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Effects of Networking on Career Success: A Longitudinal Study

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Previous research has reported effects of networking, defined as building, maintaining, and using relationships, on career success. However, empirical studies have relied exclusively on concurrent or retrospective designs that rest upon strong assumptions about the causal direction of this relation and depict a static snapshot of the relation at a given point in time. This study provides a dynamic perspective on the effects of networking on career success and reports results of a longitudinal study. Networking was assessed with 6 subscales that resulted from combining measures of the facets of (a) internal versus external networking and (b) building versus maintaining versus using contacts. Objective (salary) and subjective (career satisfaction) measures of career success were obtained for 3 consecutive years. Multilevel analyses showed that networking is related to concurrent salary and that it is related to the growth rate of salary over time. Networking is also related to concurrent career satisfaction. As satisfaction remained stable over time, no effects of networking on the growth of career satisfaction were found.

Keywords: networking, career success, career development, social interaction

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Many books and articles in the practitioner literature suggest that networking behaviors, such as going out for drinks to discuss business matters informally, attending conferences, or staying in contact with former colleagues, are essential to career success (e.g., Nierenberg, 2002; Torres, 2005; Welch, 1980). Similarly, scholarly research has shown that networking is positively related to objective and subjective measures of career success (Forret & Dougherty, 2004; Langford, 2000; Michael & Yukl, 1993; Orpen, 1996). Networking is also associated with favorable performance ratings (Sturges, Conway, Guest, & Liefhooghe, 2005; Thompson, 2005) and may be a viable job search strategy (Wanberg, Kanfer, & Banas, 2000). Networking behaviors are used to build and maintain informal contacts that enhance career success (Forret & Dougherty, 2004; Luthans, Rosenkrantz, & Hennessey, 1985; Michael & Yukl, 1993).

To our knowledge, all studies on the relationship between networking and career success have utilized either concurrent or retrospective designs that are not without limitations. Concurrent designs provide a static snapshot of the relation between networking and career success, because they show that networkers are more successful than non-networkers at a given point in time. These designs do not provide strong evidence for causality (i.e., that networking has led to career success). Furthermore, concurrent designs do not yield insights into the dynamics of this relation and have not included effects of networking on the change of career success over time. In popular theorizing, networking is typically associated with accelerated growth in career success (e.g., the salary gap between networkers and non-networkers is assumed to increase over time). The examination of this dynamic effect requires the observation of individual trajectories of career success over time and cannot be achieved by concurrent research designs. Retrospective designs, which relate networking to prior career success, provide the opportunity to study dynamic effects. For example, Michael and Yukl (1993) assessed the number of promotions an individual had received in his or her career. However, these designs also rely on strong assumptions, because they do not take the proper temporal order of variables into account. They implicitly assume that networking leads to career success but cannot rule out the possibility that it is necessary to resort to networking as one climbs the career ladder and has to fulfill tasks of higher responsibility and discretion (see, e.g., Katz & Kahn, 1978).

Our purpose in the present study was to overcome these limitations by investigating the effects of networking on career success with a longitudinal research design. We therefore took the presumed causal order, from networking to career success, into account. Moreover, by examining individual trajectories of career success over time, we examined not just whether networking is related to career success but whether networking is related to accelerated growth in career success. The study has contributed to the literature in two ways. First, we further investigated the causal link between networking and career success and provided stronger evidence for the causal influence of networking on career success. Second, we emphasized the notions of time and change in our study and thus introduced a dynamic perspective into networking research (e.g., Raudenbush, 2001).

Networking

In the current research, networking is defined as behaviors that are aimed at building, maintaining, and using informal relationships that

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possess the (potential) benefit of facilitating work-related activities of individuals by voluntarily granting access to resources and maximizing common advantages (Wolff & Moser, 2006; see also Forret & Dougherty, 2004). The construct is defined on a behavioral level (e.g., Michael & Yukl, 1993; Wanberg et al., 2000; Witt, 2004) and can be considered a "behavior syndrome" (cf. Frese, Fay, Hilburger, Leng, & Tag, 1997), that is, a set of interrelated behaviors consistently shown by individuals. Accordingly, networking measures typically assess how often individuals show networking behaviors (e.g., by discussing business matters outside of working hours or using contacts to get confidential advice). In theoretical accounts (e.g., A. R. Cohen & Bradford, 1989; Kaplan, 1984; Michael & Yukl, 1993), it is assumed that these behaviors lead to informal, voluntary, and reciprocal relationships that in turn facilitate access to resources such as task-related support, strategic information, or career success (Podolny & Baron, 1997; Wolff, Moser, & Grau, in press).

Networking is distinct from the concept of social capital, which refers to a different level of analysis. Networking is an individual-level construct and focuses on individual behavior. The concept of social capital refers to a structural level of analysis and focuses on the quality and extent of existing relationship constellations (Adler & Kwon, 2002; Burt, 1992; Seibert, Kraimer, & Liden, 2001). For example, Coleman (1988) stated that "social capital inheres in the structure of relations between actors and among actors" (p. S98). It is therefore closely linked to the position of an individual in a network and is typically characterized by specific aspects of network structures, such as network size, density, or structural holes. In contrast, networking emphasizes individual actions and assesses to what extent individuals proactively build and develop contacts. Networking can thus be considered one out of several predictors of network structures (Wolff & Moser, 2006). However, social capital also depends to a high extent on situational opportunities (Burt, 1992), such as holding a supervisory position (Carroll & Teo, 1996) or a position of high workflow criticality (Brass, 1984).

Networking and Career Success

Career success is defined as the "positive psychological or work-related outcomes or achievements one has accumulated as a result of one's work experiences" (Judge, Cable, Boudreau, & Bretz, 1995, p. 486). In accordance with other studies (e.g., Gattiker & Larwood, 1989; Judge et al., 1995; Seibert et al., 2001), we distinguish objective career success from subjective success. Objective career success refers to observable career accomplishments that can be reliably judged by others (e.g., pay and ascendancy). Subjective career success pertains to appraisals by individuals of their career success. This subjective judgment is influenced not only by objective criteria but by individual aspiration levels, social comparisons to relevant others, and situational constraints such as opportunities for advancement in a profession (e.g., Arthur, Khapova, & Wilderom, 2005; Gattiker & Larwood, 1989).

