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Psychosocial and Career Support from Different Types of Role-Multiplexity in Developmental Relationships

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Abstract

Related to role theory's expansion approach, this study focused on how various social roles in one focal person-network member relationship (i.e., multiplexity) relate to the amount of psychosocial and career support. We expected different types of multiplex relationships in comparison to simplex relationships to be positively associated with the support received by the focal person. Via multilevel analysis in *M* plus, 2995 dyadic relationships of developmental networks nested in 533 persons were analysed. Concerning psychosocial support, a positive association with multiplex relationships from the non-work context, and the combination of work and non-work context could be observed. Multiplex relationships from the work context and multiplex relationships from the work and non-work context were positively associated with career support.

1. Introduction

Within the fast-paced, global world, career trajectories are more diverse and transitive than ever before. Therefore, the concept of a network of developmental relationships providing support regarding professional and private matters is increasingly researched (Dobrow & Higgins, 2005; Higgins, 2000; Murphy & Kram, 2010). Generally, relationships or dyadic interactions play a crucial role concerning a vast range of outcomes, such as well-being, communication, ag-

gressive behaviors, intimacy, rumination, social support, or as well social and human capital (Burt, 1993; Umberson, Chen, House, Hopkins, & Slaten, 1996; Dobrow, Chandler, Murphy, & Kram, 2012; Janssen, Vuuren, & de Jong, 2013; Merrill, & Afifi, 2015; Reese-Weber, 2015). However, relationships are highly complex in their nature and so far we have limited knowledge of how relationship characteristics, such as *role* multiplexity, in developmental networks, relate to the amount of psychosocial and career support. To understand the effects of different relationships in developmental networks on the amount of received psychosocial and career support, it is important to investigate the connection between the relationship structure (e.g., multiplexity) and the type and amount of support (i.e., psychosocial and career). Previous research indicates that the support received from a developmental network is positively related to career advancement, promotions, salary increases, and career satisfaction (Kram, 1985; Whitley, Dougherty, & Dreher, 1991).

To date, research has analysed the content of support and has shown that different relationships or roles, such as friends and mentors, provide various forms and strength of support, including psychosocial and career support (Dobrow, Chandler, Murphy, & Kram, 2012; Thomas & Kram, 1988). A social role is defined by a certain set of behaviour, such as a friend, colleague or supervisor (Katz & Kahn, 1978; Biddle, 1986; Hindin, 2007), and due to the nature of the interaction between colleagues, a friend would for instance provide more likely psychosocial support and a colleague would provide more likely career support (Hindin, 2007). Generally, psychosocial support, on the one hand, includes counselling, role modelling, acceptance, confirmation, and friendship. Career support, on the other hand, covers aspects like sponsorship, exposure, facilitating visibility, protection, or organizing challenging assignments. *Mentors* were, for example, found to provide high psychosocial and career support, *friends* high psychosocial support, *sponsors* low psychosocial but high career support, and *allies*, compared to the other roles, both low career and psychosocial support (Thomas & Kram, 1988). However, relationships are complex in nature; a colleague might also be a friend, which might lead to specific support types and amounts. Also, research concerning the quality of relationships has shown that exchange concerning diverse topics enriches the quality of social interactions and that multiple roles can lead to benefits such as an enrichment of resources (Kirchmeyer 1992; Dutton, 2003; Greenhaus & Powell 2006). Most research concerning multiples roles has taken place within the family domain rather than focusing on one person and how many roles that person is occupying in general. Little research has investigated how a combination of different cross-domain roles (i.e. work and non-work) within relationships of one focal person's network acts in this regard (Hood, Cruz, & Bachrach, 2016; Shah, Parker, & Waldstrøm, 2017).

Therefore, in the current study, based on role theory's expansion approach (Marks, 1977; Nordenmark, 2004) and the increasingly blurred lines between professional and private life (Olson-Buchanan & Boswell, 2006), we will explic-

itly focus on multiple as well as cross-domain roles (e.g., friend and supervisor) within developmental relationships. We have chosen the expansion approach as theoretical foundation in comparison to theories from research concerning high-quality relationships or mutuality research, since we believe that roles are an economic way of capturing complex behaviours in developmental relationships that are largely comparable across contexts and persons. Developmental relationships are connections to other people who provide professional and private support, which together form a social network (Kram, 1985). The phenomenon of multiple role existence within dyadic relationships is called multiplexity (e.g., colleagues that are also friends; Wasserman & Faust, 1994). Multiplex relationships have been found to be indicators of strong relationships (i.e., frequency of contact, strength of ties), and have previously been positively associated with job referrals, person-job fit, and income (Bian & Huang, 2015; Verbrugge, 1979; Wellman & Wortely, 1990). In a recent empirical study, it was shown that multiplex relationships provide the broadest scope of support (Methot et al., 2016). However, this study did only differentiate between multiplex and simplex support but not whether the support was coming from the work and/or nonwork domain. The expansion approach of social roles as well as the role accumulation approach assumes that multiple roles within one person positively relate to social resources (Sieber, 1974; Pietromonaco, Manis, & Frohardt-Lane, 1986; Repetti & Crosby, 1984; Verbrugge, 1986; Barnett, Marshall, & Singer, 1992; Thoits, 1983; Hong & Seltzer, 1995; Barnett & Hyde, 2001; Methot, Lepine, Podsakoff, & Christian, 2016). Empirical analysis shows that for instance managerial women with multiple role commitments were happier with their lives, had more self-esteem, self-acceptance, and higher performance (Ruderman, Ohlott, Panzer, & King, 2002).

