligence-prime condition received five minutes to define the concept of intelligence. The experimenter encouraged participants to use examples, to provide multiple definitions, and to keep writing and thinking until they were asked them to stop. After five minutes of writing, the experimenter stopped participants and gave them a bogus debriefing that merely reiterated our cover story.

A second experimenter arrived and escorted participants to a large lab room on a different floor of the psychology building (the different location was designed to maximize the separateness of the "two experiments"). He introduced participants to a study of the accuracy of first impressions in which they would attempt to predict a target person's responses to some personality items after witnessing the target person describe his hypothetical reactions to situations, attitudes, and background. The personality items included artistic ability, ambition, decisiveness, sociability, liberalism, patience, and intelligence. After viewing a videotaped target and completing the personality ratings, participants received a bogus debriefing that reiterated our interest in the "accuracy of first impressions." Next, the experimenter off-handedly presented the participant with an additional questionnaire that asked whether he or she thought that the first experiment had any influence on his or her responses in the second experiment. The few people who answered "yes" were discarded before data analysis, thus ensuring that those whose responses were entered into the analysis were not conscious of any relation of the priming manipulation to the impression formation task.

We expected that the priming manipulation would encourage people to integrate information in terms of the primed concept. This should result in a relatively rich representation of the target's standing on that dimension which would, in turn, foster confident ratings on the dimension. Specifically, we predicted that participants in the ambition-prime condition would make more confident ratings of the target's ambition than of the target's intelligence, whereas participants in the intelligence-prime condition would make more confident ratings of the target's intelligence than of the target's ambition.

Just such a pattern of findings emerged. Participants in the ambition-prime condition were more confident in their ratings of the target's ambition than in their ratings of the target's intelligence, whereas participants in the intelligence-prime condition were more confident in their ratings of the target's intelligence than in their ratings of the target's ambition. Furthermore, when we averaged the confidence expressed across all traits other than ambition and intelligence, we found that confidence in the primed concept was greater than this average. Apparently, then, relatively rich representations foster confidence even when people are unaware of the processes that led to such rich representations.

Conclusions and implications

Our data suggest that the confidence of our social perceptions may be unrelated to the accuracy of those perceptions. Whether our participants judged their dating partner, their roommate, or a stranger on a videotape, their feeling that they knew the target person was largely unrelated to the accuracy of their beliefs. We attribute this dissociation to a tendency for people to rely on the richness of their representations when assessing confidence while the diagnosticity of the information on which those judgments are based determines accuracy. In support of this notion, we found that two variables that should theoretically contribute to representational richness – the amount and integration of information underlying beliefs – were indeed related to confidence even when they did not affect accuracy. Moreover, these effects occurred despite a host of variations in the manner in which we operationalized our independent and dependent variables.

Our research also suggests that two distinct forms of information can give rise to confidence. On the one hand, the more actual information we have about someone and the more we integrate that information into a coherent impression, the more confident we become (see Pelham, 1991, for a similar argument). On the other hand, information about information (i.e. meta-information) makes independent contributions to confidence (e.g. Yzerbyt et al., 1994). Disentangling these sources of confidence is often difficult because information about people almost always contains meta-information and meta-information is almost always accompanied by actual information about people. Nevertheless, the two sources of information *can* be disentangled in the laboratory. This means that future researchers should be able to pinpoint the conditions under which confidence grows out of these two distinct sources.

One possible outcome of future research designed to specify the interplay of meta-informational versus informational sources of confidence is that when motivation is low, perceivers base confidence on highly salient, meta-informational cues, but when motivation is higher perceivers base confidence on an analysis of actual information. For example, following a political speech, a disinterested person might confidently characterize a charismatic politician as a "genius" purely on the basis of the charisma conveyed by the politician (a meta-informational cue) whereas a more politically involved person might pay close attention to the politician's arguments and infer intelligence (or lack thereof) from that information. In this sense, there may be parallels between these two sources of confidence and the peripheral versus central routes to persuasion (Petty & Cacioppo, 1986). Just as relatively unmotivated people may be persuaded on the basis of peripheral cues, such as appearance, motivated people tend to travel the central route to persuasion.

