A Visual Data Collection Method: German Local Parties and Associations

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Abstract

This research captures local networks of German political parties and welfare agencies in regards to poverty. The article explores whether there are differences in regards to homophily and brokerage between the two studied groups using a dataset of 33 egonetworks in two German cities. The computer assisted drawn networks were collected in an interactive participative way together with the interviewed egonetworks. To achieve the theoretical aim of analysing homophily and brokerage between politicians and welfare workers, two hypotheses are examined, resting upon social capital theory. The hypotheses were quantified and explicated with different variables. The first hypothesis states that heterophile networks imply more social capital, which referred to different measurements (size, density, homophily). This could be partially validated since the analysed networks of association representatives (n=12) were denser and slightly more heterophile than those of party representatives (n=21). Second, it was assumed that politicians, because of their function as elected representatives, would be more likely to take on an interface function within the communities than representatives of civil society institutions. Results based on calculated EI-indices, subgraphs and brokerage show that party representatives do indeed have larger networks, but these networks split into fewer subgraphs than association representatives' networks.

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1. Introduction

Poverty and social exclusion are pressing social issues in advanced and industrialized countries, such as Germany. In Germany, these issues are becoming more visible through a public discussion of the German social security reform program 'Hartz IV' or the poverty of children. For German local communities, the fields of poverty prevention and fighting against already existing poverty structures pose a variety of challenges. Officially, local institutions are responsible for a majority of social benefits and their distribution. The interplay between different political actors and actors from civil society requires networking, cooperation and coming to agreements at various levels. It is exactly this process, and the accompanying relations and connections, which make municipal efforts to fight poverty in Germany an interesting field for political science; a field which has hardly been explored in terms of networking structures. This is surprising, because municipalities are especially restricted in their actions and capabilities and depend on the cooperation and involvement from the civil sector, which is a challenge specifically visible in the area of fighting poverty.

The thematic aim of this paper is to capture the local network of political parties and welfare agencies regarding poverty, and to explore whether there are differences concerning homophily and brokerage between politicians and welfare workers. The research question is: How exactly are local political actors connected with organisations from civil society?

The methodological goal is to show that social network analysis is well suited to statistically represent the relations between local politicians and welfare agencies. Additionally, the findings demonstrate that visual data collection allows for a simultaneous validation of data through the participation of the subject group. As a result, it can be illustrated how a visual inquiry through digital networking maps enables a collection of quantitative data that can then be evaluated (Gamper et al., 2012). Lastly, it will be assessed how useful the method of visually surveying quantitative data can be for the research field of local politics. Here, the question is: which advantages and disadvantages emerged for participants during the survey because of structured and standardized digital network maps?

2. State of Research and Theoretical Framework

Some studies exist that take a closer look at the state of the German local level and its existing structures of decision-making. However, social network analysis has not been significantly featured in these works (Heinze & Voelzkow, 1991; Helbling, Egli, & Matter, 2005; Fowler, 2006; Ohm, 2009; Werner, 1998). Instead, the intent of this research is to offer a comparative look at the structures of fighting poverty at a local level by analysing the networks between local politicians, welfare agencies and domestic associations. One exception to achieve this is the work of Sören Petermann (2008). He has studied the political influence of local politicians in the context of a social capital model in major cities, medium-sized cities and counties (Petermann, 2008, p. 156). He wanted to show how the social capital (Burt, 1995; Coleman, 1988) of established politicians in the municipality (mayor, county commissioner, parliamentary party leaders) affects their political influence within the local power structures. Here, he measured the centrality of the actors and their broker position in egonetworks (Petermann, 2008, p. 153, 155). Moreover, he calculated regression models to estimate the social capital of politicians within interaction networks and found out that finding consensus and bargaining in networks depend on politicians' prestige in the cities (ibid., p. 171). In methodological concerns, he showed that local top politicians are highly connected within their community, but admits that his studied networks focused on strong ties and interactions within cities. Howev-

er, no studies exist that explicitly focus on the field of poverty at the local level in Germany. The study introduced here is meant to, at least partially, fill this academic void.