Specifically, we will test the effect of multiplexity beyond simplexity (i.e., only one role in one relationship), and other structural network aspects, such as relationships strength on support received from the developmental relationships. We will first analyse multiplexity in comparison to simplexity as a predictor for psychosocial and career support within a multi-level regression model. Second, we will distinguish between different forms of multiplexity according to the work-related, non-work-related, and a mixture of both contexts (i.e., cross-domain which we call cross-domainmultiplexity in this study). By doing so, we aim to investigate the effect of role multiplexity on psychosocial and career support. Further, we aim to differentiate between the effects of different kinds of multiplexity according to work, non-work, and a combination of both contexts on psychosocial and career support in comparison to simplexity according to work, and non-work contexts. In summary, we will combine content (i.e., psychosocial support vs. career) and structural (i.e., work vs. non-work vs. cross-domain multiplex and simplex relationships) aspects in the analysis of developmental relationships. This avenue of research is needed since work and non-work domains have had an increasing tendency to blend and hence raise the question whether the two enrich each other (Greenhaus & Kossek, 2014).

By investigating multiplexity as predictor, we contribute to the research of predictors of received support in developmental relationships beyond well-known predictors, and provide further insights into career facilitators. Moreover, we contribute to research on the expansion approach of role theory by assessing the structure of relationships (i.e. by means of multiplexity) in greater detail. Concerning role theory, we provide further insights into whether occupying multiple roles within networks lead to providing specific resources rather than resource depletion like withholding career and psychosocial support (Marks, 1977; Nordenmark, 2004; Methot et al., 2016). At last, as a side contribution, we will provide empirical insights into the connection between the relationship type (i.e. friend, kin, colleague, supervisor) and the amount of psychosocial and career support received by the focal person.

2. Theoretical Background and Hypotheses

Throughout this paper, we will refer to structural aspects of relationships in developmental networks as factors that describe the pattern of how relationships are lived. For instance, relationship structure can correspond to multiplexity, the frequency of contact, duration of the relationship, or emotional closeness (Granovetter, 1973; Terhell, van Groenou, & Van Tilburg, 2007). The content that is being exchanged in a developmental relationship is referenced to as the content of the relationship, which is received by the focal person and given by the network member. Material and non-material goods can be exchanged and as an example, studies have focused on the flow of information in a social network (Granovetter, 1973). In this study, we focus on support as the exchanged content. Focal person refers to the owner, and network member to the members of the focal person's developmental network.

2.1. Developmental Networks and Psychosocial and Career Support

A developmental network is a set of people that principally have the other person's best interest regarding professional and private advancement in mind (Kram, 1985; Higgins & Kram, 2001). Chandler, Hall and Kram (2010) have called the developmental network a person's own *board of directors* to consult with. The definition of developmental networks applied in this study was developed by Dobrow et al. (2012). They define developmental networks by four criteria. *Firstly*, a person in one's developmental network (i.e., network member) takes an active interest in advancing his/her professional and personal advancement. *Secondly*, a developmental network consists of several developers aiming for the first characteristic. According to Higgins (2000), this leads to a commonly observed network size of four to five developers. *Thirdly*, a developmental network contains a wide scope of social spheres, ranging from family members and friends unrelated to the work environment to colleagues and supervisors inside the department, which is in line with the increasingly tangled life-spheres. The *final* characteristic focuses on the content of exchange between

the focal person and the network member. Dobrow et al. (2012) categorize the content of exchange as *psychosocial support* and *career support*.

Psychosocial support includes aspects such as counselling, role modelling, acceptance, confirmation, and friendship, which have been found to foster a sense of competence, confidence, self-efficacy, and effectiveness in the professional role (Fagenson, 1989; Kram, 1985; Whitley & Coetsier, 1993). Career support covers aspects like sponsorship, exposure, facilitating visibility, protection, or organizing challenging assignments. Moreover, career support has been effective in career advancement and the development of skills and competencies (Brass, 1985; Cannings & Montmarquette, 1991; Janssen, van Vuuren, & de Jong, 2013).

2.2. Multiplexity and Support in Developmental Networks

Below, we will first explain why structural aspects of developmental relationships can be seen as predictors of the amount of support that is provided to the focal person. Afterwards, we will introduce the combination of different kinds of roles and the varying support associated with them. Subsequently, we will emphasize the differentiation between work and non-work roles to focus on the role of multiplexity as a crucial structural characteristic and predictor of psychosocial and career support.

Manifold research has shown that for example, the frequency of contact, the regularity of the contact, the duration of a relationship, the mutuality of the interaction, or the emotional closeness are related to the type and amount of resources made available through the social network (Lubbers, Molina, Lerner, Brandes, Avila, & McCarty, 2010; Haggard, Dougherty, Turban, & Wilbanks, 2011; Pollet, Roberts, & Dunbar, 2011). With regards to developmental networks, some research on characteristics of the relationships also has taken place (Dobrow & Higgins, 2005; Murphy & Kram, 2010). Thomas and Kram researched how one social role (e.g., friend) between a focal actor and a network member, as a structural characteristic of a relationships (i.e., A and B are connected through a friendship), can be used as a predictor for the amount of psychosocial and career support network members would provide to the focal person. According to role theory, every social role is related to a defined set of behaviour (Hindin, 2007), and in line with role theory, Thomas & Kram (1988) found different kinds of social roles to be related to different kinds and amounts of support. Peers, for instance, offer more psychosocial and information-related support, and hierarchically higher mentors more coaching and vocational support (Kram, 1985; Kram, & Isabella, 1985). Hence, we can state that aligned to role theory, social roles in developmental networks are associated with different types of support (i.e., psychosocial vs. career support) and the amount of support that is received by the focal person.

