Social networkers: Measuring and examining individual differences in propensity to connect with others

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ABSTRACT

The research examined individual differences in people’s propensity to connect with others (PCO). A measure of PCO, with components for making friends (strong ties), making acquaintances (weak ties), and joining others (bridging ties), was developed and tested in two studies involving 144 undergraduates and 197 health-care employees. PCO and its components were significantly positively associated with social network characteristics (including size, betweenness centrality, and brokerage) and indicators of personal adjustment including support received, attainment, well-being, influence, and suggestion-making. PCO had effects beyond those of major personality traits, and PCO components displayed distinctive relationships with work network characteristics.

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Some people seem more inclined than others to make connections with people they do not know. An individual’s propensity to make new connections may affect the extent and value of his or her social network. The effect of individual characteristics on social networks is important because empirical studies of the consequences of networks have discovered associations between the number, structure, strength and content of network ties and a range of individual and organizational outcomes, including personal influence, job performance, innovation, career success, satisfaction and affect (Brass, 1984; Flap et al., 1998; Forret and Dougherty, 2004; Totterdell et al., 2004).

Research on social networks within and between organizations has expanded greatly in recent years (Borgatti and Foster, 2003). In relation to organizational behavior, social network research has addressed a range of issues such as social capital (the value individuals derive from their connections), group processes, and knowledge utilization (Brass et al., 2004; Gulati et al., 2002; Raider and Krackhardt, 2002). Although social network research has examined the influence of observable individual attributes, such as gender, it has largely ignored the individual psychological characteristics that may shape personal networks (Kalish and Robins, 2006; Mehra et al., 2001). This is due, in part, to the fact that social network research has been principally concerned with the structure and effects of relations between people, groups or organizations (Brass et al., 2004; Tichy et al., 1979), rather than on psychological attributes of the individual. Nevertheless, such attributes are likely to contribute to the formation and maintenance of ties between people within networks, and will thereby influence the behavior of those networks. This conception, in which both individual agency and social structure determine action, offers an alternative to a strict structural perspective in which action derives solely from the structure of social networks (Obstfeld, 2005).

We adopted this alternative conception in an effort to understand the nomological network of social networking. In particular, we examined how individuals’ propensity to connect with others relates to their social network structure and personal adjustment. For this purpose, we developed an individual difference measure concerning propensity to connect with others (PCO), and conducted two studies in different settings to examine how this characteristic relates to a range of constructs pertaining to social networks and adjustment.

1. Individual differences and social networks

Researchers have begun to examine the role of individual differences in shaping social networks, particularly in relation to organizational networks. One approach to this topic has been to examine whether the centrality of a person’s position within an organizational network depends on particular traits of his or her personality. For example, using Goldberg’s (1990) Big Five factor model of personality, Klein and colleagues found that neurotic individuals were less likely to acquire central positions in friendship and advice networks (Klein et al., 2004). A number of studies have also found a positive association between extraversion and the extent to which individuals engage in networking behaviors (Forret and Dougherty, 2001; Lee and Tsang, 2001; Tziner et al., 2004;
Wanberg et al., 2000). Other individual differences that have been positively associated with social network size include emotional intelligence (Austin et al., 2005) and self-monitoring orientation (Mehra et al., 2001).

Using a different method, Burt et al. (1998) derived the personality profile of “network entrepreneurs” by identifying the personality characteristics of individuals who possessed structural holes in their work networks (i.e., networks where the potential to broker connections is high because there are few connections between others in the network). Based on those personality characteristics, they concluded that network entrepreneurs prefer to be in authority, create excitement, and change things. Kalish and Robins (2006) have also identified individual differences that predispose people to structure their social environment by sustaining structural holes or by seeking network closure. For instance, they found that individuals who sustain structural holes in their networks tend to be more individualistic, whereas those who have closed networks of strong ties tend to be more extraverted and less individualistic.

However, Becker (2004) has argued that results regarding relations between personality and network behavior have usually been weak because personality does not have strong direct effects on behavior. Becker proposes that the effects of personality on network building are likely to be mediated by more proximal motivational antecedents, including attitudes, subjective norms and perceived control over network building. Kadushin (2002) has also emphasized the association between individual motivations and network behavior. In particular, he argued that safety and efficacy drives are rooted in network experiences during early childhood, and are, respectively, associated with having cohesive networks and networks with structural holes. These motivational perspectives are promising but have yet to be empirically tested.

Another approach, and the one we have chosen to adopt for this investigation, involves identifying characteristics of individuals that map more directly onto the formation of social networks, such as people’s desire and tendency to make connections with other people. Given that people form social networks in a range of contexts throughout their lifespan, differences between individuals in their propensity to make connections may have pervasive personal and social effects, which extend beyond the individual’s own network. Although previous researchers have examined aspects of individual networking behavior, they have usually focused on people’s actual organizational interactions (e.g., Michael and Yukl, 1993), the types of organizational networking behavior they utilize (e.g., Forret and Dougherty, 2004), or their purpose in having connections (Ferris et al., 2005), rather than on their general disposition for making connections with other people.

2. Research hypotheses

We defined PCO as an individual’s orientation towards making connections with other people that is not specific to context and that incorporates three related but distinct components: making friendships, making acquaintances, and joining others. In the parlance of social network research, these three components equate, respectively, with the formation of strong ties, weak ties, and bridging ties in a network. Our proposed nomological network for PCO is shown in Fig. 1. Specifically, we expect people’s PCO to relate to specific aspects of their personality, to be expressed behaviorally both through how they appear to others and in the structure of their social networks, and to influence how they adjust to their social context. Our investigation tested seven hypotheses concerning aspects of these relations. Fig. 1 shows how the hypotheses map on to the nomological network. The first three hypotheses were tested in relation to student networks within a university environment and the last four were tested in relation to employee networks within a work environment.

An initial question concerning PCO that needed examining was whether it is simply an alternative form of an already recognized personality trait. Earlier in this section we described how a number of research studies have found associations between the Big Five personality factors and network behavior. PCO seemed most
likely to overlap with the extraversion factor of the Big Five because they both depend on having an outward sociable disposition. In spite of this overlap, it was our belief that PCO would have greater predictive validity than extraversion in accounting for the size of a person’s friendship network because it is more focused on a person’s orientation towards forming network ties. This is in keeping with a general trend away from studying broad traits toward studying more specific behavioral orientations because broad traits are often too diffuse to capture specific behavioral outcomes (Kalish and Robins, 2006). Hence our first hypothesis was that:

Hypothesis 1. PCO will be positively related to extraversion, but will be a better predictor of friendship network size than extraversion.

People’s attempts to make connections with others seem more likely to succeed if the affective characteristics of what they express (verbally and nonverbally) are appraised as positive by others. Cross et al. (2002), for example, found that individuals who were perceived to be more energizing by their colleagues were more central in their organization’s energy network and performed better in their job. In the circumplex model of affect, energy is most closely aligned with markers of positive affect such as enthusiasm (Remington et al., 2000) and we therefore proposed that individuals with PCO would appear to others as having positive affectivity (e.g., enthusiasm).

Hypothesis 2. Individuals with greater PCO will be perceived by others as having greater positive affectivity than other people.

Expressive displays are usually regarded as more authentic, and are therefore more effective, when expressive experiences and expressions are aligned (Diefendorff et al., 2005). Hence, as well as expressing positive affect, individuals with greater PCO may also be more inclined to experience it. They are also likely to have more opportunities for obtaining rewarding positions within a network, and hence accrue other advantages (Burt, 2004). For example, previous research has found that the size and reach of people’s networks are related to the social support they receive (Hanson and Östergren, 1987), their positive affect (Totterdell et al., 2004), their well-being (Cattell, 2001; Cohen and Wills, 1985), their social adjustment (Hays and Oxley, 1986; Riggio et al., 1993), and their performance (Flap et al., 1998). Individuals with greater PCO should therefore exhibit greater personal adjustment. In particular, they should receive more emotional support, experience greater affective well-being, and show greater attunement to the demands of their specific environment in the form of social adjustment and attainment. Thus, we hypothesized that:

Hypothesis 3. PCO will be positively related to received emotional social support, affective well-being (enthusiastic, relaxed), academic adjustment, and academic attainment.

