



SPECIAL ISSUE

Introduction to the Special Issue on Ego Networks

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In the wake of the evolution of network science, the rapidly increasing use of large-scale administrative data, and the powerful new algorithms developed by natural and physical scientists new to network research, some have wondered whether egocentric analysis will be central to the growth of scientific network research. However, egocentric network analysis, coupled with sociocentric network analysis, was the foundation of a century-long, rich tradition that drew scientists from sociology, political science, anthropology, psychology, public opinion, communication, and health and medicine. This body of research contributed fundamental discoveries, from the strength of weak ties, to the importance of multiplex relations, to the implications of structural holes for organizational behavior.

Egocentric research, which takes individuals and their networks as the unit of analysis, and which largely focuses on social, rather than non-social networks, offers important and unique advantages over related approaches. Data collection is flexible. Because egocentric network analysis typically uses individuals as cases, potential sampling frames and data collection strategies are virtually limitless. Egocentric data collection tools can easily be incorporated into large-scale or nationally representative surveys being fielded for a variety of other purposes. In contrast, because sociocentric analysis requires data on all ties between members of (usually) one socially or geographically bounded group, it cannot make reliable inferences about populations outside the group. Egocentric approaches assess individuals' personal community networks across any number of social settings and are therefore less limited in theoretical and substantive scope. Because of the ease with which egocentric data can be collected, this approach permits researchers to tailor questions about types of ties and tie attributes to their research interests rather than relying on secondary data that may be an ill fit. As in sociocentric research, meaning, measurement, and method have become popular in egocentric research, helping bring the insights on interaction, connectedness and systems to research in substantive areas such as inequality, health, political movements, immigration, culture, and many others.

In short, the relatively recent, spectacular growth of both sociocentric network research and network science has made clear to many researchers the gaps in knowledge for which an egocentric perspective is indispensable. How do actors form ties? How do ties drive social action? How much does culture matter? How does the context of interaction restrict or open opportunities for network maintenance? How do actors make decisions about mobilizing their connections? How much of an influence process is self-conscious versus unintended? These and many other

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questions require an ego network perspective to form part of a complete answer, as they involve understanding not merely the structure of a network but also the individuals and relationships embedded therein. We asked scientists from all disciplines to consider questions of this kind, to contribute their ideas and to assess them based on empirical research. We also asked them to theorize about and develop innovative ways to integrate ego- and sociocentric perspectives, and to assess how complementary research of this kind can move science forward. Our goal in this special issue of *Network Science* is to highlight new advances in theory, method, and analysis in ego-network research, as well as advance the integration of this and other approaches to the study of network phenomena. Our hope is that you find these papers as stimulating to your thinking and research as it has been to ours.

The following 15 papers (split between this issue and the next of *Network Science*) represent less than a third of the initial inquiries we received when we advertised this special issue. This volume speaks to the strength and interest in this field. Taken as a whole, the papers reflect several major themes in our field: the development of network typologies, the questions of method and measurement, the changing nature of personal networks, the egocentric network as an outcome, and the impact of egocentric networks on other phenomena.

Network typologies

In a study of how we characterize social networks, **Vacca** proposes a method to identify structural typologies in personal networks. Building on work by Bidart et al. (2018), “Structure in personal networks: Constructing and comparing typologies” also draws on a network science tradition of community detection to identify subgroups, summarize structures, and detect typology. Examining six different egocentric datasets comprising a total of 1,688 personal networks, Vacca convincingly demonstrates that much of the variation in personal network structure can be summarized effectively using three measures of cohesive subgroup characteristics—number of subgroups, number of singletons/dyads, and modularity. Vacca discusses the implications of this for classification of social structure in personal networks.

Maya-Jariego, Letina, and González-Tinoco consider a different way of characterizing personal networks—through personality and triadic measures—in “Personal networks and psychological attributes: exploring individual differences in personality and sense of community and their relationship to the structure of personal networks.” The authors review work on personal and sociocentric networks based on the “Big Five” personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and openness) and the psychological sense of community and identify a new use of the standard triadic census. In their studies of 100 respondents, the authors find that emotional stability is positively associated with strong closed triads, while agreeableness is associated with less clustering among alters. Higher sense of community measures are associated with more closed triads and transitivity. The authors conclude that their network typologies provide a useful way to describe personal networks and their connection to personality.

