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From First Sight to Friendship:

A Longitudinal Social Relations Analysis of Stability and Change in Interpersonal Attraction

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Abstract

The present study investigated interpersonal attraction from zero to long-term acquaintance in a real-life context. A social relations approach that distinguishes between perceiver effects (e.g., being a liker), target effects (e.g., being liked), and relationship effects (e.g., unique liking) of interpersonal attraction was applied. Fifty-four psychology freshmen judged each other when they encountered one another for the first time, and again after their first year of study, using large round-robin designs (1,431 dyads). Three main groups of findings were revealed. First, variability increased on all three levels of analysis, demonstrating a higher differentiation at long-term acquaintance. Second, social relations effects at zero acquaintance predicted the respective effects at long-term acquaintance, indicating rank-order stability. Third, reciprocity, assumed reciprocity, and meta-accuracy increased substantially, reflecting higher closeness and intimacy at long-term acquaintance. Results are in line with a dynamic social relations approach to stability and change in interpersonal attraction.

Key words: interpersonal attraction, friendship, social relations analyses, zero acquaintance, relationship development

“There was a definite process by which one made people into friends, and it involved talking to them and listening to them for hours at a time.”

Rebecca West (1936, The thinking reed, p. 133)

“Friends are born, not made.”

Henry Adams (1918/2000, The education of Henry Adams: An autobiography, p. 106)

Interpersonal attraction, that is, liking others and being liked by others, is of major importance in our lives. We have a fundamental need to belong to other people (Baumeister & Leary, 1995), and most of the time, we are in the presence of others (Larson, Csikszentmihalyi, & Graef, 1982). Being liked and supported by others is crucial for the development of self-esteem (Back et al., 2009; Denissen, Penke, Schmitt, & Van Aken, 2008; Leary & Baumeister, 2000) and moreover, influences well-being, health, and longevity (Berkman, 1995; Myers & Diener, 1995). Interpersonal attraction is a basic concept at all stages of acquaintance: We feel more or less attracted to strangers we have not yet interacted with (zero acquaintance; Kenny & West, 2008) as well as to people we’ve known for longer periods of time (long-term acquaintance). But how does interpersonal attraction develop? Is it gradually evolving over the course of time or set like plaster? Here we use a real-life social relations approach to show that interpersonal attraction is a stable *and* changing phenomenon.

Gradually Evolving: A Normative Change Perspective

On the one hand, the development of interpersonal attraction is usually described as a slow process toward intimacy and closeness (Berscheid & Regan, 2005; Hays, 1988; Levinger, 1994). Most people would agree with Rebecca West’s characterization of friendship development as a process that relies on repeated and intimate communication. The dynamics of interpersonal attraction at long-term acquaintance are thus thought to differ fundamentally from those at first

sight: Whereas attraction at first sight is based on easily observable physical or nonverbal cues (Berscheid & Reis, 1998; Sabatelli & Rubin, 1986), attraction at long-term acquaintance is thought to be based on diverse mutual experiences and increasing interaction (Blieszner & Adams, 1992; Fehr, 1996), information exchange, and the careful consideration of rewards, costs, and possible alternatives to a relationship (Rusbult & Van Lange, 2003), self-disclosure and interpersonal responsiveness (Altman & Taylor, 1973; Asendorpf & Wilpers, 1998; Greene, Derlega, & Mathews, 2006), and common values, attitudes, and interests (AhYun, 2002; Duck, 1988; Newcomb, 1961).

In line with these theories, cross-sectional and longitudinal studies comparing social relationships at different stages of short-term and long-term acquaintance have found an increasing within-person and between-person consistency of interpersonal impressions and behaviors indicating increasing intimacy and balance in interpersonal relations (Berg, 1984; Hays, 1984, 1985; Heider, 1958; Kenny & Kashy, 1994; Newcomb, 1961; Planalp, 1993; VanLear & Trujillo, 1986). The role of first impressions is usually conceived of as a necessary starting point to get to know each other – a state of unrelatedness from which long-term attraction is then developed based on new and other kinds of information – leading to closer and more positive relationships. Such a *normative change perspective* on the development of interpersonal attraction is illustrated in Figure 1.

Set Like Plaster: A Differential Stability Perspective

On the other hand, first impressions are thought to be very important for subsequent social interactions. Some people – who turned out to be good friends later on – seem to have had an immediate appeal to us when we first met them, suggesting that interpersonal attraction hardly changes over time. In line with Henry Adams' quote, friendships might thus be born in the very first seconds of getting to know each other. While common sense and the majority of theories

addressing relationship development largely ignore the role of initial impressions in relationship development, experimental social psychological research claims that spontaneous judgmental snapshots can have long-lasting consequences (e.g., Ambady & Rosenthal, 1992; Asch, 1946; Jussim, 1991; Ross, Lepper, & Hubbard, 1975; Snyder, Tanke, & Berscheid, 1977). Although some authors argue that attraction and metaperceptions of attraction at first sight could have meaningful implications for relationship development in real life (e.g., Berg & Clark, 1986), this hypothesis remains untested.

