Positive Affectivity and Accuracy in Social Network Perception

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We investigated how positive affectivity influences people's perception of the pat terns of social relationships around them. Positive affectivity was measured as trait positive affect. The outcome variable was accuracy in the perception of informal patterns of social interaction in a group (i.e., the group's network structure). Data on the perception of the relationships of *friendship and work-related advice at an Italian university were collected from 24 members. Positive affectivity improved the accuracy of people's perception of the friendship network linking all respondents to each other (global accuracy), but hindered the accuracy of the perception of one's personal advice ties (local accuracy). These results suggest that, although happy people may feed unrealistic images of their personal social connections, their superior ability to develop an accurate picture of the broader dynamics of social interaction among people around them may give them all important advantage for social and professional accomplishment in a given social setting.*

The relationship between social structure (defined as the stable patterns of social interaction in a group), and attitudes and behaviors of social actors has been the theoretical and empirical object of a large amount of research in structural sociology and social network analysis (e.g., Burt, 1987; Leinhardt, 1977; Wasserman & Galaskiewicz, 1994; Wellman & Berkowitz, 1988). Recent work in social network analysis has advanced this line of research by underscoring the role of cognition, as opposed to mere structure, in social action. According to this cognitive-structural perspective, a social actor's *perception* of the patterns of interaction in a given context has consequences for social attitudes and action above and beyond the social

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structural *reality* in which social actors are embedded (e.g., Kilduff & Krackhardt, 1994).

One of the most interesting aspects of the development of the cognitive structural perspective regards a social actor's *accuracy* in perceiving the informal patterns of interaction of their social groups (i.e., a group's network structure). Krackhardt (1990) has shown that the ability of organizational participants to perceive accurately the informal network of advice in their work organization is positively related to their individual power. Morris (1997) has supported the claim that a manager's accurate perception of a firm's communication network is positively related to his or her reputational effectiveness as a leader of the organization. Given the relevance of accuracy in social network perception for individual and organizational outcomes, a few studies have set out to identify the determinants of accuracy in social network perception (Bondonio, 1998; Casciaro, 1998). These studies, however, have ignored affective variables as potential determinants of accuracy in social network perception.

In fact, the concept that emotions, cognition, and social action are linked pervades sociological thinking (e.g., Cooley, 1902; Heise, 1979, 1987; Hochschild, 1983; Homans, 1961; Scheff, 1990; Thibaut & Kelley, 1959; and, for a review, see Howard & Callero, 1991). However, when affect is conceptualized as a *precedent* of cognitive processes-and not as reactions to be controlled (e.g., Hochshild, 1983; Smith & Kleinman, 1989) or as means to produce or sustain normative behavior or social cohesion (Scheff, 1990; Shott, 1979)-the psychological literature offers more solid theoretical and empirical bases for understanding the relationship between people's emotions and their perception of their social environment (see Fiske & Taylor, 1991). In this study, therefore, we built on this literature to develop hypotheses regarding the relationship between positive affectivity and the perception of the patterns of interaction in a social group. Hypotheses were tested based on social network data collected at an Italian university. Both networks of friendship and work-related advice relationships were studied. The cognitive reaction of interest was individual accuracy in the perception of one's social networks. The affective antecedent of interest was trait positive affect.

ACCURACY IN SOCIAL NETWORK PERCEPTION

Accuracy in social network perception is broadly defined as the degree of similarity between an individual's perception of the structure of informal relationships in a given social context and the actual structure of those relationships. The stable, long-term nature of the patterns of social relationships that link people in a given context implies that accuracy in social network perception develops over time (Freeman, Romney, & Freeman, 1987). For this reason, our study was undertaken in a natural setting, where people had the opportunity to observe long-term patterns of interaction that could not be artificially induced in a laboratory setting.

Social network research on interpersonal perception accuracy has traditionally focused on accuracy in self-perception. In an important series of studies, Bernard, Killworth, and Sailer have investigated people's accuracy in reporting their own communications and social interactions (e.g., Bernard, Killworth, & Sailer, 1980, 1982; Killworth & Bernard, 1976). Only a few network studies have focused on people's accuracy in perceiving the stable patterns of informal social interaction among *others* in a group (Freeman, Freeman, & Michaelson, 1988; Krackhardt, 1987, 1990). In this study, the social space being perceived by respondents includes both patterns of interactions, those including the respondents personally, and patterns of interaction in which the respondents are merely observers instead of participants. Indeed, the accuracy of perceptions of social interaction has been shown to vary depending on the perceiver's personal involvement in a given social relationship, with accuracy improving the closer the perceiver is to the observed relationship (Bondonio, 1998). Moreover, we will argue that there are systematic cognitive differences between the perception of one's own social relationships and the perception of relationships between others in a group, and that these differences have distinct implications for individual outcomes in a social group. Accuracy in network perception, therefore, may be better understood in terms of one's ability to perceive accurately different network subsets, than in terms of an individual's ability to perceive the entire, undifferentiated structure of the network. For these reasons, in this paper a distinction was drawn between *local* and *global* accuracy. Local accuracy refers to the perception of a person's direct relationships to others in a social context; global accuracy refers to the perception of the complete set of social relationships linking all members of a social network.

