Chapter 4

The Reciprocity of Liking Effect

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Extensive research demonstrates that receiving information that another is attracted to you is a powerful determinant of liking. Such reciprocated liking (hereafter referred to as the reciprocity effect) is generally considered to be one of the more reliable phenomena in social psychology (e.g., Sprecher 1998), one that has been demonstrated between individuals (e.g., Wilson and Henzlik 1986), including among adolescents (e.g., Clark and Drewry 1985), between groups (Burleson 1983), and even in psychiatric populations (Martindale et al. 1978). Further, a meta-analysis of various ingratiation processes found a positive, but moderate, effect of expressed liking on reciprocated attraction (Gordon 1996).

On the other hand, introspection, casual observations, and even entire research paradigms (e.g., unrequited love, Baumeister, Wotman, and Stillwell 1993) suggest that liking is not always reciprocated to an admiring other. More specifically, research suggests that liking is unlikely to be reciprocated if the expressed liking is insincere (Jones 1964), restricts our freedom (Brehm 1966), or is inappropriate (e.g., Schopler and Thompson 1968). The purpose of this chapter is to describe and evaluate a model of the reciprocity effect based on a two-dimensional model of person perception (e.g., Peeters and Czapinski 1990; Fiske et al. 2002). This model is grounded in principles of evolutionary psychology in that it locates the origins of the reciprocity effect in psychological mechanisms evolved as a solution to problems faced by ancestral humans. To this end, we outline the theoretical
TWO-DIMENSIONAL APPROACHES TO ATTRACTION

A number of two-dimensional models of person perception have been described, but these models agree that evaluations of others, as disparate and varied as they can be, originate with common fundamental assessments that humans make about others. Further, though researchers have used different labels to describe the common dimensions on which these assessments take place (e.g., competence, power, morality, warmth, etc.), the dimensions invariably describe an evaluation of a person's (a) ability to facilitate one's goals and (b) help/harm orientation. Thus the two dimensions of person perception can be simplified down to (a) ability and (b) willingness assessments. The ability assessment considers the other's capacity to satisfy/fulfill the individual's goals/interests, and the willingness assessment considers the other's intentions to satisfy/fulfill the individual's goals/interests. These two dimensions have their roots in early investigations of warm-cold versus competence-related dimensions (Asch 1946; see also Hamilton and Fallot 1974), have been confirmed using both multidimensional scaling methods (Rosenberg, Nelson, and Vivekananthan 1968; Janisies, Lydon, and Zanna 1968), and anthropological assessment (White 1980), and continue to be observed and to drive new research in different research laboratories (e.g., Reeder, Pyper, and Wojciszke 1992).

Recent work has confirmed that these two dimensions dominate one's perception of others. For example, in a study in which participants were asked to categorize traits by the degree to which they were associated with morality (willingness) and competence (ability), Wojciszke, Dowhlyuk, and Jaworski (1998) found that these two dimensions accounted for 97 percent of the variance of global evaluations. Similarly, Oosterhof and Todrov (2008), in a study of facial perception, asked participants to generate trait descriptions of emotionally neutral faces. A principal component analysis of these descriptions revealed two components: trustworthiness (which accounted for 63% of the variance), which the authors labeled “valence” (willingness), and dominance (18% of the variance), which the authors labeled “power” (ability). Similarly, Wojciszke (1994) found that over 75 percent of our experiences with others are based on morality and competency judgments, and Wojciszke, Dowhlyuk, and Jaworski (1998) discovered that morality and competence explained over 80 percent of the variance in global evaluations of others.

From this perspective, person perception flows from a two-dimensional consideration of an individual: to what extent is the individual able to meet one's needs and to what extent is the individual willing to meet one's needs? Further, this perspective posits that both assessments are critical to facilitating the survival of the individual, and thus critical to the degree of experienced attraction. As will be outlined below, we posit that the reciprocity effect operates via a simple manipulation of only one of these assessments, specifically, the willingness assessment. As a result, it is on that assessment that we focus our attention.