As a first step toward understanding the influence of early impressions on relationship development, studies have indicated that impressions formed early in the relationship (after some kind of direct interaction) show some stability. A number of studies showed that liking ratings after a couple of weeks predict liking ratings three to six months later on (Berg, 1984; Hays, 1984, 1985; Newcomb, 1961). In a more recent study, Sunnafrank and Ramirez (2004) investigated the effect of even earlier (but still short-term acquaintance) impressions on relationship development: They were able to show that dyadic impressions following get-acquainted conversations predicted specific relationship indicators 9 weeks later.

Studies comparing zero-acquaintance judgments (no prior interaction) and relationship status at a later date are required in order to evaluate the impact of first impressions on relationship development. Such impressions at zero acquaintance might contain true evaluations of a person or of the potential relationship to that person, which may, in the context of a meaningful real-life situation, influence the relationship development with that person. As a consequence, the rank order of attraction to others at zero and long-term acquaintance should be stable. This line of reasoning can be described as a *differential stability perspective* (see Figure 2).

The present work investigates both aspects of interpersonal attraction – stability (friends are born, not made) as well as change (slowly making people into friends) – and reconciles both positions within a social relations framework. According to the Social Relations Model (Back & Kenny, in press; Kenny, 1994; Kenny & La Voie, 1984) interpersonal attraction (e.g., liking others and feeling liked) can be decomposed into three independent sources of variance (plus error): *perceiver variance* (e.g., How much do people differ in being a liker and in feeling liked?), *target variance* (e.g., How much do people differ in being liked and in being seen as a liker?) and *relationship variance* (e.g., How much is liking and feeling liked based on unique relational impressions and expectations toward specific others?) with perceiver and target variance controlled for.

A dynamic perspective that uses the social relations approach to integrate the normative change perspective as well as the differential stability perspective is depicted in Figure 3. Rather than being a question of *either* stability *or* change, the development of interpersonal attraction is described as a question of stability concerning some parameters *and* change concerning others. According to this *stability and change hypothesis*, three main features of the course of interpersonal attraction should be observable as we move from zero acquaintance to long-term acquaintance (see Figure 3).

First, as indicated by a more pronounced distance between pairs of circles at long-term acquaintance in comparison to zero acquaintance, variability of attraction to others should increase. By comparing the absolute amount of variance in different attraction components, it can be analyzed to which degree acquaintance leads to a higher differentiation of perceivers, targets, and relationships.

Second, as indicated by nonoverlapping slopes, there should be at least some stability in the rank order of attraction to others across the course of time. By using individual perceiver and

target effects as well as dyadic relationship effects of interpersonal attraction at zero acquaintance to predict the respective effects at long-term acquaintance, stability should be observable for leniency (stability of perceiver effects), popularity (stability of target effects), and unique liking toward specific others (stability of relationship effects). On the other hand, there also should be some changes in rank ordering, leading to less than perfect correlations between attraction at zero acquaintance and attraction at long-term acquaintance.

Third, as indicated by an increasing overlap of circles for each pair of circles, interpersonal attraction should change with respect to qualitative parameters like *reciprocity* (Is liking correlated with being liked?), *assumed reciprocity* (Do people think they are liked to the same extent that they like?), and *meta-accuracy* (Are people accurate in estimating how much they are liked?; Kenny, 1994) both, on an individual and dyadic level. At long-term acquaintance, these qualities of social relations should be substantially stronger when compared to zero acquaintance.

In sum, we predict stability and change in interpersonal attraction. By applying a social relations approach we analyzed these predictions across a wide range of individual and dyadic indicators. To our knowledge, this is the first study to investigate a) the stability of interpersonal attraction from zero to long-term acquaintance and b) to compare variability, reciprocities, assumed reciprocities and meta-accuracies of interpersonal attraction at first sight with those at long-term acquaintance.

Method

Participants

We assessed a group of psychology freshmen ($N = 54$) when they encountered one another for the first time¹ and again after their first year of study. Participants were 36 female and

18 male students from various places of origin in Germany. Their average age was 22.22 years ($SD = 4.57$).