POSITIVE AFFECTIVITY

The psychological literature on affective influences on cognition has amply demonstrated the power of relatively minor positive mood manipulations to influence a variety of cognitive reactions such as memory (for reviews, see Blaney, 1986; Isen, 1987), judgment (e.g., Clark, Milberg, & Erber, 1988; Isen, 1984, 1987; Mayer & Volanth, 1985), and decision-making style (for reviews, Fiedler, 1988; Isen, 1987, 1993). The affective variables that constitute the potential object of this literature cover a wide range of positive *and* negative preferences, evaluations, moods, and emotions. Because positive emotions (conceptualized as both moods and traits) have been the object of a considerably richer strain of investigation than negative emotions (see, Fiske & Taylor, 1991), in this study we chose to study accuracy in social network perception in the context of positive affectivity.

Watson and his colleagues (Watson, 1988; Watson & Clark, 1997; Watson & Tellegen, 1985) have typically characterized Positive Affectivity as "one's level of pleasurable engagement with the environment" (Watson, 1988, 128). People with high Positive Affectivity are happy, enthusiastic, have a cheerful disposition,

feel good about themselves, and lead an active, exciting life. People with low Positive Affectivity, on the contrary, are typically sad, depressed, and lethargic (Staw & Barsade, 1993; Watson, 1988). Similarly, Russell and his colleagues (Russell, 1980; Russell & Feldman Barrett, 1999) have conceptualized Happiness and Sadness/Depression as diametrically opposite manifestations of core affect.

Recently, this characterization of Positive Affectivity (PA) has been challenged by Watson, Wiese, Vaidya, and Tellegen (1999), who have suggested that sadness and depression might more closely (but not exclusively) relate to a Negative Affectivity (NA) super-factor. Even according to this characterization, however, Watson *et al.* (1999) themselves have pointed out that the NA and PA super-factors are not entirely independent of one another, and empirically supported the prediction that intense levels of negative affectivity are associated with low levels of positive affectivity. In their attempt to clarify the relationship between positive and negative dimensions of affect, Russell and Feldman Barrett (1999, 815) also proposed that *"sad* represents high negativity and lack of positivity; conversely, *happy* represents high positivity and lack of negativity." Empirical evidence shows that, while negative affectivity is correlated with both symptoms of anxiety and depression, positive affectivity is related only to symptoms of depression, "indicating that the loss of pleasurable engagement (PA) is a distinctive feature of depression" (Watson, Clark, & Carey, 1988, 346). For the purposes of this study, therefore, low levels of positive affectivity were conceptualized as a manifestation of high levels of depression.

POSITIVE AFFECTIVITY AND LOCAL ACCURACY

People in neutral affective states display a positive bias in their social judgments (e.g., Parducci, 1968; Sears, 1983). When asked to make self-relevant judgments, this bias leads people to overestimate their popularity in a social context (e.g., Lewinshon, Mischel, Chaplin, & Barton, 1980). The existence of such a positive bias is at the basis of the phenomenon of depressive realism. Psychological research has indicated that depressives are often more accurate or realistic than nondepressives in making self-relevant judgments in a variety of situations (Lewinsohn *et al.,* 1980; and, for a review, Alloy & Abramson, 1988). The depressive realism hypothesis has obtained support with a number of cognitive processes, including attributional biases (Campbell & Fairey, 1985), estimating social consensus (Tabachnik, Crocker, & Alloy, 1983), or estimating the frequency of reinforcement (Nelson & Craighead, 1977). Depressive realism is attributable to both lowered self-esteem and self-directed attention, which are two hallmarks among the cognitive symptoms of depression. Negative self-evaluation as a central factor in depression has been empirically documented (Lewinsohn et al., 1980). Depression is also characterized by self-directed attention, and a withdrawal into the self where external involvement is reduced in each area of functioning (Musson &

Alloy, 1988). Cognitively, there is a tendency for self-awareness and self-criticism, which has been shown to lead depressives to be more accurate than nondepressives in self-relevant judgments.

