

Stockholm studies in Sociology

Friendship Dynamics among Adolescents

New series

61



Friendship Dynamics among Adolescents

Sara Roman

© Sara Roman, Stockholm University 2016

ISSN 0491-0885

ISBN 978-91-7649-319-9

Printed in Sweden by Holmbergs, Malmö 2016

Distributor: Department of Sociology, Stockholm University

Contents

Acknowledgements

Sammanfattning

Introduction

Study I

Do Adolescents Always Select Similar Friends?

The interplay between homophily and a school's classroom structure

Study II

Preferences for Cultural Diversity and Friend Selection:

Social network dynamics in an upper secondary school

Study III

Adolescent Friendship and Religiosity:

Social network dynamics in a diverse school

Study IV

Religiosity and the Emergence of Similarity

in Drinking and Smoking Behaviors among Adolescent Friends

Acknowledgements

This work would not have been possible without the students and teachers in the schools where I collected data who generously devoted time and energy to the project. I would first like to thank them. I am also grateful to my advisor, Jens Rydgren, who has been incredibly helpful and supportive throughout the years. Jens has provided insightful comments and suggestions at all stages of the project, and always seen interesting possibilities rather than obstacles. His involvement made my research much better. I would also like to thank my assistant advisor, Love Bohman, for his moral support and for tirelessly helping me understand and interpret analyses. Our discussions taught me a lot.

Christofer Edling, Thomas Grund, and Alden Klovdahl carefully read and commented on earlier drafts of this work. Their comments led to major improvements of all parts of the research. I am also grateful to Mary Brinton who not only sponsored my stay at Harvard University, but also introduced me to American life outside academia, and to Fredrik Liljeros for always being supportive and helpful. Roommates, colleagues and friends at the Departments of Sociology at Stockholm and Harvard University; Anton, Erik, Hernan, Ida, Katarina, Kieron, Lauren, Lina, Linda W, Martin K, Nathan, Per, Petter, Rebecca, Rita, Sara T, Tina, Veronika, and Xiana, among others, made life at the university fun and interesting. Special thanks to Anton, Hernan, Petter, and the participants in the doctoral student workshop in Stockholm who gave thoughtful comments on earlier drafts. I am also indebted to Maria Bagger-Sjöbäck, Anna Borén, Katja Forsberg Bresciani, Anna Carin Haag, Maria Lind, and Thomas Nordgren for their help with all kinds of administrative matters.

Last but not least I would like to thank my family for their endless love and support, and Erik for being best friend and partner one could ever wish for.

Sara Roman
Stockholm, January 2016

Sammanfattning

Att studera hur sociala relationer skapas och upprätthålls är av sociologiskt intresse. Sådana studier kan inte bara visa vilka egenskaper som är meningsfulla för individer i ett visst sammanhang. De kan också öka kunskapen om på vilket sätt inre motiv och yttre faktorer påverkar människors beteende.

Forskningen om nätverk av sociala relationer, sociala nätverk, har ökat kraftigt under de senaste decennierna. Studier inom detta område har identifierat en rad olika faktorer, eller mekanismer, som påverkar hur relationer skapas och upprätthålls. En viktig sådan är tendensen att människor bildar relationer med andra som liknar dem själva på olika sätt, så kallad homosocialitet. En annan är tendensen att skapa och upprätthålla vänskapsrelationer med de man träffar regelbundet. Forskningen om hur olika faktorer samspelar med varandra i sin påverkan på relationer är dock liten. Samma sak gäller den roll individers inre motiv, såsom deras önskningar och trosföreställningar, spelar i dessa processer.

Syftet med den här avhandlingen, som består av fyra empiriska studier, är att bidra till att fylla de ovan nämnda kunskapsluckorna, genom att undersöka hur olika faktorer samspelar med homosocialitet i skapandet och upprätthållandet av vänskapsrelationer och i vilken utsträckning gymnasieungdomars önskningar och trosföreställningar påverkar hur de väljer vänner. I den *första studien* undersöker jag i vilken utsträckning ungdomar blir vänner med andra i skolan som delar deras bakgrund avseende föräldrarnas födelse-land (födda i respektive utanför Sverige) och vilken roll det i detta avseende spelar om man går i samma klass. I den *andra studien* undersöker jag om ungdomars preferenser när det gäller kulturell mångfald påverkar hur de väljer vänner i skolan. Mer specifikt studeras i) i vilken utsträckning ungdomar blir vänner med dem som har preferenser som liknar de egna, ii) om de som uppger att de har en stark preferens för mångfald har fler vänner i skolan och iii) om dessa elever är mer benägna att välja vänner som har en bakgrund som skiljer sig från deras egen när det gäller deras föräldrars födelse-region (här undersöker jag tre olika regioner). I den *tredje studien* undersöker jag om ungdomar väljer vänner som liknar dem själva när det gäller grad av religiositet (den vikt de tilldelar religion). Den *fyjärde studien*, slutligen, handlar om huruvida ungdomar blir vänner med andra som har samma alkohol- och cigarettvanor som de själva, och i vilken utsträckning detta förklaras av att de väljer vänner med liknande religiositet.

Studierna genomfördes 2012 i en gymnasieskola i en av Sveriges större städer. Datamaterialet samlades in i en årskull elever – bestående av 115 elever indelade i fyra klasser – som började ettan det aktuella året. Jag gjorde tre enkätbaserade observationer av elevernas vänskapsnätverk. Årskullen kännetecknas av mångfald, både när det gäller elevernas religiösa tillhörighet och deras föräldrars födelseland. För att analysera datamaterialet har jag använt statistiska modeller speciellt utvecklade för nätverksdata av panelkaraktär (så kallade stochastic actor-oriented models).

Resultaten av den första studien visar en tendens till att ungdomarna väljer vänner som har samma bakgrund som de själva när det gäller svensk eller utländsk bakgrund, i de fall de inte går i samma klass. Bland klasskamrater finns ingen sådan tendens. Jag tolkar detta som ett tecken på att tendensen till homosocialitet samspelar med tendensen att bli vän med personer man träffar regelbundet. Resultaten av den andra studien pekar på att preferenser för kulturell mångfald påverkar ungdomarnas vänskapsbeteende, men är inte entydiga. Å ena sidan tyder inte resultaten på att ungdomarna väljer vänner som i detta avseende har liknande preferenser som de själva. Å andra sidan har de med positiva mångfaldspreferenser jämförelsevis fler vänner i skolan. Analysen visar även att det finns en tendens till homosocialitet när det gäller föräldrarnas födelseregion. I en av de tre bakgrundsgrupperna är dock ungdomar med en stark preferens för kulturell mångfald mer benägna att välja vänner med en bakgrund som är annorlunda än deras egen. Resultaten av den *tredje studien* visar en tendens till att vissa ungdomar väljer vänner som är lika dem när det gäller religiositet, och den *fjärde studien* att ungdomarna tenderar att bli vänner med andra som har alkohol- och cigarettvanor som liknar deras egna. Likheten i alkoholvanor förefaller i sin tur förklaras av elevernas val av vänner med samma religiositet (och cigarettvanor). Likhet i cigarettvanor, å andra sidan, tycks ha en direkt påverkan på vänskap. Sammantaget pekar resultaten från de fyra delstudierna, för det första, på att olika faktorer samverkar när det gäller vänskapsformation. För det andra tyder de på att individers önsknings- och trosföreställningar – i det här fallet preferenser för kulturell mångfald och religiositet – spelar en inte oviktig roll.

Introduction

People become involved in social relations as they move around in space and between activities. The particular relations formed depend on a combination of individual desires and beliefs, interpersonal dynamics, and organizational circumstances. Examination of how these relational processes play out more precisely promise to contribute to our understanding of some of the core questions regarding social life, as the resulting social networks tend to influence future moves and choices (e.g., Kossinets & Watts, 2009). Adolescence is particularly important for the study of relational dynamics. This age period is one of identity formation and a time in life when individuals are starting to free themselves from their immediate familial social circles (Hartup, 1993).