Procedure

The first measurement occasion took place at the beginning of an introductory session for freshmen studying psychology.² Students received a randomly assigned seat number when entering the room and took their assigned place. They were then requested to individually step forward, beginning at the right-hand side of each row, and briefly introduce themselves. These self-introductions ranged in length from 4.00 to 21.30 s ($M = 7.51$, $SD = 3.27$). Immediately after each introduction, the other freshmen rated the person on four scales (*zero acquaintance ratings*, see below). Following the evaluation, the students in that row all moved one seat to the right, and the evaluated participant took the empty seat at the far left-hand side of the row. This procedure was repeated, row by row, until all students had been rated. One year later, we obtained attraction ratings in individual laboratory sessions (*long-term acquaintance ratings*, see below).

Dyadic Ratings

Zero acquaintance ratings. At first sight, each participant rated all other students on four rating scales ranging from 0 = *not at all* to 5 = *very much*. Two items measured *liking* (“How likeable do you find this person?”, $M = 3.18$, $SD = .94$; “Would you like to get to know this person?”, $M = 2.88$, $SD = 1.03$) and two measured *metaperceptions of liking* (“How likeable will this person find you?”, $M = 2.76$, $SD = .77$; “Will this person like to get to know you?”, $M = 2.57$, $SD = .87$; for all ratings: $Min. = 0$, $Max. = 5$). This resulted in $54 \times 53 \times 4 = 11,448$ ratings. An aggregate measure of *attraction at zero acquaintance* was obtained by combining all four kinds of ratings.

Long-term acquaintance ratings. After 1 year, each participant rated all other students on nine rating scales ranging from 0 = *not at all* to 5 = *very much*. Two items measured *liking* (“I

like this person”, $M = 2.57$, $SD = 1.39$; “This person is likeable”, $M = 2.81$, $SD = 1.42$), two measured *metaperceptions of liking* (“This person likes me”, $M = 2.44$, $SD = 1.31$; “This person thinks I am likeable”, $M = 2.63$, $SD = 1.30$), one measured the degree of *knowing* (“I know this person well”, $M = 1.79$, $SD = 1.40$), two measured *quality of communication* (“I get along with this person”, $M = 2.14$, $SD = 1.51$; “I can talk with this person”, $M = 2.04$, $SD = 1.60$), and two measured *active preference* (“I go out with this person”, $M = .56$, $SD = 1.18$; “I am friends with this person”, $M = .91$, $SD = 1.37$; for all ratings: $Min. = 0$, $Max. = 5$). This resulted in $54 \times 53 \times 9 = 25,758$ ratings. All nine kinds of ratings were moreover combined to get an aggregate measure of *attraction at long-term acquaintance*.

Statistical Procedures

Power analysis. It has been shown that the statistical power of social relations analyses depends more on the group size than on the number of groups (Lashley & Bond, 1997; Lashley & Kenny, 1998). Power analyses using AID-SRM (<http://davidkenny.net/srm/srmp.htm>) demonstrated that our large round-robin design (54×53 judgments for each indicator of interpersonal attraction) had a substantially greater statistical power than previous SRM designs and was able to detect variance estimates as small as 4% with a power greater than 99%.

Social relations analyses. Perceiver, target and relationship variances were calculated using the formulas provided by Kenny (Kenny, 1994; Kenny, Kashy, & Cook, 2006). The use of at least two independent indicators for each measure (with the exception of *knowing*) enabled us to separate stable relationship variance from error variance. The stability of perceiver and target effects on the individual level and relationship effects on the dyadic level were then analyzed by using bivariate social relations analyses (Kenny, 1994).

Next, we used social relations analyses for differentiated analyses of reciprocity, assumed reciprocity and meta-accuracy: (a) Two types of reciprocities were computed: *Generalized*

reciprocity is the degree to which perceivers who like others are liked by others. *Dyadic reciprocity* is the extent to which a person who likes a specific other person is “liked back” by that specific person. (b) Three kinds of assumed reciprocity were computed: *Perceiver assumed reciprocity* is the degree to which perceivers who like others assume that they are liked by others. *Generalized assumed reciprocity* is the extent to which targets who are liked by others are assumed to like others. *Dyadic assumed reciprocity* is the extent to which a person who likes a specific other person assumes that s/he is “liked back” by that specific person. (c) Finally, three kinds of meta-accuracy were computed: *Generalized meta-accuracy* indicates the degree to which people who think that they are liked are indeed more popular. *Perceiver meta-accuracy* indicates the extent to which people who are seen as likers actually like others more. *Dyadic meta-accuracy* is the correspondence between the extent to which Person A thinks s/he is liked by Person B and the extent to which Person B actually likes Person A.

For significance testing we applied a within-group *t* test (Bond & Lashley, 1996) as recommended for one or very few groups (Kenny, Kashy et al., 2006). A syntax package (*Triple R*, Schmukle, Schönbrodt, & Back, 2009) for round-robin analyses using the open-source software R (<http://www.r-project.org>) can be downloaded at <http://www.persoc.net> or at <http://r-project.org>.