This study draws from Bourdieu's social capital theory (Bourdieu, 1986; Coleman 1988; Lin, Cook, & Burt, 2001), because social capital enables inclusion in social networks, and entering social relationships based on access to material and immaterial resources and support from other people (Crossley et al. 2015, p. 26–37). At this point, it is assumed that social capital can be an individual, as well as a collective good. In institutionalized relationships, resources can be tapped, which can prove beneficial for the individual, as well as for the collective. Here, it is helpful to understand networks as fields, in which social capital is distributed and exchanged (Bourdieu, 1985). Because one group distinguishes itself from its outside, the present article is based on the assumption that, according to reciprocal recognition and reinforcement, similar and homogenous actors are to be found in local networks (Bourdieu, 1986). Consequently, the study is based on the following premises: The interrelationship between local party activists, city administration and welfare agency officials serves as the exchange and fostering of one's social capital. Depending on how much social capital an ego can accumulate, meaning how many potential communicative relations it has, it is more likely to be able to articulate its interests and act inclusively at the political level. Another, more special, type of capital is information, because it is passed on through weak ties (Granovetter, 1973) within, and between, networks.

This research is guided by asking about the cooperation of political parties, welfare agencies and the administration: How are these networks structured? What kind of different or similar actors can be found in these networks, how many of them are there and what is their function? Two hypotheses serve as guidelines:

First: If actors from different areas are represented in a network, heterophile networks would contain more social capital. This is based on the assumption that welfare agencies and domestic associations represent poverty-stricken people, because of their institutional foundation, and are, therefore, potential contacts for politicians. Consequently, their networks should be bigger and presumably denser and more heterophilic. Networks can be considered homophilic if alteri (network contacts and nodes), which resemble the ego and its features, are placed in the areas where the people questioned are supposed to locate their contacts (Lin, Cook, & Burt, 2001; Pfenning & Pfenning, 1987, p. 72). These three characteristics of networks (size, density, and homophily) will be calculated individually in this case.

Second: Due to their function and position as representatives of the people, officials of political parties have higher brokerage values than representatives of welfare and domestic agencies. A person, who is located in a defining interface of the network, is called a broker. Brokerage is comparatively operationalized via the number of subgraphs in each egonetwork (Burt, 1995). The more subgraphs that are in an egonetwork, the higher the ego brokerage value.

3. Methodology

For this study, egonetworks were collected and analysed (Fischer et al., 1977; Wellman & Leighton, 1978; Crossley et al. 2015). Because egonetworks explain relations between the ego and its alteri, they reflect the individual "bounded rationality" of actors. The qualitative approach to networks that gained attention recently (Bellotti 2008; Hollstein 2011) proved to be the best way to access the discussed field of research. Benefitting from qualitative SNA, a mixed methods design was realized based on visual network maps with targets (Crossley et al. 2015, p. 60). In this case, the program VennMaker was used to collect data visually through network maps

(Kahn & Antonucci, 1980). This software allows an immediate visualization of the participant's network during the conversation. Additionally, network structures can be immediately validated by repeated and clarified questions during the interview process. The emphasis, therefore, lies on the qualitative aspects of respondents' networks. Complementary, or, depending on the question, primarily, quantitative data can be calculated by standardizing and structuring the network maps prior to the interview, so that results can be compared. Overall, the use of VennMaker is a standardized collection, in which alteri attributes, for example importance, type of relationship, etc., are visualized through the program and are quantitatively recorded and standardized. This visual collection method combines qualitative and quantitative approaches and integrates both (Hollstein 2014, p. 10–1). The elicitation for this research was embedded in "traditional", in-depth expert interviews (Bogner, Littig, & Menz, 2009).