The past four decades have seen a steady increase in research into adolescent social relations in immigrant societies. Part of this literature has been concerned with explaining patterns of similarity among friends with respect to social categories, perhaps most commonly race and ethnicity (e.g., Shrum, Cheek & Hunter, 1988; Smith, Maas & Van Tubergen, 2014; Mayer & Puller, 2008; Marmaros & Sacerdote, 2006).¹ Studies in this vein have focused on distinguishing *homophily* – the tendency to select similar friends (because they are similar) – from other factors generating similarity among friends (see e.g., review in Baerveldt et al, 2004; Goodreau et al, 2009). Although the study of social networks has also documented the importance of several other factors as determinants of friendships – an important example being the organization of the environments in which ties are formed and maintained (Frank, Muller & Mueller, 2013) – it has paid little attention to how these different factors might interplay in their influence on friend selection. One possible reason for this inattention is that the research area is relatively new. It is reasonable – sometimes only feasible – to study single factors in isolation before considering their possible interaction. Another reason relates to methodological challenges – it is difficult to collect social network data,

¹ Following Wimmer & Lewis, (2010, p. 608) I define race and ethnicity as “social categories conceived and defined by actors themselves based on their belief that members of such categories share common ancestry and/or culture”. In addition to self-classification, these social categories are a result of an “interactional dynamic” in which people are classified by others. The degree of overlap between self-classification and classification by others varies (see also Weber, 1983 [1918-20], p. 247-287).

and the information available in existing network datasets limits the range of questions that can be examined.

The study of social networks has also paid surprisingly little attention to whether and how aspects of culture (other than social categories), such as internalized desires and beliefs, influence friend selection (Emirbayer & Goodwin, 1994; Vaisey & Lizardo, 2010). This might be explained by a strong emphasis on social network structures to the neglect of “cultural content” in one important strand of network theory (see Erikson, 2013). Such emphasis has often been accompanied by the assumption that similarity among associates in terms of changeable traits mainly results from social influence processes in given relational environments (Emirbayer & Goodwin, 1994).

Knowledge about factors affecting the formation and maintenance of social relations, however, is by now quite substantial. We know ties are influenced by a number of different factors, acting on different “levels of analysis” simultaneously (e.g., Kossinets & Watts, 2009; Wimmer & Lewis, 2010). There are also good reasons to treat the relationship between culture/internal states and social network structure as a dynamic one, recognizing that although individuals’ desires and beliefs result from social influence processes, they also motivate friend selection (Vaisey, 2009; Lewis, Gonzalez & Kaufman, 2012). This raises the question of whether – and if so how – well-known network tendencies, such as social category homophily, interact with other factors in their influence on associate selection, including culturally constructed desires and beliefs. Research has started to move in this direction. Recent studies have examined how homophily and other micro-level behavioral tendencies vary depending on characteristics of the population and environment under study (McFarland et al, 2014; Moody, 2001), how different dimensions of homophily and different network structural factors interplay (Block & Grund, 2014; Block, 2015; Shaefer, 2010), and what role desires and beliefs play in friend selection processes (Vaisey & Lizardo, 2010). This is where I would like to situate the present work.

Focusing on social categories relating to immigration background and religiosity, this research examines whether homophily interacts with, or is affected by, a school’s classroom organization and students’ desires and beliefs. Specifically, the four studies that constitute the second part of this work examine (1) whether the importance of native/immigrant background homophily varies depending on whether ties are formed/maintained within or across classroom groups, (2) whether adolescents who report a stronger preference for cultural diversity have an extra propensity to select friends in school, whether adolescents select friends based on similarity in diversity preferences, and whether adolescents who report a stronger diversity preference have an extra propensity to select friends with a dissimilar background than their own in terms of parents’ birth region, (3) whether adolescents select friends based on similarity in religiosity (defined as the importance

attributed to religion), whether adolescents are influenced by the religiosity of their friends, and whether friend selection based on similarity in religiosity varies depending on religious identity, and finally (4) whether selection of friends based on similarity in religiosity brings with it similarity among friends in terms of behaviors such as alcohol consumption and cigarette smoking. All four studies are based on three observations of the complete friendship network of a cohort of adolescents during the first year in upper secondary education (N=115).

The study site is an upper secondary school in Sweden, a context that has seen relatively little research into adolescent friendship networks (but see Smith, Maas & Van Tubergen, 2014; Mollenhorst, Edling & Rydgren, 2014; Svensson et al, 2012). Although this work aims at making a contribution to the adolescent network literature at large, the four studies thus also contribute to the knowledge about adolescent friendship in upper secondary school in Sweden.

Sweden is a diverse society with respect to immigration background. In 2014, 16.5 percent of the population was foreign-born and 21.5 percent was either native or foreign-born with two foreign-born parents. The largest countries of origin in the foreign-born population were (in order of size) Finland, Iraq, Poland, Iran, former Yugoslavia, Syria, and Somalia (Statistics Sweden, 2015). Unlike in older immigrant societies, such as the U.S. and Canada (which tend to identify as countries historically populated by immigrants) immigration background diversity is a relatively new phenomenon in Sweden (in modern times) (see e.g., Lödén, 2008). The country first started receiving significant numbers of immigrants after World War II, following increased demands on the labor market. In the 1950s a free Nordic labor market policy was introduced. This, combined with active recruitment of workers from countries in post-war Europe and Turkey, resulted in significant influx of people from Europe and neighboring countries, especially Finland, during the 1950s and 60s. Worker immigration was restricted in the 1970s, but the country continued to accept refugees. Post 1970 immigration to Sweden has therefore mainly consisted of refugees fleeing violent regimes and wars around the world as well as “tied movers” – people reuniting with family (Nilsson, 2004).

Although Sweden often is described as one of the most secular countries in the world (e.g., Demerath, 2000) – a majority of people are members of the Lutheran Evangelical church, but attend religious ceremonies mainly at family occasions, such as baptisms and weddings (see Ejerfelt, 1984) – the society is diverse with respect to religious identification, the Muslim, Roman Catholic, and Orthodox Protestant groups all comprise a substantial amount of individuals.²

² It is illegal to register religious beliefs in Sweden, but estimates suggest these are the largest religious groups (see e.g., U.S. Department of State, 2009).

The relative diversity in terms of immigration background and religious identity makes contemporary Sweden similar to older immigrant societies, such as the U.S., the site of most research into adolescent friendship networks. However, Sweden also is clearly different from the U.S. and other contexts in which relevant research has been carried out, for example in terms of the welfare state organization (Esping-Andersen, 2013), the history and characteristics of migration, and the role of religiosity in society; public religiosity plays a much more important role in the U.S. than in Sweden. This juxtaposition of similarity and difference between Sweden and the U.S. (as noted the most common site for research on adolescent friendship networks) makes research in the Swedish context a potentially valuable contribution to our understanding of various aspects of adolescent friendship. The present research provides an opportunity to test the ubiquity of social category homophily and assess how such tendencies “play out” in a different – Northern European – cultural context.

The remainder of this introductory chapter is organized as follows. I first discuss the questions addressed in this work in relation to more general sociological ideas. I then highlight the significance of the four studies in relation to the specific topics they examine. Upon describing the data on which all studies are based, the process of collecting them, and my analytical approach, I briefly discuss the results of the studies and suggest directions for future research.