Several studies, however, have challenged the "sadder, but wiser" hypothesis (e.g., Campbell & Fehr, 1990; Dunning & Story, 1991) suggesting that depressive realism is not a uniform phenomenon, but rather a tendency that occurs only under some circumstances, and relative to specific judgmental processes (Benassi & Mahler, 1985). The ecological validity of depressive realism research (which is exclusively experimental) has been advanced as a possible explanation for such contradictory results (Ackermann & DeRubeis, 1991; Coyne & Gotlib, 1983). In this sense, the study of the perception of patterns of social interaction evolving over time in a natural setting usefully complements existing research. Specifically, in a study of social network perception in a large computer company, Kumbasar, Romney, and Batchelder (1994) found a striking tendency for people to perceive themselves as more central in the group (i.e., to report a higher number of friends) than they were perceived by others. This systematic bias allows the possibility that, in the context of social network perception, the combined effect of lowered self-esteem and self-directed attention may lead depressives to be more realistic, or simply more pessimistic (Kapci & Cramer, 1999), than nondepressives in representing the structure of those who are directly connected to them. Conversely, high levels of positive affectivity, being associated with increased self-esteem and decreased self-awareness and self-criticism, are likely to further worsen the positive bias normally displayed by people in such self-relevant judgments, thus leading to greater inaccuracy in the perception of one's direct relationships in a social group.

> *Hypothesis la:* Positive affectivity is negatively associated with local accuracy in the perception of the work-related advice network.
>
> *Hypothesis 1 b:* Positive affectivity is negatively associated with local accuracy in the perception of the friendship network.

POSITIVE AFFECTIVITY AND GLOBAL ACCURACY

The increased self-focus that may improve the accuracy of self-relevant judgments, may also lead depressed people to be less accurate than nondepressives when asked to make judgments about others. Martin, Abramson, and Alloy (1984) supported this prediction. The tendency to divert attention from others to the self is likely to decrease low-PA people's awareness of the behaviors and attitudes of those around them. Conversely, a high-PA individual has a tendency to take an interest in, and observe, others' behavior, and thus to make more accurate judgments about them. Moreover, the high level of self-esteem that negatively impacts high PA individuals' self-relevant judgments will have no implications for the accuracy of their judgments about others. In the context of social network perception, the

effect of self-directed attention suggests that depressives may be less accurate than nondepressives in representing the overall structure of the larger social network in which they are embedded. People with high levels of positive affectivity, on the contrary, may be best equipped to develop a clear perception of the broader web of social relationships in their environment.

Moreover, perceiving the informal structure of social relations in one's social network is a complex cognitive task. It entails the collection of large quantities of information about the many interpersonal ties, and the specific instances and modes of interaction, linking the people constituting the network. It also requires the organization of this information in meaningful categories that exclude nonrelevant information (such as one-time "hallway" conversations that do not fit in an interactive pattern), and the mastery of such information in the face of changes in the patterns of interaction. Carrying out complex cognitive tasks such as this requires not just attentiveness to the social dynamics in one's environment, but also a degree of cognitive organization and flexibility that individuals with a positive affective disposition may be particularly capable of.

An increasingly large body of knowledge supports the proposition that happiness increases cognitive organization and flexibility. Alice Isen and her colleagues have shown that, compared to people in a neutral state, people in a positive mood have a broader range of associates, and more diverse associates, to neutral material, (Isen, Johnson, Mertz, & Robinson, 1985). They are also capable of perceiving more differences, when explicitly asked to focus on the way items differ from one another (Isen, 1987). Such an increase in cognitive flexibility in categorization tasks has also been documented by Murray, Sujan, Hirt, & Sujan (1990). In general, mild inductions of positive moods could facilitate both complex decision making (Isen & Means, 1983) and problem solving that requires the use of broader and more flexible categories for sorting information (Isen & Daubman, 1984; Isen, Niedenthal & Cantor, 1992; Lee & Sternthal, 1999) and the integration of new information (Estrada, Isen, & Young, 1997). For instance, Isen, Rosenweig, and Young (1991) showed that medical students in whom positive affect had been induced reached a correct judgment about the likelihood of hypothetical patients with solitary pulmonary modules having lung cancer faster than students in neutral affective states. In the judgmental process, independent observers rated students as displaying more complex and integrated, and less confused, thinking in a positive affect condition.

Research on trait positive affectivity also illustrates the beneficial effects of positive affect for a variety of cognitive tasks and behaviors (e.g., Scheier, Weintraub, & Carver, 1986; Seligman & Schulman, 1986). Staw and Barsade (1993), in particular, showed that managers with high levels of positive affect performed better on the processes underlying good decision-making. For instance, they requested more information whenever the data were insufficient to come to a sound decision, and they recognized the interdependence among multiple

decisions. Moreover, in their interpersonal behavior, individuals with a positive disposition were seen by their group members as having greater mastery of the information needed to present their cases persuasively.