Regarding the sampling parties, welfare agencies and domestic associations at the local level in an East German city (Jena) and a city in West Germany (Trier) were chosen. Both cities are home to a university, are of similar size, are of a similar socio- economic structure, and have to tackle similar challenges in areas of deprivation, which is what makes them participants of the federal "Social City Program". Accordingly, a systematic probability method was chosen to approach representative position holders in the field: the chairmen or executive directors of associations and charities were interviewed and their political counterparts, the party leaders, faction leaders, or the politicians who had social policies as their main focus. By then using the snowball-approach (Babbie, 2013, p. 191), other central actors were included in the course of the process. The sample includes 36 egonetworks in total. For Jena, the sample includes six association representatives, 12 party representatives and one city administrator. For Trier, five association representatives are included, as well as nine party representatives and two city administrators. Altogether, 19 women and 17 men between 31 and 72 years were represented. For four networks, not all data is available, and for three networks, interview effects can be assumed, which were conducted by another interviewer. The networks of administration officials were not included, because they represent a functional group of only three egos, and thus too small for an intended mean value comparison. The egonetworks were established together with the respondents using the "free network drawing" function of VennMaker based on targets. For the networks, alteri were collected through a name generator, in order to functionally separate the field (Burt, 1997; Campbell & Lee, 1991). For this analysis, the question asked focused explicitly on relationships of professional information exchange: "Now I am curious about the people with whom you work together in the field of fighting poverty. If you could give me a specific example, for instance, who do you contact or ask for help when you administer benefits?"

The generator was connected to qualitative guiding questions of the expert interview with the intention to reveal relevant cooperation: Most of the time, participants named organisations important to them in the course of the qualitative expert interview. These organisations were noted, and the participant would be asked, with which individuals from these organisations she worked together with in the field of welfare. The named alteri were then drawn in VennMaker, together with the interview partner, in a visually-participatory manner. Afterwards, the name interpreters were queried, which generated standardized information regarding the alteri and their relations to ego. The nature of the relationship between the ego and its alteri is collected through the interpreters, as well as alter-alter relationships. Interpreters, comprised of several common measures, such as the duration of contact, frequency of contact and the type of contact, the importance of alteri for the ego (visualized as

the size of alteri), function, party membership, age and gender, were used. Interpreters were operationalized as follows: contact frequency: 1 = very often (daily, weekly), 2 = often (up to three months), 3 = seldom (once or twice a year); duration of contact: 1 = 1–2 years, 2 = 2–5 years, 3 = 5–10 years, 4 = 10–20 years, 5 = more than 20 years; type of contact (personal, via phone, via mail, email, cell phone).

The visual collection and participatory positioning together with the participants proved to be very beneficial for both sides. At no point in time did the participants feel as if they were producing the type of quantitative data, which is usually the case with questionnaires when collecting network data. Plus, this collection procedure is not as time consuming as the classic approach. This method is, therefore, especially interesting for smaller and more sensitive research fields, and leads to equally valid results.

In the course of the processing of the digital network map, it became apparent that categorical variables, such as frequency of contact, age or duration of contact, can be collected very well through the additionally configurable 'actors chart' in VennMaker, which is comparable to a questionnaire, meaning these were not added visually, but via a catalogue of questions that can be called upon in the program. Instead, the form and formalization of cooperation was represented through relations, and afterwards the drawings were complemented with this information together with participants. Here, varying forms of relations were offered to depict multiplexity, from which the participant could select the most fitting for the present relationship in their perception (see Figure 1).
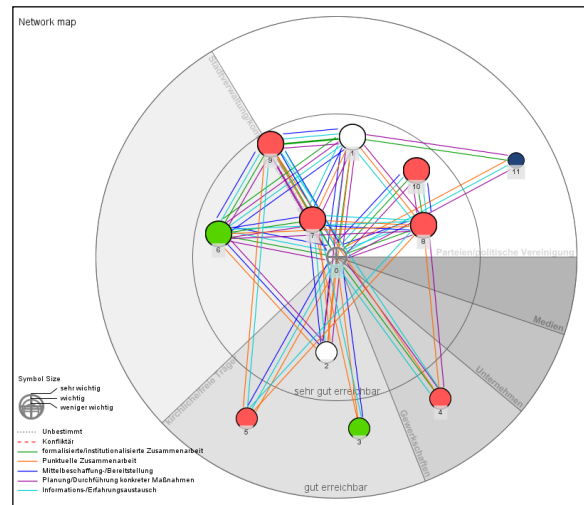
To distinguish those multiplex relationships, several forms for collaboration were drawn with one alter. More specifically, these were the exchange of information and experiences (turquoise), exchange or procurement of means (financially and otherwise; blue), planning and implementation of concrete measures (purple) and timely loose or sporadic (orange), as well as institutionalized and formalized cooperation (green). The alteris' colours represent party membership in line with parties' colours or non-partisanship (white). Via three concentric circles, the accessibility of alteri was classified from "very good" to "less good" (see Figure 2). The sectors, meaning the circle segments in different grey shades, illustrate the areas of the municipality: political parties, city administration, agencies, charities and associations, businesses, unions, media. For the quantitative analysis, the collected results were controlled and processed in Excel through the export function of the program. Afterwards, the network parameters and measures for homophily and brokerage were calculated by using UCINET; here, the calculation of density was balanced with the one from VennMaker. As a third factor, apart from size and density, homophily was calculated using the EI-index. This index carries out values from −1 to 1;