Situating the research – theoretical background and previous work

Friend selection, culture and structure – definitions and clarifications

According to Erikson (2013), two internally consistent but distinct theories are found in social network research. Formalist theory is strongly influenced by the work of Georg Simmel, specifically his idea that “social forms” exist before experience, that there are sociological “apriorities” beyond content (Erikson, 2013³). “Social forms do not arise from relationships experienced in the real world [...] [i]nstead, relationships experienced in the world manifest the properties of ideal forms” (Erikson, 2013, p. 225). Research taking a formalist approach tends to be concerned with social network structures, seeing that “content” exists, but being relatively disinterested in particular content and context. For example, this type of research focuses on network configurations that exist across contexts. In contrast, relationalist theory

³ Erikson here cites Simmel (1971).

challenges the idea that categories exist prior to experience and emphasizes the “intersubjectivity of experience and meaning” (Erikson, 2013, p. 219). Studies using this approach tend to focus on the meaning and content of momentary interaction in particular settings; they tend not to separate relations from meaning and culture, or individuals from relational structures.

Although this research is concerned with “cultural content” and local context, it takes a formalist approach to the study of social networks in that it treats social categories and individuals’ desires and beliefs as analytically distinct from social relations (Kroeber & Parsons, 1958). Following Vaisey and Lizardo (2010), I define culture broadly to include “publically available texts, objects and artifacts” as well as “broad orientations towards meanings and values” (p. 1596)⁴ (see also Strauss & Quinn, 1997). I define social network structure as relatively persistent sets of relationships among sets of individuals. This distinction allows me to examine whether individual desires, beliefs and identification with social categories influence friend selection, and thus “objective” social network structure (see Vaisey, 2009). Moreover, I think of network structure as one aspect of social organization. Another important aspect is the local environments in which ties are formed and maintained, such as schools, workplaces, and neighborhoods (e.g., Feld & Carter, 1998; Ahrne, 2014, p. 26). Recognizing there are several aspects of social organization implies the possibility to examine how one aspect influences another. Although these analytical distinctions are clearly inconsistent with relationalist theory, the fact that this work is concerned partly with individuals’ desires and beliefs in addition to more ubiquitous network tendencies (such as homophily) is perhaps more in line with this approach than formalist theory.

The relationship between micro-behavior and macro-phenomena

As with many questions in sociology, those asked here touch on the relationship between individual behavior and the structuring of behavior by culture/social organization, the “agency/structure” dynamic. This calls for discussion about the drivers of behavior. In the context of such a discussion it is important to note that while this research is concerned with the extent to which friend selection generates patterns that are sociologically informative, it cannot produce any empirically based insights into whether observed regularities result from conscious deliberation or unconscious processes taking place “behind individuals’ backs” (Giddens, 1984). With respect to this question, I rely entirely on previous research and theorizing.

Hedström (2005) proposes a research strategy for sociology that entails a useful framework for thinking about the relationship between micro-level behavior, such as friend selection, and macro-level phenomena, such as cul-

⁴ In defining culture Vaisey and Lizardo cite Spillman (1995).

ture and social network structure (see also Edling, 2012). Edling and Rydgren (2014) constructively criticize this strategy and suggest two alterations. Their arguments bear similarity to arguments presented in recent research advocating more focus on the influence of “broad orientations towards meaning and values” on behavior and friend selection (Vaisey, 2009; Vaisey & Lizardo, 2010). Together, these three efforts make up a theoretical backdrop against which the four studies in this thesis can be understood. In what follows I first review Hedström’s strategy and Edling and Rydgren’s constructive criticism. I then describe the argument for more emphasis on culture, or inner motivations, in the study of social networks.

Hedström (2005) argues sociological research should aim at uncovering social mechanisms, where social mechanisms describe “constellations of entities and activities that are organized such that they regularly bring about a certain type of outcome” (p. 25). This proposal can be understood as part of a search for a sociological research program after the abandonment of sociological positivism, the argument that sociology should aim at uncovering causal laws of the social (Gross, 2009). Hedström’s call for a focus on social mechanisms implies sociology should aim for explanation rather than description, and that while not referring to causal laws, explanations should refer to constellations of causes that occur with some regularity. In addition to refuting a search for covering laws, Hedström defines his strategy in opposition to correlational analysis or “variable sociology” – an approach whereby researchers pursue explanations on an aggregate level. According to Hedström, stating that a macro-level phenomenon, X causes another macro-level phenomenon, Y, is not a satisfactory explanation since it fails to open “the black box” containing the constellation of causes that produces the relationship between X and Y – it does not describe the cogs and wheels of the process. Noting that all social processes ultimately consist of people doing things, Hedström insists sociological explanations should account for how individuals’ actions bring about the outcome under study. He defines actions as things people do intentionally; things that can be explained with reference to individual desires, beliefs, and opportunities (where “opportunities” here appears to refer to perceived opportunities). Specifically, inspired by Coleman (1990), Hedström argues a satisfactory explanation of a correlation between macro-level phenomena X and Y should entail precise accounts of how phenomenon X affects individuals’ desires, beliefs, and opportunities – the “macro-to-micro link”; how desires, beliefs and opportunities lead to certain actions – the “micro-to-micro link”; and how these actions combine to generate the aggregate pattern Y – the “micro-to-macro link”. This is a way of asserting sociology should aim at producing rigorous and precise explanations of phenomena studied, and that understanding individuals’ actions is central to achieving such explanations.

While insisting that all the causal links mentioned above be considered, Hedström (2005) emphasizes the importance of studying micro-to-micro and

micro-to-macro links for the advancement of sociological research. Regarding macro-to-micro-links, he suggests “one must keep the action component as simple as possible by abstracting away all elements not considered crucial”, and states one should avoid seeing the individual as “a bearer of predetermined modes of behavior” (p. 36). This implies the stance that sociology should not concern itself too much with internalized motives as drivers of behavior.

While considering Hedström’s (2005) research strategy “important and promising”, Edling and Rydgren (2014) criticize it in two ways. First, they argue that Hedström emphasizes intentionality too much. His definition of action suggests conscious reasoning precedes all things people do that are sociologically relevant.⁵ This, according to Edling and Rydgren, is an unrealistic assumption; research in cognitive sciences and social psychology suggests much human behavior is automatic and follows internalized cultural schemas (see e.g., Evans, 2008; Vaisey, 2009), which implies behavior can be sociologically relevant without being intentional. If this view is valid, Hedström’s strategy implies the acceptance of a “black box” in the macro-to-micro link, which it is argued defeats the purpose of his approach. Specifically, Edling and Rydgren argue that ignoring automatic behavior “obstructs an important macro-to-micro link, namely the way in which culture may potentially influence action” (p. 4). This leads on to their second criticism, which is that Hedström mainly conceptualizes the macro-to-micro link in terms of the influence of immediate social relations – social networks – on action, neglecting how culture may shape desires and beliefs.⁶ Edling and Rydgren assert that culture, particularly social identification processes, is crucial in shaping desires and beliefs and that by neglecting such processes Hedström fails to account for “why groups and social categories exist prior to [a given] situation.” Based on these criticisms, they propose Hedström’s strategy be altered to include the idea that culture and identity are important factors shaping behavior and that the intentionality assumption be relaxed.

Culture as motivation for behavior

The assertion that internalized culture/identity motivates behavior is not uncontroversial. Studies in social network research as well as contemporary

⁵ This argument rests on the assumption that intentionality implies consciousness, which seems reasonable in the present context. Researchers in cognitive sciences have however questioned this assumption (see Evans, 2008), reflecting the difficulty associated with understanding these processes.

⁶ According to Edling and Rydgren this neglect is not a matter of coincidence. Although criticizing rational choice explanations that put too much emphasis on instrumentality, Hedström is influenced by such reasoning, which tends to take preferences as given and neglect socialization processes.

sociological theory have been reluctant to view culture/internal motivation as causally prior to behavior, although for different reasons.