Our next three hypotheses concerned how the components of PCO would relate to characteristics of social networks within a work context. Specifically, we expected that each component of PCO (making friends, making acquaintances, and joining others) would give rise to specific characteristics within a particular type of employee network. Furthermore, we anticipated that the influence of PCO would be additional to the influence of other structural variables such as gender, organizational tenure, and leadership role.

With respect to propensity to make friends, it seemed likely that individuals who are more inclined to make friends would attract more ties in a friendship network. Friendship networks contain both strong and weak relationships but they are primarily directed at the ties that arise from the solidarity of close affiliations. Hence, we hypothesized that:

Hypothesis 4. Propensity to make friends will be positively related to the size of an employee’s friendship network (i.e., the number of employees who report them as friends).

In contrast, instrumental actions tend to be accomplished via weak ties. Advice relations can arise from both instrumental and solidarity contacts because there may be a personal cost involved in asking for advice (Flap and Völker, 2001; Klein et al., 2004), but an extensive advice network seems most likely to be facilitated by a propensity to make acquaintances. A tenet of Granovetter’s (1973) strength of weak ties theory is that weak ties are more likely than strong ties to provide bridges to other segments of the social network. People seeking advice may therefore be likelier to obtain the information they do not have through their weak ties. However, propensity to make acquaintances may need to be combined with relevant expertise in order to attract others seeking advice. For example, Borgatti and Cross (2003) found that the likelihood of seeking information from another person depended on the value placed on the person’s knowledge, as well as on access to that knowledge. In the same vein, consumer research has identified the influential role of individuals known as market mavens, who act as a significant source of advice for others because they actively acquire and share market knowledge (Feick and Price, 1987). According to Gladwell (2001), mavens generally provide the message and connectors (i.e., individuals with high PCO) spread it within a social network, but occasionally a person has the characteristics of both a connector and a maven and a connector is therefore particularly influential in spreading ideas and behaviors. A combination of individual propensity to make acquaintances and work expertise should therefore be positively associated with the size of a person’s advice network.

The strength of weak ties argument means that individuals with propensity to make acquaintances should also have greater betweenness centrality in an advice network. Again, however, they may attract more ties from others if they have relevant expertise themselves. We therefore anticipated that individuals would have greater betweenness centrality in advice networks if they had both a greater propensity for making acquaintances and greater work expertise than other employees. Weak ties can also provide the necessary conduits for information passing into a work group from employees who are external to that group, and hence we anticipated that employees who had greater propensity for making acquaintances would also have greater gatekeeper brokerage. We hypothesized that:

Hypothesis 5. Propensity to make acquaintances will, when combined with work expertise, be positively related to the size and betweenness centrality of an employee’s advice network, and will be positively related to advice gatekeeper brokerage.

Individuals who are inclined toward joining people by introducing disconnected others or by facilitating action between connected others have recently been described as having a tertius iungens (“third who joins”) orientation (Obstfeld, 2005). Obstfeld notes that the activity of joining people across bridges has received little research attention, even though such activity may be a foundation for social skill and the root of collective action. A person’s propensity for joining others should correspond to the likelihood that he or she serves as a bridging link between other people in a network. This may be especially apparent in an advice network when people seek advice from someone who either brings them into contact with a person with the information they need or knows who else advises people on that issue (Krackhardt and Kilduff, 2002). Our expectation was that propensity to join others would have
direct associations with advice network size and advice betweenness centrality, but the associations would be enhanced by work expertise. Individuals who perform a gatekeeping role within an organization provide a special kind of bridge that for many others serves as their primary link to external information (Obstfeld, 2005). Hence, we also expected that propensity to join others would relate to advice gatekeeper brokerage. We therefore hypothesized that:

**Hypothesis 6.** Propensity to join others will, when combined with work expertise, be positively related to the size and betweenness centrality of an employee’s advice network, and will be positively related to advice gatekeeper brokerage.

Our final hypothesis concerned how PCO would relate to employees’ feelings and involvement at work. In particular, we estimated that if PCO confers the aforementioned (as well as other) structural advantages to employees, then it should also contribute to the affective well-being they experience from their job and enhance their involvement within the organization. As previously described, the size of people’s social network has been related to various aspects of well-being, including positive affect and satisfaction at work (Cohen and Wills, 1985; Flap et al., 1998; Kawachi and Berkman, 2001; Totterdell et al., 2004).

Structural theorists have argued that individual influence (or power) in an organization is determined by an employee’s network position because it is the network of relationships among employees that governs the control and distribution of resources (Brass, 1984; Ibarra, 1993; Thompson, 2005). In support of this, it has been found that employees’ influence is related to their centrality in workflow and interaction networks, as well as to other structural variables including being in a position of authority, organizational tenure and gender (Brass, 1984, 1985; Ibarra, 1993). It has also been shown that proactive employees pursue initiatives by developing social networks that increase their influence (Thompson, 2005). Hence, an individual’s influence on decisions within an organization will depend partly on his or her ability to develop a network of relationships, which will be facilitated by their PCO.

Another indicator of employees’ influence in organizations is their involvement in innovation (Ibarra, 1993). Obstfeld (2005) observed that organizational innovation is often a process of creating new social connections between people and the ideas and resources they carry, and hence depends on individuals’ orientations towards action in the network. In accordance with this reasoning, he found that individuals who had a tertius iungens orientation had higher levels of involvement in innovation. We therefore expected that PCO would also be related to innovation involvement, especially the PCO component for joining others. In terms of what kind of innovation involvement can be expected, Burt (2004) argued that individuals who have connections across groups in an organization have more options to select and synthesize from and are therefore more likely to suggest new ideas. As evidence of this, he found that employees whose networks spanned structural holes in an organization were more likely to express ideas that were evaluated as valuable. However, Burt could find little evidence that the ideas were acted upon, and therefore concluded that employees suggested ideas to display competence rather than change work practices. Consequently, we expected that PCO would relate to the suggestion of ideas but not to the implementation of ideas. We therefore hypothesized that:

**Hypothesis 7.** PCO will be positively related to job-related affective well-being (feeling enthusiastic and feeling relaxed) and organizational involvement (decision-making influence and suggestion-making).

### 3. Overview of studies

Two studies were conducted to test these hypotheses. The aims of the first study were to (a) evaluate the psychometric properties of PCO, (b) examine how it relates to personality traits, social networks, and appearance to others, and (c) assess whether it helps account for personal adjustment. In other words – assuming that PCO could be identified – we wanted to know whether it is an orientation that is distinct from personality traits, whether it translates into the networks that individuals form, whether it has detectable behavioral manifestations, and whether it has likely consequences for the individuals themselves. This involved testing the first three hypotheses. To achieve this we studied undergraduate students so that PCO could be examined in individuals who had recently formed new social networks.

The aims of the second study were to extend understanding of PCO by: (a) retesting its psychometric properties in an employed sample, (b) examining how it relates to the structural parameters of individuals’ personal networks in a work context, and (c) assessing whether it relates to job-related well-being and organizational involvement. This involved testing the last four hypotheses. To achieve this we sought networks that individuals were able to shape for themselves (that is, where they had choice in the connections they made) and networks that arose from a shared context so that networks could be compared. Hence, we chose to study the friendship and advice networks of employees within a single organization, i.e., who employees were friends with and who they went to for work advice within the organization. To preclude the possibility that discovered associations between PCO and personal networks could be due to individual differences in self-report style, we used the friendship and advice nominations of others within the organizational network (i.e., in-ties rather than out-ties) and related those nominations to self-reported PCO.

### 4. Study 1

#### 4.1. Method

#### 4.1.1. Participants

The sample consisted of 144 undergraduate students. There were 104 females and 40 males in the sample, and their ages ranged from 18 to 34, with a mean age of 19.82 years (S.D. = 1.77). Of the participants, 84 were in their first year at university, 20 in their second year, and 40 in their third year. The participants were studying for a variety of degrees but the majority were psychology students (n = 96).