1 meaning heterophily and −1 standing for homophily: the lower the value, the more homophilic the network. In order to compare the networks amongst each other, in terms of their homophily, this research takes the indices of the entire network into account. Finally, the comparison of mean values was calculated with a parametric test in SPSS.

4. Empirical Findings

When looking at the network size, politicians have a slightly bigger network than the association representatives. The larger the network, the lower the density (Borgatti & Everett, 1997). For both groups, differences could be found in density rather than in size. A comparison of the networks

of party representatives regarding the EI-index reveals that the networks show the entire spectrum of EI. For the mean value, all networks are located in the homophile field of the index, yet the networks of party representatives are more heterophilic at −0.122 (SD = 0.588) than those of the association representatives at −0.245 (SD = 0.696) (see Table 1). Thus, politicians have more heterophilic networks in terms of locating alteri in sectors. The mean values show that the association networks display less varied values than the ones of the politicians. Therefore, politicians act as information intermediaries according to the second hypothesis, which stated politicians enjoy a kind of monopoly regarding the passing of information, which is operationalized through the number of subgraphs.

Table 1: Comparison of the mean value for size, density, EI-index and subgraphs

Function		Size	Density	EI-index via sector affiliation	Number of subgraphs
party (n=21)	mean	24.950	0.12870	−0.122520	21.380
	SD	9.897	0.12527	0.588792	13.261
association (n=12)	mean	23.670	0.25010	−0.245500	23.000
	SD	12.272	0.38182	0.696312	13.423
total (n=33)	mean	24.480	0.17280	−0.167240	21.970
	SD	10.648	0.25187	0.622052	13.133
significance (n=26)	t	0.599	0.08000	0.775000	0.489
squared eta (n=26)	η2	0.012	0.00400	0.001000	0.210

Collection, calculation and figure by the author.[15] *Significance level at 0.05.*

The difference in the amount of subgraphs from 21.38 (parties) to 23 on average (associations) indicates that association representatives seem to have the higher brokerage power, and hypothesis two is rejected. The t-test was only relevant for the density. Regarding the number of subgraphs and function, the mean value comparison was not significant (see Table 1). Since the difference of the mean values for density is accidental by up to 20 per cent, a very low effect between density and function may

exist. As a result, one can state that the networks of the association representatives contribute more to the inclusion of affected interests than those of the party representatives. Contrary to this, the politicians' networks seem more secluded, due to their slight homogenous constitution.

5. Conclusion

The thematic aim of this contribution was to illustrate the network structure between local politicians and welfare associations in poverty politics. The networks of studied egos were quantified and explicated with different variables (size, density, homophily, and subgraphs). The first hypothesis could be partially validated, because the networks of association representatives were denser and slightly more heterophilic

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15 The purely star-networks (no. 9, 10, 31, 34, 37) were excluded here.

than those of party representatives. Regarding the second hypothesis, results show that party representatives have larger networks, yet these networks split into fewer subgraphs than the networks of association representatives.