IMPORTANCE OF THE WILLINGNESS ASSESSMENT

The importance of an evaluation of another's intent to help/harm (i.e., the willingness assessment) is proposed to have evolved under the pressures of group living, which represented a fundamental survival strategy for ancestral humans. A group context provided mating opportunities, help with care for offspring, protection from predators (Van Schaik et al. 1983), and improved hunting efficiency (McGrew and Feistner 1992). In this way, living in the group context necessitated the exchange of benefits with others to maximize the use of available resources. However, rarely are the benefits of an exchange conferred simultaneously. Most commonly, one provides a benefit to another with the expectation that the promised reciprocated benefit will be provided in the future. One concern that then dominates such sequential exchanges is whether the promised benefit will ever be exchanged. If the other fails to provide the promised benefit, the individual has been exploited and abandoned—a situation the individual is motivated to avoid. As a result, one essential element to exchanges is trust that reciprocation will occur (Blau 1964; Kelley and Thibaut 1978).

The critical role of trust in facilitating successful social exchanges has been documented extensively. To start, it has been evidenced in different types and durations of relationships, including ad hoc exchanges (e.g., Cosmides and Tooby 1992), close relationships (e.g., Rempel, Holmes, and Zanna 1985; Rempel, Ross, and Holmes 2001), intergroup relations (Wildschut et al. 2003), and cross-cultural processes (Buchan, Croson, and Dawes 2002; Cohen, Montoya, and Insko 2006). Relatedly, humans have developed psychological processes to detect violations in a wide array of exchanges and interactions with others, including basic social exchanges (cheater detection, Cosmides and Tooby 1992; preference for predictability, Kurzban and Leary 2001; derogation of freeriders, Fehr and Gächter 2002), mate selection (jealousy, Buss et al. 2000; parental certainty, Dale 1995), and intergroup relations (outgroup distrust, Insko, Schopler, and Sedikides 1998). In this way, evaluations of trust are vital to successful exchanges with others.

Of course, emphasizing trust and detecting its violations are not sufficient to lead to effective exchanges. Such emphasis and detective ability must also translate into affective and behavioral response patterns. That is, due to the increased likelihood that a trustworthy other will uphold their side of an exchange, one should experience increased attraction for such individuals as compared to individuals one deems untrustworthy.
TRUST AND RECIPROCATED LIKING

What is the relationship between expressions of liking and evaluations of trust in the admirer? If the reciprocity effect is a function of a willingness assessment, two different empirical relations must first hold. First, expressed attraction must be a cue to willingness (i.e., lead to trust). Second, trust must lead to liking of the admirer. Importantly, research supports both contentions.

With respect to the first point, past theorizing and results have posited the link that attraction is reciprocated to the extent that the expressed attraction is meaningful of another's trust. This proposition is consistent with various theories of relationship development. Ellis (1998), for example, proposed that symbolic acts of investment (e.g., "I love you" or other expressions of attraction) convey cues to the individual's willingness to continue investing in the relationship. Similarly, the commitment model (Frank 2001) argued that cooperative systems between individuals were facilitated by having identifiable marks—such as nonverbal behaviors, blushing, or the expression of positive emotions—to help differentiate between those who would cooperate from those who were less likely. Expressed attraction, then, can be regarded as such an "identifiable mark" (see also Jones, Jones, and Gergen 1983; Nemeth 1970). Such theories are also consistent with Rempe, Ross, and Holmes's (2001) perspective that perceptions of trust are a consequence of attraction in long-term relationships.

Second, recent empirical evidence also supports the contention that expressed attraction leads to trust. Montoya and Insko (2008), for example, manipulated the presence of expressed liking to the participant, then assessed the degree of trust in the other and reciprocated attraction. The researchers found that the expression of liking increased attraction, and that trust mediated the increased attraction generated by the expression of liking.

With respect to the second point, theorizing and empirical work similarly support the idea that trust in an individual leads to liking for that individual. For instance, in a paper about how to improve rapport with clients, Nicholson, Compeau, and Sethi (2001) postulated that a customer's attraction to the salesperson resulted in trust in the salesperson because of the more favorable motives attributed to those who are trusted. Doney and Cannon (1997) found that the degree to which a person was liked was correlated positively with the degree of interpersonal trust the person expressed. Moreover, in a series of studies investigating various degrees of trust in another person and interpersonal behavior, Rotter (1980) noted a positive correlation between likability and trust. In addition, several researchers have noted that assessments of the expected positivity of the future interactions covaried with reciprocated attraction (e.g., Jones et al. 1968; Schopler and Thompson 1968; Nadler, Fisher, and Ben Izhak 1983).