The commonly held belief that happiness results in a general difficulty processing information, whether for reduced ability or reduced motivation (for a review, see Clore, Schwartz, & Conway, 1994) has also been challenged by a growing body of research (for reviews, see Aspinwall, 1998; Isen, 1993). Even when positive affect does lead to the use of general knowledge structures, this effect in not due to reduced cognitive ability (Bless *et al.,* 1996), and can be easily reversed when careful processing of the target information is given as the goal (Bodenhausen, Kramer, & Susser, 1994). Most of the results suggesting a connection between positive affect and information processing deficits have been obtained in artificial settings with tasks that were likely to be of little importance or intrinsic interest to the participants. Whenever the target information has greater personal relevance to the participants (e.g., their personality test scores; risks to their own health), however, individuals in positive moods have largely displayed effective information processing (see Aspinwall, 1998; Isen, 1993, for discussions). The evaluation of the map of social interactions in the participants' own social environment is likely to be highly self-relevant, because it involves the processing of information about the interactions among people that play an important part in the participant's social life.

The combined complexity and personal relevance of the target information suggests that high positive affectivity may improve global accuracy in social network perception.

Hypothesis 2a: Positive affectivity is positively associated with global accuracy in the perception of the work-related advice network.

Hypothesis 2b: Positive affectivity is positively associated with global accuracy in the perception of the friendship network.

CONTROLS

Perceiver Effect

In a seminal 1955 article, Cronbach revolutionized research on judgmental accuracy by showing that accuracy was not a simple matter of computing the difference between a subject's standing on some trait (e.g., intelligence) and a judge's rating of that subject on that trait. In fact, Cronbach showed that such an accuracy score was an imprecise agglomeration of multiple, distinct components. One such component is what Kenny (1994) later labeled *perceiver effect,* defined as the *average tendency* for a respondent to believe that others have a particular trait (e.g., intelligence). Applied to the realm of social network perception, the perceiver

effect implies that people will vary in their average tendency to believe that others are engaged in a certain social relationship (e.g., friendship). The perceiver effect stems from a systematically different use of the rating scale across judges. While some judges consistently use the scale's higher region, others consistently use the scale's lower region. So, for instance, while some people label only intimate relationships as friendships, for others even superficial relationships qualify as friendships.

The manner in which one uses the rating scale has nothing to do with one's insight, and should not be included in the measurement of accuracy. For this reason, in testing the relationship between affect and social network perception, we controlled for perceiver effects with the total number of social ties (i.e., relationships) an individual perceived as existing among all members of the network.

Social Engagement

Both psychologists and sociologists have shown that affect correlates not only with cognition, but also with behaviors such as risky decision making (e.g., Arkes, Herren, & Isen, 1988), helping (e.g., Aderman, 1972; Cunningham, 1979; Cunningham, Shaffer, Barbee, Wolff, & Kelly, 1990; Isen & Levin, 1972) and social interaction (e.g., Heise, 1979, 1987; Smith-Lovin, 1987). Specifically, affective traits and states may be associated with different levels of participation in social interaction (i.e., social engagement), because happy individuals are generally considered more attractive than depressed people (Cardy & Dobbins, 1986; Coyne, 1976). Because they are personally interacting with many people (i.e., that they have high network centrality), socially engaged individuals may have more direct knowledge of the social relationships around them. Casciaro (1998) and Krackhardt (1992) have documented a positive association between network centrality and accuracy in network perception. For this reason, in this study we disentangled cognitive and behavioral correlates of positive affect by controlling for an individual's level of social engagement with the total number of his/her personal ties in the network.

Formal Social Position

Finally, people's formal position in a social group can also provide them with different opportunities to observe the social reality in which they are embedded. For instance, by virtue of their position, people at higher hierarchical levels in the formal structure of a work organization are required to pay attention to how their subordinates work together, and are entitled to ask their subordinates for such information (Krackhardt, 1990). However, as pointed out by Casciaro (1998), because of the formal role associated with their position, higher-level

participants tend to be isolated from the informal friendship network that develops at lower levels of the organization. Moreover, they may simply be uninterested in the dynamics of interaction involving people at lower levels (Kramer, 1996). An individual's formal position does not have any effect on his/her local accuracy, because people do not differ in their opportunities to observe the social relationship in which they are personally involved. Formal position, however, can be related to different opportunities to observe relationships in which others are involved. For this reason, in studying the relationship between affect and global accuracy, we controlled for an individual's formal position in the social setting of our interest.