In terms of methodology, the aim was to show how digital network maps facilitate collecting and analysing quantitative data. For this, data collection with VennMaker has proven to be very effective. Structures and the manifestations of relations with the associations, as well as alteri-characteristics were standardized; here, the scaling and classification of categories was very time-consuming. The positioning of the alteri could be singled out from VennMaker for the quantitative calculations presented here. Insofar, it was assured that the shown network structure was also depicted in the quantitative data set. Sketching the networks together with the interview partners allowed a direct capturing of the inherent thought processes of the participants during the conversation. While this may have led, in some cases, to very confusing network maps, the fact that participants could see their networks structurally visualized proved to be interesting and surprising to them. This also prevented boredom or frustration from emerging during the collection of alter-alter-relations (McCarty, Killworth, & Rennell, 2007). The joint sketching caused participants to become more interested in the inquiry, and it was possible to illustrate the structure of their professional networks for them. Such a combined approach is currently without equal because a simultaneous positioning of the alteri and validation of network structures on a visual network map is a clear advantage of the program, whereas the analysis for statistical calculations had to be done with other programs. Consequently, VennMaker had an interface function for the quantitative part of the study. The collection and processing of data was enabled and highly facilitated, in particular, because of the program. Compared to this, the processing and calculating of parameters, especially the EI-index and the ttest, was elaborate and tedious in UCI-NET. The data collected and exported with VennMaker was further analysed, or manually edited in other programs. Here, SPSS was fitting for the hypotheses tests. Initially, VennMaker caused the most problems in the beginning of the analysis compared to the other programs. This was mainly because the software was first used as a beta-version in the research project and later on in the 1.0-version. These two versions already differed greatly in their usage, especially the statistics functions, which were needed for a smooth export and further analysis: they were in need of further development. For the collection of network data, VennMaker has proven successful in an interview setting. As a result, the method of using digital network cards is well suited for the visual-participatory collection of egonetworks together with participants. The possibility of sketching the network and the following revision with the participants should be emphasized as a positive feature. By proceeding this way, the interpretations of the interview partner could be directly included and analysed quantitatively afterwards. Because of that, a distortion by the researcher can be minimized, and, almost in passing, quantitative data can be collected. It could, therefore, be demonstrated that visual collection instruments are well suited to gather and evaluate quantitative data.

References

Babbie, E. R. (2013). *The practice of social research* (13th ed.). Belmont, CA: Wadsworth Cengage Learning.

Bellotti, E. (2008). What are friends for?: Elective communities of single people. Social Networks, 30(4), 318–329. doi:10.1016/j.socnet.2008.07.001

Bogner, A., Littig, B., & Menz, W. (Eds.). (2009). *Research methods series. Interviewing experts*. Basingstoke [England], New York: Palgrave Macmillan.

Borgatti, S. P., & Everett, M. G. (1997). Network analysis of 2-mode data. *Social Networks*, *19*(3), 243–269. doi:10.1016/S0378-8733(96)00301-2

Bourdieu, P. (1985). The genesis of the concepts of habitus and field. *Sociocriticism*, *2*(2), 11–24.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and re-*

search for the sociology of education (pp. 241–258). New York: Greenwood Press.

Burt, R. S. (1995). Structural holes: The social structure of competition (2nd ed.). Cambridge, Mass.: Harvard University Press.

Burt, R. S. (1997). A note on social capital and network content. Social Networks, 19(4), 355–373. doi:10.1016/S0378-8733(97)00003-8

Campbell, K. E., & Lee, B. A. (1991). Name generators in surveys of personal networks. Social Networks, 13(3), 203–221. doi:10.1016/0378-8733(91)90006-F

Coleman, J. S. (1988). Social capital in the creation of human capital. The American Journal of Sociology, 94, 95–120.

Crossley, N., Bellotti, E., Edwards, G., Everett, M. G., Koskinen, J. & Tranmer, M. (2015). Social network analysis for ego-nets. Los Angeles: SAGE.

Fischer, C. S., Stueve, C., Jones, L. M., Jackson, R. M., Gerson, K., & Baldassare, M. (1977). Networks and places: Social relations in the urban setting. New York: Free Press.