When interest in social network analysis was revitalized in the late 1970s and early 1980s (Freeman, 2004), formalist theorists framed the approach as an alternative to research focusing on individual motives (Emirbayer & Goodwin, 1994). Wellman (1997), for example, stated that the structural (i.e., network) approach to social science research interprets behavior in terms of “structural constraints on activity, rather than in terms of inner forces within units (e.g., ‘socialization to norms’) that impel behavior in a voluntaristic [...] push toward a desired goal” (p. 20). He also asserted that the structural perspective “focus[es] on the relation between units, instead of trying to sort units into categories defined by the inner attributes (or essences) of these units” (p. 20). This perspective on social science research tended to be accompanied by the assumption that culture in general, and patterns of similarity with respect to inner states in particular, are consequences of social influence (i.e., interaction over time leading to similarity in preference/belief where it did not exist before) between people belonging to the same interpersonal environments (Emirbayer & Goodwin, 1994).

Recent research presents an alternative way to approach the relationship between internal motivations and social network structure (Vaisey, 2009; Vaisey & Lizardo, 2010; see also Miles, 2015). Similarly to Edling and Rydgren (2014), it argues it is reasonable to assume a significant portion of human behavior is automatic – not preceded by conscious deliberation. The argument is illustrated by Vaisey (2009): In short, he notes earlier sociological theorists, perhaps most notably Parsons (e.g., 1970 [1951]), conceived of behavior as consciously motivated by internalized values, an idea largely abandoned in contemporary sociological theory. A central reason for this abandonment, according to Vaisey, is the finding – based on interviews – that people are not able to provide coherent accounts of the reasons for their behavior (e.g., Swidler, 1986; 2001). This implies conscious reasoning does not precede behavior (since if it did, the argument is that people would be able to reproduce their reasoning). This has led to the conclusion that internalized cultural motives do not drive behavior, at least not in the way described by early theorists. Instead, contemporary scholars have suggested the relationship between behavior and culture might be reversed; people seem to use bits and pieces of cultural information to make sense of their behavior, much like they make sense of the behavior of others (e.g., Swidler, 2001; DiMaggio, 1997). Vaisey agrees this is a reasonable interpretation of the highlighted findings. However, he points out it does not follow from the fact that people use bits and pieces of culture to make sense of their behavior in interview situations that culture does not motivate behavior. Interview situations capture only conscious reasoning. Drawing on sociological practice theories (Giddens, 1984; Bourdieu, 1984), as well as “dual-process theories” of social cognition (Evans, 2008), Vaisey asserts cognition is partly con-

scious, slow, and deliberate, partly automatic and fast. Automatic behavior, he argues, is influenced by “moral intuitions” stemming from internalized value schemas. These intuitions, or “gut feelings”, influence behavior below the level of conscious awareness. Automatic behavior can be difficult to explain in retrospect, which leads people to use bits and pieces of cultural information to construct explanations. This way of thinking allows Vaisey to retain the idea that culture influences behavior while avoiding the allegedly problematic assumption that values motivate behavior via conscious deliberation.

In terms of friend selection, Vaisey and Lizardo (2010) propose that people with different cultural worldviews, defined as “implicit schemes of perception” react differently to a given [person’s] self-presentation and interactional style”, which leads to differences in their “cognitive-emotive [‘choices’] to pursue or (accept) a relational tie” (p. 1601). This idea – that implicit cognition influence associate selection – has received empirical support in recent studies (Srivastava & Banaji, 2011; see also Vaisey & Lizardo, 2010; Miles, 2015; Vaisey, 2009).

The present project

This research uses Hedström’s (2005) framework for thinking about sociological explanation and the causal links between macro-phenomena and micro-interaction. Consistent with the idea that sociological explanations should connect macro-level phenomena to the behaviors that bring them about, it takes an “agency-approach” to studying the social network in question; the analyses assume the relational structure is the result of the behaviors of actors. The aim is to examine adolescents’ selection of friends they like, and to learn if this process is patterned in sociologically interpretable ways. In terms of social category homophily, this allows me to emphasize – in Wimmer’s (2008) words – the making/non-making of boundaries through everyday interaction (p. 1027), rather than assuming boundaries exist beforehand. I incorporate Edling and Rydgren’s (2014) constructive criticisms and Vaisey’s (2009) argument in the model by focusing on whether – and if so how – social categories and individual desires and beliefs influence behavior. I do not assume behavior is preceded by conscious reasoning. All studies are based on survey questionnaires, which – arguably – are better suited to capture automatic behavior than interviews (Vaisey, 2009).

Having described the more general backdrop against which the examinations pursued here can be understood, I move on to discuss social category homophily as well as how and why this tendency might be expected to interact with the organization of local environments as well as how and why individuals’ desires and beliefs might influence friend selection.

Homophily

That people socialize with similar others is one of the most well documented regularities in social science research. This “homogeneity tendency” applies to a number of characteristics but appears to be particularly strong in terms of race/ethnicity, age, religious affiliation/identity, education, and to some extent gender (excluding romantic relationships) (McPherson, Smith-Lovin & Cook, 2001, see also Kalmijn, 1998). It is potentially caused by a number of factors, perhaps the most important one being sorting processes associated with the uneven distribution of people across space and activities, which makes individuals who are similar more likely to find themselves in the same environments and activities (Kossinets & Watts, 2009; McPherson et al, 2001). Another potentially important factor causing similarity among those who associate is conscious or implicit preferences for likeness. Trying to disentangle selection of similar friends and partners based on such preferences from organizational factors and other sources of homogeneity in ties is a long-standing objective in the study of social networks (see e.g. Goodreau et al, 2009; and review in Baerveldt et al, 2004). Previous work has employed several different concepts to distinguish preference-based selection of similar associates from other mechanisms leading to similarity among associates. I here refer to preference-based selection as *homophily* (Lazarsfeld & Merton, 1954). Other terms that have been used to describe this phenomenon (or similar phenomena) are choice homophily (McPherson, Smith-Lovin & Cook, 2001; Kossinets & Watts, 2009), assortative mixing (Goodreau, Kitts & Morris, 2009), and social discrimination (Vermeij, van Duijn & Baerveldt, 2009). I refer to the outcome of similarity among friends (regardless of what caused it) as homogeneity.

Research has found evidence of homophily across contexts, and with respect to a number of different social categories, making it a relatively ubiquitous phenomenon in the formation/maintenance of social relations (McPherson et al, 2001; McFarland et al, 2014; see also Block & Grund, 2014; Snijders, 2011). This has led social psychologists to suggest similarity facilitates social comparison (Festinger, 1954) and promotes a state of cognitive balance, which is associated with psychological comfort (Heider, 1946). Others have asserted similarity fosters trust and solidarity (Portes & Sensenbrenner, 1993). It is important to recognize that although homophily might be a ubiquitous tendency, perhaps connected to innate desires for cognitive consistency, it does not follow that there is anything innate about the social categories with reference to which homophily “plays out” in a particular context. Categories such as race and ethnicity generally are viewed as social/cultural constructs by social scientists. Social categories are historically contingent and their relative salience is context dependent (see Cohen, 1980 for an example of how the influence of social-economic status on social relations varied over time). However, Edling and Rydgren (2014) point

out some social categories are more likely to be salient than others. Citing Hechter, (2000, p. 98) they assert this applies to categories that have “crystallized around markers that have systematic implications for people’s welfare”, that are ascribed rather than acquired, and that coincide with groups, where groups are comprised of relatively dense social relations.

Testing for homophily essentially implies testing whether a category is salient, or meaningful, in a particular context without asking about it directly. This is advantageous to the extent that people are not able to give coherent accounts of the reasons for their actions (Swidler, 2001) and because it limits the risk that researchers promote the importance of the category in which they are interested (see Wimmer, 2009).