#### 4.1.2. Procedure

The volunteers were recruited in two waves of data collection, separated by 1 year. There were 64 participants recruited in the first wave and 80 in the second. All volunteers were informed that they would be participating in a study examining social networks at university and all completed a questionnaire containing a battery of self-report measures. The measures we used from the questionnaires were presented in both waves of data collection, except affective appearance and emotional social support which were only measured in the first wave and academic attainment which was only measured in the second wave. These three measures therefore had a reduced sample size.

The first wave of data collection involved forming interaction groups prior to questionnaire completion in order to obtain third-party ratings of affective appearance. To form these groups, participants chose a time slot when they could take part in the study. A minimum of three participants and a maximum of four
participants were allowed per time slot, and no friends took part at the same time. The participants were seated in pairs. One participant had to wait if there were only three people in the group. The pairs randomly picked one of five cards on which was written a topic (food, holidays, hobbies, home, and animals) that they were to discuss for 2 min. These particular topics were chosen as affectively unbiased experiences that would be common to all participants. At the end of the 2 min, each participant privately completed some ratings concerning the other person’s affective appearance. This procedure was repeated until the participants had rated each of the others in their group. Pairs selected topic cards until they found a topic that neither person had previously discussed.

4.1.3. Measures

4.1.3.1. Propensity to connect with others. The scale consisted of nine items developed for the purpose of the study. 1 PCO was designed to measure three components of propensity to connect with others: making friendships ($\alpha = .85$), making acquaintances ($\alpha = .65$), and joining others ($\alpha = .75$). Each component had three items, which measured the extent to which participants have such ties, the ease with which they make such ties, and their attraction to making such ties. Each item had a 5-point response scale ranging from 1 (does not describe me very well) to 5 (describes me very well). The responses were averaged to give a score for overall PCO ($\alpha = .85$), as well as component scores. The full set of items is shown in Appendix A.

4.1.3.2. Personal networks. In the first wave of data collection, participants were asked to report the number of people who they had some type of social interaction with in the previous 2 weeks that they considered to be close friends from (a) their course, (b) their accommodation, and (c) other places at university. These three estimates were summed to measure the size of their university friendship network. This method has been used in other studies to estimate the sizes of different parts of individuals’ networks (e.g., Berkman and Syme, 1979), but has the drawback that specific contacts do not have to be recalled. So, in the second wave of data collection the measure for deriving participant’s social network structure was adapted from Burt’s (1992) network survey instrument. This required participants to record the initials of people at university with whom they had discussed a matter of personal interest in the last 4 weeks. Participants then indicated which of those contacts they considered to be close friends. Size of friendship network was calculated by counting those contacts. A two-tailed t-test showed no significant difference, t(142) = .37, n.s., in the network sizes produced by the first method ($M = 11.13$) and second method ($M = 10.90$). A single measure was therefore used for friendship network size.

4.1.3.3. Personality traits. The personality factors of the Big Five were measured using the Mini-Marker Set (Saucier, 1994). Participants used a 9-point response scale, which ranged from 1 (extremely inaccurate) to 9 (extremely accurate), to rate how accurately each of forty traits described themselves. The scores for the eight items on each factor were averaged to produce measures of extraversion ($\alpha = .83$), agreeableness ($\alpha = .80$), conscientiousness ($\alpha = .86$), emotional stability ($\alpha = .84$), and openness ($\alpha = .74$).

4.1.3.4. Affective appearance. Participants in the first wave of data collection were rated by the other members of their interaction group (see Section 4.1.2) concerning the extent to which the participant displayed certain affective characteristics. The group members rated the extent to which they thought participants possessed each characteristic on a 5-point response scale from 1 (not at all) to 5 (a great deal). The terms enthusiastic and relaxed were chosen from the measure for affective well-being to reflect the appearance of positive affect and (low) negative affect, respectively. The specific items were “how enthusiastic do you think this person is?” and “how relaxed do you think this person is?”. The item “how knowledgeable do you think this person is?” was also included to assess whether knowledge was more salient than affect in the appearance of individuals with propensity to connect. The scores from different raters were averaged to produce a single score for appeared enthusiastic, appeared relaxed, and appeared knowledgeable per participant. To enhance reliability, scores were only retained for participants who received two or more ratings for each characteristic, which occurred for 58 participants (32 had three raters and 26 had two raters).

4.1.3.5. Emotional social support. This was measured in the first wave of data collection using the five-item subscale for daily emotional support from the social support questionnaire for transactions (Suurmeijer et al., 1995). Participants rated the frequency with which they received emotional support on a 4-point scale from 1 (seldom or never) to 4 (often). Example items were “Does it ever happen to you that people show their understanding for you?” and “Does it ever happen to you that people are willing to lend you a friendly ear?” Responses were averaged to produce a score for emotional social support received ($\alpha = .86$).

4.1.3.6. Affective well-being. This was measured using an adapted version of the 12-item job-related affect scale developed by Warr (1990) and later modified by Sevastos et al. (1992). The items measure the anxiety–comfort and depression–enthusiasm axes of Warr’s circumplex model of job-related well-being (Warr, 1990, 2002). Participants were asked to indicate how much they had felt each of 12 feeling states over the past month (whereas people are asked how much their job has made them feel those states in the original job-related version of the measure). Answers were recorded on a 5-point response scale ranging from 1 (not at all) to 5 (a great deal). The three items measuring depression were reverse scored, and combined with the three items measuring enthusiasm to produce a six-item measure of feeling enthusiastic ($\alpha = .81$). Similarly, the three items measuring anxiety were reverse scored and combined with the three items measuring comfort to produce a six-item measure of feeling relaxed ($\alpha = .86$).

4.1.3.7. Academic adjustment to university. This was measured using a scale developed by Kaya and Weber (2003). The scale consisted of six items, for example “I feel good about my degree” and “I regularly attend my classes”. Participants rated their level of adjustment on a 7-point response scale ranging from 1 (does not apply to me at all) to 7 (applies to me very much). The responses were averaged to produce an overall score for academic adjustment ($\alpha = .84$).

4.1.3.8. Academic attainment. This was measured in the second wave of data collection. First year students recorded how they had performed on their first three pieces of course work (they had not

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1 Gladwell (2001) described a method for identifying individuals who have a high propensity for making connections with others—which involves presenting people with a list of 250 surnames chosen at random from a phone directory and asking them to add up the number of people they know who have those names. In informal tests, he found that individuals who score highly on this measure have the behavioral attributes of connectors and appear to play an important role in helping ideas and behaviors spread rapidly and extensively through very large social networks. Although this technique is appealing, it is likely to be susceptible to bias arising from variations in the frequency of different surnames in different communities. We therefore chose to develop a self-report measure of an individual’s propensity to connect with others that was independent of situation (i.e. non-context specific) and that could be easily administered within a battery of other questionnaire measures.
yet sat exams), while second and third year students recorded how they had performed on their four most recent exams. Scores were based on the bands in the university’s marking scheme and ranged from 1 to 6 with 6 being the highest level of attainment. The average score for each participant was used as the measure of academic attainment.

4.2. Results

Table 1 shows the means, standard deviations, and correlations between the study variables. Of the variables collected in two waves (PCO, Big 5, well-being, adjustment), only the relaxed dimension of well-being was significantly different, t (142) = 2.15, p < .05, in the first wave, M = 3.62, compared to the second wave, M = 3.41.

4.2.1. Psychometric properties of PCO

To assess the psychometric properties of PCO, we first examined its factorial validity by conducting a confirmatory factor analysis using structural equation models implemented in LISREL 8.7 (Jöreskog and Sörbom, 2004). We hypothesized that the scale would have a hierarchical structure, with the three components forming three first-order factors nested within a single second-order factor representing overall PCO. In line with accepted practice, we also tested two other plausible models for comparison. First, we examined a model that had a single factor for the whole scale. Second we examined a model that had three alternative factors. Since each component of the scale had the same three indicators (extent, ease and attraction of forming component-specific tie), it was possible that the indicators would form better factors than the components. Extent, ease and attraction of tie formation were therefore tested as alternative factors. For each model, individual items were allowed to load on only one factor and the latent variables were allowed to correlate. The results of the CFA, using maximum likelihood estimates from LISREL 8.7, are shown in Table 2.