Based on role theory's concept of social roles and the associated support behaviour of each role (e.g., colleague, friend, supervisor), we divided the relationships with one (i.e., simplex) or more roles (i.e., multiplex) according to the

work and non-work contexts, or a combination of both contexts (Hindin, 2007). Overall, the role expansion states that every assumed role creates more energy than it consumes and that resources that are provided by roles are expandable rather than a limited unit (Marks, 1977). Furthermore, role multiplexity across relationships and context-domains should bring along four types of benefits: role privileges, status security, resources, personality enrichment (Sieber, 1974). In a recent empirical study, it was shown that multiplex relationships provide the broadest scope of support (Methot et al., 2016). However, in Methot et al.'s study multiplexity was not defined based on social roles and the assessed networks were not developmental networks. Based on the expansion and role accumulation approach of role theory, in which more roles are associated with more opportunities and resources, such as support (Sieber, 1974; Marks, 1977; Nordenmark, 2004), we assume that multiplex relationships are positively related to psychosocial and career support.

Thus, based on the type of context (i.e., work, non-work, mixture of both) and based on the structure of a developmental relationship (i.e., simplex vs. multiplex), we first expect to find psychosocial and career support to be related to the structure of the developmental relationship (i.e., simplex vs. multiplex). Secondly, we expect the amount of support to vary according to the context (i.e., work, non-work, mixture of both) and structure (i.e., simplex vs. multiplex) due to the different social roles involved.

Considering that non-work roles are positively associated with psychosocial support (Thomas & Kram, 1988), it is also reasonable to expect higher amounts of psychosocial support from relationships with only non-work roles in comparison with relationships with work roles. When a relationship consists of two or more work roles, the expansion approach of role theory states that more non-work-related resources would be exchanged in comparison with a relationship with only one non-work role (Marks, 1977; Nordenmark, 2004). Hence, taken together, we believe that non-work-related multiplex relationships provide more psychosocial support to the focal person than relationships with only one role from either the work or non-work context.

Hypothesis 1: Non-work-related multiplex relationships provide greater psychosocial support compared with a) work and b) non-work simplex relationships.

Considering that work roles are positively associated with career support (Thomas & Kram, 1988), it is reasonable to expect higher amounts of career support from relationships with only work roles in comparison to relationships with non-work roles. When a relationship consists of two or more work roles, the expansion approach of role theory states that greater work-related resources would be exchanged compared with a relationship with only one work role (Marks, 1977; Nordenmark, 2004). Hence, taken together, we believe that work-related multiplex relationships provide more career support to the focal person than relationships with only one role from either the work or non-work context.

Hypothesis 2: Work-related multiplex relationships provide more career support compared with a) work- and b) non-work-related simplex relationships.

Since non-work roles provide psychosocial, and work roles provide career support (Thomas & Kram, 1988), we expect multiplex relationships from the non-work *and* work context to provide psychosocial and career support. In our last two hypotheses, we contribute to assessing this question by means of the expansion approach of role theory which states that multiple social roles in one's relationships result in more resources, such as support (Nordenmark, 2004; Marks, 1977). Therefore, we believe that multiplex relationships combining the non-work and work context provide greater psychosocial and career support in comparison with simplex relationships from either the non-work or work context.

Hypothesis 3: Cross-domain multiplex relationships provide greater psychosocial support compared with a) work and b) non-work simplex relationships.

Hypothesis 4: Cross-domain multiplex relationships provide greater career support compared with a) work- and b) non-work-related simplex relationships.

3. Method

3.1. Procedure, Sample, and Network Questionnaire

Procedure. The data of this study were collected via a state-funded project. The aim of the project is to analyze academic career tracks, to identify predictors of career success, and to use the findings to develop interventions for the career planning of researchers that have not yet reached the professorship. By means of project marketing throughout Germany, participants were invited to learn about the project on a website on which they could also register for participation (http://www.prowi-studie.de/). In total, 1011 participants registered on the website for the online-survey, of which 798 (78.93%) actually started the questionnaire. Of those who started the questionnaire, 533 completed the part of the questionnaire that was solely about the participants' social network. This part of the questionnaire was the last section; 265 participants did not start this part and were excluded from this study. We therefore can report a response rate of 53%. Overall, the questionnaire war divided into three sections. In the first section, the participants were asked about demographic aspects; the second part was about individual, social, and organizational predictors, mediators, and moderators for a healthy and successful career in academia. At last, participants were asked to provide information about their ego-networks. Below, we will introduce the sample of the participants (i.e., focal person) and of the network members named in the network. The unit of analysis was the relationship between the participants and (several) network members nested in the participant's network. However, for a comprehensive overview, we report the sample of participants and network members.

Sample: Participants. The sample consisted of 533 researchers working at state-owned and private research facilities as post-doctoral researchers (58%) or

PhD students (42%). Post-doctoral researchers and PhD students working at German universities or research institutes are considered as regular employees responsible for teaching, administration, and research. Participants were on average 33 (SD = 5.09) years' old, and an almost equal number of men and women participated in the study (55% female). Thirty percent of the participants were single, 32% married, and 33% in a relationship (5% missing on this variable). Forty-seven percent were working in the STEM fields (i.e., science, technology, engineering, and mathematics), 33% in social sciences, 10% in human sciences, and 10% in economic sciences. On average they worked 43.77 (SD = 11.43) hours per week.

Sample: Network members. On average, 533 participants named 5.77 network members (i.e., persons named by participant as members of their focal person-network), which resulted in 2995 focal person-network member relationships. Network members were on average 41.84 (SD = 12.86) years' old, and 53% of them were female. Two-thirds (65%) were employed at universities or research institutes and 35% worked in the industry or were currently looking for employment. Network members currently looking for employment were included in the analysis, as they were the named network members that provided the participants with either psychosocial or career support. The employment situation was therefore not directly relevant.