There is ample evidence pointing towards homophily with respect to race and ethnicity in the North American context. A long line of studies suggests adolescents select friends based on similarity in these categories (e.g. Shrum, Cheek & Hunter, 1988; Hallinan, 1982; Kao & Joyner, 2004; Goodreau, Kitts & Morris, 2009; Wimmer & Lewis, 2013), which implies race and ethnicity are somehow important to adolescents’ identities, perhaps reflecting social stratification with respect to these categories. Although sparser, research into European schools points in the same direction. Studies have found adolescents select friends based on similarity in immigration background and ethnic background (Smith, Maas & van Tubergen, 2014; Baerveldt et al, 2004; but see Lubbers, 2003).⁷

In the U.S. and other religious contexts, there are also signs that adolescents select similar friends in terms of religious identity/affiliation (Regnerus Smith & Smith, 2004; French, Purwono & Triwahyuni, 2011) – a tendency that may or may not coincide with ethnic background homophily (Windzio & Wiggins, 2014).

Although homophily is certainly not problematic in and of itself, the finding that adolescents select racially or ethnically similar friends in school might be a cause of concern. Strong tendencies of this kind could mean students experience segregation even in schools that are mixed in the aggregate (cf. Moody, 2001, p. 679). As segregation with respect to these categories may impede social cohesion (Levin, 1998), feed negative stereotypes (Allport, 1954; Pettigrew & Tropp, 2006), and promote social inequality (DiMaggio & Garip, 2012)⁸ segregated schools pose a challenge of our times. This warrants research into factors attenuating/promoting diversity in friend

⁷ “Ethnic background” is commonly approximated with parents’ birth region in this research. This means it is in some cases unclear whether homophily captures friend selection based on cultural similarity or visible traits.

⁸ Immigration background homogeneity in friendship networks may promote inequality if having a certain background is associated with having/not having certain resources that promote adoption of behaviors that improve future well-being (for example higher education), provided friends influence each other’s decisions.

selection for the purpose of generating knowledge for policy aimed at encouraging mixing.

Meeting opportunities

Although homophily has repeatedly been found across contexts, it is far from the only factor affecting associate selection (e.g., Kossinets & Watts, 2009; Wimmer & Lewis, 2010). The composition and organization of the environments in which ties are formed and maintained are two other important determinants of relations.

As it is only possible to befriend others whom one encounters, the composition of the local environments in which people lead their daily lives determines the composition of their pool of potential friends and partners (Huckfeldt, 2009).⁹ The distribution of people across space and activities is therefore an important determinant of the emergence of similarity among associates. People who belong to a minority category will encounter dissimilar others more often than people who belong to the majority under the assumption of random mixing, simply as a result of the uneven group sizes (Blau, 1977). In such a situation everyone will have more opportunities to befriend someone in the majority. Stated differently, when group sizes are uneven, homogeneity in associates will emerge under all else equal conditions, that is, even if people do not make homophilous friend choices.¹⁰

In terms of the structure (as opposed to the composition) of social networks, research suggests, unsurprisingly, that the organization of activities within larger environments, such as schools and workplaces, influences who befriends whom (Kossinets & Watts, 2009; Doreian & Conti, 2012; see also Entwistle et al, 2007). Clusters of relations have been found to emerge around shared activities, even when there are other relationship possibilities around (Frank et al, 2013). Since similar people tend to find themselves in the same activities, this phenomenon can also affect the composition of social relations. Some of the social category similarity observed among friends and other associates is likely attributable to sorting and self-selection of similar people into repeated interaction in organized activities (Feld, 1981; Feld & Carter, 1998).

A related smaller-scale phenomenon that has been found to influence relations is the tendency to befriend friends of friends, also known as *triadic closure* (Davis, 1970; Goodreau et al, 2009). This tendency might be caused by a human drive towards balance in social relations (Heider, 1946; Davis,

⁹ This is not to say that the composition of a person's friends and partners is always a reflection the composition of their local environments. The agency involved in friend and partner selection is likely to make the latter distinct from the former (Huckfeldt, 2009).

¹⁰ The extent to which similarity dimensions coincide also affects intergroup mixing. Stronger correlation between similarity dimensions will be associated with less mixing (Blau, 1977).

1970). However, it also has to do with increased meeting opportunities among indirectly tied individuals (Goodreau, et al, 2009; Kossinets & Watts, 2009). Befriending friends' friends can exacerbate overall similarity among associates if friends tend to be similar in the first place (Mouw & Entwistle, 2006).

The composition and organization of local environments thus tend to increase meeting opportunities among certain people, often ones that are similar in different respects. Studies of homophily must therefore account for uneven meeting opportunities. This is important in that homophily is usually formally defined as the degree of similarity among associates that remains after controls for increased meeting opportunities among similar people (see e.g., McPherson et al, 2001; Kossinets & Watts, 2009).

The interplay between homophily and a school's classroom organization

The claims about compositional effects and organized activities made above are "purely" organizational – they are not concerned with individual behavior. I simply made the point that organizational factors need to be taken into account in homophily examinations. This is well recognized in the social relations literature (e.g., McPherson et al, 2001); most contemporary studies of homophily control for uneven meeting opportunities/group size effects (Bearveldt et al, 2004). This can be achieved by examining naturally bounded activity groups, such as students in a classroom (e.g., Smith, Maas & Van Tubergen, 2014). However, examining homophily in small groups with boundaries coinciding with organized activities within a larger "meeting opportunity" environment does not allow examination of whether homophily varies depending on whether ties span (within-organizational) boundaries or not. Social network data materials rarely permit examination of this question, either because they lack information about ties spanning boundaries, or because the organization of the setting in question complicates controls for selection processes. Be this as it may, there are good reasons to suspect the importance of homophily varies depending on whether ties are formed/maintained within or across classroom boundaries.

Using data from a large number of high schools in the U.S., Frank et al (2013) show that clusters of friends emerge around shared classes, suggesting – as discussed previously – that increased meeting opportunities promote the formation and maintenance of friendships. In addition, their results suggest that students' inclination to befriend friends' friends is offset within these clusters, implying that the importance of this micro-level mechanism depends on the circumstances of meetings. Along the same lines, McFarland and colleagues (2014) note that although the social network literature has shown that the same small number of micro-level tendencies operate across

settings, social network structures differ in their overall characteristics, for example the degree of racial segregation. These differences it is suggested depend on the organizational circumstances under which the micro-level factors operate (see also Moody, 2001). Using the same data as Frank et al (2013), McFarland and colleagues show that the importance of several micro-level tendencies, including homophily, vary systematically between schools depending on their organization. Some of this variation it is argued is due to the relative constraint on interaction imposed by school rules. In cases where interaction is relatively more constrained, micro-level mechanisms are less important for the formation and maintenance of friendship. This is interpreted as suggesting students are more prone to rely on inner rules or intuitions when they select friends in situations where uncertainty is high, which is the case when interaction is relatively freer.

The analysis above is based on organizational differences between schools. With the support of Frank et al's (2013) findings the same reasoning might, however, be applied to one single setting, recognizing that the degree to which interaction is constrained by organizational rules usually varies also within schools. Arguably, interaction tends to be more constrained by rules within classrooms than between them, not least in contexts characterized by a stable classroom structure. Students thus might be less inclined to select similar friends within than across classroom boundaries – a question that to my knowledge has not been subject to empirical investigation. The first study presented in the second part of the thesis examines this question with respect to immigration background homophily.