Methods and measurement

Several papers in this special issue address methodological questions. In “The embeddedness of social capital in personal networks,” **Molina, García-Macías, Lubbers, and Valenzuela-García** examine the relationship between two often-used measures of social capital—the average occupational prestige of alters generated through multiple name generators (commonly used in social support research) and position generators (used in social capital research). Based on intensive interview data from social and environmental entrepreneurs in Spain ($n = 30$) and Mexico ($n = 30$), the authors find that these methods yield different networks and capture different dimensions of social capital. Name generators elicit alters with higher overall prestige, while

position generators capture heterogeneity in networks. The paper provides a valuable assessment of the strengths and weaknesses of each method.

In “Assessing the reliability of networks over time using the digital participant-aided sociogram tool Network Canvas,” **Hogan, Janulis, Phillips, Melville, and Birkett** discuss a new data collection tool for egocentric researchers. NetCanvas and one of its features, the participant-aided sociogram, offers an approach that increases data reliability and respondent engagement in the research process. They illustrate NetCanvas’ utility through RADAR, a three-wave Chicago-based longitudinal study ($n = 773$) of sexual behaviors and drug use of young men who have sex with men (YMSM). Network churn is assessed to be “real” and attributable to social ties dissolving and forming, rather than from typical methodological concerns of motivated underreporting and unintentional panel conditioning. With novel methodological approaches and an ongoing panel, the RADAR study promises even more insights on study design, data collection, and methods as well as its intended substantive questions about the nature of social, sex, and drug networks within this community.

In “Collecting egocentric network data with visual tools—a comparative study,” **Hollstein, Toepfer, and Pfeffer** also offer and assess visually oriented tools for network mapping during interviews. Using paper-based experiments ($n = 72$), they compare the use of unstructured network maps, structured and standardized network maps, structured but unstandardized network maps, and partially standardized network maps (mixed types). They make comparisons by asking participants to use the “thinking aloud” technique of verbalizing their thought process while using the different methods. All four methods appear to be positively received by participants, but the concentric circles tool is preferred, with some differentiation by socioeconomic status.

In “Noting the ties after tying the knot: Photo-based elicitation of personal networks,” **Marin and Lin** examine visual data collection from an entirely different perspective. To understand dormant ties and tie reactivation, they examine a question about retrospective data collection. They use 24 wedding albums from weddings from more than 15 years in the past to ask egos about up to 15 presumptive network members identified in the pictures. This approach—instead of using name generators—proves to be an effective way of eliciting network members who were once a part of ego’s life, but may now have less interaction, attachment, or awareness. While a pilot study, this approach shows promise for mitigating free recall bias for dormant ties, is received as a pleasant activity for respondents, and can be broadened to other qualitative and archival materials—yearbooks, calendars, lists, logs, correspondence, or social media.

Combining both a mixed methods and a within-family research design, **Suitor, Gilligan, Rurka, and Hou** address both methodological and substantive questions in “Roles of egos’ and siblings’ perceptions of maternal favoritism in adult children’s depressive symptoms: A within-family network approach.” The authors study the effects of perceived material favoritism (differential treatment) on depression. The study considers both what ego thinks about their place in terms of emotions within a family (in particular their views on favoritism) and how ego’s siblings view the set of relations. Among the 296 adult children in 95 families (in which all siblings were interviewed), the team finds that ego’s perception of higher emotional closeness to one’s mother relative to siblings is associated with more depression symptoms. Interestingly, qualitative analyses of the interview transcripts reveal reports of emotional caregiving expectations from the closest child is the prime factor associated with additional burden.

The changing nature of personal networks in society

Several papers focus on the changing nature of social networks. In “The networked question in the digital age: How do networked, bounded, and limited individuals connect at different stages of the life course?,” **Wellman, Quan-Haase, and Harper** examine how digital media affects social connections. Using semi-structured in-depth interviews of 101 individuals from the fourth wave of Wellman’s East York Study, they characterize three social connection patterns: *networked*

individuals who navigate multiple disconnected social groups, *socially bounded individuals* with tightly knit groups comprised of kin or neighbors, and *socially limited individuals*, more isolated than not. In all age groups, networked individuals are the most likely to use digital media to form and maintain ties, while socially bounded individuals keep less expansive social connections and use digital media to maintain those ties. Socially limited individuals are less engaged with digital media, preferring face-to-face connection. Wellman and coauthors conclude that digital media enhances social connection rather than inhibiting it.

