

Call for applications

PhD work at the MTA TK "Lendület" Research Center for Educational and Network Studies (RECENS)

The Doctoral School of Sociology, Corvinus University of Budapest calls for applications for full-time PhD positions for a period of three years commencing 1, September, 2016.

The deadline of applications is May 30, 2016.

The MTA TK "Lendület" Research Center for Educational and Network Studies (RECENS) is able to host and its director, Károly Takács is able to supervise maximum two PhD students, who select one of the proposed research topics and become members of the research project "Competition and Negative Networks: The Origin, Dynamics, and Harmful Consequences of Negative Relations" or the research project "No Sword Bites So Fiercely as an Evil Tongue? Gossip Wrecks Reputation, but Enhances Cooperation".

RECENS is a research center promoting high quality research in social network analysis, with an active participation in the Hungarian and international academic life. RECENS is part of the Centre for Social Sciences, Hungarian Academy of Sciences. For more information, please consult our website at recens.tk.mta.hu, visit us on facebook, or send us an e-mail: recens@tk.mta.hu.

Graduates *in any discipline* with an interest in the study of social networks are encouraged to apply. Some background in network analysis is an asset. Ideal candidates received their MA/MSc degree between 2014 and 2016. Applicants with a scientific publication in hand and prize winners from student competitions (TDK, OTDK) will receive an advantage. Advanced skills in statistics and mathematics will be considered beneficial.

Besides working on the projects, the candidates have to attend weekly research meetings and seminars of RECENS and are expected to submit at least one article in an international peer-reviewed journal until the end of their second year and another paper until their third year.

The PhD students will receive scholarship for a three year period at the Doctoral School of Sociology at Corvinus University of Budapest, in which the graduates will work on an individual project, leading to a doctoral dissertation in English. RECENS offers to its own members PhD supervision, a supportive and cozy working climate, research collaboration at the national and international level, further trainings in methodology, office space, support for applications for further funding, and covers costs related to the research.

How to apply

The application procedure is organized by the Doctoral School of Sociology at Corvinus University of Budapest. Information can be obtained at:

<http://web.uni-corvinus.hu/szoc/phd/felveteli.php>

Please mark in your application the intention to apply for one of the proposed projects and send a copy of your application material also to recens@tk.mta.hu. Selection by the Doctoral School is a pre-requisite for working on these projects, but a further selection by the project initiators might be necessary.

For further information about the general application procedure, please consult szilvia.narai@uni-corvinus.hu.

Application material should be sent to

Szilvia Csehné Nárai

Corvinus University of Budapest

Fővám tér 8. II. floor, room 202.

1093 Budapest, Hungary.

Proposed research projects:

- I. Social networks of aggression and popularity in a youth detention institution*
- II. Status competition and friendship dynamics in early adolescence*
- III. Structural balance and ethnic segregation in school classes*
- IV. The structure of power struggle in the Rákosi era in a network perspective*
- V. Network dynamics of rivalry and partnerships among firms*
- VI. The cogs and wheels of peer review: why does it work and how can an even more efficient review system be designed?*
- VII. Developing new statistical methods for handling time-stamped social influence data in social networks*

I. Social networks of aggression and popularity in a youth detention institution

In a youth detention institution, aggressive behaviors as well as *social relations* are instrumental tools in order to achieve popularity and power. It is debated theoretically, however, whether rivals or weak third parties are the typical targets of deterrence and symbolic aggression. Aggressive behaviors could be used more often as instruments if the large majority acknowledges their relationship to popularity and power. On the other hand, sociometric popularity and power might also be relatively independent dimensions. As a consequence, the power hierarchy does not necessarily reflect centrality in a friendship network. The complex relationship between aggression, friendship, popularity, and power requires a deeper look at the underlying social structure of the given social context.

In the selected institution, we will analyze these questions using multiple methods and measurements. Traditional social network questionnaires will be combined with information from the guards; and with audio and video material of interactions in the public domain (lunchroom, courtyard). Background information of type of committed crime and social background will be used as control.

Recommended readings:

- Faris, Robert and Ennett, Susan (2010): Adolescent aggression: The role of peer group status motives, peer aggression, and group characteristics. *Social Networks*, forthcoming. doi:10.1016/j.socnet.2010.06.003
- Parkhurst, Jennifer T. and Hopmeyer, Andrea (1998): Sociometric Popularity and Peer-Perceived Popularity: Two Distinct Dimensions of Peer Status. *Journal of Early Adolescence*, 18(2): 125-144.
- Skarbek, David (2012): Prison Gangs, Norms, and Organizations. *Journal of Economic Behavior and Organization*, 82(1): 96-109.