METHOD

The Site

The organization selected for the field study is constituted by three research centers belonging to an Italian University. Although formally distinct, and pursuing different research interests, the three centers constitute a single subunit of the university's research apparatus. First, all three centers are directed by the same person, a full professor at the university. Second, at times the centers conduct joint research. Third, the three centers occupy the same hallway of the same floor of the same building of the university. In this location, researchers share offices, regardless of their formal membership with one center or the other. Thus, to some extent all members of the organization interact with on another. The centers, which were founded between 1987 and 1989, count 25 people as formal members in different hierarchical positions. They are funded by the profits from each center's research and teaching activities, as well as by university funds. Since their founding, all centers have been profitable.

Though small, the organization has a rather vertical formal structure, constituted by five distinct hierarchical levels. At the top level, there is the director of the three centers, who makes all major decisions in the organization. At the next level, there are three vice-directors, who are responsible for the scientific development of research and teaching projects. The next level consists of two administrative coordinators, who have no involvement in the scientific aspects of the centers' activities, but are responsible for the organizational and logistics aspects of the life of the centers. Among their roles, the coordinators collect, screen, and summarize information flowing from the lower levels to the director. They constitute the operational link between the top and the lower levels, which, for most nonscientific matters, do not communicate directly. The following level consists of seventeen researchers, who constitute the largest group in the organization. Researchers occupy the lowest level of the academic hierarchy. At the lowest level of the group hierarchy, there are two secretaries.

Accuracy in Social Network Perception

Cognitive Social Structures

We asked all members of the research centers about their perception of the social relationships between all possible pairs of individuals in the organization, including themselves. In this kind of social network data, it is not simply asked that respondents report their own social ties, but also that they report their perception of the complete map of social relations linking everybody else in the network (i.e., the overall structure of the social system).

In network analysis, the structure of a social system is defined as a set of relational statements between all pairs of actors in the system. The cognitive social structure of this system is conceptualized as a three-dimensional array of linkages, R_{ijk}, among a set of n actors, where i is the sender of the relation, j is the receiver of the relation, and k is the perceiver of the relation between i and j (Krackhardt, 1987).

An individual's cognition of the network is his/her perception of the existence of a social relationship between any two individuals in the network, including him/herself. Formally defined, a person $k's$ network cognition is:

$$R_k = 1 \quad \text{if } R_{ijk} = 1$$
$$0 \quad \text{if } R_{ijk} = 0$$

The individual cognition of two relations, friendship and work-related advice, was measured through a questionnaire in matrix format (see Appendix). In the friendship network, each person k in the organization was asked whether he or she thought that person i considered person j as a personal friend. In the case of a positive answer, person k would place a check in the cell of the friendship network matrix that corresponded to a relation going from i to j. The same procedure was used to assess the advice cognitive social structure. In this case, person k was asked whether he or she thought that person i would go to person j for work-related advice.

The resulting binary individual network cognitions were aggregated in order to obtain the actual structure of the network (as opposed to the individual cognition of the social network). The actual network is defined as a Locally Aggregated Structure (Krackhardt, 1987). Formally, the Locally Aggregated Structure $R'\sim is:$

$$R'\sim = 1 \text{ if } R_{id}; \text{ and } R_{;jj} = 1;$$
$$0 \text{ otherwise.}$$

That is, in the actual network, a relationship between person i and person j exists if and only if both i and j perceive that it does. If only i indicates that he/she

has a relationship with *j,* and *j* does not concur with i's perception, the relationship is considered nonexistent. The concept of locally aggregated structure (Krackhardt, 1987) is but one possible approach to the definition of the "actual" structure of a network emerging from the aggregation of individual network representations. Consensus structures such as central graphs (Banks & Carley, 1994) and informant consensus analyses (Romney, Weller, & Batchelder, 1986) also address the issue of aggregating individual network perceptions, and thus provide different views of the "true" network. The consensus question that these studies address is closely related to the accuracy question. However, as noted by Kenny (1994), consensus does not necessarily imply accuracy. Given our interest in accuracy, in this study we opted for the adoption of locally aggregated structures, aware of the fact that more theoretical and empirical work is needed to define the domain in which these approaches are more appropriate.