When people do acquire actual information, we believe that such information gives rise to confidence by increasing representational richness and accessibility. Either conscious or unconscious mechanisms may mediate

the link between representational richness and confidence. The conscious route to confidence presumably involves basing confidence on a consciously generated list of "facts" recruited to support a judgment (e.g. Koriati, Lichtenstein, & Fischhoff, 1980), whereas the non-conscious route to confidence involves basing confidence on the accessibility of judgments per se (e.g. Kelley & Lindsay, 1993). In either case, rich representations will produce confidence because they increase the accessibility of "facts" composing a representation (Bower, 1970; Klein & Loftus, 1991), and the accessibility of abstractions (i.e. judgments) gleaned from those facts (Sherman & Klein, 1994). Methodologies are needed that can identify the mechanisms underlying confidence judgments. One possibility is a reaction time methodology that measures the response latency for judgments, the latency for the retrieval of "facts" used to support judgments, and the latency of confidence reports. If judgments and confidence are each reported faster than "facts" are recruited, this suggests that judgments and their associated confidences are not mediated by a conscious review of supporting "facts."

Whether people travel a conscious or non-conscious route to confidence may be determined by motivational factors. For example, in deciding whether a key employee deserves to be terminated, a manager might consciously consider reasons for termination before feeling confident in recommending termination. In contrast, the same manager might feel confident enough to dismiss a custodian based on the ease with which a negative judgment comes to mind. Conceivably, such distinct strategies for gauging confidence grow out of implicit theories which say that consciously reviewing evidence tends to ensure that confidence is well placed (i.e. properly calibrated).

Our evidence of dissociations between confidence and accuracy fits nicely into a growing body of literature suggesting that subjective indicators of knowing are often unreliable indicators of objective knowledge or comprehension (see Jacoby, Bjork, & Kelley, 1994, for a review). For example, people misjudge their comprehension of texts (Glenberg & Epstein, 1985), the correctness of their answers to general knowledge questions (Kelley & Lindsay, 1993), the correctness of recalled letter strings (Koriat, 1993), and the correctness of their eyewitness identifications (Wells & Murray, 1984). Reder and Ritter (1992) have even shown that familiarity with a *question* predicts people's confidence that they know the *answer* better than does familiarity with the answer. Taken as a whole, this literature suggests that what people *think* they know is not always what they *really* know.

A divergence between what we know about others and what we *think* we know may be especially problematic in the age of AIDS. Convinced that they know their partners, many people are relying on this knowledge to keep themselves from becoming infected with the HIV virus:

"When you get to know the person . . . as soon as you begin trusting the person . . . you don't really have to use a condom" . . . "I knew my partner really well before we had sex, so I didn't have to worry about her sexual history" (Williams et al., 1992, p. 926).

The problem with this strategy of AIDS prevention is that there are good reasons to believe that people may become far more confident of their beliefs than they ought to be. For example, when trying to infer whether or not someone has the HIV virus, people use non-diagnostic cues such as the extent to which people seem familiar (e.g. Swann, Silvera & Proske, 1995). In addition, people seem to be unable to recognize when potential sexual partners are lying to them about their sexual history (Swann et al., 1995). Unable to recognize the non-diagnostic character of the information they receive, people may grow increasingly confident of impressions that are terribly – and tragically – misleading.

And even if overconfidence in their impressions does not lead people to engage in behaviors that place them at risk of premature physical death, it could lead to a type of psychological death. Imagine the profound disorientation and pervasive feelings of betrayal that the Ademoski widows must have suffered when they discovered that their husband had for years maintained a separate wife and family. The psychological turmoil visited upon such victims of deception is especially devastating because they have come to trust their partners so intimately. In these and similar instances, the emotional costs of misplaced confidence may be considerable indeed.

Notes

1. We assume that people form representations of others that are parsed into somewhat separate domains, and that this parsing makes confidence somewhat domain specific. For example, we may have a rich impression of how studious a student is, yet an impoverished representation of his gregariousness. This would result in confident judgments of his studiousness, and a lack of confidence in judgments of his gregariousness. Nevertheless, to the extent that people view domains as related to one another, confidence may carry over from one domain to another.

2. We hasten to add that this technique may underestimate stereotype accuracy because the wide age range of our participants could have led them to entertain different stereotypes (if the stereotypes of 20- vs. 40-year-olds differ and a 20-year-old was randomly paired with a 40-year-old, then our estimate of stereotype accuracy would be artifactually diminished).

3. Interdependency did not affect our analyses, and thus we will not discuss it further.

4. Naturally, people can integrate information subsequent to encoding. However, we feel that such *ex post facto* integration is more effortful than on-line integration and thus would not produce confidence immediately.

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