Desires and beliefs

In an early exploration of similarity among associates, Lazarsfeld and Merton (1954) distinguished between status homogeneity and value homogeneity.¹¹ Status homogeneity refers to similarity in ascribed, informal, and formal characteristics, for example gender, religious identity, and education. Value homogeneity on the other hand refers to similarity in “internal states”, such as desires and beliefs. As mentioned previously, a substantial number of studies have examined selection processes leading to status homogeneity. Much less attention has been paid to value homogeneity and its sources, especially the extent to which desires and beliefs influence friend selection (Vaisey & Lizardo, 2009). This inattention might be explained by the previously mentioned tendency among early formalist social network theorists to view “structurally constrained activity” as the main driver of social network change, which tends to be accompanied by the assumption similarity among associates in terms of internal states is a result of social influence processes

¹¹ Lazarsfeld and Merton used the term “homophily”. In order to be consistent with my definition of homophily I replace it with “homogeneity”.

relational environments (rather than selection of similar associates) (Emirbayer & Goodwin, 1994; see also see McPherson et al, 2001, p. 419).

However, as discussed above scholars have called for a reemphasis of internal states – inner motivations – as factors affecting behavior and friend selection (e.g., Vaisey & Lizardo, 2010). Emphasizing that the relationship between inner motives and social network structure is a dynamic one, this literature argues that although beliefs and desires result from socialization processes, people also select friends based on such inner motives. In fact, Vaisey and Lizardo (2010) assert that since it is more difficult for people to change their internalized desires and beliefs than their friendships, selection of similar friends is likely to be a more common source of value homogeneity than social influence between friends. In line with this idea, recent studies have found adolescents select friends with similar moral intuitions (Vaisey & Lizardo, 2010), cultural preferences (Wimmer & Lewis, 2010; Lewis et al, 2008) and opinions on schoolwork and “anti-social” behavior (Stark & Flache, 2012).

One dimension of desires of particular interest for the study of social networks in immigrant societies is preferences for cultural diversity. Given the argument above such preferences might be expected to influence friend selection in culturally diverse environments. Specifically, individuals who have a stronger preference for cultural diversity might be more prone to have friends – be social – in a culturally diverse environment as they are likely to have more potential friends than others. To the extent that preferences for cultural diversity reflect more abstract universalism (Homer & Kahle, 1988) people might also be expected to be attracted to others who have similar preferences as them, which could lead to friend selection based on similarity in preferences.

The interplay between desires/beliefs and social category homophily

The assertion that people select friends based on culturally constructed desires and beliefs also raises the question of whether desires and beliefs relating to a particular social category influence homophily with respect to that category – an area of inquiry that remains largely unexplored.

Homophily is usually measured using information about social relations. Testing for homophily is a way of assessing whether there is a desire for similarity in the population under study (conscious or otherwise) without asking about it directly. Few studies have taken the examination of similarity desires in the context of friendship further than this. One way to do so would be to measure desires directly, and then test whether homophily varies with reported desires – in this case ascertaining whether reporting a stronger preference for cultural diversity is positively associated with selecting friends

with a different background than one's own. This question is difficult to address due to the possibility of reverse causality, heterophilous behavior might lead to a stronger diversity preference (Allport, 1954). It is, however, worthwhile pursuing because it implies a test of the common assumption that homophily is constant among individuals in a particular setting. The second study presented in the second part of this thesis examines whether – and if so how – preferences for cultural diversity influence adolescent friend selection. Specifically, i) whether adolescents with a strong diversity preference have an extra propensity to nominate friends in school, ii) whether adolescents select friends based on similarity in diversity preferences, and iii) whether reporting a stronger diversity preference is associated with an extra propensity to nominate friends with a dissimilar background in terms of parents birth region. I am aware no previous research into any of these questions.

As noted earlier, research suggests people tend to associate with religiously similar others in religious societies (McPherson et al, 2001). Less appears to be known about this question in secular European contexts, but a few studies suggest adolescents have religiously similar friends school (Windzio & Wingens, 2014; Smith, Maas & Van Tubergen, 2014). Religious identity is closely related to culture, which is closely related to ethnic background (Vanhouette & Hooge, 2012; Windzio & Wingens, 2014). As with ethnic background, religious identity is likely to be relatively stable over the life course. Similarity among friends with respect to religious identity (that remains after controls for differential meeting opportunities) therefore is likely to be a consequence of selection of similar friends (rather than due to social influence processes) – it is an instance of status homogeneity.

Religiosity, defined as the importance attributed to religion, is a different story. Changes in religiosity can be incremental and do not require renegotiation of identity. Similarity among friends in terms of religiosity therefore might result from both selection of religiously similar friends and social influence between friends – it is an instance of value homogeneity. To my knowledge, only one study has examined empirically the interpersonal dynamics of friendship and religiosity – the relative importance of selection and social influence as sources of similarity in religiosity among friends (while controlling for alternative explanations). Using data from religiously homogenous high school environments in the U.S., Cheadle and Schwadel (2012) show that adolescent friends tend to be similar in terms of religiosity, resulting from a combination of selection and social influence processes.

To the extent that adolescents select school friends based on similarity in religiosity, they are likely to do so within their own religious identity. In contexts characterized by diversity in religious identity one might therefore expect selection of similar friends in terms of religiosity to be “intertwined” with selection of friends with a similar religious identity. It is possible that friend selection based on similarity in religiosity would bring with it – that

is, “activate” – similarity among friends in terms of religious identity in such contexts. The third study presented in the second part of this work is concerned with this question and the dynamics of friendship and religiosity.

Friendship and similarity in behaviors

Drinking and smoking patterns are among the most commonly examined behaviors in the context of social network research. A substantial body of literature suggests many adolescents have drinking and smoking habits similar to their friends (e.g. Bauman & Ennett, 1994; Mercken et al, 2009; Alexander et al, 2001; Ennett, Bauman & Koch, 1994). These tendencies have often been attributed to “peer effects” (i.e., social influence processes), based on theory and previous research, rather than on empirical evidence (DeVries et al, 2006). Recent studies using large-scale data and refined analytical techniques, however, suggest a significant proportion of the observed similarity in drinking and smoking patterns among friends is attributable to selection of friends with comparable habits (Mercken et al, 2009; Mercken et al, 2015; Jaccard, Blanton & Dodge, 2005; see also Fisher & Bauman, 1988). This suggests previous work may have overestimated the role of social influence processes. It also implies that smoking and drinking behaviors might influence adolescent friend selection (Cheadle & Williams, 2013).

Selection of friends with analogous drinking and smoking habits might arise from similarity in habits signifying similarity in identity, which might be important for adolescent friend selection. It is also plausible that these patterns result from situations in which adolescents with similar habits meet more often than others. Daily smokers might for instance meet between school classes in any areas where smoking is allowed or less likely to be detected.

The relationship between beliefs and behaviors

Studies also have shown repeatedly that more religious adolescents tend to drink and smoke at lower levels than their non-religious peers (if at all) (Rew & Wong, 2006), a finding that might be explained by the moral guidelines given by a religion, by the fact that religious adolescents have an alternative context outside school and therefore are less susceptible to (non-religious) peer pressure, and/or by religious students acquiring alternative coping skills within their religious frameworks (Smith, 2003). This, combined with the possibility that adolescents select friends with similar beliefs, raises the question of whether selection of religiously similar friends brings with it similarity among friends with respect to drinking and smoking behaviors. Although many settings in which adolescents meet in contemporary societies are characterized by religious diversity, I am aware of no research into this question. Hence, the fourth study in the second part of this work examines

whether selection of friends with similar beliefs brings with it similarity among friends in terms of drinking and smoking habits.