Developmental network questionnaire. The technical set up of the survey was executed by an in-house IT team specialized in psychological surveys. Aligned to the concept of developmental networks by Dobrow and Higgins (2005), participants were, by means of a name generator, asked to list up to 15 people that support them in their professional development. We slightly extended the name generator applied by Dobrow and Higgins (2005) by providing more example behaviours of possible supporters to facilitate the name gathering for the participants: "*You now have the possibility to name your career related network. Please name people that support you in your professional career, provide you with information, create career possibilities for you, provide socio-emotional support, with whom you cooperate, speak about problems at work, alternative job possibilities, or long-term private and professional goals. You can think about colleagues, friends, or kin. Please name up to* 15 *people.*"

Afterwards, participants were presented a set of questions per person they had mentioned as a member of their developmental network (i.e., network member-wise fashion). At this point, the participants could rate on separate items the relationships' quality and the characteristics of the named network members.

3.2. Measures

Upfront, it is important to explain that all measures describe the relationships between participants and network members (i.e., all 533 participants rated the relationship with all their network members according to the measures described below). The measures were not aggregated to the network level because we were interested in every single relationship between the participants and their

network members. Detailed information will follow (see Data Structure and Data Analysis).

Psychosocial and career support. Psychosocial and career support are closely aligned with Dobrow and Higgins' (2005) behavioural definition concerning career and psychosocial support, and are measured by two scales, each containing two items. Psychosocial and career support were not measured by means of the name generator but by means of separate items. Psychosocial support was measured by one item concerning *receiving socio-emotional support* (i.e., "I receive socio-emotional support from (name of network member) through e.g., advice, acceptance, or role modelling."), and one item concerning *receiving support with regards to the personal life* (i.e., "I received support from (name of network member) regarding personal matters such as work-life balance, or other non-work topics."). Career support included aspects of operational and strategic types of career-related support. *Operational aspects of career support* were assessed by one item concerning received work-task-related support (i.e., "I receive work-task-related support from (name of network member) through e.g., help with questions regarding work-task-related support."). *Strategic aspects of career support* were assessed by the item "I receive career-related support from (name of network member) through e.g., creation of new challenges, facilitating visibility of performance, and the connection with relevant others". All Items were answered on a 5-point Likert scale (1 = *I totally disagree* to 5 = *I totally agree*). For two items, the Spearman-Brown coefficient is recommended as a reliability indicator (Eisinga, Grotenhuis, & Pelzer, 2013). For psychosocial support the Spearman-Brown coefficient was .77 and the one of the career support scale was .71. Exploratory factor analysis (EFA) executed in SPSS confirmed a two-factor structure. Results revealed an average loading of each two items measuring psychosocial and career support higher than .70, suggesting convergent validity (De Von et al., 2007). Besides, the extracted variance between psychosocial and career support is greater than the squared correlation between them, suggesting discriminant validity, thus construct validity can be assumed (Fornell & Larcker, 1981).

Multiplexity and simplexity. Participants were asked to indicate whether the named network member possesses the following roles: friend, kin, former or current colleague, or former or current supervisor (multiple answers were possible). Multiplexity was then calculated as the number of different roles between the participant and the network member (Wasserman & Faust, 1994). For being able to integrate the variable into a regression analysis, we further subdivided the variable according to the context of the role (i.e., work, non-work, mixture of work and non-work), which resulted in five different sub-facets of simplicity and multiplexity: 1) *simplex work-related* (i.e., former *or* current colleague, or former or current supervisor); 2) *simplex non-work-related* (i.e., friend *or* kin); 3) *multiplex work-related* (i.e., former or current colleague *and* former or current supervisor); 4) *multiplex non-work-related* (i.e., friend *and* kin); and 5) a *mix of*

work and non-work multiplex (i.e., friend, kin, former *or* current colleague, or former or current supervisor) (see also Thomas & Kram, 1988).

Control variables. We added control variables because we were primarily interested if the here analysed role variables can explain additional variance beyond other variables that have been used to explain different types of support. We controlled for *age of the network member, gender of the network member, relationship duration in years, emotional closeness, and frequency of contact.* Duration of relationship, emotional closeness, and frequency of contact were included as additional relationship characteristics to control for the strength of a relationship. By doing so, we were able to check whether multiplexity would explain variance beyond classic indicators of a strong relationship (Granovetter, 1973). Gender was included since studies have shown that women generally report more support than men (Turner, 1994), and age is relevant as a control variable since social support was found to vary according to age groups (Vaux, 1985). Age and years of relationship were assessed by an open-ended question. Regarding gender, participants could indicate the person to be either male (0) or female (1). Emotional closeness was assessed by one item where participants had to indicate on a 5-point Likert scale (1 = *I total disagree* to 5 = *I totally agree*) how emotionally close their relationship with each person in their network is. Frequency of contact was divided into *daily, weekly, monthly,* and *less than once a month* (0 = *less than once a month*, 1 = *monthly,* 2 = *weekly,* 3 = *daily*).

3.3. Data Structure and Data Analysis

The data of this study contains two units of analysis. The level-1 unit is the relationship between the focal person and the network member. The level-2 unit aggregates level-1 information per focal person and refers to the focal person's network in which the network members are nested. For dyadic level analyses, it is recommendable to take the dependency between network members within one network into account and apply hierarchical linear regression analysis (Snijders & Bosker, 2011). By doing so, we are controlling for variance in each developmental relationship that can be accounted to the participant and not to the developmental relationships. Therefore, biases in participants' descriptions of relationships are being controlled.

The analysis was executed in *M* plus 7.3 (Muthén & Muthén, 1998-2012). A *One-Way-Random-Effects-Ancova* multilevel regression analysis was chosen to control for between participant effects. The analysis itself took place on level-1, meaning that all dependent and independent variables were on level-1. Level-2 represents the participant, but no data was actually aggregated to level-2. For psychosocial support, the ICC (*1*) was .06 and .12 for career support. With the values indicating a small to moderate effect, and hence showing greater variance at the relationship than at the participant' levels, multilevel analysis is required (LeBreton, & Senter, 2008; Massenberg, Spurk, & Kauffeld, 2015).