Results

Variance Partitioning

Social relations analyses of our round-robin data indicated that all of our measures of attraction at zero acquaintance and long-term acquaintance contained significant amounts of perceiver variance, target variance, and relationship variance (see Table 1 and 2). Thus, at both time points there were significant differences between perceivers in their judgmental positivity (e.g., liking others, claiming to communicate well with others) as well as differences between

targets in their popularity (e.g., being liked by others, others claim to communicate well with one). The largest proportion of variance was relational, and thus due to idiosyncratic relational perceptions (e.g., unique impression of liking someone, unique impression of communicating well with someone). Moreover, as expected, the absolute amount of variance was higher at long-term acquaintance as compared to zero acquaintance.

Predictive Validities

In the next step, we wanted to know whether attraction was stable over time, i.e. we analyzed whether first impressions predicted attraction at long-term acquaintance. This was done for all three levels of analysis: the perceiver, the target, and the relationship. As can be seen in Table 3, perceiver effects were stable over time: People who liked their fellow students more at zero acquaintance reported higher attraction at long-term acquaintance. Even more astonishing, stability was also found on the level of the target: People who were more popular at first sight had a higher popularity after a year of mutual studies (Table 4). Finally, we analyzed whether unique relational first impressions predicted unique relational friendship intensities. This was done intrapersonally (see the first three columns of Table 5) and interpersonally (see the last three columns of Table 5). Results show that there was a significant intrapersonal stability of relationship effects: When Person A specifically liked B at zero acquaintance, Person A also tended to report a specifically high attraction to B at long-term acquaintance. Moreover, and even more interesting, relational stability was also found interpersonally: When Person A was specifically attracted towards B after the first few seconds of recognizing B, Person B tended to report a specifically high attraction to A after 1 year.

Reciprocity

We next analyzed whether interpersonal attraction was reciprocal at zero acquaintance and long-term acquaintance (see Table 6). At first sight, there was no reciprocity at the individual

level (generalized reciprocity): People who liked others were not significantly more liked.

However, this changed over the course of time: After a year of mutual studies, likers were liked more. The same pattern of results was revealed for metaperceptions (see Table 6). Generalized reciprocities at long-term acquaintance for the additional indicators of interpersonal attraction were $r = .11$, *ns*, for knowing, $r = .38$, $p < .01$, for communication, and $r = .56$, $p < .01$, for active preference. Attraction at first sight was slightly reciprocal at the dyadic level (dyadic reciprocity): Liking a specific unknown person was correlated with being liked by that person, and assuming that one was liked by a specific unknown person was correlated with that other person assuming that s/he was liked by you. Dyadic reciprocity for liking and metaperceptions was, however, remarkably stronger at long-term acquaintance. Similarly large dyadic reciprocities were observed for the other indicators of interpersonal attraction at long-term acquaintance: knowing ($r = .69$, $p < .001$), communication ($r = .72$, $p < .001$), and active preference ($r = .88$, $p < .001$). In sum, the reciprocity of interpersonal attraction increased dramatically from zero acquaintance to long-term acquaintance (see last row of Table 6).

Assumed Reciprocity

How much reciprocity did people expect? As can be seen in the first two columns of Table 7, assumed reciprocities were generally significant and high at zero acquaintance. Students who were more popular were seen as likers (generalized assumed reciprocity), and students who generally liked others more felt more liked themselves (perceiver assumed reciprocity).

Moreover, from the beginning and throughout the rest of the study, students felt specifically liked by persons whom they specifically liked (dyadic assumed reciprocity). At long-term acquaintance these values proved to be even higher.

Meta-Accuracy

Finally, we examined the accuracy of metaperceptions of attraction (see the last two columns of Table 7). At first sight there was no generalized meta-accuracy: People who felt more liked by their peers were not liked more. In contrast, at long-term acquaintance people were able to estimate their general popularity. The same pattern of results emerged for perceiver meta-accuracy. People who were seen as likers at zero acquaintance actually did not like others more. Again, accuracy was substantially stronger at long-term acquaintance: After 1 year of mutual studies, students were able to estimate who was a liker and who generally disliked others. Interestingly, a significant, albeit small, dyadic meta-accuracy was found at zero acquaintance: Within the very first seconds of getting to know each other, people were somewhat sensitive to who specifically liked them and who did not. What is even more important, this ability increased impressively over the course of time.

Discussion

In this study, we investigated interpersonal attraction at zero and long-term acquaintance within a meaningful real-life context. In line with a dynamic perspective on the development of social relationships (see Figure 3), three main groups of findings were revealed. First, variability of attraction to others increased: As time went by, all three sources of variance became more important: (a) perceivers differed more with respect to their judgmental harshness, (b) popularity differences of targets were more pronounced, and (c) the idiosyncrasy of attraction to specific others increased (all results indicated in Figure 3 by an increasing distance between pairs of circles from zero to long-term acquaintance).