The candidate should take the lead in gathering and administering the data and should be fluent in Hungarian. The ideal candidate has good skills in advanced statistics and at least a basic knowledge of social network analysis and quantitative text analysis.

II. Status competition and friendship dynamics in early adolescence

Co-supervisor: András Vörös, Ph.D. from University of Oxford

This is a preferred research topic that is advertised also at the website of the Doctoral School.

Primary school classes are quite closed communities with fixed boundaries. Norms and behavior are under development, and therefore interventions and prevention programs could be designed and implemented more successfully than later in the life course. Besides, network ties and status hierarchies change rapidly, in particular in the upper grades of primary school years.

Status competition among early adolescents is relatively intense. It is not uncommon to see huge investments in strategic activities such as gossip, mediation, intervention, relational aggression, and sanctions on others for the sake of popularity and status. If everyone does so, we can observe a social dilemma situation: efforts invested are only sufficient to maintain or slightly modify the existing status order.

We intend to examine status and co-evolving friendship dynamics using *R-SIENA* models that allow us to control for social background and variable attributes and for the separation of selection and influence effects.

Recommended readings:

McFarland, D. A., Moody, J., Diehl, D., Smith, J. A., & Thomas, R. J. (2014). Network ecology and adolescent social structure. *American Sociological Review*, 0003122414554001.

Smith, J. A. and Faris, R. (2015). Movement without mobility: Adolescent status hierarchies and the contextual limits of cumulative advantage. *Social Networks*, 40:139-153.

Vörös, András (2016): *The Emergence of Multiple Status Systems in Adolescent Communities: A multiplex network theory of group formation*. Ph.D. thesis, University of Oxford, Nuffield College.

The candidate should participate in administering our network panel data in Hungarian primary school classes. The ideal candidate has good skills in advanced statistics and at least a basic knowledge of dynamic social network analysis.

III. Structural balance and ethnic segregation in school classes

School classes in primary schools are *not homogenous*, and are typically fractured along salient demographic characteristics, gender and *ethnicity* in particular. Even in integrated schools, friendship ties are highly segregated. Segregation of friendship ties could correlate with the emergence of subcultures that may oppose the objectives of schools and the educational system. If friendship ties remain segregated in integrated classrooms, disadvantaged pupils will be not influenced by mainstream role models, and integrated education may reduce differences in scholastic performance to a lesser extent than desired.

Friendship segregation can arrive at an unexpectedly high level due to a self-reinforcing cascade: we claim that few initial negative ties between members of different ethnic groups are sufficient to induce a *balancing mechanism*, in which positive ties will bind in-group members together and negativity will be the characteristic of out-group relations.

Status competition intensifies segregation as in-group members actively disapprove out-group members to strengthen their in-group ranks. A worst case scenario is when in-group members disapprove also the underlying norms of the out-group. The out-group can also be labeled to have completely opposite norms, in particular, with regard to school performance. Societal status relations contribute to determine which labels are used by which ethnic group at the outset. In a self-reinforcing dynamics, members of the disadvantaged group enforce their members to an anti-school platform. In this subproject, we refine and test these hypotheses.

Recommended readings:

Baerveldt, C., Van Duijn, M.A.J., Vermeij, L., & D. A. van Hemert (2004). Ethnic boundaries and personal choice. Assessing the influence of individual inclinations to choose intra-ethnic relationships on pupils' networks. *Social Networks*, 26(1), 55-74.

Downey, D. B. (2008). Black/White differences in School Performance: The Oppositional Culture Explanation. *Annual Review of Sociology*, 34 (42), 107-126.

Moody, J. (2001): Race, School Integration, and Friendship Segregation in America. *American Journal of Sociology*, 107(3): 679-716.

The candidate should participate in administering our network panel data in Hungarian primary school classes. The ideal candidate has good skills in advanced statistics and at least a basic knowledge of social network analysis.

IV. The structure of power struggle in the Rákosi era in a network perspective

History teaches us that the struggle for power at the top of the society can be very cruel. Cruelty and killing of rivals is often the rule rather than the exception in intense political power struggle where the winner takes everything: typically, a rule of a life-time. Strikingly, such examples are not peculiarities of the distant past.