Multiple indicators of model fit were used. The first indicator was the Chi-square ratio (χ²/d.f.), which should be < 5 if the proposed model adequately fits the data. In line with Hu and Bentler’s (1998) recommendations for testing small sample maximum likelihood models, we also used the standardized root mean square residual (SRMR) supplemented by the incremental fit index (IFI) and the comparative fit index (CFI). Hu and Bentler recommended an upper bound of good fit of .08 for SRMR and a lower bound of good fit of .95 for IFI and CFI. Our hypothesized hierarchical model provided a good fit to the data based on all four fit indices, and fitted better than the single factor model or the alternative three-factor model. A Chi-square difference test of the two nested models showed that the hierarchical model fitted significantly better than the single factor model (Δχ²(3) = 74.93, p < .01). All hypothesized factor loadings in the hierarchical model were greater than or equal to .52. The internal consistency reliabilities of the overall scale and its three components all exceeded .60 (see Section 4.1), and were therefore satisfactory. Correlations between the three components ranged between .44 and .66 (see Table 1).

In support of the concurrent validity of PCO, we found that overall PCO and two of its components – making friends and making acquaintances – were significantly positively correlated with size of university friendship network (see Table 1). Gender, year of study (coded as dummy variables for each year), and age were not correlated with overall PCO or its components, and partialling out these variables did not change the significance of the correlations with friendship network size.

Concerning relationships between PCO and the Big Five personality factors, we found that overall PCO and its components were all significantly positively correlated (see Table 1) with extraversion (p < .01). Of the other personality factors, only emotional stabili-
ity was significantly correlated with PCO (specifically with overall PCO and with the making friends component). Partitioning out age, gender, and year of study did not change the significance of these results. The discriminant and predictive validity of PCO were examined by testing Hypotheses 1–3.

4.2.2. Relationships between PCO and extraversion, positive affectivity

To examine whether PCO was a better predictor of network size than extraversion, as predicted by Hypothesis 1, both variables were entered simultaneously in a regression model with friendship network size as the dependent variable, and age, gender and dummies for year of study entered as control variables. Overall PCO remained a significant predictor of network size, $\beta = .23$, $t(131) = 2.27$, $p < .05$, and extraversion was not a significant predictor of network size, $\beta = -.01$, $t(131) = -0.09$, n.s. These results supported Hypothesis 1. When emotional stability was also added to the models, the only significant relationship was overall PCO as a predictor of network size, $\beta = .24$, $t(130) = 2.27$, $p < .05$.

With respect to Hypothesis 2, concerning how individuals with greater PCO appear to others, the correlations (in Table 1) show that individuals who had greater overall PCO (and greater propensity to make acquaintances) were perceived by others as having greater positive affectivity, as measured by ratings of their enthusiasm following brief social interactions. Individuals’ overall PCO and components were not related to how relaxed or how knowledgeable they appeared to others. These results supported Hypothesis 2.

4.2.3. Relationships between PCO and indicators of personal adjustment

We examined how PCO related to personal adjustment through its relations with received emotional social support, affective well-being, academic adjustment and academic attainment (correlations reported in Table 1). In support of Hypothesis 3, overall PCO was significantly positively correlated with: participants’ perception of the amount of emotional social support they receive, both dimensions of their affective well-being, and their academic adjustment. Corresponding significant relationships were also found for the making friends and making acquaintances components of PCO (see Table 1). In addition, the making friends component of PCO was significantly positively correlated with academic attainment.

4.2.4. Supplementary analyses

Hypotheses 2 and 3 were tested further using regression models for each of the dependent variables in order to assess the potential influence of control variables, network size, and personality. Control variables for gender, age and (where appropriate) year of study were entered in the models prior to entering overall PCO. PCO became a significant predictor of academic attainment, $\beta = .27$, $t(74) = 2.38$, $p < .05$, but was unchanged for the other variables. Size of friendship network was then entered into each model. The significance of PCO was unchanged in each case which suggests that the effects of PCO were not just due to the size of participants’ friendship networks. Extraversion and emotional stability were then entered in place of network size. PCO remained a significant predictor of emotional support, $\beta = .40$, $t(52) = 2.18$, $p < .05$, academic adjustment, $\beta = .25$, $t(130) = 2.35$, $p < .05$, and academic attainment, $\beta = .26$, $t(72) = 2.01$, $p < .05$, but was no longer a significant predictor of appearing enthusiastic, $\beta = .13$, $t(47) = 0.66$, n.s., feeling enthusiastic, $\beta = .06$, $t(130) = 0.65$, n.s., and feeling relaxed, $\beta = .09$, $t(130) = 1.05$, n.s. The effects of PCO therefore appeared to be independent of the personality traits, except in relation to affect.

5. Study 2

5.1. Method

5.1.1. Research setting, participants, and procedure

The second study aimed to extend understanding of PCO by examining it within a work setting. The study was conducted in a department of a health-care organization. The department dealt with customers’ claims and queries concerning health insurance and health care, and employees worked in teams of between 7 and 18 members. The employees were invited to take part in an opinion survey as part of a wider research program concerning job design, and one of that survey questionnaire was used for this study.

The survey questionnaire was completed by 197 of 242 potential respondents, which gave a response rate of 81%. The participants were aged between 18 and 61 years ($M = 33.56$ years, S.D. = 9.87). There were 145 females and 52 men in the sample. Tenure in the organization ranged from less than 1 year to 25 years ($M = 6.64$ years, S.D. = 4.57). There were 146 full-time workers and 42 part-time workers (9 participants did not report their contracted hours). Most participants worked in one of three main work roles: customer advisor ($n = 98$), administrator ($n = 48$), or customer care manager/team leader ($n = 21$). The remaining participants either worked in other miscellaneous roles ($n = 17$) or did not report their role ($n = 13$).

The organization allowed all employees the opportunity and time to complete the survey questionnaire, which was administered by the research team during the course of two days at the site. The measures used for this study were all part of this questionnaire, except the measure for innovation involvement which was completed 8 months later (and had a reduced sample size of $N = 169$ due to attrition).

5.1.2. Measures

5.1.2.1. Propensity to connect with others. This measure (shown in Appendix A) was the same as the PCO scale used in Study 1. It measured overall PCO ($\alpha = .91$) and its three components: making friends ($\alpha = .88$), making acquaintances ($\alpha = .72$), and joining others ($\alpha = .86$).

5.1.2.2. Work-related expertise. This scale consisted of three items developed for the purpose of the study. Participants were asked to what extent they “have an expert knowledge of work-related matters”, “solve work-related problems without help” and “perform work-related tasks that others find difficult”. Each item had a 5-point response scale ranging from 1 (not at all) to 5 (a great deal). The three responses were averaged to produce an overall score for work-related expertise ($\alpha = .85$).