For analysing the relative effects of multiplexity (i.e., multiplex non-work, multiplex work, and cross-domain multiplex) against simplexity on psychosocial

and career support, we conducted two regression analyses for each dependent variable (i.e., altogether four regression models; see Table 2 and Table 3). In each regression analysis, we used five sets of dummy codes for multiplexity and in each regression one dummy code was excluded to serve as a reference point (e.g., simplex work); hence, the coefficients in Table 2 and Table 3 correspond to estimates of differences between each of the other four dummy codes and the excluded dummy code. For every support outcome, first, we excluded the dummy of simplex work-related (Hypothesis 1a, 2a, 3a, 4a) and then the dummy of simplex non-work-related (Hypothesis 1b, 2b, 3b, 4b). Therefore, the excluded dummies show no values in the tables. Below, in each table a detailed description including an example may be found.

4. Results

Table 1 provides an overview of correlations between the dependent and independent variables as well as the means and standard deviations of the study variables. The implicit baseline assumption that non-work relationships provide more psychosocial support and work relationships provide more career support is confirmed based on the correlations in Table 1. Table 2 and Table 3 provide an overview of the multilevel regression analysis of psychosocial and career support on the relationship characteristics (i.e., multiplexity, emotional closeness, frequency of contact, the duration of the relationship in years) and further control variables (i.e., gender, age).

Results below present the following comparisons: First, we compared simplex work-related relationships with multiplex non-work-related relationships (Hypothesis 1a) concerning psychosocial support, and simplex non-work-related relationships with multiplex non-work-related relationships (Hypothesis 1b)

Table 1. Means, standard deviations and correlations of study variables.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1) Age network members	41.84	12.86	-											
2) Gender network members	.53	.49	.15**	-										
3) Emotional closeness	3.68	1.21	−.13**	−.15**	-									
4) Frequency of contact	1.84	1.00	−.21**	−.01	.30**	-								
5) Duration of relationship	9.73	9.80	.37**	−.08**	.45**	−.03	-							
6) Work-related simplexity	.40	.48	.17**	.13**	−.66**	−.08**	−.41**	-						
7) Non-work-related simplexity	.37	.48	−.02	−.13**	.56**	.04*	.53**	−.63**	-					
8) Work-related multiplexity	.02	.15	.05**	.05**	−.12**	−.02	−.07**	−.12**	−.12**	-				
9) Non-work-related multiplexity	.02	.16	−.02	−.03	.17**	.14**	.08**	−.13**	−.12**	−.02	-			
10) Cross-domain multiplexity	.18	.37	−.20**	−.01	.11**	.00	−.16**	−.37**	−.35**	−.07**	−.07**	-		
11) Received career support	3.06	1.20	.06**	.16**	−.26**	−.04**	−.35**	.33**	−.48**	.09**	−.09**	.18**	-	
12) Received psychosocial support	3.56	1.18	−.11**	−.22**	.73**	.26**	.37**	−.59**	.50**	−.08**	.16**	.09**	−.17**	-

Note. N = 533; *p < .05; **p < .01; ***p < .001.

Table 2. Results of the HLM regression of study and control variables on psychosocial support.

		Psychosocial support (Hypothesis 1a & 3a)		Psychosocial support (Hypothesis 1b & 3b)		Psychosocial support (additional analysis)	
		B	*SE B*	*B*	*SE B*	*B*	*SE B*
Control variables	Age network members	.00	.00	See first columns		See first columns	
	Gender network members	−.23***	.03				
	Emotional closeness	.51***	.02				
	Frequency of contact	.10***	.02				
	Years of relationship	.00	.00				
Study variables	Simplex non-work	.65***	.06	-	-	.18***	.05
	Simplex work	-	-	−.65***	.06	−.47***	.05
	Multiplex non-work	.83***	.07	.18**	.05	.36***	.06
	Multiplex work	.26*	.10	−.38**	.12	−.20	.11
	Multiplex cross-domain	.47***	.05	−.18***	.05	-	-
	R square			.63***			

Note. $N = 533$; $^\dagger p < .10$; $^* p < .05$; $^{**} p < .01$; $^{***} p < .001$; Multiplexity is composed of five sub-facets. For analysing the relation of each sub-facet with psychosocial support, we conducted three regression analyses. In each regression analysis, one specific sub-facet of multiplexity was left out to compare the amount of psychosocial support explained by the integrated sub-facets in comparison to the excluded one. For being able to test our hypotheses, we first excluded the sub-facet simplex work-related, then simplex non-work-related and at last cross-domain multiplexity. The excluded sub-facet will therefore show no value in the analysis. Example: Column 1 shows that simplex non-work and multiplex non-work provide significantly more psychosocial support than simplex relationships from the work context. The values for the control variables are the same across all three regression analyses and therefore only displayed once.

Table 3. Results of HLM regression of study and control variables on career support.

		Career support (Hypothesis 2a & 4a)		Career support (Hypothesis 2b & 4b)		Career support (additional analysis)	
		B	*SE B*	*B*	*SE B*	*B*	*SE B*
Control variables	Age network members	.01***	.00	See first columns		See first columns	
	Gender network members	.19***	.04				
	Emotional closeness	.14***	.03				
	Frequency of contact	−.01	.02				
	Years of relationship	−.02***	.00				
Study variables	Simplex non-work	−1.24***	.08	-	-	−1.19***	.07
	Simplex work	-	-	1.24***	.08	.05	.06
	Multiplex non-work	−1.20***	.14	.04	.13	−1.15***	.13
	Multiplex work	.31**	.11	1.55***	.12	.36**	.11
	Multiplex cross-domain	−.05	.07	1.19***	.07	-	-
	R square			.36***			