Summary of questions

This project aims to contribute to better understanding of adolescent friendship in general, and social category homophily in adolescent friendship in particular, by considering the interplay between different factors affecting friend selection, including inner motivations. To this end the four studies that make up the second part of this work examine a number of questions:

Study 1: Whether the importance of immigration background homophily varies depending on whether ties are formed/maintained within or between classrooms;

Study 2: Whether adolescents who have a stronger preference for cultural diversity have an extra propensity to nominate friends in school, whether adolescents select friends based on similarity in diversity preferences, and whether adolescents who have a stronger diversity preference have an extra propensity to select friends with a dissimilar background than their own in terms of parents' birth region;

Study 3: Whether adolescents select friends based on similarity in religiosity, whether adolescents are influenced by the religiosity of their friends, and whether selection of friends based on similarity in religiosity varies with religious identity, and finally,

Study 4: Whether adolescents select friends with similar drinking and smoking behaviors, and – if so – whether these tendencies are explained by friend selection based on similarity in religiosity.

Study design

Rather than aiming for a broad and representative picture of factors affecting adolescent friend selection, this research focuses on trying to obtain a more in-depth understanding of friend selection processes. This requires careful consideration of potential causality and extensive controls for alternative explanations. Information about all individuals in a social network – complete network data – collected over time would be helpful here. Although there are several datasets available that fit this description, few contain information about the desires/beliefs of interest *and* about ties spanning within-organization boundaries. Hence, in order to obtain the required data, I surveyed a small cohort of adolescents at three time points over the course of the first year of upper secondary education. An obvious advantage associated with collecting data rather than using existing material is that it allows a researcher to gather information that conforms exactly to a project's aims. Possibly the greatest disadvantage associated with such an undertaking is the

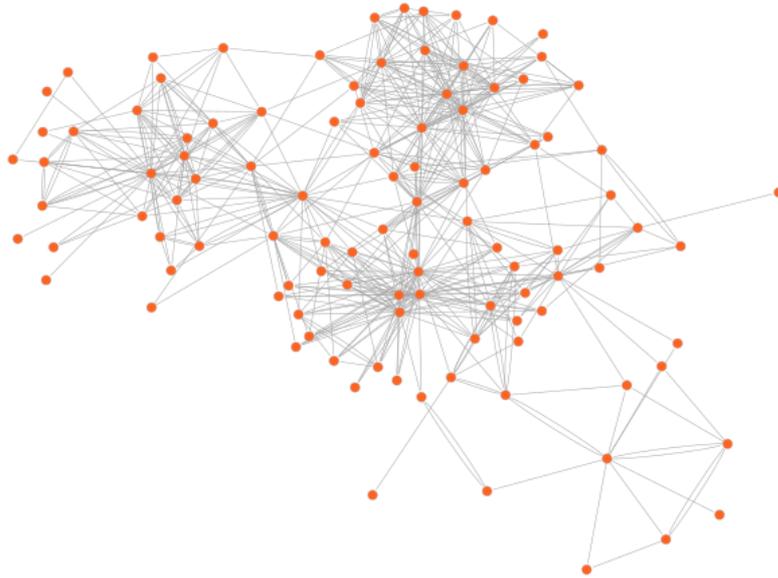
time and effort involved and – for projects with very limited resources – the relatively smaller datasets feasible to obtain. My motive for collecting data despite these constraints, in addition to aiming for information about certain desires and beliefs, was that even if I were to have used an existing larger dataset, the wider generalizability of the results would still be unclear. That is, most existing data of a kind related to this project are not nationally representative (as a rare exception see Harris et al, 2009 [the The National Longitudinal Study of Adolescent to Adult Health]). In short, outweighing the disadvantages here is the ability to go down new research paths, which could potentially lead to the generation of new research questions.

Surveying a whole cohort generates results more relevant to the questions of interest here and are representative of the cohort studied. As the questions asked in this project focus on factors many researchers describe as ubiquitous rather than place specific (e.g., McFarland et al, 2014), this helps in interpreting results of large scale studies that are not able to control as extensively for alternative explanations and at the very least makes the results useful for hypothesis generation for future research.

I collected these data in 2012. The dataset comprises three observations of the complete friendship network of the cohort of students starting year one in a Swedish upper secondary school in 2012, a total of 115 individuals. It has two major advantages in terms of assessment of causality and controls for alternative explanations. First, I collected it from the start of the first school year when most students were new to each other. This reduces the risk that what appears as homophily was actually an effect of unobserved meeting opportunities outside the school environment. Second, the school (system) administration assigned students to four classroom groups before the start of the year, based on their choice of study program and subject emphasis. The programs were largely similar, which limits sorting and self-selection of similar individuals into repeated interaction (see discussion in Kossinets & Watts, 2009).

Below is a picture of the friendship network based on the friendships reported at the second wave of data collection, which took place at the start of the second semester. The nodes represent students and the lines represent friend nominations.¹²

¹² The picture was created in Pajek using the force-directed layout algorithm Kamada-Kawai. The picture is only intended to give an idea about what the friendship network might look like. I slightly moved nodes that ended up on top of each other for the sake of presentation.



Site selection

Four considerations guided my choice of study site. I wanted a diverse student body in terms of immigration background (students' parents' birth region) and homogenous in terms of parents' level of education. The latter contributes to holding social class background constant. I also wanted to be able to disseminate questionnaires in classrooms during class time, to be able to insure respondents' privacy and maximize the response rate. As well the cohort had to be of a reasonable size for data collection to be feasible and as the analyses would assume all students were potential associates. I contacted all schools in a designated area that fulfilled these criteria. Finding schools that would allow collection of quality data at three time points from all students in the first year cohort over the course of a year was a challenge as it involved a large commitment on the part of a school. In the end, few schools were willing to participate in the study, making the final selection one of convenience. Hence, I picked the school that fit the criteria best.

The cooperating school was located in one of Sweden's metropolitan areas. In order to preserve confidentiality, the school cannot be described in detail as information about school size and composition is publically availa-

ble in Sweden. The school in question was diverse in terms of parents' birth region and religious identity. At the time of the data collection the gender distribution of the student body was about even, and slightly less than half of the students had at least one parent with a completed higher education. The school was considered attractive in terms of its location.

Data collection

I collected data on three different occasions in 2012 and 2013; in October, about six weeks after the school year had started; in January, when one semester of two had passed; and in May, towards the end of the second semester. At each "wave" of data collection I visited each classroom twice. The first time I disseminated questionnaires in the classroom to all students who wanted to participate in the survey. The second time I asked students who had been absent the first time if they wanted to participate. This smaller session typically took place in a side room.

At each data collection occasion I presented the students with a questionnaire and a school-supplied roster. The questionnaire asked them to report all their friends in the cohort by ticking boxes on the roster. Friendship was not defined more precisely. When students asked for a definition I asked them to think about what friendship meant to them and to use that definition. In this manner I hope to capture the students' own notions of friendship. No limits were set with respect to how many friends could be reported.

Collecting social network data by means of questionnaires requires that a researcher knows the identity of each respondent, which means respondents cannot be completely anonymous. This is potentially problematic from an ethical perspective, especially if a questionnaire also asks about sensitive topics. Another potential ethical problem that arises in surveys in educational environments is that it may appear to students that they are required to participate in the survey even though they are not, because school is seen as mandatory. Given the importance of a high response rate in social network research, the latter implies a possible conflict of interest between the researcher and potential participants. The ethical aspect is, however, clearly more important than the response rate. In order to mitigate these potential issues I informed the students thoroughly about the details of the survey beforehand. I also made clear that participation in the project was voluntary, could be terminated at any time, and that the respondents' and the school's identities would be protected. I then informed the students about the importance of a high response rate for the purpose of generating good research. A few people opted out of the survey upon hearing about the data collection protocol, but the vast majority agreed to participate (the fraction of non-response for the friendship network data was 3, 30 and 16 percent at the

three time points, respectively¹³). The regional ethical review board approved the study.

I constructed the questionnaire based on the previously discussed literature, a small pilot survey, and questionnaires used in previous surveys. It included questions about social relations in and outside school, personal characteristics and background, leisure activities, identity, trust, views on general societal issues, immigration, and gender equality. It took the students between about 30 minutes and an hour to complete the questionnaire.