To validate the measure it was administered to 18 full-time employees in a call center who had volunteered to complete some

Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>d.f.</th>
<th>$\chi^2$</th>
<th>IFI</th>
<th>CFI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1 sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 first-order factors and 1</td>
<td>24</td>
<td>56.31**</td>
<td>.96</td>
<td>.96</td>
<td>.06</td>
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<tr>
<td>second-order factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 factor</td>
<td>27</td>
<td>131.24*</td>
<td>.89</td>
<td>.89</td>
<td>.09</td>
</tr>
<tr>
<td>3 alternative factors</td>
<td>24</td>
<td>120.99*</td>
<td>.90</td>
<td>.90</td>
<td>.10</td>
</tr>
<tr>
<td>Study 2 sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 first-order factors and 1</td>
<td>24</td>
<td>76.65**</td>
<td>.97</td>
<td>.97</td>
<td>.04</td>
</tr>
<tr>
<td>second-order factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 factor</td>
<td>27</td>
<td>238.78*</td>
<td>.90</td>
<td>.90</td>
<td>.07</td>
</tr>
<tr>
<td>3 alternative factors</td>
<td>24</td>
<td>219.26*</td>
<td>.91</td>
<td>.91</td>
<td>.07</td>
</tr>
</tbody>
</table>

Note. IFI: incremental fit index; CFI: comparative fit index; SRMR: standardized root mean square residual. $^*$ $p < .01$. $^{**}$ $p < .05$. $^{***}$ $p < .001$. $^{****}$ $p < .0001$. $^{††}$ $p < .01$. $^{‡‡}$ $p < .05$. $^{§§}$ $p < .10$. $^{†††}$ $p < .001$. $^{‡‡‡}$ $p < .005$. $^{§§§}$ $p < .01$.
new questionnaire measures for use in future research. The sample included 9 females and 9 males, with a mean age of 24.67 years (S.D. = 6.30), and a mean organizational tenure of 3.48 years (S.D. = 2.89). As well as completing the self-report measure of work-related expertise (scale M = 3.33, S.D. = 0.80; α = .82), these participants also rated the extent to which each of their teammates possessed work-related knowledge using a 5-point scale ranging from 1 (no or very little knowledge) to 5 (a great deal of knowledge). The work-related knowledge of each participant was rated by a minimum of 2 and a maximum of 4 colleagues (number of raters M = 2.67). The correlation between the self-report measure and third-party measure was r(18) = 0.74, p < .01, which implied they measure similar constructs.

5.1.2.3. Personal work networks. To derive the participants’ friendship and advice networks, they were asked to list the names of everyone in the department whom they considered to be their work friends (friendship) and whom they consulted when they needed to know something about work (advice). Other studies of organizational networks have used similar open-response lists to derive personal networks (e.g., Brass, 1984; Mehra et al., 2001). Participants were able to nominate as many people as they wished up to a maximum of 18 names. The maximum number of nominations from any participant was 17 and 89% participants provided 9 or fewer nominations for both networks, which indicated that the name limit was not unduly restrictive. Responses concerning friendship and advice ties were arranged into two 197 non-symmetric binary matrices. For example, if person j nominated person i, then cell Xij in the matrix was coded as 1, otherwise it was coded as 0.

5.1.2.4. Job-related affective well-being. This was measured using the same 12-item scale used in Study 1, but the questions were asked in relation to how much the person’s job had made them feel the 12 affective states during the past month. The scale assessed the two dimensions of feeling enthusiastic (α = .88) and feeling relaxed (α = .86).

5.1.2.5. Organizational involvement. This was measured using two scales that assessed distinct aspects of organizational involvement. The first scale measured influence over decision-making (Parker, 1998). It had three items (α = .90), including “Can you influence decisions about work procedures?”, and used a 5-point response scale from 1 (not at all) to 5 (a great deal). The second scale measured innovation involvement and was based on a measure devised by Axtell et al. (2000) that distinguished between the ideas that employees suggest and the implementation of their ideas. Ideas suggested (α = .91) was measured with three items, for example “Made proposals about doing things differently”. Ideas implemented (α = .95) was also measured with three items, for example “Had your proposals for doing things differently carried out”. Participants were asked to report the extent to which these things had happened in the previous 6 months using a 5-point response scale from 1 (not at all) to 5 (a very great extent).

5.1.3. Analysis

UCINET 6 for Windows (Borgatti et al., 2002) was used to compute the size, betweenness centrality and gatekeeper brokerage of the participants’ friendship and advice networks. The size of a participant’s network was measured by the number of people to whom that person was directly connected. In-ties (i.e., nominations nominated by others in the network) were used to calculate size. Betweenness centrality was measured by the percentage of network paths between all employees that passed through the participant. Non-directed ties (i.e., in- and out-ties) were used to calculate betweenness centrality because directed ties are hard to interpret for betweenness. The betweenness scores were normalized by dividing the scores by maximum possible betweenness. The scores for network size and betweenness centrality were log transformed because they were positively skewed. Gatekeeper brokerage was measured by the number of network paths that passed through a participant from a source employee to a destination employee where the two employees belonged to different work groups and the participant was a member of the same work group as the destination employee. The employees were divided into three work groups corresponding to the three main work roles (customer advisor, administrator, and customer care manager/team leader). The scores for gatekeeper brokerage were weighted in inverse proportion to the number of other participants who had the same gatekeeping position, so as to give greater weight to the scores of individuals whose gatekeeping position was unusual compared to their peers (Gould and Fernandez, 1989). Relations between PCO and the other variables were then analyzed using correlation and regression procedures.

5.2. Results

5.2.1. Confirmatory factor analysis and reliability of PCO

LISREL 8.7 (Jöreskog and Sörbom, 2004) was used to conduct a CFA on PCO in order to see whether the hierarchical factor structure found in Study 1 could be replicated in an employed sample. The fit statistics for the model are shown in Table 2. Our hypothesized hierarchical model provided a good fit to the data based on all four fit indices, and fitted better than the single factor model or the alternative three-factor model (although these models also fitted reasonably well). A Chi-square difference test of the two nested models showed that the hierarchical model fitted significantly better than the single factor model (Δ χ²(2) = 162.13, p < .01). All hypothesized factor loadings in the hierarchical model were greater than or equal to .59. The internal consistency reliabilities of the overall scale and its three components all exceeded .7 (see Section 5.1.2.1), and were therefore satisfactory. Correlations between the three components ranged between .60 and .73 (see Table 3).

5.2.2. Normative characteristics of PCO

Table 3 shows the means, standard deviations, and correlations between the study variables, including overall PCO and its components. Skewness (−.29, S.E. .17) and kurtosis (−.54, S.E. .35) values for employees’ overall PCO were within the range for a normal distribution. Overall PCO in this sample (M = 3.48) did not differ from that in Study 1 (M = 3.56), t(338) = .86, n.s.

Females scored higher than males on overall PCO and its components, but none of the differences were significant. There were no significant correlations between overall PCO (and its components) and age, organizational tenure, and work expertise (see Table 3), which suggest that PCO does not depend on experience or possession of domain-specific knowledge/skills. In contrast, work expertise was significantly correlated with organizational tenure and with the size of an employee’s advice network (i.e., the number of people who consult the employee) but not with age, which suggests that – unlike PCO – it does depend on domain-specific knowledge/skills.

A one-way analysis of variance showed that overall PCO differed between participants in the three work roles, F(2, 162) = 3.30, p < .05, η² = .04. Post hoc LSD comparisons showed that managers/team leaders (M = 3.88) had greater overall PCO than customer advisors (M = 3.47, p < .05) and administrators (M = 3.34, p > .05). To assess this role influence in subsequent analyses, a new variable – leadership role – was created which had a value of 1 if the participant was a manager or team leader, and 0 otherwise. Table 3 shows that hav-
Table 3