We opt for a case study of dictatorship rather than a democracy because of the intensity of competition and because of a simpler analytical strategy: voters play a negligible role. We study the quest for power from 1948 till 1956 in Hungary from a social network perspective. We describe the dynamics of political relations and power in this period and illustrate whether our theoretical claims about network ties and competition are valid in this historical context. For this purpose, collect data about social network ties and competition among the political elite in Hungary from the time of communist dictatorship.

Our analytical strategy will include a decision about the selection of sources of relational information; definition of power positions; and operationalization and recording of relational aggression between politicians. As the target population, we will be primarily interested in the members of the ruling MDP (Hungarian Workers' Party) Central Committees and other powerful actors identified with a position generator method that is typical in the sociological research on the elite. We analyze curricular data, minutes of the Central Committees, autobiographies, oral history archives, and materials available in the archives of ÁBTL and NOL (National Archives of Hungary). We control for changes in the nomenclatura system. Our interdisciplinary and social network-based approach is pioneering in its character not only for this historical period, but for the sociology of elite in general.

Recommended readings:

Gyarmati Gy. 2011. *A Rákosi-korszak*. Bp. Állambiztonsági Szolgálatok Történeti Levéltára - Rubicon-Ház Bt.

Huszár T. 2007. *Az elittől a nómenklatúráig, 2007*, Bp. Corvina

Pünkösti Á. 1996. *Rákosi a csúcson, 1948–1953*. Budapest, Európa.

Szakadát I. 1990. Karriertípusok a magyar kommunista párt vezető testületeiben (1945-1988), in: Nyírő András (szerk.), *Politikai szociológiai tanulmányok a kommunista bürokrácia vezérkaráról*, BKE Szociológia Tanszék, 39-54.o.

For this project, the applicant should be fluent in Hungarian. The candidate will need to collect data and perform the analysis. The ideal candidate has experience in gathering archival information and has also a background in quantitative research methods and is recently graduated in history or in one of the social sciences.

V. Network dynamics of rivalry and partnerships among firms

Market competition, but also market alliances are studied extensively by economists. Within the scope of economics, however, there are fewer studies about practices that are very often side-products of competition: reputation worsening, deception, fraud, purposeful price attacks, or law suits. Managers can affirm that the relationship between market competitors, but also allies can become loaded with negative emotions which sometimes result in revenge for previous unfavorable events. These back-door practices are especially given room in poorly regulated and less institutionalized markets. In these markets, organizations have more freedom to act deceitfully or take revengeful actions.

In this research project, we aim to explore in one well defined market environment the structure and dynamics of observed negative relations through a time span of a couple of years. We construct a data set about negative and positive dyadic relationships. We connect relational information with indicators of market success (market revenue, profit, market share) and test our theoretical predictions about how they are interrelated.

Unfortunately, the most poorly regulated segments with strong competition, in which most of negative practices can be expected, are also the ones, in which it is most difficult to gather objective information on negative relations, such as delayed payment, unpaid bills, and deceitful strategies. Although manager interviews could highlight most of the unfavorable events suffered, but they would be unable to provide an objective view on business relationship histories.

Therefore, we decide to collect data retrospectively from secondary sources that are easily tractable, such as filed complaints and commercial court cases (including the most severe cases of asking for bankruptcy) in a market segment with strong competition. Our selection criteria will be based on expected density of negative ties, data availability, and easily identifiable market segment boundaries and players.

Recommended readings:

Beckman, Christine M.; Haunschild, Pamela R., and Phillips, Damon J. (2004): Friends or Strangers? Firm-Specific Uncertainty, Market Uncertainty, and Network Partner Selection. *Organization Science*, 15(3): 259-275.

Trapido, Denis (2012): Dual Signals. How Competition Makes and Breaks Interfirm Social Ties. *Organization Science*, 24(2): 498-512.

Uzzi, Brian (1997): Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35-67.

Uzzi, Brian and Lancaster, Ryon (2004): "Embeddedness and Price Formation in the Corporate Law Market," *American Sociological Review*, 69: 319-344.

The candidate should gather and analyze data on network relations between firms. The ideal candidate has good organization skills and is capable of conducting advanced statistics and has at least a basic knowledge of social network analysis.