Alternatively, in the laboratory context, Ayers, Nacci, and Tedeschi (1973) manipulated the perceived credibility of a confederate with whom a participant interacted in a mixed-motive game. The researchers demonstrated that, compared with participants who interacted with untrustworthy confederates, participants who interacted with trustworthy confederates gave more money and, more important, were more attracted to the confederates. It is also noteworthy that participants evaluated future interactions with the trustworthy partner as more beneficial than interactions with the untrustworthy partner, a result that confirms the link between trust and the assessment of willingness to meet one's needs. Overall, there is theoretical and empirical evidence that the reciprocity effect is a function of perceptions of willingness. Indeed, expressed attraction seems to lead to an inference of willingness and the accompanying trust in the admirer; trust, in turn, leads to attraction for the admirer.

TESTS OF THE RECIPROCITY EFFECT

To this point, we have argued that a willingness assessment is one part of a fundamental evaluation we make of others. We further have described how this willingness assessment is likely to have evolved due to the considerations of early group living and presented evidence that the reciprocity effect flows directly from this assessment of the willingness. In the following section, we review not only the research that establishes the limits of the reciprocity effect but also other attraction research that explores reciprocated attraction (i.e., the similarity effect, prifall effect, matching hypothesis), and we argue that this research establishes these limits by undercutting the inference of willingness to which another's liking naturally leads.

RESEARCH ON THE RECIPROCITY EFFECT

Ed Jones (1964), in his famous short book on ingratiation, discussed numerous limitations and facilitators of the reciprocity effect. The list included many of the most pervasive real-world concerns associated with the receipt of an expression of liking, namely, the perceived sincerity of the expressed liking, the presence of ulterior motives for the expression of the liking, and the amount of sacrifice the other has made for the admired, among others. Although some of the extant research into these phenomena does not always directly manipulate the presence of expressed attraction, the research still speaks clearly to the role of willingness to the experience of attraction to another and is thus relevant to the current model of the reciprocity effect.

Jones (1964) posited that the reciprocity effect would be more potent if an individual perceived that the other had made a costly sacrifice of his or her self-interest (e.g., Nadler, Fisher, and Streufert 1974). If another gives up a great deal to (or as a part of an) exchange with an individual, the individual is more likely to perceive that the other will act in a trustworthy fashion in the future. From an evolutionary biological perspective, perceived sacrifice operates as a cue to the other's honesty. Zahavi (1975) proposed that displays tend to be evaluated to be honest if, and
only if, they are costly to display. If a display is presented without cost, the display is unreliable because it is too easily mimicked and the chances of being cheated increase (see also Graen 1990).

As an example, Pruitt (1968) had participants interact with a confederate who had resources of either one dollar or four dollars (versus the participants' two dollars). During the exchange period, confederates gave the participants either 20 or 80 percent of their money. Participants who received 80 percent of the confederate's one dollar gave more money back to the confederate than those who received 20 percent of four dollars. Although all participants received the same amount of money, attraction was greater when the participant received 80 percent of one dollar compared to 20 percent of four dollars. Pruitt found that participants rated those confederates who gave a greater percentage of their money as more willing to provide good future outcomes; and participants were also more attracted to these confederates.

Fisher and Nadler (1976) similarly noted that attraction was greatest toward partners who offered aid when they possessed low, rather than high, resources. In this study, attraction covaried with participants' ratings of the expected positivity of the future interactions with their partner. In other words, attraction increased in so far as it indicated that the partner was perceived as willing to be a good interaction partner in the future. Those who sacrificed greatly (had low resources but who offered aid anyway) were perceived as better future partners, and thus were liked more by participants. This mediational finding, which emphasizes the importance of the willingness assessment in the reciprocity effect, has been replicated multiple times (e.g., Nadler, Fisher, and Streufert 1974).