Local and Global Accuracy

People's accuracy in perceiving their direct social relationships in a given context (i.e., local accuracy) can be described in terms of generalized or dyadic meta-accuracy (Kenny, 1994). Generalized meta-accuracy describes people's ability to understand how they are generally seen by others. It is their sensitivity to how they are regarded by a group as a whole, apart from the ways in which they maybe viewed differently by different members of the group. Dyadic meta accuracy describes people's ability to know how they are differentially regarded by other particular people. In the present study, local accuracy for person *k* was measured as *k's* dyadic meta-accuracy (i.e., the correlation between *k's* perception of every other network member's perception of their relationship with him/her), and their reported perception of their relationship with *k.* Formally, local accuracy was calculated as the correlation between the vectors (1) and (2):

$$Rk\ Vi{\sim}4\ k \qquad\qquad\qquad (1)$$

$$Rik\ _1 \quad ViOk \qquad\qquad\qquad (2)$$

Global accuracy for individual *k* was measured as the correlation between *k's* matrix representation of his or her network, and the actual matrix structure of that network. This measure of correspondence was chosen because it controls for different uses of the rating scale while at the same time having desirable metric and Euclidean properties (Gower & Legendre, 1986). Formally, for each individual *k,* global accuracy was calculated as the MRQAP correlation (Krackhardt, 1988) between matrices (3) and (4):

$$R. \qquad\qquad\qquad (3)$$

$$Rij \qquad\qquad\qquad (4)$$

Positive Affectivity

Tellegen's Short Positive Emotionality scale was utilized to measure positive affect (Tellegen, 1982). This 11-item scale measures the Well-Being component of the Positive Affectivity super-factor. The questionnaire asks subjects to rate statements such as " I am just naturally cheerful" and "My future looks very bright to me" as true or false. The scale has been shown to be highly internally consistent (a = .89) and stable at appropriate levels (.90) over a 1-month test -retest interval. The Cronbach alfa in the sample used in this study was 0.91.

Controls

Perceiver effects in local accuracy were controlled for with the total number of ties an individual perceived as existing in the network, measured as the *density* of *Rj.* The density of a network is defined as the ratio between the number of existing ties over the number of all possible ties. As for global accuracy, the matrix correlation used to measure accuracy already takes into account row and column effects, thus making it superfluous to control for network density. An individual's level of social engagement in the organization was measured as an individual's *indegree* network centrality. An actor's indegree centrality is defined as the number of ties converging on that actor. For instance, in the advice network, a person's indegree score is the number of people who go to that person for advice. Finally, an individual's formal position in the social structure of the organization was measured as his/her *hierarchical level.* Hierarchical level was scored in the following way: A score of 5 was given to the director; the three vice-directors were scored 4; the coordinators were given a score of 3; a score of 2 was given to the researchers; and secretaries were given a score of 1.

Procedure

A questionnaire containing the positive affect scale and the matrices for the collection of data on the friendship and advice networks (see Appendix) was distributed to all 25 members of the research centers. Respondents were asked to fill out the questionnaire at their leisure during work hours and return the questionnaire to the researcher within the following week. Participants were guaranteed confidentiality of their answers. Of the 25 people asked to participate in the study, 24 completed the questionnaire.

RESULTS

Descriptive statistics for the dependent variables and the predictors are presented in Table I. Table 11 shows the correlation structure for all dependent and

Table I. Means and Standard Deviations of Dependent, Independent, and Control Variables

Variables	Mean	Standard Deviation
Positive affect	6.96	2.77
Hierarchical level	2.29	.91
Advice indegree centrality	9.96	15.03
Friendship indegree centrality	15.94	11.15
Advice network density	46.71	28.31
Friendship network density	83.04	54.31
Advice local accuracy	.44	.29
Friendship local accuracy	.41	.19
Advice global accuracy	.45	.12
Friendship global accuracy	.42	.12

Note. Higher scores indicate higher variable levels. Positive Affect represents ratings on a 0 to 11 scale, where 0 indicates low levels of PA. Hierarchical Level represents ratings on a 1 to 5 scale, where 1 indicates the lowest hierarchical level in the organization. Centrality scores represent a group member's in-degree divided by the maximum possible in-degree expressed as a percentage.

Table II. Correlations Among Dependent, Independent, and Control Variables

Variables	2	3	4	5	6	7	8	9	10
I Positive affect	.30	.25	-.09	.02	-.19	-.48`	.02	-.20	.21
2 Hierarchical level		.54`'	-.20	-.09		.25	-.17	-.29	-.426	-.49
3 Advice indegree			.29	.02	.03	.11	-.34	.08	-.03
4 Friendship indegree					-.I1	.09	.19	.12	.456	.56
5 Advice network density					.31	-.18	-.10	.12	.27
6 Friendship network density						.23	-.O8	.02	-.22
7 Advice local accuracy							.426	.31	-.07
8 Friendship local accuracy								-.02	.19
9 Advice global accuracy									.60
10 Friendship global accuracy									1.00

"p < .I.
b p < .05.
`p < .Ol.

independent variables. Table III and IV contain regression models for local accuracy in the advice and friendship network, respectively. Table V and VI present regression models for global accuracy in the advice and friendship network, respectively.