Several studies have shown that networking is related to both objective and subjective career success (Forret & Dougherty, 2004; Langford, 2000; Michael & Yukl, 1993; Orpen, 1996). For example, Michael and Yukl found that networking is related to the number of promotions an individual has received in her or his career, and Langford (2000) showed that networking is related to perceived career success. Unfortunately, these studies have all had either concurrent or retrospective designs that suffer from the limitations described above. They have provided only limited support for causal evidence and have failed to address the dynamics of career success over time.

We argue therefore that a dynamic perspective on the relation between networking and career success is necessary. In theories linking networking to career success, it is assumed that networking is a way to get ahead (of others); this assumption implies not only static differences in career success but accelerated growth of career success. In this study, we used a longitudinal design to disentangle the concurrent (i.e., static) effects from growth (i.e., dynamic) effects of networking over time. We assumed that networking is related to concurrent career success and thus aimed to replicate results from concurrent research designs. Furthermore, we extended prior research by assuming that networking would also be related to the prospective growth of career success. We used salary, the most prominent indicator of objective career success (see, e.g., the meta-analysis by Ng, Eby, Sorensen, & Feldman, 2005), as a measure of objective success. In addition, we examined individuals' career satisfaction to assess subjective career success (Judge et al., 1995; Ng et al., 2005; Seibert et al., 2001). If networking leads to objective career success as well as to accelerated growth of success, we hypothesized, it should also result in increased satisfaction with one's career. Career satisfaction could even be enhanced, as networking leads to a broad network of contacts that provides more opportunities for one to compare one's accomplishments with those of other individuals.

Hypothesis 1: Networking is related to concurrent objective career success.

Hypothesis 2: Networking is related to growth of objective career success.

Hypothesis 3: Networking is related to concurrent subjective career success.

Hypothesis 4: Networking is related to growth of subjective career success.

Method

Participants and Procedure

The study, which used a panel design with three survey waves, was conducted in Germany. In October 2001, we collected addresses from 455 employed individuals and asked them to participate in a longitudinal study on predictors of career success. To evade problems of restricted sampling range, we used several means to recruit participants. For example, we were able to include invitations to participate in our study in official letters to university alumni as well as to participants in (non-university-based) night school training classes. We also approached participants at official events (e.g., an alumni party) and asked personal contacts to approach employees in their company. Of the questionnaires mailed to these 455 individuals, 279 were returned, for a response rate of 61.3 %. Mean age of the respondents was 32 years ($SD = 6.5$); 60.4% were male, and 42% had a college degree. Participants came from a wide range of industrial sectors, in particular from the service industry (42%), manufacturing (30%), and trade organizations

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(14%). Questionnaires were subsequently mailed to all addresses in November 2002 and December 2003; of those questionnaires, 227 (81.7% of 279) and 202 (72.4%) were returned. Following Goodman and Blum (1996), we conducted dropout analyses by regressing dichotomous indicators of missingness for Waves 2 and 3 on our study variables. Analyses showed no systematic dropout at Wave 2. However, women and individuals from larger organizations were significantly less likely to participate in the third wave. Although this fact does indicate systematic dropout at Wave 3, it is important to note that this dropout was related only to control variables and did not depend on networking or career success (Menard, 1991).

We used three substantive criteria to select participants for the analyses. First, we included only respondents who worked more than 20 hr per week and earned more than EUR 5,000 per year (roughly US$5,000 in the observation period). Second, we included only those respondents who were permanently employed during the observation period and excluded participants for a variety of reasons (e.g., maternity leave, spells of unemployment, or severe illness). Although analyses for these participants would be of interest, their small number and their highly specific situations (e.g., 3 women took maternity leave during the study period) rendered a substantive analysis impossible. Finally, participants with missing values at Wave 1 in control variables, networking, or career success variables were excluded.

We included participants with partially missing data in the dependent variables at Waves 2 and 3 in our analyses. One advantage of the multilevel analyses we used is that participants with missing data in the dependent variable at some survey waves could be included in the analyses (i.e., information from participants who provided data at Wave 1 and Wave 2 but not at Wave 3 could be included). This method provides better estimates of regression coefficients than does the usual listwise deletion method (Maas & Snijders, 2003; Schafer & Graham, 2002). Therefore, our sample size for multilevel analyses is $N = 235$, which is higher than the number of participants who responded at Wave 3 (i.e., $n = 202$).

Measures

Networking. Networking was measured with a 44-item German measure developed by Wolff and Moser (2006).[1] This measure is similar to other networking measures (e.g., Forret & Dougherty, 2001; Michael & Yukl, 1993) in that it is multidimensional. It is based upon two theoretically derived facets: a structural facet of internal versus external networking and a functional facet of building versus maintaining versus using contacts. Crossing these facets leads to six scales: Building Internal Contacts (6 items, e.g., "I use company events to make new contacts"; $\alpha = .76$); Maintaining Internal Contacts (8 items, e.g., "I catch up with colleagues from other departments about what they are working on"; $\alpha = .69$);[2] Using Internal Contacts (8 items, e.g., "I use my contacts with colleagues in other departments in order to get confidential advice in business matters"; $\alpha = .75$); Building External Contacts (7 items, e.g., "I accept invitations to official functions or festivities out of professional interest"; $\alpha = .82$); Maintaining External Contacts (7 items, e.g., "I ask others to give my regards to business acquaintances outside of our company"; $\alpha = .76$); and Using External Contacts (8 items, e.g., "I exchange professional tips and hints with acquaintances from other organizations"; $\alpha = .76$). All items were answered on a 4-point Likert scale ranging from 1 (*never/very seldom*) to 4 (*very often/ always*). In three studies, Wolff and Moser (2006) provided evidence for the validity and the differential validity of these scales. For example, they showed that generalized trust expectations (i.e., interpersonal trust) are more closely related to building contacts than to maintaining or using contacts.