The power of the reciprocity effect is also affected by the perceived motives of the target. Jones (1964) posited that liking is less likely to be reciprocated when there are perceived to be ulterior motives for the expression of the liking. As suggested previously, before interacting with another, individuals need to determine whether the other will exploit the interaction or will act benevolently (Loomis 1959). If the other person is judged to be motivated by liking, the individual can come to believe that the interaction will be successful, and attraction (or benefits) can be reciprocated. One problem with the receipt of liking, though, is determining the authenticity of that expression. If the other is judged as possessing alternative motives or as lacking sincerity, attraction will not be experienced despite fulfillment of the other requirements of a social exchange (e.g., positive ability assessment).

The dominant explanation in the extant literature for reduced attraction given a possible ulterior motive is psychological reactance (Brehm 1966). A classic study by Brehm and Cole (1966) demonstrated how reactance affects reciprocated liking. In their study, participants were told to form an impression of another participant. Participants in a high-importance condition were told that the study's goal was to predict the other participant's future success in life and that accuracy of one's prediction was critical. Participants in the low-importance condition were simply told that the study's goal was the completion of a student project. Next, the other participants (whose outcomes the participants thought they were predicting; actually a confederate) either brought the participant a coke (favor) or not (no favor). After the participant rated the confederate, participants were given the opportunity to help the confederate. Results revealed that compared to participants in the low-importance condition, fewer participants in the high-importance condition helped after receiving a favor. According to the reactance explanation, the favor in the high-importance condition threatened participants' freedom to evaluate the confederate accurately. Only by restoring freedom (by not reciprocating help) could the participants restore freedom and evaluate the confederate accurately.

Important for the two-dimensional approach, Worchel, Andreoli, and Archer (1976) later conducted a study to further address the causal processes associated with the reciprocation of attraction as observed in the original Brehm and Cole (1966) study. Worchel et al. (1976) replicated the Brehm and Cole procedure but also manipulated the attributions participants could make after the high-importance versus low-importance manipulations. The researchers noted that perceptions of ulterior motives were greatest in the high-importance condition, which covaried with attraction assessments. In other words, the other was liked to the extent that ulterior motives for the expression of liking could not be made.

Although we have argued that the expression of liking is an excellent indicator of trust, a better, more sincere source of information regarding trust comes from behavior, not simply words (i.e., “Actions speak louder than words”; Hardin 2002; McArthur and Baron 1983). In such a case, we would expect behavioral cues, when available, to be more influential than verbal expressions of liking.

In a laboratory investigation of the effects of favor giving and liking on compliance, D. T. Regan (1971) manipulated whether or not a confederate purchased a soft drink for the participant (favor or not) and whether or not the confederate was likable. Regan found that when a favor was present, it affected reciprocated attraction, but the likability of the confederate did not. Alternatively, when the favor was absent, likability predicted reciprocated liking and favor giving. When a favor was presented, participants used the favor, exclusively, to infer the confederate's trustworthiness and reciprocated attraction. When no favor was present, participants went by the only cue they had about the confederate's intent, his likability.

**POTENTIAL REJECTION AND THE RECIPROCITY EFFECT**

An alternative test of the reciprocity effect's link to the willingness assessment is to investigate whether people experience a reduction in attraction to those from whom they expect rejection. In the language of two-dimensional models, do individuals experience less liking toward those whom they view as low in willingness? Indeed, there are two well-known phenomena that allow for such investigation: the matching hypothesis and the prairie effect.

Despite overwhelming evidence that we are most attracted to the most physically attractive others, the matching hypothesis posits that we will end up dating
others who match our level of physical attractiveness. The tendency for individuals to mate with a partner who approximates their own physical attractiveness (Walster et al. 1966) has been documented numerous times (Cash 1981). Indeed, a meta-analysis of the matching hypothesis found a reliable correlation between the physical attractiveness of relationship partners (r = .39; Feingold 1988). According to the original explanation for this effect, a perceiver's subjective self-evaluation was critical for differentiating between realistic mate choices, which are determined by the objective desirability of the date while constrained by the perceived likelihood of attaining the date, and idealistic mate choices, which are determined solely by the objective desirability of the date. Idealistic preferences result in preferences for maximally attractive partners, whereas realistic preferences result in matching for physical attractiveness. "Realistic" individuals consider the other's physical attractiveness and the probability of acceptance and then attempt to date the most attractive other who will accept them. Thus realistic individuals, due primarily to equity and market processes, end up dating others who approximate their own physical attractiveness.