Controlling for the density of individual perceptions of the network, and centrality in the network, positive affect was negatively related to local accuracy in the perception of the advice network (Standardized 0 = -.540; p < .05, two-tailed) but not in the friendship network (Standardized ,B = .017; p = .94, two-tailed), supporting Hypothesis lb, but not Hypothesis Ia. The impact of positive affect on local accuracy was different for friendship vs. advice networks,

Table III. Regression Analysis with Local Accuracy in
the Advice Network as Dependent Variable (it = 22)

Independent Variables	#	Standardized /9
Intercept	885	
	.170	
Advice network density	-.002	-.195
	.002	
Advice indegree	.005	272
	.004	
Positive affect	-.0531,	-.5401,
	.020	
R-squared	.325°	
Adjusted R-squared	.213	
F-statistic	2.89	
d.f.	3	
	18	

Note. Two-tailed tests; standard errors in italics. *"p<.1.*
b'p < .05.

C p < .01 .

Table IV Regression Analysis with Local Accuracy in the
Friendship Network as Dependent Variable (ii = 23)

Independent Variables	~i	Standardized P
Intercept	389	
	.166	
Friendship network density	-.001	-.087
	001	
Friendship indegree	.002	.132
	.004	
Positive affect	-.002	-.016
	.166	
R-squared	024	
Adjusted R-squared	.199	
F-statistic	.15	
d.f.	3	
	19	

Note. Two-tailed tests; standard errors in italics. *°p<.1.*
hp<.05.
Cp<.01.

$F_{(1, 37)}=4.54$; $p < .05$. This result indicates that joyful, enthusiastic individuals with a cheerful predisposition tend to have an inaccurate perception of their personal work-related advice relationships, but not of their friendship networks, in the organization.

Controlling for hierarchical level and centrality in the network, positive affect was positively related to global accuracy in the friendship network (Standardized

Table V. Regressions Analysis with Global Accuracy in
the Advice Network as Dependent Variable (n = 24)

Independent Variables	0	Standardized P
Intercept	.639	
	.077	
Hierarchical level	-.0826	-.616n
	.029	
Advice Indegree	.003	.438
	.002	
Positive affect	-.005	-.121
	.008	
R-squared	.312"	
Adjusted R-squared	107	
F-statistic	3.03	
d.f.	3	
	19	

Note. Two-tailed tests; standard errors in italics.
`lp <.1.
t'p<.05.
`p < .01.

Table Vl. Regressions Analysis with Global
Accuracy in the Friendship Network as Dependent
Variable (tt = 24)

Independent Variables	,B	Standardized /3
Intercept	.367	
	.019	
Hierarchical level	-.066`	-.507`
	.019	
Friendship indegree	005	.498`
	.002	
Positive affect	.0176	.4076
	.006	
R-squared	.312	
Adjusted R-squared	.107	
F-statistic	3.03	
d.f.	3	
	20	

Note. Two-tailed tests; standard errors in italics. Op
<.1. r' p < .05.

Cp < .01 .

,B = .407; *p < .05,* two-tailed), and not in the advice network (Standardized ,B = -.120; p =
.55), supporting Hypothesis 2a, but not Hypothesis 2b (F(1, 40) = 4.62; p < .05). According to
this result, when asked about their perception of the map of social connections linking all
members of the organization to each other

(and not just their personal connections), people with high positive affectivity are more accurate than people with low positive affectivity.

DISCUSSION

In this study, we utilized cognitive social structure data to investigate how positive affectivity relates to accuracy in social network perception. The small size of the organization utilized for the data collection limits the statistical power of this study, thus making nonsignificant results inconclusive. However, our statistically significant results do provide us with clear indications as to the relationship between positive affectivity and accuracy in the perception of relationships in people's social environment.

The results partially confirm the main proposition underlying this study, that positive affectivity enhances people's perception of the broader patterns of social relationships in their environment, while it hampers the accuracy of judgments concerning their own direct social connections. Happy, enthusiastic people with a positive outlook on life have a clear, accurate picture of the dynamics of social interaction among people around them, even though they may feed unrealistic images of their personal social interactions. The impact of positive affectivity on accuracy, however, is not homogeneous across the friendship and the advice networks. Although PA was relevant to local accuracy only in the advice network, in the case of global accuracy, PA emerged as a significant variable only in the friendship network.

In the context of our data set, such a result may well be the artifact of the limited statistical power of this study, which may not have allowed us to uncover all underlying relationships between positive affectivity and social network perception. What these results do indicate, however, is a tendency for people with high positive affectivity to perceive the friendship network more accurately than the advice network, both locally and globally. This would suggest that the pleasurable engagement with the environment typical of high positive affectivity may manifest itself as a particularly keen sensitivity of high-PA individuals to friendship relationships (arguably, the pleasurable side to people's social life), rather than work-related advice relationships (arguably, the instrumental side to people's social life).