Means, standard deviations, and correlations between Study 2 variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall PCO</td>
<td>3.48</td>
<td>0.84</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td></td>
</tr>
<tr>
<td>Propensity to make acquaintances</td>
<td>3.49</td>
<td>0.89</td>
<td>.91**</td>
<td>.73*</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
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<td></td>
</tr>
<tr>
<td>Propensity to join others</td>
<td>3.37</td>
<td>0.91</td>
<td>.85**</td>
<td>.60**</td>
<td>.69**</td>
<td>–</td>
<td>–</td>
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</tr>
<tr>
<td>Betweenness centrality in friendship network</td>
<td>1.29</td>
<td>1.62</td>
<td>.21**</td>
<td>.17*</td>
<td>.20**</td>
<td>.17*</td>
<td>.08</td>
<td>.45**</td>
<td>.34**</td>
<td>.34**</td>
<td>–</td>
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<tr>
<td>Betweenness centrality in advice network</td>
<td>1.30</td>
<td>2.09</td>
<td>.12</td>
<td>.05</td>
<td>.09</td>
<td>.09</td>
<td>.09</td>
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</tr>
<tr>
<td>Gatekeeper brokerage in advice network</td>
<td>0.10</td>
<td>0.55</td>
<td>.16 *</td>
<td>.11</td>
<td>.17 *</td>
<td>.15 *</td>
<td>.01</td>
<td>.02</td>
<td>.20 *</td>
<td>.22**</td>
<td>.37**</td>
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<td>–</td>
<td>–</td>
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<td></td>
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<tr>
<td>Affective well-being: enthusiastic</td>
<td>3.33</td>
<td>0.84</td>
<td>.10</td>
<td>.10</td>
<td>.09</td>
<td>.09</td>
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<td>.09</td>
<td>.09</td>
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<td></td>
</tr>
<tr>
<td>Influence over decision-making</td>
<td>2.32</td>
<td>0.96</td>
<td>.21**</td>
<td>.15*</td>
<td>.21**</td>
<td>.20**</td>
<td>.15*</td>
<td>.14*</td>
<td>.27**</td>
<td>.13</td>
<td>.24**</td>
<td>.04</td>
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<td>.03</td>
<td>.03</td>
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<tr>
<td>Ideas suggested</td>
<td>2.80</td>
<td>0.90</td>
<td>.20 *</td>
<td>.14</td>
<td>.15</td>
<td>.25**</td>
<td>.27**</td>
<td>–</td>
<td>–</td>
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<td>–</td>
<td>–</td>
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<td></td>
</tr>
<tr>
<td>Ideas implemented</td>
<td>1.96</td>
<td>0.99</td>
<td>.07</td>
<td>.02</td>
<td>.07</td>
<td>.10</td>
<td>.13</td>
<td>.01</td>
<td>.26**</td>
<td>–</td>
<td>–</td>
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</tr>
<tr>
<td>Age (years)</td>
<td>33.60</td>
<td>9.87</td>
<td>–</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
<td>–</td>
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<tr>
<td>Tenure in organization (years)</td>
<td>6.64</td>
<td>4.57</td>
<td>.14</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
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<td>.25</td>
<td>.25</td>
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<td></td>
</tr>
<tr>
<td>Leadership role</td>
<td>1.11</td>
<td>0.52</td>
<td>–</td>
<td>–</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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<td></td>
</tr>
</tbody>
</table>

Note: N = 197.

5.2.3. Relationships between employees’ PCO and their networks

5.2.3.1. Overall PCO. Criterion validity for the PCO measure was assessed by examining its relationships with various characteristics of the friendship and advice networks that employees had formed within the organization. Table 3 shows that overall PCO was significantly correlated with friendship network size (i.e., the number of employees in the sample who consider the participant to be their friend), betweenness centrality in the friendship network, and gatekeeper brokerage in the advice network. However, the relationship with gatekeeper brokerage was not significant after partialed out the effects of gender, organizational tenure and leadership role.

5.2.3.2. Propensity to make friends. Table 3 shows that this PCO component was significantly correlated with friendship network size and friendship betweenness centrality. To test Hypothesis 4 that propensity to make friends would be related to size of friendship network, a regression analysis was conducted with friendship network size as the dependent variable and propensity to make friends, work expertise, and the product of friendship propensity and work expertise entered as predictor variables. The predictor variables were standardized, and control variables for gender, tenure and leadership role were entered into the model prior to the predictor variables (as they were in subsequent regression analyses). There was a significant main effect of propensity to make friends, β = .22, p < .01, but not a main effect of expertise or an interaction between friendship propensity and expertise (see Table 4). This supported Hypothesis 4, and also suggested that participants did not make friends on the basis of a person’s work expertise. No effects were found for friendship propensity when advice network size was the dependent variable (see Table 4) which suggests that this component was – as it should be – more sensitive to the formation of friendship ties than advice ties.

5.2.3.3. Propensity to make acquaintances. This component was not significantly correlated with friendship or advice network size, but it was significantly correlated with friendship betweenness centrality and advice gatekeeper brokerage (see Table 3). In support of Hypothesis 5 that propensity to make acquaintances would be related to advice network size when combined with work expertise, a regression analysis showed that there was a significant interaction between propensity to make acquaintances and work expertise in predicting advice network size, β = .14, p < .05 (see Table 4). Fig. 2 shows that employees who had high propensity to make acquaintances and high work expertise had the most colleagues going to them for advice. In line with our expectations, propensity to make acquaintances did not interact with work expertise to predict friendship network size (see Table 4).

A regression analysis with advice betweenness centrality as the dependent variable showed a significant interaction between acquaintance propensity and work expertise, β = .15, t(174) = 2.03, p < .05, but not when leadership role was included in the model. Likewise, a regression analysis with advice gatekeeper brokerage as the dependent variable showed a significant main effect of acquaintance propensity, β = .18, t(156) = 2.27, p < .05, but not when leadership role was included. Leadership role may therefore account for these associations. Hence, there was only qualified support for Hypothesis 5 in relation to betweenness centrality and gatekeeper brokerage.

5.2.3.4. Propensity to join others. This component was significantly correlated with friendship betweenness centrality and advice gate-
keeper brokerage, but unlike friendship or acquaintance propensity it was also significantly correlated with advice network size and advice betweenness centrality (see Table 3). In support of Hypothesis 6 that propensity to join others would be related to advice network size when combined with work expertise, a regression analysis showed that it interacted with work expertise in predicting advice network size, $\beta = .15, t(173) = 2.03, p < .05$ (see Table 4). In line with our expectations, propensity to join others did not interact with work expertise to predict friendship network size (see Table 4).

A regression analysis with advice betweenness centrality as the dependent variable showed a significant interaction between joining others and work expertise, $\beta = .15, t(156) = 1.90, p < .05$, but not when leadership role was included in the model. A regression analysis with gatekeeper brokerage as the dependent variable showed a significant main effect of joining others, $\beta = .24, t(156) = 3.43, p < .05$, but not when leadership role was included. Leadership role may therefore account for these associations. Hence, there was only qualified support for Hypothesis 6 in relation to betweenness centrality and gatekeeper brokerage.

### Table 4
Regression models showing interactive effects of work expertise and components of propensity to connect with others (PCO) on network size in advice and friendship networks

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Dependent variables</th>
<th>Size of advice network</th>
<th>Size of friendship network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propensity to make friends (F)</td>
<td>$\beta = .08$</td>
<td>$t = 1.15$</td>
<td>$\beta = .22$</td>
</tr>
<tr>
<td>Work expertise</td>
<td>$.24$</td>
<td>$.34**</td>
<td>$.13$</td>
</tr>
<tr>
<td>$F \times E$</td>
<td>$.05$</td>
<td>$.07$</td>
<td>$.10$</td>
</tr>
<tr>
<td>Model summary</td>
<td>$.23**</td>
<td></td>
<td>$.10**</td>
</tr>
<tr>
<td>Propensity to make acquaintances (A)</td>
<td>$.02$</td>
<td>$.24$</td>
<td>$.12$</td>
</tr>
<tr>
<td>Work expertise</td>
<td>$.25$</td>
<td>$.357**</td>
<td>$.13$</td>
</tr>
<tr>
<td>$A \times E$</td>
<td>$.14$</td>
<td>$.207**</td>
<td>$.02$</td>
</tr>
<tr>
<td>Model summary</td>
<td>$.24**</td>
<td></td>
<td>$.05</td>
</tr>
<tr>
<td>Propensity to join others (J)</td>
<td>$.03$</td>
<td>$.44$</td>
<td>$.09$</td>
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<tr>
<td>Work expertise</td>
<td>$.25$</td>
<td>$.351**</td>
<td>$.14$</td>
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<tr>
<td>$J \times E$</td>
<td>$.15$</td>
<td>$.218**</td>
<td>$.04$</td>
</tr>
<tr>
<td>Model summary</td>
<td>$.25**</td>
<td></td>
<td>$.05</td>
</tr>
</tbody>
</table>

Note. N = 177. Dependent variables were based on in-ties and were log transformed. Predictor variables were standardized. Control variables – gender, organizational tenure and leadership role – were entered prior to the predictor variables.

*$p < .05$.

**$p < .01$.

5.2.4. Relationships between employees’ PCO and work-related outcomes

Finally, Hypothesis 7 which proposed that PCO would be positively related to job-related affective well-being and organizational involvement was tested.