In the context of the two-dimensional model, matching is a function of the tendency for ability and willingness assessments to be inversely related: Participants regard attractive targets, either directly or by inference, as more able to meet their needs but less willing to do so (see Dion, Berscheid, and Walster 1972). Huston (1973), for example, noted that men generally estimated that the more attractive targets were less likely to accept them, but when induced to think that acceptance of the proposal was certain, men chose more attractive partners. Similarly, Montoya (2008) found that target's physical attractiveness increased, participants' expectations of rejection increased and judgments of the likelihood of a relationship occurring decreased. In this case, the matching effect seems to arise, at least partially, from the preemptive rejection (e.g., avoidance) of potential partners that individuals assume will reject them. Such prediction of a rejection is grounded in the evaluation of potential partners, typically high-quality ones, as unwilling to meet one's needs.

The argument regarding the role of willingness assessments in the matching phenomenon is further bolstered by matching studies that explore the role of self-esteem. From our perspective, self-esteem alters the way willingness information is interpreted, such that those with high self-esteem (or whose esteem has been temporarily inflated) should regard romantic targets as more willing to meet their needs than do those with low self-esteem (or those whose esteem has been temporarily deflated). Such a claim is consistent with past theorizing and empirical investigations in which self-esteem affects mate selection choices and preferences.

Subjective self-evaluations, which have been central to a diverse set of mate-preference models (e.g., Feingold 1988; Huston 1973; Kiesler and Baral 1970; Sloman and Sloman 1988; Walster et al. 1966), are hypothesized to be important because they represent one's belief that one can acquire a desired goal. In the dating realm, individuals with a poor self-evaluation regard themselves as less able and thus less likely to attract a desirable target (Levin et al. 1944). Such an approach is consistent with an evolutionary perspective, which posits that self-esteem reflects a self-evaluation of one's mate value (e.g., Dawkins 1982; Todd and Miller 1999; Wright 1994). Kirkpatrick and Ellis (2001) similarly proposed that a function of self-esteem is to facilitate approach toward others who are high in mate quality but not so high they would not reciprocate benefits (see also Kavanagh, Robins, and Ellis 2010).

Empirical evidence is consistent with such theorizing. Kiesler and Baral (1970), for example, found that men whose self-esteem had been lowered displayed more romantic approach behaviors toward a moderately physically attractive woman than toward a very attractive one. In contrast, men whose self-esteem had been raised showed the reverse pattern. Similarly, research indicates that participants with higher self-rated mate value express higher mate preferences than those with lower self-rated mate value (e.g., Pawlowski and Dunbar 1999; P. C. Regan 1998).

In their famous pretrial study, Aronson, Willerman, and Floyd (1966) found that attraction toward a competent target was greater when the target committed an embarrassing blunder than when the target did not. Helmreich, Aronson, and LeFan (1970) later reasoned that the blunder "humanized" the confederate and made him more approachable. By our reasoning of two-dimensional approaches, the blunder "humanized" the confederate by decreasing, in the participants' minds, the possibility that this confederate might evaluate them negatively (i.e., might be unwilling to meet their needs, reject them).

This reasoning is supported by multiple lines of research. To start, Morse and Gergen (1970) concluded that comparisons with another whose performance surpasses one's own reduces one's self-esteem, ostensibly because participants compared themselves unfavorably with the other. In the face of such threat to the self, self-protective motives guide decreased attraction to an exceptional individual who could evaluate the self negatively (Fromkin 1972; Sedikides 1993; Sigall and Landy 1973). As such, an exceptional blunderless confederate would represent a more damaging comparison for the participant. The participant would assume the confederate is keenly aware of and could use this as a basis for rejection. As such, the blunder's impact on attraction resulted from the real change in the nature of the self-comparison with the confederate (i.e., the comparison became less "upward" than it was before) and the resultant change in the perceived probability that the participants would be evaluated negatively by the target (see Stapel and Tesser 2001).