Note. $N = 533$; $^\dagger p < .10$; $^* p < .05$; $^{**} p < .01$; $^{***} p < .001$; Multiplexity is composed of five sub-facets. For analysing the relation of each sub-facet with career support, we conducted four regression analyses. In each regression analysis, one specific sub-facet of multiplexity was left out to compare the amount of career support explained by the integrated sub-facets in comparison with the excluded one. For being able to test our hypotheses, we first excluded the sub-facet simplex work-related, then simplex non-work-related and at last cross-domain multiplexity. The excluded sub-facet will therefore show no value in the analysis. Example: Column 1 shows that simplex non-work and multiplex non-work relationships provide significantly less career support than simplex relationships from the work context. The values for the control variables are the same across all three regression analyses and therefore only displayed once.

concerning psychosocial support. Second, we compared simplex work-related relationships with multiplex work-related relationships (Hypothesis 2a) concerning career support, and simplex non-work-related relationships with multiplex work-related relationships (Hypothesis 2b) concerning career support.

Third, we compared simplex work-related relationships with multiplex relationship from both contexts (Hypothesis 3a) concerning psychosocial support, and simplex non-work-related relationships with relationship from both contexts (Hypothesis 3b) concerning psychosocial support. Fourth, we compared simplex work-related relationships with multiplex relationship from both contexts (Hypothesis 4a) concerning career support, and simplex non-work-related relationships with relationship from both contexts (Hypothesis 4b) concerning career support.

For all results, explanation of variance in psychosocial and career support took place beyond the control variables for the strength of a relationship (i.e., emotional closeness, frequency of contact, the duration of the relationship in years).

4.1. Non-Work-Related Multiplexity and Psychosocial Support

Hypotheses 1a and 1b stated that non-work-related multiplex relationships provide greater *psychological support* than work and non-work simplex relationships. For verifying Hypotheses 1a and 1b, we executed multiple regression analyses in which work-related simplexity and non-work-related simplexity were excluded from the analysis to compare it against the received psychosocial support from non-work-related multiplex relationships (see Table 2). The amount of psychosocial support received from a non-work multiplex relationship is higher than the amount received from simplex work-related relationships ($B = .83$ $p < .001$). Moreover, the amount of psychosocial support received from a non-work multiplex relationship is slightly higher than the amount received from simplex non-work-related relationships ($B = .18$ $p < .001$). Thus, we found support for Hypothesis 1a and 1b.

4.2. Work-Related Multiplexity and Career Support

Hypotheses 2a and 2b stated that work-related multiplex relationships provide greater *career support* compared with work- and non-work-related simplex relationships. For verifying Hypotheses 2a, we executed one regression analysis in which work-related simplexity (2a, see Table 3) was excluded from the analysis to compare the effect of work-related multiplexity with work-related simplexity. For verifying Hypotheses 2b, we executed one regression analysis in which non-work-related simplexity (2b, see Table 3) was excluded from the analysis to compare the effect of work-related multiplexity with non-work-related simplexity. The amount of career support received from a multiplex work-related relationship is slightly higher than the amount received from simplex work-related relationships ($B = .31$ $p < .01$) and noticeably higher than the amount received

from simplex non-work-related relationships ($B = 1.55$ $p < .001$). Hence, we found support for Hypothesis 2a and 2b.

4.3. Cross-Domain Multiplexity and Psychosocial Support

Hypothesis 3a and 3b stated that cross-domain multiplex relationships provide greater *psychological support* than work and non-work simplex relationships. To verify these hypotheses, we executed multiple regression analyses in which work- and non-work-related simplex relationships were excluded from the analysis to compare it against the received psychosocial support from cross-domain multiplex relationships (see Table 2). Relationships combining both contexts provide more psychosocial support than simplex work relationships ($B = .47$, $p < .001$), and less than simplex non-work-related relationships ($B = -.186$, $p < .001$). Thus, we found support for Hypothesis 3 about not for Hypothesis 3b.

4.4. Cross-Domain Multiplexity and Career Support

Hypotheses 4a and 4b stated that cross-domain multiplex relationships provide greater *career support* than work- and non-work-related simplex relationships. To verify these hypotheses, we executed multiple regression analyses in which work- and non-work-related simplex relationships were excluded from the analysis to compare it against the received career support from cross-domain multiplex relationships (see Table 3). The amount of career support for multiplex relationship combining both contexts is not significantly higher than for simplex work-related relationships ($B = -.05$, $p = .33$), but significantly higher than for simplex non-work-related relationships ($B = 1.19$, $p < .001$). Therefore, Hypothesis 4a cannot be confirmed whereas 4b can.

4.5. Additional Analyses

Concerning psychosocial support, we were able to observe next to the hypotheses that relationships combining both contexts are related to a higher amount of *psychosocial support* compared with simplex and multiplex relationships from the work context ($B = -.47$, $p < .001$; $B = -.20$, $p < .10$; see Table 3) and a lower amount of psychosocial support compared with multiplex relationships from the non-work context ($B = .36$, $p < .001$; see Table 3). Further, 59% of variance in psychosocial support could be explained only by control variables. Thus, multiplexity explained an additional 4% in psychosocial support. Concerning the control variables, emotional closeness ($B = .51$, $p < .001$) and contact frequency ($B = .10$, $p < .001$) were positively related, gender was negatively related ($B = -.23$, $p < .001$), and age and duration of the relationship were not related to psychosocial support when the other variables in the model were controlled.