Second, there was stability in the rank order of attraction to others throughout the course of time: (a) Lenient perceivers at zero acquaintance liked others more at long-term acquaintance, (b) popular persons at first sight were also more popular in the long run, and (c) idiosyncratically liking a specific other person at first sight predicted specifically liking this person and

specifically being liked by this person at long-term acquaintance (all results indicated by nonoverlapping slopes in Figure 3). Stability coefficients on the individual level exceeded .40. We regard these numbers as impressive, in light of the fact that these are correlations between interpersonal perception components measured at first sight and again 1 year later within a dynamic social environment. Predictive validities were smaller for impressions of specific others. Dyadic stabilities were nevertheless highly significant, were found consistently across all indicators of interpersonal attraction and were revealed intrapersonally as well as interpersonally. These impressive stabilities of first evaluative judgmental snapshots are in line with recent accuracy research that shows that first impressions regularly contain true evaluations of the persons being judged (Borkenau, Brecke, Möttig, & Paelecke, 2009; Gosling, 2008; Kenny, Kieffer, Smith, Ceplenski, & Kulo, 1996; Kenny, West, Cillesen, Coie, Dodge, Hubbard, & Schwartz, 2007; Mehl, Gosling, & Pennebaker, 2006; Naumann, Vazire, Rentfrow, & Gosling, 2009).

Third, interpersonal attraction changed with respect to several interesting qualitative relationship parameters: With increasing acquaintance, liking was more strongly connected to being liked (reciprocity) and assuming that one was liked (assumed reciprocity), and people were more accurate in estimating how much they were liked and who was a liker (meta-accuracy). This was true at both the individual and dyadic level (all results indicated by an increasing overlap of circles for each pair of circles in Figure 3). These results are well in line with prior social relations research that investigated some of the parameters at short-term or longer-term acquaintance (DePaulo, Kenny, Hoover, Webb, & Oliver, 1987; Kenny, 1994; Levesque, 1997; Malloy & Albright, 1990; Park & Flink, 1989). By examining attraction over a long period of time (zero to long-term acquaintance) and using a powerful round robin design we were able to

give an extensive and differentiated insight into how qualitative parameter of interpersonal attraction change from zero to long-term acquaintance.

Future research should aim to (a) examine the stability and change of interpersonal attraction in different realistic social contexts, (b) include various repeated measurements of interpersonal judgments to allow more fine-grained analyses of the developmental course of interpersonal attraction, and (c) include direct behavioral measures of all the social partners involved as mediators of the developmental course of interpersonal attraction.

Conclusions

In line with a dynamic social relations perspective on the development of interpersonal attraction, the present study showed that interpersonal attraction is stable *and* changes over the course of time, reconciling theory and prior research that concentrated on either stability or change in relationship development. Our findings thus suggest that Henry Adams and Rebecca West were both correct in characterizing the nature of friendships: Friends are born and slowly made. From this perspective, another famous saying by George Washington seems to be a very adequate description of the development of interpersonal relationships: "Friendship is a plant of slow growth" (1745-1799/1931-44, pp. 39-40). The positivity of interpersonal relationships (the height of the plant) is to a certain degree determined by the first encounter (the seed). However, with increasing acquaintance, the positivity of interpersonal relationships becomes more diverse (height differences increase between plants) and interpersonal relationships increase in quality (plants increase in beauty). We hope that our study will stimulate future research that will lead to a more complete understanding of the processes involved in the determination and growth of this fascinating plant called interpersonal attraction.

Footnotes

¹ Out of the total sum of 1431 dyads ($54 * 53 / 2$), only 6 indicated prior acquaintance.

Treating the ratings of these dyads as missing data did not change results in any significant way.

² The analyses reported in this study are based on data that were collected in the “Mainz Freshman Study” (MFS). This is the fourth article to come out of the extensive MFS data set, and the analyses do not overlap with the previous projects, which focused on a combination of the lens model and the social relations model (Back, Schmukle, & Egloff, in press), the effect of seat assignment on friendship development (Back, Schmukle, & Egloff, 2008), and the popularity of narcissists at zero acquaintance (Back, Schmukle, & Egloff, 2010).