By this thinking, then, one's attraction to a target is influenced by the extent to which we expect the other to like us. If we expect a person to not like us (as we might expect when confronted by a flawless person), we will be less attracted to this target than to a target who is competent but less likely to reject us. In effect, the blunder increases attraction toward a competent other because it alleviates the danger of a negative evaluation to one's self-esteem. Consistent with this thinking, Herbst, Gaertner, and Insko (2003) manipulated the degree to which a target other fell short of, matched, or exceeded, one's own ideal self on a self-relevant attribute.
They found that attraction rose as the target's ability increased but that attraction fell when the target person's ability exceeded one's own ideal self. Similarly, Montoya and Horton (2004) found that when participants were not faced with the possibility of a negative evaluation from the partner (e.g., in the "minimal interaction" condition with a superior other or in an intense interaction with a poor or average partner), attraction increased as the ability assessment of the partner increased. In contrast, when a negative evaluation was made possible (e.g., by an expected intense interaction with a highly competent partner), attraction decreased. Similarly, Amabile (1983) found that although participants regarded individuals who criticized others as more intelligent, these individuals were also rated as less likeable. Each of these studies demonstrates that as a target's ability level increases, there is an increased perception that the target will not like us. Such expected rejection leads to a lack of trust in the target, which then leads to reduced liking.

**SIMILARITY EFFECT**

One of the most robust phenomena in attraction literature is the "similarity effect" (Byrne 1971): increased similarity to a target—with respect to attitudes, personality traits, or a number of other attributes—is associated with increased attraction to the target. The similarity effect has been observed in a multitude of different populations (e.g., Tan and Singh 1995) and has been observed for personality traits (e.g., Carl, Ganley, and Pierce-Otay 1991), attitudes (Bond, Byrne, and Diamond 1968), and hobbies (Jain et al., Lydon, and Zanita 1987), among other attributes (e.g., Spuhler 1968). Indeed, a meta-analysis of the similarity effect observed that similarity produces a positive, moderate effect on attraction (Montoya, Horton, and Kirchner 2008).

Although there are multiple competing explanations for the similarity effect (e.g., affective processes, Byrne 1971; cognitive evaluations, Montoya and Horton 2004), one prominent interpretation proposes that the similarity effect is mediated by the individual's belief that the similar other will accept/like the individual (Aronson and Worcel 1966; Condron and Crano 1988). One step further, Singh and colleagues have explored the influence of the trust inferred from similarity on attraction. For example, Singh et al. (2007a) argued that it was the trust "built" by the acceptance inferred from similarity that generated attraction to similar others (also see Singh et al. 2009). Indeed, other work has found that inferred attraction mediates the similarity effect and that such mediation persists even when controlling for the other assessment of the target (Singh et al. 2007b). As a further test of this interpretation, McWhirter and Jeker (1967) manipulated similarity and asked participants to estimate the degree to which they believed that the target person would like him or her. McWhirter and Jeker found that similarity led to greater expectations of acceptance and more liking for the target compared with dissimilarity. They further noted that acceptance and similarity were highly correlated (r = .87), providing additional evidence of the role of perceived acceptance in the similarity effect.

**ADDITIONAL PROCESSES**

To this point, we have argued that an assessment of a target's willingness to meet one's needs is fundamental to the reciprocity effect. That argument is grounded, at least in part, in perception literature that identifies assessments of willingness and ability as foundational to human interaction. However, there is additional evidence that points to an evolved, critical role for willingness in such interaction. First, nonhuman species display similar sensitivity to trust; and, second, humans appear to possess physiological mechanisms specialized for trust consideration.