In addition to the hypotheses, it is noteworthy that the amount of career support received from a multiplex relationship combining both contexts is significantly smaller than the amount received from a multiplex work-related rela-

tionship ($B = .36$, $p < .01$; see Table 3). Moreover, multiplex relationships combining both contexts provide significantly more career support than multiplex relationships from the non-work context only ($B = -1.15$, $p < .001$, see Table 3), and significantly more career support than simplex relationships from the non-work context ($B = -1.19$, $p < .001$; see Table 3). The results indicate that multiplex relationships from only the work context and a mixture of both the work and non-work contexts are beneficial for career support. Overall, 36% of variance in career support was explained by study and control variables. Twenty-two percent of variance in career support could be explained without including all multiplexity related dummies. Thus, multiplexity explained an additional 14% in career support. In terms of the control variables, emotional closeness ($B = .14$, $p < .001$), age ($B = .01$, $p < .001$) and gender ($B = .198$, $p < .001$) are positively related to career support. The duration of a relationship ($B = -.02$, $p < .001$) is negatively related, and the frequency of contact is not at all related to career support when the other variables in the model were controlled.

5. Discussion

In this article, we aimed to combine content and structural analysis of relationships in developmental networks by answering the question whether greater psychosocial and career support was received when the relationship in a dyad was multiplex (i.e., more than one role occupied of the alter within the focal person's network). Hence, we divided multiplexity according to work, non-work, or a combination of both contexts (i.e., cross-domain multiplexity). Results indicate that the effect of multiplexity explains variance in the amount of psychosocial and career support beyond other structural aspects of the strength of a relationship, such as emotional closeness, frequency of contact, and the duration of the relationship (Granovetter, 1973; Marsden & Campbell, 1984).

Concerning *psychosocial support*, multiplex contacts from the non-work context showed the strongest relationship. Simplex and multiplex work-contacts provided significantly less psychosocial support than non-work ones. Yet, when a work-role is cross-domain with a non-work role, the amount of psychosocial support is significantly higher in comparison to multiplex and simplex work-contacts.

Regarding *career support*, most support is provided by multiplex contacts from the work context. However, the difference between effects of multiplex contacts from the work context to simplex contacts from the work context is rather small, and differences between effects of cross-domain multiplex contacts versus effects of simplex contacts from the work context were not significant. The result that cross-domain multiplex contacts do not provide more career support than simplex work relationships confirms the basic assumption that each social role goes along with certain behaviour and that non-work roles rather go along with psychosocial support and work-roles rather with career support. Still, a multiplex contact from the work and non-work context provided significantly more career support in comparison with just simplex and multiplex

non-work contacts.

Concerning the control variables, we found that the longer a relationship lasts the less career support is provided which could be explained by assuming that relationships with certain persons might be formed during career critical stages with a decreasing need of career support over time. The duration of a relationship is a well-established predictor of its strength and therefore it is rather uncommon that we did not find a predictive value of duration concerning psychosocial support. Duration was measured in years and possibly this operationalisation was too broad and should have better been assessing time in month rather than years. Furthermore, on a bivariate level, the duration of the relationship positively correlated with psychosocial support, however, the correlation disappears within the full model.

To sum up, we not only showed that in line with role theory non-work-related roles correspond to psychosocial support and work-related roles correspond to career support (Thomas & Kram, 1988), but also that the effect of a combination of either work, non-work, or work and non-work role multiplexity is positively associated with the amount of psychosocial and career support beyond conventional indicators of the strength of a relationship. Previous studies have identified other factors, such as emotional closeness or contact frequency to be predictors of the amount of support exchanged in a developmental network (Van Emmerik, 2004), but social role multiplexity was so far not assessed in this context (Verbrugge, 1979; Cotton, Shen, & Livne-Tarandach, 2011; Dobrow, Chandler, Murphy, & Kram, 2012). We could identify social role multiplexity as an indicator of the strength of a relationship and find support for the assumption that according to the expansion approach, social role multiplexity facilitates access to a wider amount of resources in one dyad, hence is related to the kinds and amounts of support received by the focal actor (Murphy & Kram, 2010).

The latter also allows us to derive conclusions concerning role theory's expansion approach. The expansion approach mostly discusses multiples roles in relationships with at least two people (e.g., I am friends with A und related to B and these two roles provide support in different areas), but hardly focuses on multiple roles in one relationship (e.g., I am friends with A and related to A, and these two roles provide support in different areas; Nordenmark, 2004). This study indicates that the expansion approach applies also for multiple social roles within a single relationship, and hence that multiplex relationships can expand the received resources (i.e., in this case psychosocial and career support).Especially non-work multiplex and cross-domain multiplex relationships expand the amount of psychosocial support, whereas work multiplex, but not cross-domain multiplex relationships expand the amount of career support. The latter implication leads to the suggestion that receiving psychosocial and career support from one relationship is a resource-efficient way of receiving resources in comparison to receiving psychosocial and career support from two separate persons. For instance, due to a reduction of relationship maintenance aspects only having to be worked out for one relationship instead of two, multiple social roles in one rela-

tionship could save time resources. However, time and emotional energy required to initiate and maintain multiplex relationships could be draining too, especially in times of conflicting interests (Bedeian & Armenakis, 1981). Therefore, it might not be recommendable for all developmental relationships in a network to be multiplex. Previously, mentors, who were mainly senior employees from the same work context (Kram, 1985), gave their mentees psychosocial and career support in one person. However, since nowadays the social context is more fluent and certain contacts are voluntarily or involuntarily left behind, the diversity of social spheres from which the support is coming is important.

Each role in a relationship that is added does not only bring about rights, but also obligations. Since the majority of multiplex relationships in our sample originated in the work *and* non-work contexts in comparison with *only* non-work or *only* work contexts, it is for instance questionable whether work-life separation would bring along more conflicting interests or obligations or not. Therefore, we could also imagine that people might even want to avoid multiplexity in certain areas of their life. Consequently, even though we found support for the expansion approach of role theory, it is important to discuss the possible downfalls of social role multiplexity. For instance, when one friend supports the other friend in a job application for a job in another team, when the one who is supporting his/her friend knows that s/he will be missing a valuable resource in his/her team when the friend gets the new job.