References

- AhYun, K. (2002). Similarity and attraction. In M. Allen, R. W. Preiss, B. M. Gayle & N. A. Burrell (Eds.), *Interpersonal communication research* (pp. 145-167). Mahwah, NJ: Erlbaum.
- Adams, H. (2000). *The education of Henry Adams: An autobiography*. New York: Houghton Mifflin Harcourt. (Original work published 1918).
- Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. New York: Holt, Rinehart, and Winston.
- Ambady, N., & Rosenthal, R. (1992). Thin slices of expressive behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, 111, 256-274.
- Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology*, 41, 258-290.
- Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology*, 74, 1531-1544.
- Back, M. D. & Kenny, D. A. (in press). The Social Relations Model: How to understand dyadic processes. *Social and Personality Psychology Compass*.
- Back, M. D., Krause, S., Hirschmüller, S., Stopfer, J. M., Egloff, B., & Schmukle, S. C. (2009). Unraveling the three faces of self-esteem: A new information-processing sociometer perspective. *Journal of Research in Personality*, 43, 933-937.
- Back, M. D., Schmukle, S. C., & Egloff, B. (2008). Becoming friends by chance. *Psychological Science*, 19, 439-440.
- Back, M. D., Schmukle, S. C., & Egloff, B. (2010). Why are narcissists so charming at first sight? Decoding the narcissism-popularity link at zero acquaintance. *Journal of Personality and Social Psychology*, 98, 132-145.

- Back, M. D., Schmukle, S. C., & Egloff, B. (in press). A closer look at first sight: Social relations lens model analyses of personality and interpersonal attraction at zero acquaintance. *European Journal of Personality*.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Berg, J. H. (1984). Development of friendship between roommates. *Journals of Personality and Social Psychology*, 46, 346-356.
- Berg, J. H., & Clark, M. S. (1986). Differences in social exchange between intimate and other relationships: Gradually evolving or quickly apparent? In V. J. Derlega & B. A. Winsted (Eds.), *Friendship and social interaction* (pp. 101-128). New York: Springer.
- Berkman, L. F. (1995). The role of social relations in health promotion. *Psychosomatic Medicine*, 57, 245-254.
- Berscheid, E., & Regan, P. (2005). *The psychology of interpersonal relationships*. Upper Saddle River, NJ: Pearson Education.
- Berscheid, E., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert, S. T. Fiske & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 193-281). New York: McGraw-Hill.
- Blieszner, R., & Adams, R. G. (1992). *Adult friendship*. Newbury Park, CA: Sage.
- Bond, C. F., Jr., & Lashley, B. R. (1996). Round-robin analyses of social interactions: Exact and estimated standard errors. *Psychometrika*, 61, 303-311.
- Borkenau, P., Brecke, S., Möttig, C., & Paelecke, M. (2009). Extraversion is accurately perceived after a 50-ms exposure to a face. *Journal of Research in Personality*, 43, 702-705.

- Denissen, J. J. A., Penke, L., Schmitt, D. P., & Van Aken, M. A. G. (2008). Self-esteem reactions to social interactions: Evidence for sociometer mechanisms across days, people, and nations. *Journal of Personality and Social Psychology*, 95, 181-196.
- DePaulo, B. M., Kenny, D. A., Hoover, C., Webb, W., & Oliver, P. V. (1987). Accuracy of person perception: Do people know what kind of impressions they convey? *Journal of Personality and Social Psychology*, 52, 303-315.
- Duck, S. (1988). *Relating to others*. Milton Keynes, UK: Open University Press.
- Fehr, B. (1996). *Friendship processes*. Thousand Oaks, CA: Sage.
- Gosling, S. D. (2008). *Snoop: What your stuff says about you*. New York: Basic Books.
- Greene, K., Derlega, V. J., & Mathews, A. (2006). Self-disclosure in personal relationships. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 409-427). New York: Cambridge University Press.
- Hays, R. B. (1984). The development and maintenance of friendship. *Journal of Social and Personal Relationships*, 1, 75-98.
- Hays, R. B. (1985). A longitudinal study of friendship development. *Journal of Personality and Social Psychology*, 48, 909-924.
- Hays, R. B. (1988). Friendship. In S. Duck (Ed.), *Handbook of personal relationships: Theory, research, and interventions* (pp. 391-408). Chichester, UK: Wiley.
- Heider, F. (1958). *The psychology of interpersonal relations*. Hillsdale, NJ: Erlbaum.
- Jussim, L. (1991). Social perception and social reality: A reflection-construction model. *Psychological Review*, 98, 54-73.
- Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York: Guilford Press.