To provide further evidence on the construct validity of the scale, we conducted several confirmatory factor analyses that used item parcels due to the high number of items in relation to participants. To avoid "data snooping" (Little, Cunningham, Shahar, & Widaman, 2002, p. 161), we followed the suggestion of Little et al. and used the same item parcels that had been used by Wolff and Moser (2006) in a similar analysis. Results show satisfactory fit for a correlated six-factor model, $\chi^2(174, N = 257) = 246.15$, $p < .01$, root-mean-square error of approximation (RMSEA) = 0.040, comparative fit index (CFI) = 0.98. In addition, this model provided better fit to the data than did other models. These models included those distinguishing either the structural facet (i.e., two factors, internal/external networking), $\chi^2(188, N = 257) = 1{,}005.65$, $p < .01$, RMSEA = 0.120, CFI = 0.79; two- versus six-factor model, $\Delta\chi^2(14, N = 257) = 759.5$, $p < .01$; or the functional facet (i.e., three factors, building/maintaining/using contacts), $\chi^2(186, N = 257) = 670.78$, $p < .01$, RMSEA = 0.096, CFI = 0.87; three- versus six-factor model, $\Delta\chi^2(12, N = 257) = 424.6$, $p < .01$; as well as a one-factor model, $\chi^2(194, N = 257) = 1{,}225.17$, $p < .01$, RMSEA = 0.144, CFI = 0.70; one- versus six-factor model, $\Delta\chi^2(20, N = 257) = 979.0$, $p < .01$.

Objective career success. Following Judge et al. (1995), we asked participants to report their gross yearly salary (e.g., bonuses, stock options, and other forms of cash compensation). At Wave 1, participants reported their year 2000 salary in German marks (DM), which we used as a measure of concurrent salary. At Waves 2 and 3, participants specified their annual salary either in DM or euros, as Germany changed its currency to the euro on December 31, 2001. All data were converted to euros using the official exchange rate of 1.95 DM to 1 euro. In addition, participants were asked to provide information on annual salaries for 2 years at Waves 2 and 3. At Wave 2, in 2002, we asked participants to recall their salary from the previous year and to estimate their annual salary for the present year. Similarly, at Wave 3 we asked respondents to recall their 2002 salary and to estimate their 2003 salary. As the questionnaires were mailed close to the end of the year, we assumed that participants could reliably estimate their annual salary for the present year. We tested this assumption for the 2002 salary, for which two measures assessed 1 year apart from each other were available: one estimate provided at the end of 2002 (Wave 2) and one estimate recalled in 2003 (Wave 3). The correlation

[1] The full scale is available from Hans-Georg Wolff upon request.

[2] The reliability estimate of Maintaining Internal Contacts fell slightly below the "magic threshold" of .70. As Cronbach's alpha for this subscale was above this threshold in previous studies by Wolff and Moser (2006; i.e., αs = .75, .71, and .73 in three studies, respectively) and possessed adequate stability, we assume that the true reliability of this scale is close to the threshold of .70 and attribute this minor deviation to sampling fluctuation.

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between these two estimates was $r = .96$, and there was a small and insignificant mean difference of EUR 1,532.48, $t(116) = 0.52$, $p = .61$, $d = -0.06$. As this result indicated that participants could reliably estimate their salary at the end of the year, we decided to use the estimate for 2003 as a fourth measure of salary (i.e., salary estimates were available for 2000, 2001, 2002, and 2003). Because there were deviations from the normal distribution, we used the natural logarithm of salary in our analyses (see Judge et al., 1995).

Subjective career success. We used the translation–backtranslation method to obtain a German version of the Career Satisfaction Scale by Greenhaus, Parasuraman, and Wormley (1990) with which to measure subjective career success. The scale consists of five items (e.g., "I am satisfied with the success I have achieved in my career"), and participants indicated their agreement on a five-point scale ranging from 1 (*do not agree at all*) to 5 (*fully agree*). Confirmatory factor analysis of the data from the first wave showed that a single-factor model fitted the data well, $\chi^2(5, N = 257) = 9.17$, $p = .08$, RMSEA = 0.059, CFI = 1.00. Career satisfaction was assessed at each of the three waves. The reliability of this scale was $\alpha = .84$ at each survey wave.

Control variables. Several additional variables were included in the study to control for factors that might confound the relationship between networking and career success (Becker, 2005). We assessed two organizational variables, organizational size and whether participants were in a supervisory position at the beginning of the study (0 = no, 1 = yes), because these variables might influence opportunities to network (Forret & Dougherty, 2001) as well as career success. In addition, three human capital variables—education, job experience, and organizational tenure—were used. Education is related to network size (Carroll & Teo, 1996) and to salary. Ng et al. (2005) have showed that experience and tenure are related to salary and may also influence networking behavior (e.g., Kram & Isabella, 1985). Also, we controlled for two demographic variables that have been reported to correlate with career success (Ng et al., 2005): gender (1 = female, 2 = male) and relationship status (1 = having a partner, 2 = single). Finally, in regressing career satisfaction on the networking scales, we controlled for the natural logarithm of salary (e.g., Judge et al., 1995). To preserve a meaningful intercept, we centered salary in this analysis. This centering did not affect other regression coefficients.