5.2.4.1. Job-related affective well-being. Overall PCO, friendship propensity and acquaintance propensity were significantly positively correlated with the feeling relaxed dimension of job-related affective well-being, but were not correlated with feeling enthusiastic (see Table 3). Hypothesis 7 was therefore supported with respect to the relaxed dimension of well-being, but not with respect to the enthusiasm dimension. To assess whether the association between PCO and feeling relaxed was due to the size of participants’ networks, a regression analysis was conducted with feeling relaxed as the dependent variable. Gender, organizational tenure, and leadership role were entered in the model prior to entering overall PCO, (log) size of friendship network, and (log) size of advice network. The analysis showed that employees who felt more relaxed had greater overall PCO, $\beta = .19, t(171) = 2.55, p < .05$, and larger friendship networks, $\beta = .21, t(171) = 2.49, p < .05$. The association between PCO and feeling relaxed was not therefore due solely to network size.

5.2.4.2. Organizational involvement. Table 3 shows that overall PCO and propensity to join others were significantly positively correlated with influence over decision-making and ideas suggested. Friendship propensity and acquaintance propensity were also significantly positively correlated with decision-making influence. In line with our expectations, PCO and its components were not significantly correlated with ideas implemented. A regression analysis with influence over decision-making as the dependent variable, and control variables for gender, tenure and leadership role entered in the model, showed a significant effect of overall PCO, $\beta = .13, t(176) = 2.04, p < .05$, as well as significant effects for tenure, $\beta = .16, t(176) = 2.34, p < .05$ and leadership, $\beta = .40, t(176) = 5.85, p < .01$. This result indicates that individuals who had longer tenure or had a leadership role had greater decision-making influence, but the association between PCO and influence was not dependent on these variables. Entering (log) size of friendship network and (log) size of advice network with overall PCO, showed that employees

![Fig. 2. Number of colleagues who go to participants for advice as a function of their propensity to make acquaintances and work-related expertise.](image-url)
who had greater decision-making influence had greater overall PCO, $\beta = .15$, $t(189) = 2.13$, $p < .05$, and larger advice networks, $\beta = .25$, $t(189) = 3.18$, $p < .01$. In other words, advice network size was associated with influence, but the association between PCO and influence was not dependent on network size. Hypothesis 7 was therefore supported with respect to the association between PCO and decision-making influence.

With ideas suggested as the dependent variable, overall PCO was not significant, $\beta = .17$, $t(105) = 1.74$, $p = .09$ in the presence of the control variables. Replacing overall PCO with the joining others component of PCO, showed a significant effect for this component, $\beta = .21$, $t(105) = 2.20$, $p < .05$, in the presence of the control variables. This means that individuals who had greater propensity to join others were also more likely to suggest ideas in the organization. A regression model examining the influence of network size in the relationship between PCO and ideas suggestion, showed that employees who had greater overall PCO, $\beta = .22$, $t(114) = 2.44$, $p < .05$, larger advice networks, $\beta = .28$, $t(114) = 2.90$, $p < .01$, and smaller friendship networks, $\beta = -.20$, $t(114) = 2.06$, $p < .05$, suggested more ideas. Hypothesis 7 was therefore supported with respect to the association between PCO and suggestion-making.

6. Discussion

Research on social networks has mostly focused on the structure and effects of relationships between individuals, rather than on how the attributes of individuals might contribute to the formation and structure of social networks. The two studies in this investigation have focused on one such attribute, namely people’s propensity to connect with others (PCO). The results indicate that this propensity is a measurable individual difference that can help make sense of: an individual’s position within an organizational or other social network; the kind of network ties that an individual is likely to form; the social signals that an individual is likely to display to others; and some of the personal and social outcomes an individual may experience as a consequence of his or her PCO. Furthermore, the results suggest that PCO is not independent of personality but has explanatory power beyond that provided by personality traits.

6.1. Central findings

6.1.1. Individual differences in PCO

In both studies, PCO was measured using a newly designed brief self-report scale that had three sub-scales for assessing: an individual’s propensity to make friends (strong ties), make acquaintances (weak ties), and join others (bridging ties). The proposed factor structure was confirmed and replicated using two samples (composed of undergraduates and employees from a health-care organization), and the scale was found to have acceptable psychometric properties. As an individual difference construct, PCO may be developmentally stable because it did not vary in association with age within samples and it produced similar mean scores in samples with a mean age difference of 14 years. Possession of domain skills did not appear to be a prerequisite to having PCO because it was not related to a person’s work expertise. However, we found that managers and team leaders had greater PCO than other employees in the organization, which implies that having this propensity may incline individuals to adopt or be adopted for certain roles within organizations. In particular, managers and team leaders were more inclined to form weak ties and bridging ties, and these are precisely the kinds of tie that have been associated with acquiring power and influence in organizations (Brass, 1984; Brass et al., 2004).

6.1.2. PCO, personality and appearance to others

An individual with PCO is likely to be outwardly oriented in disposition and therefore it was not surprising that Study 1 found PCO was strongly related to extraversion and to a lesser extent to emotional stability. Nonetheless, PCO was a better predictor of network size than these personality factors (which supported Hypothesis 1), and a better predictor of academic adjustment and attainment too. Individuals with higher PCO also appeared to other people as having greater positive affectivity (which supported Hypothesis 2). Expression of positive affect may be one way in which individuals who want to make connections with other people can signal their motivation to do so. In addition, research on emotional labor has established that displays of positive affect can help gain compliance, increase loyalty and enhance the positive evaluation of others (e.g., Pugh, 2001; Rafaeli and Sutton, 1990; Tsai, 2001), all of which may help cement ties between people.

6.1.3. PCO and network characteristics

Both studies found that individuals who had greater overall PCO also had larger friendship networks. The results showed strong positive associations between the three components of PCO which indicated that individuals who formed one kind of tie were also likely to form the others. Yet the components of PCO were nevertheless differentially sensitive to the formation of different kinds of network tie (as predicted by Hypotheses 4–6). Study 2 found that making friends was directly related to the number of friendship ties employees had, but not to their number of advice ties. In contrast, number of advice ties and betweenness centrality in the advice network was related to the combined presence of work expertise and either propensity to make acquaintances or propensity to join others (but not propensity to make friends). This finding indicates that a person’s propensity to connect sometimes needs to be complemented by other qualities in order to cement the ties he or she is inclined to form. However, unlike acquaintance propensity, the component for joining others also showed direct associations with advice network size and advice betweenness centrality. Individuals with greater propensity for making acquaintances or joining others were also more likely to act as gatekeepers for information passing into their work-role group. However, these relationships were accounted for by leadership role, which implies that individuals who have these propensities are more likely to have a gatekeeping position because they are more likely to be in a leadership role.

6.1.4. PCO and personal adjustment

There was evidence from both studies that PCO may help individuals adjust and thrive in their social context. In Study 1, in support of Hypothesis 3, PCO was positively related to emotional support received, affective well-being, academic adjustment to university, and academic attainment on assessed work. Similarly in Study 2, in support of Hypothesis 7, PCO was positively related to the calmness dimension of job-related affect, and to aspects of organizational involvement including decision-making influence and suggesting ideas. Unlike in Study 1, PCO was not related to the enthusiasm dimension of well-being in Study 2. Study 2 measures well-being in relation to how participants’ jobs made them feel, so perhaps there was something about their job that constrained the association. Concerning organizational involvement, the results demonstrated that individuals with high PCO reported having more decision-making influence and suggesting more ideas in the organization, irrespective of the size of their friendship and advice networks. Consistent with Burt’s (2004) analysis of network structure and organizational innovation, PCO was not associated with the implementation of ideas. However, innovation involvement (ideas suggestion and implementation) was measured 8 months after PCO in the present investigation, so one possible explanation...
is that this period was sufficient to capture suggestion-making but insufficient to capture implementation of ideas. The PCO component for joining others appeared to be the most active ingredient in the association with suggestion-making, which accords with Obstfeld’s (2005) link between having a tertius iungens orientation and getting involved in organizational innovation.