**Cross-Species Presence of Similar Mechanisms**

The need to exchange resources with others is not a uniquely human problem. Thus other species should display the same mechanisms as humans when determining who will be a good exchange partner. For instance, it may be unsurprising that chimpanzees display abundant evidence of trust-based behaviors. Generally, chimps can recognize specific other chimpanzees (Parr 2003), can discriminate intentional from accidental intentions (Call et al. 2004), can discriminate between different partners dependent on the specific task required (Meltz, Hare, and Tomasello 2006), and will engage in altruistic behavior (Warrakzen and Tomasello 2006). More important for the current argument, chimps also understand when a distribution of resources is not equitable (Brozman, Schiff, and de Waal 2005) and determine whether they will cooperate by gauging reciprocity potential. Indeed, chimps are more inclined to share food with another chimp if that chimp had previously groomed him or her (de Waal 1997; see also Koyama, Caws, and Aureli 2006) and display direct exchange of grooming, coalitional support, and meat sharing (Mitani 2006). Additional research identifies somewhat less sophisticated reciprocity in other primates (e.g., Silk 1992) and in lower species (Wilkinson 2004).

**Physiological Processes**

If the willingness assessment is universal across species and people, an evolved adaptation, there should be physiological structures present to support such an assessment. Two structures are necessary for the link between trust and reciprocated liking: one that allows humans to determine the intent of others, and a second that facilitates the development of trust/distrust in others.

One critical localized neurological structure important for processing trust information is the superior temporal sulcus (STS). Research into the role of the STS postulates that it processes the intentions of others. More specifically, it has been linked to inferring another's intentions rather than to more general
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cognitive cues, such as precautionary reasoning (Fiddick, Spampinato, and Grafton 2005) or descriptive rule reasoning (Cancese et al. 2005). Indeed, the STS is active when people make judgments of facial emotion (Narumoto et al. 2001), trustworthiness (e.g., Winston et al. 2002), and intentions (e.g., Castelli et al. 2000). A similar wealth of studies has noted that the STS, along with its proximate neural cortices (including the medial prefrontal cortex, anterior temporal cortex, posterior temporal cortex, superior temporal gyrus, and tempo-parietal junction), is engaged by inferring another’s intentions (e.g., Apperly et al. 2004; Saxe and Kanwisher 2003).

Oxytocin is a neuropeptide hormone released by the posterior pituitary and found throughout the limbic system and brainstem. Oxytocin receptors are especially prevalent in brain regions regulating memory, reproduction, and social behavior, and thus they are important in regulating social exchanges and assessments relevant to trust (Bartz and Hollander 2006; Carter 1998). For example, oxytocin attenuates anxiety aroused by social stimuli. Relatedly, Kirsch et al. (2005) observed that an intranasal administration of oxytocin was more effective in reducing participants’ anxiety responses to social (e.g., angry faces), as compared to non-social (e.g., snakes), anxiety-producing stimuli. Similarly, Heinrichs et al. (2003) found that men who received intranasal oxytocin produced less stress hormone in response to social stressors than men who did not receive oxytocin. In general, then, oxytocin provides a physiological buffer against social anxiety.

The clearest link, though, between oxytocin and trust comes from research that investigates trust between unacquainted individuals participating in a social dilemma. Zak, Kurzban, and Matzner (2005) found that oxytocin levels increased when participants received trust signals (in the form of monetary allocations) from their opponents and that such increases predicted increased reciprocation from the participants. Similarly, Kosfeld et al. (2005) observed that individuals who inhaled oxytocin invested more money in their opponent, indicating more trust in their opponent to reciprocate later rewards. It is important to note that these findings resulted when participants interacted with another “live” partner but did not occur when participants interacted with a computer, indicating that human contact is important for the release and influence of oxytocin.

In sum, the STS and oxytocin seem to be specialized for responding to and/or regulating trust information. The presence of such mechanisms is consistent with the notion that a sensitivity to trust is an evolved component of our social wiring, wiring that we seem to share with only those species with whom we share significant evolutionary heritage.

CONCLUSION

We posited that the key determinant of reciprocated attraction derives from the fundamental evaluations we make of others. The impact of the willingness assessment on attraction can be observed not only in the basic reciprocity of liking effect but also in a broad spectrum of other attraction phenomena identified frequently in the literature, including the similarity effect, the prafall effect, and the matching hypothesis. Taken in total, the conclusions from the current research offer insights regarding the processes an individual uses to evaluate and determine his or her level of attraction to another, particularly as it relates to the expression of attraction.

REFERENCES


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