Analyses

In the present analyses, measurement occasions are nested within participants. We therefore used multilevel analysis (Bryk & Raudenbush, 2002; Snijders & Boskers, 1999). This type of analysis allows for estimation of a trajectory of individual change in career success and for differentiation between concurrent career success and the change of success over time. As had been recommended for analyses with few measurement occasions, we used a linear growth model (Bryk & Raudenbush, 2002) and coded time using consecutive integers starting from zero.[3] In this model, the intercept coefficient of the Level 1 equation depicts concurrent career success and the Level 1 slope coefficient provides an estimate of linear change over time (i.e., the growth of career success). In predicting career satisfaction, we entered annual salary as a time-varying Level 1 control variable into the multilevel model. All other control variables as well as the networking scales represent Level 2 variables in our model.

As shown in the *Measures* section, we obtained a correlated factors solution for the networking scales. Therefore, multicollinearity may pose a problem; as Shieh and Fouladi (2003) stated, the interpretation of multilevel regression estimates in a "parameter-by-parameter fashion must proceed with caution" (p. 956). Partial redundancy of predictors may yield few significant parameters, and in the generalization of these results, sample-to-sample variation may lead to different results with regard to the significance of particular predictors in other studies (Shieh & Fouladi, 2003). To avoid these problems, we based our interpretation upon two procedures. First, we used a hierarchical approach in our analyses and examined the difference in deviance (Δ deviance; see, e.g., Bryk & Raudenbush, 2002) to determine if the six networking scales improved model fit as a variable set (J. Cohen, Cohen, West, & Aiken, 2003).

Second, to examine the relative importance of each scale, we calculated relative weights following a procedure by Johnson (2000; see also LeBreton, Hargis, Griepentrog, Oswald, & Ployhart, 2007). This procedure is based on the calculation of a full principal-components solution from the original variables, in which the components are rotated to an orthogonal solution as similar as possible to that of the original variables (i.e., each variable has a high loading on only one component). The orthogonal components resemble linear transformations of the original networking scales (i.e., together, they carry the same amount of information as did the original variables). These components are then used as predictors in the multilevel model; as they are orthogonal, multicollinearity is no concern in this analysis. The relation between the orthogonal components and the original variables is established by a regression of the original variables on the orthogonal components. Relative weights are calculated by summing the product of the squared regression coefficients between (a) original variables and orthogonal components and (b) orthogonal components and the dependent variables from the multilevel model.[4] Relative weights are transformed into proportions by dividing them by the sum of the total effects, which yields a proportional contribution of each original variable (e.g., Johnson, 2000).

[3] This approach results in two noteworthy consequences. First, the intercept captures the salary level at Wave 1 and the slope captures changes that occur over later waves. Second, as we used the natural logarithm of salary as our dependent variable, a linear effect of time on log salary implies exponential change in salary over time. To investigate the effect of this implication, we estimated the models for salary using log time, which implies a linear effect on salary. Comparing the unconditional models, we found that the linear effect of time provided the best fit to the data. We therefore decided to use this latter coding.

[4] Note that the calculation of relative weights has been described by Johnson (2000) for ordinary least squares (OLS) regression but is also possible for multilevel analysis (J. W. Johnson, personal communication, May 29, 2008; J. M. LeBreton, personal communication, May 28, 2008). Johnson suggested using his approach in structural equation modeling (SEM), and our multilevel models can be depicted as SEM models (Curran, 2003). The Level 2 coefficients of the networking scales represent fixed effects that are similar to path coefficients in SEM and OLS regression coefficients (Curran, 2003; Willett, 1997). Even though Johnson (2000) as well as LeBreton et al. (2007) emphasize the relation of relative weights to R^2 in OLS regression, calculations neither include nor rely on the unequivocal existence of an R^2 measure.

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To further examine relative weights, we used a bootstrapping procedure with 1,000 bootstrap samples to construct confidence intervals for the relative weights (Johnson, 2004). As suggested by Johnson, we used the empirically derived confidence intervals from the bootstrap (i.e., $\alpha/2$ percentiles), because the distribution of the weights deviated from the normal distribution. In addition, we tested whether the relative weights differed significantly from zero. As Johnson notes, relative weights are proportions, and thus confidence intervals around relative weights will never include zero. To test the significance of a relative weight Tonidandel, LeBreton, and Johnson (2008) suggested adding a random variable to the bootstrapping procedure and then testing for significant differences between substantive relative weights and the relative weight of the random variable. For this test, we constructed confidence intervals of the difference between each substantive relative weight and the random relative weight. If a confidence interval includes zero, the difference is not significant. For this analysis, we conducted an additional bootstrap with 1,000 samples and included a random variable. As we tested six substantive weights against the weight of the random variable, we used a Bonferroni correction for our one-sided tests (overall, $\alpha = .05$; per comparison, $\alpha = .008$).

Results

Table 1 reports means, standard deviations, reliabilities, and correlations among the variables. Correlations between networking subscales varied between .15 and .60, and the median correlation was $r = .34$. Table 1 also shows that four of the six networking scales (Building Internal Contacts, Maintaining Internal Contacts, Building External Contacts, Maintaining External Contacts) were significantly related to salary and career satisfaction at most survey waves. The other two scales (Using Internal Contacts and Using External Contacts) were not substantively related to career success indicators.

Table 2 depicts multivariate results for the multilevel regression of salary on networking to test Hypotheses 1 and 2. We examined four hierarchically nested models following suggestions by Bryk and Raudenbush (2002). Model 1 is the unconditional model with parameters for the Level 1 intercept and slope only. The significant fixed effect for the slope indicated an increase in salary over measurement occasions. The significant random effect of the slope indicated individual differences in trajectories of salary growth over time. In Model 2, we added control variables. Further, we added the effect of networking in Models 3 and 4. Model 3 tests the effect of networking on concurrent salary. Adding the six scales as a variable set led to an improvement in model fit above control variables, as indicated by the significant reduction in deviance; this reduction showed support for Hypothesis 1. As shown in Table 2, Maintaining External Contacts has a significant effect on concurrent salary.