In “Social capital through the life course. One persons’ loss is another one’s gain?” **Volker** uses a position generator approach to examine changes in how people maintain, gain, and lose social capital over time. To conduct this analysis, she uses four waves of a 19-year panel from the Survey of the Social Networks of the Dutch. She finds that the range of positions identified (i.e., extensity) and the range of prestige accessed (i.e., diversity) of social capital have decreased over time, while access to prestigious occupations has been stable. Yet, these effects differ by sex and education. Men and those who are more educated tend to report gains in social capital across the life course, while women and those with less education report declines. These patterns, she concludes, create and reinforce social inequality.

In their paper, **Lee and Bearman** also address the issue of network dynamics. Given the shifting cultural contours of the US political system, they ask whether political discussion networks are changing in “Political Isolation in America.” Specifically, they examine the size of Americans’ discussion networks using the Time-Sharing Experiments for the Social Sciences panel ($n = 1,055$), fielded during the contentious 2016 general election, to trends in nearly 30 years of data from 11 national data sets. They find that core discussion networks (measuring with both important matters and political matters generators with different experimental priming conditions) were smaller and less diverse than any other period. They suggest that the long-used “important matters” generator may increasingly be understood as “political matters” by respondents, with critical implications for the interpretation of empirical findings.

Egocentric networks as outcomes

A number of papers in the special issue examine the factors shaping personal social networks. In “Where you are, what you want, and what you can do: The role of master statuses, personality traits, and social cognition in shaping ego network size, structure, and composition,” **Brashears, Brashears, and Harder** use a novel dataset combining three network recall experiments ($n = 939$) conducted with college students. They examine the separate effects of *opportunities* (master statuses like race and sex), *preferences* (personality), and *capacity* (social cognitive ability) in predicting reported ego network characteristics (size, density of alter ties, and race, gender and age composition). They find that all three factors play a role, but in different ways. For example, high extraversion is associated with larger networks and greater density, while social cognitive scores only affect size but not density.

In “Mobilizing nascent ties—A Qualitative Structural Analysis of social(izing) capital in newcomer networks,” **Bakker** examines how newcomers to an organizational setting build relationships. She draws on semi-structured interviews to explore social capital processes—specifically, how professional ties are formed and how they are mobilized. In doing so, she identifies how characteristics of egos, alters, and the organizational context facilitate or deter interactions that confer social capital. Specifically, openness, shared efforts to overcome barriers, and positive organizational cultures can encourage or discourage social capital development from within.

The impact of egocentric networks

In “Egonets as systematically biased windows on society,” **Feld and McGail** revisit the implications of the friendship paradox (although “your friends have more friends than you do,” most people

believe that they have more friends than their friends have) that first identified by Feld nearly three decades ago. The paradox stems from a sampling bias wherein individuals with more friends are disproportionately likely to be mentioned by their own friends. They show that the degree to which the friendship paradox is true depends on whether it is examined locally or globally and propose several ways that it introduces systematic biases into ego's experiences, beliefs, and behavior. They conclude by discussing implications drawn from 63,000 Facebook users in the 2009 New Orleans Facebook Friend Data.

In "Is having an educationally diverse social network good for health?" **Pachucki and Leal** assess the impact of network diversity on multiple health outcomes. They draw on the nationally representative Gallup Panel Study, which includes three waves of a longitudinal online egocentric survey of 10,769 Americans. They employ a novel measure of network diversity that capitalizes on ties between alters in an ego network—educational assortativity—which measures the degree to which a person's network is integrated or segregated along educational lines. They find that egos with higher educational attainment tend to have more educationally segregated networks, with less mixing across statuses. However, having more educationally segregated networks is associated with higher BMI, but only among egos who themselves have lower levels of education.

In "Out of sync, out of society: Political beliefs and social networks," **Joo and Fletcher** also explore the effects of network diversity on egos. They examine whether the degree to which an individual's political beliefs differ from those of their contemporaries is associated with social isolation. The authors compare data from the General Social Survey and the American National Election study, focusing on important matters and political matters networks. They find that the association between weaker belief synchronization and political isolation varies by education. Specifically, those without a high school degree and with low synchronization tend to be more isolated in the face of political beliefs that differ from others in their social circles.

A diverse landscape

The papers in this special issue highlight the vitality of the subfield of egocentric network analysis. They are based on in-depth interviews, cross-sectional and longitudinal surveys, controlled experiments, and large-scale administrative data. They conceive of ego networks as both causes and outcomes. They ask rich substantive, methodological, and theoretical questions. They make contributions to the study of social structure and to the understanding of important social problems. The remarkable diversity of the papers in this issue speak to the resurgence of this form of inquiry. We hope this special issue contributes to this growth in interest and innovation.

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