- Kenny, D. A., & Kashy, D. A. (1994). Enhanced coorientation in the perception of friends: A social relations analysis. *Journal of Personality and Social Psychology*, 67, 1024-1033.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York: Guilford.
- Kenny, D. A., Kieffer, S. C., Smith, J. A., Ceplenski, P., & Kulo, J. (1996). Circumscribed accuracy among well-acquainted individuals. *Journal of Experimental Social Psychology*, 32, 1-12.
- Kenny, D. A., & La Voie, L. (1984). The social relations model. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 18, pp. 142-182). Orlando, FL: Academic Press.
- Kenny, D. A., & West, T. V. (2008). Zero acquaintance: Definitions, statistical model, findings, and process. In N. Ambady & J. J. Skowronski (Eds.), *First impressions*. New York: Guilford
- Kenny, D. A., West, T. V., Cillessen, A. H. N., Coie, J. D., Hubbard, J. A., & Schwartz, D. (2007). Accuracy in judgments of aggressiveness. *Personality and Social Psychology Bulletin*, 33, 1225-1236.
- Larson, R., Csikszentmihalyi, M., & Graef, R. (1982). Time alone in daily experience: Loneliness or renewal? In L. A. P. D. Perlman (Ed.), *Loneliness: A sourcebook of current theory, research, and therapy* (pp. 40-53). New York: Wiley Interscience.
- Lashley, B. R., & Bond, C. F., Jr. (1997). Significance testing for round robin data. *Psychological Methods*, 2, 278-291.
- Lashley, B. R., & Kenny, D. A. (1998). Power estimation in social relations analyses. *Psychological Methods*, 3, 328-338.
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, 32, 1-62.

- Levesque, M. J. (1997). Meta-accuracy among acquainted individuals: A social relations analysis of interpersonal perception and metaperception. *Journal of Personality and Social Psychology*, 72, 66-74.
- Levinger, G. (1994). Figure versus ground: Micro- and macroperspectives on the social psychology of personal relationships. In R. Erber & R. Gilmour (Eds.), *Theoretical frameworks for personal relationships* (pp. 1-28). Hillsdale, NJ: Erlbaum.
- Malloy, T. E., & Albright, L. (1990). Interpersonal perception in a social context. *Journal of Personality and Social Psychology*, 58, 419-428.
- Mehl, M. R., Gosling, S. D., & Pennebaker, J. W. (2006). Personality in its natural habitat: Manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology*, 90, 862-877.
- Myers, D. G., & Diener, E. (1995). Who's happy. *Psychological Science*, 6, 10-19.
- Naumann, L. P., Vazire, S., Rentfrow, P. J., & Gosling, S. D. (2009). Personality judgments based on physical appearance. *Personality and Social Psychology Bulletin*, 35, 1661-1671.
- Newcomb, T. M. (1961). *The acquaintance process*. New York: Holt, Rinehart, and Winston.
- Park, B., & Flink, C. (1989). A social relations analysis of agreement in liking judgments. *Journal of Personality and Social Psychology*, 56, 506-518.
- Planalp, S. (1993). Friends' and acquaintances' conversations II: Coded differences. *Journal of Social and Personal Relationships*, 10, 339-354.
- Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and social perception: Biased attribution processes in the debriefing paradigm. *Journal of Personality and Social Psychology*, 32, 880-892.

- Rusbult, C. E., & Van Lange, P. A. M. (2003). Interdependence, interaction, and relationships. *Annual Review of Psychology, 54*, 351-375.
- Sabatelli, R., & Rubin, M. (1986). Nonverbal expressiveness and physical attractiveness as mediators of interpersonal perceptions. *Journal of Nonverbal Behavior, 10*, 120-133.
- Schmukle, S. C., Schönbrodt, F. D., & Back, M. D. (2009). *Triple R: A package for round robin analyses using R (Version 0.1)*. Freely available via <http://www.persoc.net> and <http://www.r-project.org>.
- Snyder, M., Tanke, E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology, 35*, 656-666.
- Sunnafrank, M., & Ramirez, A., Jr. (2004). At first sight: Persistent relational effects of get-acquainted conversations. *Journal of Social and Personal Relationships, 21*, 361-379.
- VanLear, C. A., Jr., & Trujillo, N. (1986). On becoming acquainted: A longitudinal study of social judgement processes. *Journal of Social and Personal Relationships, 3*, 375-392.
- Washington, G. (1745-1799). To Bushrod Washington. In J. C. Fitzpatrick (1931-44). *The writings of George Washington from the original manuscript sources* (Vol. 26, pp. 39-40). Washington: U.S. Government Print Office.
- West, R. (1936). *The thinking reed*. New York: Viking.