Table 3 shows the relative weights according to Johnson (2000) as well as the regression weights of the six networking scales, when each scale was added to the control variables alone. This latter coefficient reflects the contribution of a variable when redundancy between predictors is ignored, and it is shown here for comparison purposes. With regard to these coefficients, four networking scales (i.e., Building Internal Contacts, Maintaining Internal Contacts, Building External Contacts, Maintaining External Contacts) had a significant impact on concurrent salary when they were entered into the multilevel regression alone. Maintaining External Contacts (regression weight = 45%) and Building Internal Contacts (regression weight = 24%) obtained the highest relative weights. Results from the bootstrap procedure show that all weights were significantly different from zero. This difference indicates that all six networking scales contributed to the significant effect of the scales as a variable set. However, note that the relative weights for Using Internal/External Contacts were also significant, even though their regression weights were not significant when they were entered into the multilevel equation alone (cf. Table 3). Also, the bivariate correlations between the two Using Contacts scales and salary were not significant. This result indicates a potential suppressor relation between these two scales and the remaining networking subscales. Also note that confidence intervals for relative weights overlapped considerably; this overlap indicates that we cannot establish significant differences between substantive relative weights.

To test Hypothesis 2, we added the effect of networking on salary growth in Model 4 of Table 2. In support of Hypothesis 2, model fit improved significantly when the networking scales were entered as a variable set. Parameter estimates show that Maintaining Internal Contacts had a significant positive impact on salary growth, obtained the highest relative weight (regression weight = 49%; see Table 3), and differed significantly from zero.

Hypothesis 3 states that networking is related to concurrent career satisfaction, and Hypothesis 4 states that networking is related to the growth of career satisfaction. To examine these hypotheses, we calculated three models (see Table 4). Model 1 is again the unconditional model that contains parameters for the intercept and slope only. The slope parameter ($b = -0.031$) was not significantly different from zero, and this result shows that career satisfaction remained stable across time. Moreover, the fact that slope variance was not significantly different from zero indicated that there were no individual differences in trajectories of career satisfaction. Control variables were entered in Model 2, and the effect of networking scales on concurrent career satisfaction was tested in Model 3. The significant difference in deviance between Models 2 and 3 indicates that entering the networking scales as a variable set improved model fit. Thus, Hypothesis 3 was supported. Regression parameters show that Maintaining Internal Contacts had a significant effect on concurrent career satisfaction. Relative weights as well as the insignificant regression coefficients of the external networking scales when they were entered alone into a multilevel model (cf. Table 4) indicate that internal networking was of more importance in the prediction of career satisfaction. According to the bootstrap procedure, relative weights for all networking scales except for Using External Contacts were significantly different from zero. Hypothesis 4, which predicted a growth effect of the networking scales, was not supported. Adding the growth effect did not improve model fit, Δ deviance(6) = 5.3, $p > .10$. This relation is also evident from the insignificant slope variance in the models, which indicates the absence of differential growth trajectories. The growth model is therefore not shown in Table 3. As career satisfaction remained stable over time, we found no support for Hypothesis 4.

Discussion

The present study is the first in which the effects of networking on career success were examined with a longitudinal research design. Our finding that networking is related to concurrent salary

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Table 1
Means, Standard Deviations, and Correlations of Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Control																					
1. Gender[a]	1.37	0.48	—																		
2. Education[b]	1.43	0.50	−.08																		
3. Relationship status[c]	1.40	0.49	.18**	−.11																	
4. Job experience	6.74	5.24	−.06	−.19**	−.17**																
5. Organizational tenure	5.64	5.44	−.02	−.08	−.15*	.56**															
6. Supervisory function[d]	0.46	0.50	−.19*	.10	−.14*	.15*	.12														
7. Organizational size[e]	2.02	0.79	−.09	.16*	.06	−.04	−.03	−.06													
Networking																					
8. Building Internal Contacts	2.45	0.61	−.03	.13	−.05	−.06	−.01	.16*	−.05	(.76)											
9. Maintaining Internal Contacts	2.65	0.46	−.04	.21**	−.13	−.03	.01	.11	−.11	.32**	(.69)										
10. Using Internal Contacts	2.40	0.49	.08	.08	.09	−.18*	−.14*	−.08	.11	.21**	.35**	(.75)									
11. Building External Contacts	1.95	0.59	−.13	.18**	−.12	.02	.03	.16*	.04	.47**	.34**	.23**	(.82)								
12. Maintaining External Contacts	2.06	0.51	−.06	.19**	−.08	−.07	−.15*	.04	.10	.42**	.42**	.46**	.60*	(.76)							
13. Using External Contacts	1.89	0.47	.05	.05	.09	−.18**	−.24**	−.12	−.06	.15*	.22**	.46**	.23**	.47**	(.76)						
Career satisfaction																					
14. T1	3.65	0.69	−.10	.09	−.07	.02	.04	.35**	.07	.28**	.21**	.07	.11	.13	.03	(.84)					
15. T2	3.63	0.68	−.08	.06	−.11	.16	.09	.40**	.04	.27**	.23**	.03	.16	.12	.01	.70**	(.84)				
16. T3	3.62	0.72	.02	.06	−.02	.10	.09	.41**	.07	.22**	.36**	.16	.22**	.24**	.08	.64**	.66**	(.84)			
Annual salary, euros																					
17. 2000	50,498.58	43,817.21	−.10	.29**	−.20**	.17**	.12	.26**	.13	.17*	.24**	.02	.32**	.29**	−.05	.26**	.24**	.32**			
18. 2001	58,907.42	57,830.55	−.03	.24**	−.21**	.38**	.26**	.26**	.10	.17*	.32**	.10	.26**	.30**	−.09	.34**	.32**	.39**	.83**		
19. 2002	63,326.82	65,175.79	−.02	.21**	−.20**	.33**	.25**	.23**	.08	.17**	.33**	.12	.23**	.26**	−.04	.30**	.32**	.36**	.74**	.97**	
20. 2003	75,198.74	94,881.97	.02	.14	−.17	.28**	.26**	.22**	.06	.17	.39**	.17	.28**	.34**	−.03	.30**	.30**	.36**	.77**	.91**	.95**

Note. $129 < N < 235$. T1 = Time 1; T2 = Time 2; T3 = Time 3.
[a] 1 = female, 2 = male. [b] 1 = no college education, 2 = college education. [c] 1 = in steady relationship, 2 = single. [d] 0 = no, 1 = yes. [e] 1 = 1–500 employees; 2 = 501–10,000 employees; 3 = more than 10,000 employees.
* $p < .05$. ** $p < .01$.