VI. The cogs and wheels of peer review: why does it work and how can an even more efficient review system be designed?

Note: This project is part of the EU sponsored COST project on Peer Review.

Peer review is a cornerstone of science, whose quality and efficiency depends on a complex, large-scale collaboration process, which is sensitive to motivations, incentives and institutional contexts. Whether directly or indirectly, it determines how the resources of the science system—including funding, positions, and reputation—are allocated. While it is decisive to guarantee that quality can endogenously self-regulate through a decentralized and distributed trial and error process, it rests upon a complex mixture of social norms, rules and incentives that can be maintained only through a collective effort.

Despite its importance, peer review has been studied unsystematically. Social science qualitative research by sociologists, anthropologists and historians has discussed the complexity of peer review, including the difficulty of defining excellence and innovation, the presence of subjectivity in peer judgment and the strength of certain institutional and cognitive bias (e.g., disciplinary orthodoxy, Matthew or Ivy-League effects). While providing rich, in-depth accounts on scientists' perceptions, negotiation of meaning and decisions, these studies looked only at specific cases, mostly concentrated on grant proposals and did not measure the quality and efficiency outcomes of the process. On the other hand, quantitative studies by scientometrics and computational science scholars provided certain measures of cognitive and institutional bias and looked at aggregate consequences of the process (e.g., link between peer review and citations) but were penalized by limited access to data on the mechanics of the process and underestimated behavioral aspects.

The objectives of this project are: (i) to analyze the efficiency of the current peer review system using *agent based simulation models*; (ii) to evaluate different alternatives to the current peer review system and to explore new incentive structures, rules and measures to improve collaboration in all stages of the review process using computational modeling.

Recommended readings:

Bornmann, Lutz (2013): Evaluations by Peer Review in Science. *Science Communications*.

Paolucci, Mario and Grimaldo, Francisco (2014): Mechanism Change in the Simulation of Peer Review. *Scientometrics*, February. doi 10.1007/s11192-014-1239-1.

Squazzoni, F. and Takács K. 2011. Social Simulation that Peers into Peer Review. *Journal of Artificial Societies and Social Simulation*, 14(4):3, <http://jasss.soc.surrey.ac.uk/14/4/3.html>.

The candidate should have basic programming skills. The ideal candidate has experience in building analytical models.

VII. Developing new statistical methods for handling time-stamped social influence data in social networks

Notes: This project is part of the project "EVILTONGUE" supported by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 648693, <https://erc.europa.eu>). This is a preferred research topic that is advertised also at the website of the Doctoral School.

Sociologists working with data rely mostly on snapshots of reality to test their hypotheses and draw conclusions about fundamental mechanisms and social phenomena. With the use of newly developed communication technologies and advanced quantitative text analysis, remarkably rich tools for obtaining data became available. The extensive use of mobile technologies makes it possible to explore the world of social conversations in a more precise and objective way than ever been done before. The previously unprecedented amount and exactness of information on how social influence works and how it is spread in the social network open up new arenas for social scientists. The key problems of opinion dynamics, polarization, and extremism, as well as the dissemination and maintenance of norms could be studied in a more exact way than before.

Statistical methods, however, for this kind of data are not available yet. In the framework of the proposed project, the candidate will develop statistical methods for analyzing dyadic social influence events. The proposed method will take into account the probabilistic spillover effects of information diffusion. Unlike network diffusion models, the model will not assume true information content and will allow for the presence of controversial information in the network. This is because while network diffusion models depict and describe the structural processes that arise from the flow character of information, they disregard the problems of controversy and honesty in communication, and of parallel flows with different message contents. Model development will build closely on the analogy of dyadic stochastic actor-oriented network models (SOAMs). As no closed form of the likelihood function exists, the model will need to be estimated using Markov Chain Monte Carlo (MCMC) estimation.

Recommended readings:

- Schechter, A., Leenders, R. T., DeChurch, L. A., & Contractor, N. (2014). The Signatures of Success in Teams & Multiteam Systems. *Academy of Management Proceedings* 2014, 1, p. 16509.
- Snijders, T. A. B., G. G. Van de Bunt, & C. E. Steglich (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks* 32 (1): 44-60.
- Vu, D., Pattison, P., & Robins, G. (2015). Relational event models for social learning in MOOCs. *Social Networks*, 43, 121-135.

The candidate should have advanced knowledge of statistics. The ideal candidate has experience in working with network data and in developing packages in R.