Table 1

Absolute Variance Components of Interpersonal Attraction at Zero Acquaintance

Variance component	Liking	Metaperception	Zero aggregate
Perceiver (assimilation)	.16***	.15**	.13***
Target (consensus)	.11***	.03***	.06***
Relationship (uniqueness)	.51***	.36***	.39***
Error	.21	.15	.07

*** $p < .001$.

Table 2

Absolute Variance Components of Interpersonal Attraction at Long-Term Acquaintance

Variance component	Liking	Meta-perception	Knowing	Communication	Active preference	Long-term aggregate
Perceiver (assimilation)	.33***	.37***	.49***	.39***	.18***	.23***
Target (consensus)	.21***	.12***	.14***	.21***	.06***	.13***
Relationship (uniqueness)	1.18***	1.01***	1.35***	1.62***	1.16***	1.08***
Error	.28	.22		.19	.26	.09

*** $p < .001$.

Table 3

Stability of Perceiver Effects of Interpersonal Attraction

Perceiver effects of attraction at long-term acquaintance	Perceiver effects of attraction at zero acquaintance		
	Liking	Metaperception	Zero aggregate
Liking	.41*	.21	.35*
Metaperception	.27 ⁺	.36*	.36*
Knowing	.42*	.29 ⁺	.40*
Communication	.38*	.42*	.44**
Active preference	.21	.32 ⁺	.28 ⁺
Long-term aggregate	.39*	.38*	.44**

⁺ $p < .10$. * $p < .05$. ** $p < .01$.

Table 4

Stability of Target Effects of Interpersonal Attraction

Target effects of attraction at long-term acquaintance	Target effects of attraction at zero acquaintance		
	Liking	Metaperception	Zero aggregate
Liking	.42*	.41*	.43*
Metaperception	.28 ⁺	.30 ⁺	.29 ⁺
Knowing	.47**	.44*	.47**
Communication	.43*	.42*	.43*
Active preference	.37*	.39*	.39*
Long-term aggregate	.42*	.41*	.42*

⁺ $p < .10$. * $p < .05$. ** $p < .01$.

Table 5

Stability of Relationship Effects of Interpersonal Attraction

Relationship effects of attraction at long- term acquaintance	Relationship effects of attraction at zero acquaintance					
	intrapersonal			interpersonal		
	Liking	Meta- perception	Zero aggregate	Liking	Meta- perception	Zero aggregate
Liking	.23***	.20***	.23***	.18***	.17***	.18***
Metaperception	.22***	.23***	.23***	.19***	.17***	.20***
Knowing	.20***	.19***	.21***	.19***	.17***	.19***
Communication	.21***	.19***	.21***	.19***	.18***	.19***
Active preference	.16***	.15***	.16***	.17***	.15***	.17***
Long-term aggregate	.22***	.20***	.23***	.20***	.19***	.20***

*** $p < .001$.

Table 6

Reciprocity of Interpersonal Attraction at Zero Acquaintance and Long-Term Acquaintance

	Generalized reciprocity		Dyadic reciprocity	
	Zero acquaintance	Long-term acquaintance	Zero acquaintance	Long-term acquaintance
Liking	.09	.33*	.16***	.62***
Metaperception	.00	.50**	.20***	.74***
Aggregate	.07	.48**	.20***	.81***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

Assumed Reciprocity and Meta-Accuracy of Interpersonal Attraction at Zero Acquaintance and Long-Term Acquaintance

	Assumed reciprocity		Meta-accuracy	
	Zero acquaintance	Long-term acquaintance	Zero acquaintance	Long-term acquaintance
Generalized	.92***	.93***	.03	.36*
Perceiver	.55***	.88***	.12	.48**
Dyadic	.75***	.86***	.17***	.68***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure Captions

Figure 1. A normative change perspective on the development of interpersonal attraction. Each pair of circles represents a dyad at a given time point. The overlap of circles indicates varying degrees of intersection and intimacy.

Figure 2. A differential stability perspective on the development of interpersonal attraction. Each circle represents attraction to a specific target person at a given time point. The lines connect identical target persons.

Figure 3. A dynamic social relations perspective on the development of interpersonal attraction. At the dyadic level, each pair of circles represents a combination of two relational perceptions in a specific dyad (relationship effects) at a given time point. The lines connect identical dyads. Qualitative parameters of interpersonal attraction at the dyadic level are represented by the overlap of circles. These dyadic qualities pertain to agreement between liking a specific other person and specifically being liked by this person (dyadic reciprocity), liking a specific other person and feeling liked by this person (dyadic assumed reciprocity), and feeling liked by a specific other person and being liked by this person (dyadic meta-accuracy). At the individual level, each pair of circles represents a combination of two individual interpersonal attraction effects (perceiver or target effects) at a given time point. The lines connect identical individuals. Individual qualities of interpersonal attraction are represented by the overlap of circles. They pertain to agreement between liking others and being liked by others, and between feeling liked and being seen as a liker, respectively (generalized reciprocity), between liking others and feeling liked by others (perceiver assumed reciprocity), being liked and being seen as a liker (generalized

assumed reciprocity), feeling liked and being liked (generalized meta-accuracy), and between being seen as a liker and liking others (perceiver meta-accuracy).

Figure 1.

Figure 2.

Figure 3.