Table 2
Effects of Networking on Salary

Variable	Model 1		Model 2		Model 3		Model 4	
	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Fixed effects								
Intercept, β_{00}	10.582**	.034	9.956**	.172	9.598**	.243	9.804**	.255
Slope, β_{10}	0.080**	.007	0.087**	.008	0.087**	.008	−0.062	.054
Gender, β_{01}			−0.110	.061	−0.097	.058	−0.099	.058
Relationship status, β_{02}			−0.169**	.059	−0.137*	.057	−0.138*	.057
Education, β_{03}			0.433**	.063	0.380**	.061	0.381**	.061
Job experience, β_{04}			0.025**	.008	0.021**	.008	0.021**	.008
Organizational tenure, β_{05}			−0.005	.007	−0.001	.007	−0.001	.007
Organizational size, β_{06}			0.080*	.033	0.080*	.033	0.078*	.033
Supervisory position, β_{07}			0.184**	.060	0.167**	.058	0.166**	.058
Networking: Concurrent effects								
Building Internal Contacts, β_{09}					0.089	.051	0.066	.055
Maintaining Internal Contacts, β_{0A}					0.062	.070	−0.006	.076
Using Internal Contacts, β_{0B}					−0.127	.069	−0.165*	.074
Building External Contacts, β_{0C}					−0.041	.062	−0.029	.067
Maintaining External Contacts, β_{0D}					0.248**	.084	0.303**	.090
Using External Contacts, β_{0E}					−0.065	.071	−0.071	.076
Networking: Growth effects								
Building Internal Contacts, β_{11}							0.017	.015
Maintaining Internal Contacts, β_{12}							0.051*	.020
Using Internal Contacts, β_{13}							0.028	.020
Building External Contacts, β_{14}							−0.008	.016
Maintaining External Contacts, β_{15}							−0.042	.023
Using External Contacts, β_{16}							0.005	.020
Random effects								
Level 2								
Intercept, r_{0i}	0.234**	.024	0.141**	.018	0.124**	.017	0.124**	.017
Slope, r_{1i}	0.004**	.001	0.004**	.001	0.004**	.001	0.003**	.001
Level 1 error, e_{ti}	0.018**	.002	0.019**	.002	0.019**	.002	0.019**	.002
Deviance (npar)	128.5 (6)		38.8 (13)		17.3 (19)		4.0 (25)	
Δ Deviance (*df*)			99.7** (7)		21.5** (6)		13.3* (6)	

Note. $N = 235$. Dependent variable is natural logarithm of salary. Npar = number of parameters.
* $p < .05$. ** $p < .01$.

level replicates prior findings (e.g., Forret & Dougherty, 2004). Going beyond prior studies, our results suggest that networking behaviors can contribute to differential salary growth over time. In line with conclusions in the practitioner literature, networking can be considered an investment that pays off in the future.

Our finding that networking was also positively related to concurrent subjective career success again replicated prior findings (e.g., Forret & Dougherty, 2004; Langford, 2000). Individuals who engage in networking behaviors are more satisfied with their careers. Our results further indicate that internal networking seems to be of higher importance for career satisfaction than is external networking. As career satisfaction remained stable over time, we were unable to find an effect of networking on changes in career satisfaction. Although this finding is not in line with our assumptions, we believe it is of interest in itself. This unexpected finding shows some similarities to research on both job and life satisfaction. Studies have shown that satisfaction is related to stable, dispositional characteristics, such as core self-evaluations or negative and positive affectivity (Diener & Lucas, 1999; Dormann, Fay, Zapf, & Frese, 2006). If career satisfaction is also in part determined by dispositional characteristics, changes may be more difficult to detect. In a similar vein, set point theory of life satisfaction suggests that individuals possess a specific level of satisfaction (i.e., the set point) that remains relatively stable over time. Although events may lead to a change of this set point, many of these changes are temporary and these events lose their impact after 3–6 months. Only dramatic events, such as unemployment, alter the set point (Fujita & Diener, 2005). Further research should examine whether this theory also applies to career satisfaction and which events lead to enduring changes of career satisfaction.

Theoretical and Practical Implications

The present study shows that longitudinal designs provide important insights into the relationship between networking and career success. An intriguing finding is that networking scales were differentially related to concurrent salary level and salary growth. Our analyses indicated that all six networking scales were important in the prediction of concurrent salary, whereas only Maintaining Internal Contacts was an important predictor of salary growth. These results might indicate that individuals with higher salaries can be expected to network as a part of their job requirements and may in fact point to the possibility that some reverse causation exists (i.e., that individuals may have to resort to specific networking behaviors to accomplish their job). These results also suggest that even though building and using contacts are essential

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Table 3
Regression Coefficients and Relative Importance of the Six Networking Subscales

	Salary				Career satisfaction	
	Concurrent		Growth		Concurrent	
Scale	Coefficient (*SE*)	RW (95% CI)	Coefficient (*SE*)	RW (95% CI)	Coefficient (*SE*)	RW (95% CI)
Building Internal Contacts	0.139** (.046)	24%* (4%, 62%)	0.016 (.013)	10% (1%, 46%)	0.163* (.065)	17%* (2%, 45%)
Maintaining Internal Contacts	0.140* (.064)	11%* (2%, 32%)	0.045** (.017)	49%* (7%, 76%)	0.323** (.086)	49%* (20%, 73%)
Using Internal Contacts	0.002 (.059)	8%* (2%, 35%)	0.031+ (.016)	20% (2%, 43%)	0.212** (0.79)	14%* (2%, 31%)
Building External Contacts	0.109* (.048)	8%* (4%, 21%)	−0.005 (.013)	4% (2%, 20%)	0.063 (.067)	4%* (2%, 14%)
Maintaining External Contacts	0.198** (.055)	45%* (7%, 60%)	−0.003 (.016)	14% (3%, 35%)	0.074 (.080)	6%* (3%, 23%)
Using External Contacts	0.029 (.061)	4%* (1%, 16%)	0.009 (.017)	2% (1%, 27%)	0.164+ (.083)	10% (1%, 26%)