6.2. Limitations

A potential threat to the precision of our findings is that the accuracy of people’s perception of their network structure can depend on their position within the network and on aspects of their personality and affectivity (Casciaro, 1998; Casciaro et al., 1999). In particular, Casciaro (1998) found that individuals who are more central in the friendship and advice networks of their organization are more accurate in reporting the structure of their networks. By inference, this might suggest that individuals with greater PCO will have been more accurate in reporting their network ties. Distortions arising from this source are more likely to have affected the results of Study 1, because Study 2 used nominations from other people in the network (in-ties) to calculate network size. However, betweenness centrality was measured using out-ties as well as in-ties. A perceptual account may therefore explain why acquaintance propensity was related to betweenness centrality but not size in the friendship network. This account would argue that individuals with acquaintance propensity are more likely to perceive and therefore nominate others as friends.

It is also possible that individuals’ positions in their social networks were the cause rather than the consequence of their PCO, although this seems a less parsimonious explanation in that it would then be necessary to explain how PCO arose from different types of network (friendship, advice) from different life stages (pre-career and career). We stated earlier that PCO may incline individuals to adopt or be adopted for leadership roles. Alternatively, those in leadership roles may have greater access to people and therefore score higher on PCO.

With respect to our measure of PCO, the components for friendship and acquaintance propensity were based on a commonly used distinction between the strong ties of friendship and the weak ties of acquaintance. However, different types of social network (friendship, advice, etc.) can contain both strong and weak ties. Our results show that the components map on to different types of network, but that does not necessarily mean that they will distinguish between different strengths of tie within those networks. One possibility is that the components will interact in accounting for tie strength (and possibly other outcomes). For example, individuals who have high friendship propensity and low acquaintance propensity may have a predominance of strong ties in their social networks.

Another limitation of the present investigation stemmed from the briefness of interactions between participants in Study 1, which restricted the basis on which participants’ affective appearance could be judged by others. This brevity had the advantage that it captured people’s first impressions of others, and first impressions may be important in influencing whether or not people initiate connections with others. The disadvantage is that the results may not capture how individuals with high PCO appear to others over a longer time period involving repeated interactions. It was notable, for example, that although individuals with greater PCO reported feeling calmer, they did not appear to others as calmer during first social encounters.

6.3. Future research

A number of possibilities for future research are opened up by the findings of the two studies. First, the research could be extended to identify individuals who have other orientations towards networks. Our focus has been on individuals who readily connect with others and who consequently have large social networks, but another focus would be to identify and examine individuals who have a propensity to be members of networks that are rich in connections (i.e., networks that are dense and have few structural holes). This would be in the same vein as Burt et al.’s (1998) undertaking to identify the personality profile of individuals who possess structural holes in their work networks, but it would more directly examine people’s inclinations towards having tightly knit networks. The characteristics and consequences of this networking propensity could then be compared with PCO.

Second, the research could be extended to examine how PCO combines with other individual characteristics to shape network ties and network-related outcomes (e.g., accrual of social capital). Our research has already established that individuals are more likely to be consulted within an organization if they have both high PCO and work expertise. Similarly, a combination of PCO and charisma (or affective communication) might have implications for performance in another type of network (e.g., in a consumer network). Other characteristics of individuals might also mean that their willingness to connect is unreciprocated by others. For example, individuals who persistently express negative affect or who are indiscr et are unlikely to be attractive to others for providing friendship or help. Casciaro and Lobo (2005) found that employees are less likely to seek help from colleagues they dislike even if those colleagues are very competent. Hence, individuals who have PCO but are perceived as dislikeable seem likely to suffer when their initiatives to connect are rejected. Similarly, there may also be negative consequences for individuals exposed to the negative affect or indiscretions of prodigious connectors.

Third, the research could be extended to examine other types of network connection. Study 2 looked at the characteristics of individuals who were sought by others for advice, but it would also be helpful to understand the characteristics of individuals who seek out others for advice within networks. The study also looked at the extent to which individuals act as brokers in network paths that pass into their work-role group, but there are other types of brokerage roles to examine within networks including individuals who represent a group to those outside it, or who enter a group to act as a consultant, or who act as an intermediary between other groups (Baker and Faulkner, 2002; Gould and Fernandez, 1989).

Fourth, the research could be extended to examine other types of outcome for individuals with PCO. We studied organizational involvement and well-being within an organization, but there may also be implications for other types of behavior. For example, Wolff and Moser (2005) found that the networking behaviors of individuals, in the form of maintaining internal and external organizational contacts, were related to promotions and turnover. Networking ability has also been related to the use of influence tactics (Ferris et al., 2005) and to supervisor ratings of initiative-taking and job performance (Thompson, 2005). Burt et al. (1998) warn, however, that measures of individual characteristics should not be used as a substitute for collecting network data. As evidence for this view, they demonstrated that a network which is associated with a trait can be advantageous to an individual even when the overt display of that trait is not advantageous. We do not disagree with this point, but our results show that equally network data should not be a substitute for individual characteristics. For example, PCO was related to various outcomes independent of network size in both studies. Other network characteristics could potentially have accounted for its effects, but it may be difficult to identify all the relevant ones for any single analysis. PCO may also capture a propensity for acting
dynamically in a social network that is lost in a single snapshot of the state of a social network.

Fifth, and finally, the role of PCO in other social contexts should be explored. Relevant to this is the possibility that relations with PCO may be different when social connections are formed through virtual means. For example, extroversion may be less likely to influence the expression of PCO in computer-mediated communications because the connections can be formed away from a social setting without physical proximity (Goby, 2006). People’s greater reliance on virtual work networks and their increasing adoption of recreational social networking applications suggest that understanding the role of PCO in relation to mediated communications behavior will be an important issue to address.

6.4. Practical implications

Research on individual differences in networks is at an early stage but its implications for practical application within social communities can be considered. Most social communities are likely to require a mix of individual networking orientations for their networks to function effectively. For instance, Oh et al. (2004) found that the effectiveness of groups is enhanced by having a mix of network configurations, including both bridging relationships and closure relationships (in which a person’s contacts are also connected to each other). Consequently, they recommended that large groups such as organizations should aim to achieve a balance between individuals who are adept at creating bridging ties and those who are adept at maintaining closure ties. We have yet to identify the characteristics of individuals inclined towards closure ties, but PCO may help identify individuals who will provide strong, weak and bridging ties within a network.

Although PCO has satisfactory psychometric characteristics and appears to be usable with both pre-career and career groups, we would not recommend it as a personnel selection tool for organizations. Not only would it be easy for an individual to fake scores on the measure if they were motivated to do so, but it is unlikely that PCO is a uniformly desirable characteristic for any job. PCO might however be a useful diagnostic tool, which organizations and other communities could further develop to help them understand and shape their particular networks.

More generally, PCO could be a useful tool in the development of models for understanding the structure and behavior of social networks, such as exponential random graph models. New specifications are emerging for these models that incorporate ideas such as social circuit dependence, in which connections between network nodes can be induced by connections between other nodes (Robins et al., 2007). The likelihood of such connections being generated can be affected by the attributes of the nodes, and as such may be partly determined by a person’s propensity to connect with others.

Acknowledgements

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Appendix A. Scale for propensity to connect with others (PCO)

For each of the following statements, please indicate how well it describes you:

<table>
<thead>
<tr>
<th>Does not describe me very well</th>
<th>Somewhat describes me</th>
<th>Describes me very well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have many friends.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>2. I make friends easily.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>3. I like to have many friends.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>4. I have many acquaintances.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>5. I readily make connections with people</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>6. I like to know a lot of people.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>7. I often put people in touch with the right person when they need something.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>8. I find it easy to bring individuals together.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>9. I like being able to connect people.</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
</tbody>
</table>

Components:
- Items 1–3: Propensity to make friends.
- Items 4–6: Propensity to make acquaintances.
- Items 7–9: Propensity to join others.

Scoring:
- Item responses are scored 1–5.
- Does not describe me very well = 1.
- Describes me very well = 5.

References