Gamper, M., Schönhuth, M., & Kronenwett, M. (2012). Bringing qualitative and quantitative data together – Collecting and analyzing network data with the help of the software tool VennMaker. In H. Safar, M. Safar, & K. A. Mahdi (Eds.), Social Networking and Community Behavior Modeling: Qualitative and Quantitative Measures. Qualitative and quantitative measures. Hershey: Information Science Reference.

Granovetter, M. S. (1973). The strength of weak ties. American Journal of Sociology, 78(4), 1360–1380.

Heinze, R., & Voelzkow, H. (1991). Kommunalpolitik und Verbände: Inszenierter Korporatismus auf lokaler und regionaler Ebene? In H. Heinelt & H. Wollmann (Eds.), Stadtforschung aktuell: Vol. 31. Brennpunkt Stadt. Stadtpolitik und lokale Politikforschung in den 80er und 90er Jahren (pp. 187–206). Basel: Birkhäuser.

Helbling, M., Egli, S., & Matter, S. (2005). Lokale Eliten und kommunale Politiknetzwerke - Einflussreiche Akteure in der Einbürgerungspolitik einer Schweizer Gemeinde. In U. Serdült (Ed.): Vol. Nr. 3. Zürcher Politik- & Evaluationsstudien, Anwendungen sozialer Netzwerkanalyse. Beiträge zur Tagung vom 14. und 15. Oktober 2004 (pp. 105–118). Zürich: Institut für Politikwissenschaft. Forschungsbereich Policy-Analyse und Evaluation.

Hollstein, B. (2011). Qualitative Approaches. In P. J. Carrington & J. Scott (Eds.), The SAGE handbook of social network analysis (pp. 404–416). London: SAGE.

Hollstein, B. (2014). Mixed Methods Social Networks Research: An Introduction. In S. Domínguez & B. Hollstein (Eds.), Structural analysis in the social sciences: Vol. 36. Mixed methods social networks research. Design and applications (pp. 8–34). New York: Cambridge Univ. Press.

Fowler. James H. (2006). Connecting the Congress: A Study of Cosponsorship Networks. Political Analysis, (14), 456–487. Retrieved from 10.1093/pan/mpl002

Kahn, R. L., & Antonucci, T. C. (1980). Convoys of life course: Attachment, roles, and social support. In P. B. Baltes & O. G. Brim (Eds.), Life-span development and behavior (pp. 253–286). New York: Academic Press.

Lin, N., Cook, K. S., & Burt, R. S. (2001). Social capital: Theory and research. New York: Aldine de Gruyter. Retrieved from http://www.worldcat.org/oclc/45320849

McCarty, C., Killworth, P. D., & Rennell, J. (2007). Impact of methods for reducing respondent burden on personal network structural measures. Social Networks, 29(2), 300–315. doi:10.1016/j.socnet.2006.12.005

Ohm, A. (2009). Die Machtstruktur kommunaler Entscheidungsträger - Eine Netzwerkanalyse. In V. Schneider & F. Janning (Eds.), Politiknetzwerke. Modelle, Anwendungen und Visualisierungen (pp. 285–303). Wiesbaden: VS Verlag für Sozialwissenschaften.

Petermann, S. (2008). Soziale Netzwerke und politischer Einfluss von Kommunalpolitikern. In W. Matiaske & G. Grözinger (Eds.), Sozialkapital. Eine (un)bequeme Kategorie (pp. 139–177). Marburg: Metropolis-Verlag.

Pfenning, U., & Pfenning, A. (1987). Egozentrierte Netzwerke: Verschiedene Instrumente - verschiedene Ergebnisse. ZUMA Nachrichten, (21), 64–77. Retrieved from http://www.ssoar.info/ssoar/files/2011/393/zuma-nachrichten_1987_21_64-77.pdf

Wellman, B., & Leighton, B. (1978). Networks, neighborhoods and communities: Approaches to the study of the community question. Toronto: Centre for Urban and Community Studies and the Dept. of Sociology, University of Toronto.

Werner, W. (1998). Armut und Obdachlosigkeit in der Kommune. In H. Wollmann & R. Roth (Eds.), Kommunalpolitik – Politisches Handeln in der Gemeinde (2nd ed., pp. 703–716). Opladen: Westdeutscher Verlag.