Note. $N = 235$. Regression coefficients represent estimates when each of the six scales was added by itself to control variables in a multilevel regression model. Columns labeled Concurrent and Growth show effects of Level 2 regression coefficients on the intercept (concurrent effect) and slope (growth effect), respectively. We conducted estimation of confidence intervals and significance test of relative weights using empirical intervals from 1,000 bootstrap samples and used a Bonferroni correction to test the significance of relative weights (overall $\alpha = .05$; per comparison, $\alpha = .008$). RW = relative weight; CI = confidence interval.
+ $p < .10$. * $p < .05$. ** $p < .01$.

parts of networking, individuals are well advised to maintain their (internal) contacts in order to reap the benefits of these acquired contacts in the future. A strong focus on building contacts may lead to many superficial contacts but may prevent individuals from establishing relations with a minimum amount of trust that is necessary to obtain resources from these contacts. A focus on using contacts may provide benefits at present, but concurrent use may already be reflected in concurrent salary and therefore be of less importance for the subsequent progression of salary growth.

Our findings concerning the importance of maintaining internal contacts for salary growth may qualify results obtained by Forret and Dougherty (2004). These authors did not find a relationship between concurrent salary and their networking scale, Socializing, which is comparable to our Maintaining Internal Contacts scale

Table 4
Effects of Networking on Career Satisfaction

	Model 1		Model 2		Model 3	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Fixed effects						
Intercept, β_{00}	3.681**	.058	3.481**	.251	2.368**	.354
Slope, β_{10}	−0.032	.025	−0.064*	.029	−0.058	.029
Log salary, β_{20}			0.205**	.045	0.193**	.046
Gender, β_{01}			0.085	.084	0.072	.080
Relationship status, β_{02}			0.050	.083	0.052	.080
Education, β_{03}			−0.112	.093	−0.164	.090
Job experience, β_{04}			0.002	.011	0.005	.010
Organizational tenure, β_{05}			−0.011	.010	−0.011	.010
Organizational size, β_{06}			0.039	.046	0.057	.045
Supervisory position, β_{07}			0.432**	.083	0.384**	.080
Networking: Concurrent effects						
Building Internal Contacts, β_{09}					0.117	.070
Maintaining Internal Contacts, β_{0A}					0.294**	.097
Using Internal Contacts, β_{0B}					0.113	.094
Building External Contacts, β_{0C}					0.019	.083
Maintaining External Contacts, β_{0D}					−0.221	.116
Using External Contacts, β_{0E}					0.124	.098
Random effects						
Level 2						
Intercept, r_{0i}	0.361**	.087	0.333**	.098	0.313**	.096
Slope, r_{1i}	0.014	.015	0.022	.018	0.023	.018
Level 1 error, e_{ti}	0.155**	.019	0.159**	.022	0.157**	.022
Deviance (npar)	900.4 (6)		674.7 (14)		653.0	
Δ Deviance (*df*)			225.7** (6)		21.7** (6)	

Note. $N = 235$. Npar = number of parameters.
* $p < .05$. ** $p < .01$.

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(i.e., their scale includes attending organizational social functions, going out for drinks after work). Forret and Dougherty (2004) wrote that socializing may be mainly directed to "peers who tend to have little influence on one's compensation" (p. 431), but our findings indicate that in spite of the lack of an effect of socializing on the concurrent salary level, an effect on salary growth might exist.

Using External Contacts had in sum the weakest importance for career success in our analyses, and the significant relative weight indicates that it may even act as a suppressor in the relation of networking with concurrent salary. A possible explanation for this finding is that the frequent use of external contacts can be interpreted as a lack of competence, which might pose a threat to an individual's reputation. This suggestion might have to be qualified with regard to particular resources. It may be especially valid for individuals who often seek task advice and may not apply to strategic information that individuals seek from their external contacts (Podolny & Baron, 1997). As our networking scales do not distinguish between the types of resources obtained, future research should investigate whether this assumption is viable.

Researchers should also attempt to delineate exactly how networking enhances career success. The present research has shown that networking leads to salary increases, and other research (e.g., Thompson, 2005) has shown that networking leads to higher performance ratings by supervisors. However, it remains unclear whether these outcomes are achieved by higher work performance or, for example, higher skills in impression management. Theory on the resources attainable by networking points to both mechanisms (Wolff et al., in press): As networking yields task-related support, it should in turn enhance work performance and thus performance ratings and salary. However, higher performance ratings can also be due to higher reputation and higher power as a result of networking. Also, future research should attempt to assess the joint contribution of individual-level networking behavior and structural-level social capital on career success. Social capital and networking may make distinct contributions to career success, or social capital may be a mediator of the relationship between networking and career success. Reverse causality is also a plausible mechanism (e.g., the social capital an individual has acquired may in turn ease networking).

Additionally, researchers might consider the opportunities individuals have due to their life situation outside of work. The present study focused on the work domain, but family duties, such as caring for children or elder relatives, may also influence networking behavior (e.g., individuals might have to forgo an opportunity to have drinks after work because they have to take care of their children). We controlled for relationship status, but other variables from the family domain might function as confounders or suppressors of the relation between networking and career success. Likewise, although networking pays off with regard to career success, costs may be incurred in the family domain (e.g., individuals may not have much time for their children or may rely on a nonworking spouse so they can network outside their working hours).