5.1. Practical Implications

We focus in the discussion of our practical implications on the creation of cross-domain multiplex relationships from the employee and employer perspective to help these two groups create more psychosocial and career support. Concerning employees, we will first focus on people that mainly have non-work relationships because they have not worked yet or paused their work, for instance, due to maternity or paternity leave. This group of people, and especially young professionals at the beginning of their careers, report more psychosocial than career support (Cummings & Higgins, 2006), but for receiving optimal career support, a work-role should be added to the existing non-work relationship. Hence, we recommend that these individuals look for employed/working persons in their contacts from the non-work context. By exchanging job-related information such as vacant positions or getting introduced to colleagues, they can activate the work-role to the relationship and increase their circle of work-relationships. Another possibility might be to actively share relevant job announcements of the current employer with friends or relatives currently looking for jobs.

For employers, similarly, we suggest that non-work relationships such as friends and family could be recruited by current staff. In that case, a non-work role already exists and a work-role would be activated, resulting in a cross-domain multiplex relationship where psychosocial and career support can

be exchanged. The latter is well-known as job referrals and would be a win-win for the employees with the cross-domain multiplex relationship and any employer since the positive outcomes of developmental relationships or a developmental network is career-beneficial for the individual, and a self-sufficient career catalyst concerning talent management for employers. Research has already shown that referrals have positive effects such as a higher number and better quality of applicants as well as reduced costs in screening applicants (Fernandez & Weinberg, 1997). Importantly, such recruiting aspects should become relevant after a person (competence)-job fit was already tested.

Another suggestion for employers and employees concerning relationship management can be that the exchange beyond work matters is stimulated. Work-related roles already exist but not necessarily non-work ones. By facilitating the exchange of non-work, friendly matters, friendship-like encounters could develop, which supports the development of psychosocial support next to the existing career support. Chandler et al. (2010) even proposed the development of a supporting network to be included as a regular development point in performance review processes, which would be-similarly to the previous practical suggestion-career-beneficial for the employee and advantageous for employers as a self-sufficient career catalyst concerning talent management. Because some employees might prefer to have boundaries between the work and non-work domains, employer initiated activities should be voluntary and/or well communicated to the employee.

5.2. Limitations and Future Research

First of all, our data set is limited in the sense that the data is cross-sectional. The cross-sectional design of this study provides a snapshot of dyadic relationships in developmental networks from which we cannot draw any causal conclusions. Mentoring relationships were found to last on average five years (Burke & McKeen, 1997). As developmental networks evolved from the mentoring idea, future research might focus on the longitudinal analysis of multiplexity in developmental networks and their developmental relationships for detecting change in, for example, the evolvement of the size of the network and the role of multiplexity (Allen, Eby, O'Brien, & Lentz, 2008). Longitudinal analysis could indicate how a friendship with a colleague may open access to a circle of new people (i.e., friends), which could not have been met by only having a simplex work-related relationship with that person.

Additionally, we would like to point out that there are various options in how to define multiplexity. Within this study, multiplexity has been defined as the overlap of roles within one relationship, and therefore applies a more structural definition of multiplexity. The roles have been assessed within the additional questions after the name generator, not through or by means of the name generator. Other studies analysed multiplexity as an overlap of different types of roles (Cotton, Shen, & Livne-Tarandach, 2011; Tschopp, Unger, & Grote, 2016), which can be seen as a combination of social role-based and content driven type

of operationalization. The latter shows the variety in defining multiplexity and clearly underlines the need for further research if different operationalizations of multiplexity have similar or different nomological networks.

An additional cause for concern is that the sample consisted of participants working in academia. For generalizing the results to other populations, we would rather recommend the confirmation of these results within a sample working in other industries. Nonetheless, the concept of developmental relationships fits well to the career paths of academics, which are strongly dependent on supporters (Van Emmerik, 2004), and our sampling decision was based on having a well-fitting and at the same time homogeneous group.

Concerning the different ways of how network members can support the focal person (i.e., participants of our study), we suggest conceptualizations that distinguish further between different kinds of support received by the focal person. By applying multidimensional career and psychosocial support scales, a more precise picture of the relationship between the relationship structure and the support received could be drawn. Moreover, by accumulating the social capital of developmental networks, future research could assess the social capital of an entire organization or institution and assess its benefits beyond the individual level (Leana & Van Buren, 1999).

Moreover, the aspect of well-being as outcome could not be researched, but can be raised as a question requiring further investigation. Broadly speaking, future research could investigate the link of multiplexity in developmental networks with antecedents (e.g., networking behaviour or personal goals) and other outcome variables, such as well-being or objective measures, such as productivity or performance (Methot et al., 2016).

Developmental networks are predominantly composed of strong relationships and may not capture the total number of people beneficial to a person's career since weak ties are knows to provide career relevant information too. Hence, we would like to raise awareness for the possibility that not all relationships that are beneficial for career development and career success could be captured by the construct of developmental networks and that not all relationships being captured by developmental networks are equally beneficial (Granovetter, 1973; Marsden & Campbell, 1984).

At last, we would like to point out that the mutuality perspective did not receive enough attrition in our study. We assumed that the relationships are mutual since we asked for relationships that rather belong to the closer social circle of a person looking to advance the career and/or personal life of the focal person. However, of course empirical investigation is necessary and especially the assessment of relational outcomes of mutual relationships (Ragins & Verbos, 2007).

6. Conclusion

This study combined content and structural aspects when analysing developmental relationships and the therein-received support. By doing so, the study

contributes to the recent call for more research on combining structure and content within social networks (Murphy & Kram, 2010; Verbrugge, 1979). Results revealed that for psychosocial and career support to be rather high for an employee, multiplex relationships from work and non-work contexts appear to be recommendable. Overall, role multiplexity within developmental networks provides a basis for a successful and well-supported career development.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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