A larger and larger body of knowledge, however, suggests that high-PA people are characterized by the ability to purposefully re-direct their (superior) potential for cognitive organization and flexibility toward important goals, whether the goal's level of importance is intrinsically set by the perceiver or extrinsically imposed (Aspinwall, 1998; Bodenhausen, Kramer, & Susser, 1994; Isen, 1993). This implies that, when made aware of the importance of an accurate perception of the work-related advice network for their individual power (Krackhardt, 1990)

and performance (Morris, 1997) in the organization, high-PA individuals may well devote their cognitive capacity to produce a more accurate perception of the advice network and the friendship network. Further testing of these ideas in different contexts is needed to provide direct empirical support for this argument.

What emerges from this study is the potential role of positive affectivity not only for individual cognition, but also for individual outcomes in a social group. Given the link between people's ability to perceive accurately the social world surrounding them and their power and performance in a group (Krackhardt, 1990; Morris, 1997), positive affectivity can be seen as an important vehicle for personal accomplishment in a given social setting. Moreover, to the extent that happy people are particularly responsive to environmental demands to perceive their social world accurately, they may have a higher potential for improving their accuracy (and, therefore, their power and performance) than individuals with less cheerful dispositions.

This is not to suggest, however, that high levels of positive affectivity entail a cognitive and motivational advantage so pervasive as to justifiably inform behaviors, such as personnel selection in organizations. Local accuracy and global accuracy have different implications for individual outcomes, depending on the task at hand. For instance, in work organizations, the effective performance of boundary-spanning roles may depend more heavily on having an accurate map of broad patterns of social connections in the organizational environment than on having a realistic representation of one's immediate social world. Similarly, an accurate representation of social interaction in the organization *as a whole* may be particularly crucial to the effective performance of managerial roles. In work teams, however, healthy team dynamics may be best achieved when group members perceive accurately their direct personal and professional connections to other group members. In sum, both local accuracy and global accuracy may contribute to individual effectiveness, with global accuracy playing an increasingly important role as the social domain of one's task broadens. Therefore, to the extent that it may negatively impact local accuracy, a high level of positive affectivity should not indiscriminately inform the evaluation of people's potential success in a social group.

Moreover, although in this study we have focused on trait positive affect as a *stable* characteristic of individuals, a large body of research shows that positive mood can be readily induced, thus producing the superior cognitive organization and flexibility that also seems to drive global accuracy in social network perception. Given the limited evidence available, it is unwise to make a general assumption of isomorphism between affective states and traits in impacting cognition. However, there is growing evidence that they may have similar effects (e.g., Isen, 1993; Staw & Barsade, 1993). This **would suggest that, to the extent that** working conditions fostering the well-being of organizational participants can be produced, positive affect may not need to be seen as an unchangeable factor, but

as a variable that can be leveraged to achieve desired individual and organizational outcomes.

Overall, this study contributes to both psychological and sociological research on affect and social cognition. It advances psychological research by bringing the study of affect and cognition in a field setting. The study also shows that positive affectivity does not only have an impact on short-term cognitive processes, but it also exercises a detectable effect on the long-term perceptions of patterns of social relationships evolving over time. Moreover, this study provides a contribution to the structural tradition in sociology by bringing in psychological theory and empirical research to shed light on the otherwise under-investigated connection between emotions and perception of the social structure.

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APPENDIX

Friendship Matrix

E.   By putting an "X" in the cells of the following matrix, please indicate whether you think the people listed in each row (from 1 to 25) considers the people listed in each column (from A to Z) as personal friends. For example, if you think that Ms. Jacket (row 9) considers Mr. Norris (column N) as a friend, place an "X" in the corresponding cell "9N."

	A	B	C D E	F		G	II 1		K L		M N		O P		Q	R S		T	U		V W	X	Y Z	
	a	'O	G u O m W	U O		72 ri	C U		X a ~		H ~~ ~	3 y z	C... z o	~n O	a.	t N w	O c w	o:		x	C T t0 of b t	U3	O 3	
1	Adams																							
2	Anderson																							
3	Bennett																							
4	Frick																							
5	Grant																							
6	Green																							
7	Guidelli																							
$	Gunde																							
9	Jacket																							
10	Lang																							
11	Marcus																							
12	Newman																							
13	Norris																							
14	Oliver																							
15	Olson																							
16	Perlman																							
17	Perry																							
1$	Poole																							
19	Price																							
20	Rummel																							
21	Sanders																							
22	Taylor																							
	Tucker																							
24	Wison																							
L23																								
25	Wolf~																I	1~	-I-1~1				