As our research underscores the potential benefits of networking, the present findings may be useful for career counseling and coaching. For example, conceptualizations of protean careers suggest that the responsibility for managing a career has shifted from a predominantly organizational responsibility to the responsibility of individuals (e.g., Hall, 1996). Hall and others (Forret & Dougherty, 2004; Sturges et al., 2005) have suggested that networking is one means by which individuals can shape their own careers, and the present findings lend support to this assumption. Employees are well advised to maintain their internal contacts. It is noteworthy that internal networking seems to be of higher importance than external networking in furthering one's career.

Limitations

The present study has some limitations. First of all, even though our longitudinal design provides further evidence that networking leads to increases in salary, we cannot prove a causal relation between the two variables. Alternatively, third variables may influence networking as well as career success. By controlling for potentially confounding variables (e.g., education or job experience), we eliminated the effect of several alternative explanations. A related concern is that we focused on one measurement of networking at Wave 1 to predict career success but did not consider networking at subsequent waves. Arguably, networking behaviors change over time, even though empirical findings have showed that networking is stable over time (e.g., Sturges, Guest, Conway, and Davey, 2002, reported a 1-year stability of $r_{tt} = .56$ that amounts to $r_{tt} = .76$ when corrected for unreliability). Changes in networking behavior (e.g., by training of networking skills) might have influenced career success. In this vein, our analyses provide conservative estimates of the effect of networking on career success, because the impact of changes in networking was not taken into account. This argument highlights the importance of choosing the right time frame in which to observe the effects of networking. We suggest that it takes some time to convert networking behavior into career success; therefore, networking at Wave 1 is of major importance. We thus have provided further, albeit not definite, evidence for the link between networking and career success.

Second, with regard to the effects of the networking subscales on career success, our study should be replicated. Shieh and Fouladi (2003) noted that parameters of correlated predictors show sample-to-sample variation in multivariate analyses that may limit generalizability. However, note that these generalizability concerns are limited to the effect of specific scales but not to networking scales as a variable set. Also, our additional analyses using relative weights do shed some further light on the importance of the networking scales, and we consider their use a strength of the present study. A comparison of the significance of regression weights and relative weights indicates that multicollinearity may indeed result in too conservative estimates of the importance of correlated predictors. In a similar manner, our discussion of the importance of maintaining and using internal contacts must be considered in the light of the economic recession in Germany during the time of the study. From 2001 to 2003, unemployment rates rose from 9.4% to 10.5% and the number of job openings decreased by roughly 30%, from 507,141 to 350,762 (Statistisches Bundesamt, 2004). It is possible that respondents who focused on maintaining their internal contacts might have had better chances of increasing their salary due to the decreasing availability of external job opportunities. Therefore, our study may underestimate the benefits of external networking behaviors, especially during economic upturns.

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Also, the study was conducted in Germany, and our results may reflect cultural specifics. In Germany, employment security is comparably high, as federal legislation restricts dismissal of employees to a higher extent than, for example, in the United States. It is possible that Germans are therefore less inclined to build and maintain external contacts to enhance their career success and that they focus on internal networking to a higher extent. In addition, although the networking measures are based upon theories from international research, our scales might be considered emic (as opposed to etic; see Brislin, 1976) measures of networking, and the particular networking behaviors we assess may not enhance career success in other cultures. For example, Bozionelos and Wang (2007) did not find a relationship between a (European) measure of network resources and career success in China, in spite of the strong emphasis on informal g*uanxi* relations in the Chinese culture. Future studies thus should attempt to replicate our results in different cultures and to examine the contingent value of specific networking behaviors.

A third limitation is that we did not include information on career transitions, such as promotions or employer changes, in our analyses. We therefore do not have information concerning whether increases in salary were in part achieved by promotions and/or changes of employer. Although these career transitions describe important steps of the career ladder, their analysis is not without problems. For example, promotions have often been used as a measure of career success (see Ng et al., 2005), but they raise problems of comparability (cf. Judge et al., 1995), as respondents in our sample came from a variety of firms and industries. The meaning of a promotion is influenced by a variety of firm-specific factors; for example, yearly promotions are common in many consulting firms, and firm size can influence the opportunities for promotion. Therefore, according to Judge et al. (1995), salary is considered a "better measure of objective success than the number of promotions because the latter variable is partly confounded with organizational structure and unmeasured mobility patterns" (p. 511). In a similar manner, job changes can occur for a variety of reasons. Open-ended comments from respondents in our sample showed that reasons for a change of employer were mostly related to career progress (e.g., new challenge, more responsibility) but were also related to other factors (e.g., childbirth, relocation of spouse, layoffs, or firm bankruptcy). We chose salary, the most frequently used indicator of objective career success, because it better reflects the economic value an organization assigns to employees and their performance. In addition, salary growth incorporates effects of career transitions that are accompanied by an increase in salary (i.e., if a promotion or change of employer is accompanied by a pay raise, this effect is reflected in our salary measure).

To summarize, our goal in this study was to forge a better understanding of the relationship between networking and career success. We showed that networking is related not only to concurrent salary and career satisfaction but to salary growth over time. Our study also suggests that a closer examination of temporal changes in career satisfaction is advisable.

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Correction to Wolff and Moser (2009)

In the article "Effects of Networking on Career Success: A Longitudinal Study" by Hans-Georg Wolff and Klaus Moser (*Journal of Applied Psychology*, Vol. 94, No. 1, pp. 196–206. http://dx.doi.org/10.1037/a0013350), results from a confirmatory factor analysis on subjective career success in the Measures section contained an error in the reported Chi-square (i.e., $\chi^2(5, N = 257) =$ **9.17**). This error does not alter any conclusions or substantive statements in the original article. The correct fit indices are "$\chi^2(5, N = 257) =$ **9.67**, p = .08, RMSEA = 0.059, CFI = 1.00."

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