Characteristics of the cohort

Sweden employs a choice based public upper secondary school system. Ninth grade students are asked to select programs and schools they would like to attend in upper secondary school (years 10–12). There are several programs to choose among, some of which are intended to prepare students for university education and some of which prepare them for vocations. The allocation of students to schools is based on grades and disregards area of residence. This means the students in a specific school do not necessarily live nearby, which is advantageous for the present purposes since it reduces the risk that new students knew each other before the start of the school year. This cohort of students reported having attended 70 different schools in ninth grade, suggesting most were new to each other at the start of the year. At most five people reported having attended the same school the year before.

As implied previously, the school system assigned students to four classroom groups based on their choice of study program and subject emphasis. Students belonging to the same group take a majority of classes together throughout the three years in upper secondary education. Two classroom groups comprised students who chose the exact same program and subject emphasis. A third classroom consisted of students who chose the same program as the students in the first two but with a slightly different subject emphasis. The fourth classroom comprised students who chose a different program compared to the other three. The fact that the students in this classroom chose a different program than the others implies a small risk of self-selection into proximity based on a desire to meet similar others and/or sorting of similar students with respect to some unobserved characteristic. This risk is, however, likely to be considerably smaller in the school context here than in many other contexts.

Fifty-nine percent of the students are girls. Twenty-one percent have a native background, defined as having two native-born parents. A majority of

¹³ The non-response at the second and third waves of data collection was mainly due to the fact that students were absent from school, although some students opted out of the survey at these occasions too. Although the fraction of non-response at the second wave is on the large side, these rates are acceptable in a network study (Kossinets, 2006).

the remaining 79 percent has two foreign-born parents. Thirty-three percent of these students have a Sub-Saharan African background, defined as including all countries in Africa except North Africa (i.e., Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara). Nineteen percent have a North African/Middle Eastern background, where the Middle East is defined according to the traditional definition, including Western Asia but excluding the Caucasus.¹⁴ Twenty-seven percent have a background from other regions than those mentioned, including Latin America, Eastern Europe and South East Asia.

The studies included here use two different classifications based on parents' birth region. The first is native/immigrant background. All students who do not have a native background were here merged into one category. This classification is unbalanced in that the category immigrant background is quite heterogeneous with respect to parents' birth region, while the category native background is homogeneous. Native and immigrant background, however, are meaningful social categories in the Swedish context. They are commonly used in the public and political debates and ethnographic research suggests adolescents use them to refer to themselves and to others (Kallstenius, 2012).

Despite the alternative meanings of native and immigrant background, this classification might often be used to refer to visible differences; some Swedish scholars to talk about racialization of non-White bodies in Sweden (see e.g., Tigervall & Hübinette, 2010). Race as a social categorization is seldom used in the contemporary Swedish context. To the extent that native/immigrant background is used to differentiate based on visible traits, however, it might have more in common with race, the way this concept is used in contemporary social science research (i.e., as a social classification based certain visible differences), than ethnicity (i.e., as a social classification based on ideas about a shared culture).

The second classification used here includes the categories Sub-Saharan African background, North African/Middle Eastern background, native background, and "other background". Similarly to native/immigrant background, this classification might pick up on visible differences. If so, it too might be closer to race, as this concept it is used in contemporary social science research, than ethnic background. The category "other" is clearly undesirable due to its heterogeneity. As mentioned earlier it includes a number of vastly different backgrounds. Unfortunately the present research does not allow a finer-grained classification.

A potential problem associated with using these classifications is they can potentially mask selection of friends with respect to finer-grained regional or ethnic categories (see Wimmer & Lewis, 2010). This should be kept in mind

¹⁴ This category includes Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates and Yemen.

when the results are interpreted. This problem is of course not unique to this work. It applies to some degree to all studies using categories based on parents' birth region (or census race categories) in research on homophily. Over the longer term, a greater mix of quantitative and qualitative research is likely to be required to better understand the meanings people assign to categories of this kind.

Analytical approach

All analyses in this research are based on statistical models for analysis of complete social network data gathered over time, specifically on stochastic actor-oriented models (SAOMs) (Snijders, 2001; Snijders, 2005; Snijders et al, 2010). This is a recently developed statistical method for network analysis that allows tests of hypotheses about network changes at the same time as controlling for exogenous processes (such as gender homophily) and endogenous processes (such as the tendency to reciprocate relationships). An alternative approach that also allows modeling of the influence of endogenous network processes on friendship is exponential random graph models (ERGMs) (Wasserman & Pattison, 1996; Lusher, Koskinen & Robins, 2014; Snijders, 2011). However, by contrast to SAOMs, ERGMs, are concerned with cross-sectional modeling. This requires the assumption that the modeled process is in a state of dynamic equilibrium, which might be a strong assumption in a newcomer setting. SAOMs are models of a longitudinal process of network change, conditioning on the first observation. They do not make stationarity assumptions. The continuous model also allows tests of the relative importance of selection and social influence as sources of similarity among friends (which to my knowledge is not possible in the ERGM framework). For these reasons the SAOM approach was chosen for these initial analyses.

Causality considerations

Any survey-based study attempting to examine the extent to which desires/beliefs motivate behavior must consider the possibility of reverse causality. This work faced at least two issues of this kind. First, Studies two, three and four below examine whether adolescents select friends with similar preferences and beliefs. The data includes three cross-sectional observations. We cannot know with certainty what happened in between them. Although selection processes might have caused preference/belief similarity among friends, such patterns might also be the result of social influence. Second, Study two examines whether preferences for cultural diversity influence selection of friends. Although an association between preferences and friend selection can be caused by selection of friends based on preferences, it might

also reflect a tendency among individuals who have many friends, or who select dissimilar friends to become more positive towards cultural diversity. Ideally, to be more confident in drawing causal inferences one would like to measure preferences first and then observe behavior in a controlled setting. This was not feasible in the present project. Given these challenges (i.e., repeated observations of a complete social network) the best way available at present to address these issues is to construct a model that represents the continuous process of network change and use this model to test the hypotheses.

Consistent with an agency-based approach to sociological explanation as discussed above, SAOMs assume changes in a network are organized around actors. Actors are assumed to “decide” whether they want to create or delete ties depending on their local networks, their attributes and the attributes of others around them (I use the term “decide” for reasons of simplicity, the analysis makes no assumptions about whether this process is conscious or not).

Consideration of endogenous network processes

An important difference between traditional quantitative sociological research and the analyses here is that the former largely has been concerned with individual traits and the latter are concerned with social relations. The units of analysis in conventional sample surveys – individuals – typically are independent of each other. Changes in relations in delimited environments are not. Quite the contrary, dependencies arise due to processes such as reciprocity and triadic closure. These and other related tendencies imply that the likelihood that a particular friendship will be formed or maintained depends on relations that already exist in the network. Such endogenous network effects need to be considered in analyses of other factors affecting ties. Failure to take this into account may lead to misspecified models and inaccurate results (e.g. Goodreau et al, 2009; see also Snijders, 2011). As mentioned previously, SAOMs allow consideration of the effect of both exogenous and endogenous factors on social relations. This, their ability to test for social influence, and their agency-orientation, make them a good fit for the social network analyses in the present project.

The models

Stochastic actor-oriented models are simulated representations of the continuous processes of social network change, or network and behavior change, over time. All models used in this research were constructed to fit the observed cross-sectional data obtained at three points in time. One can think of these as a reconstruction of the process of network change, or network and behavior change, during the observed time period, including unobserved

information about what may have happened between the observations. The analyses use all of this information to test hypotheses about network or network and behavior changes. SAOMs are a type of agent-based model because of the way the simulation process is organized. Unlike many other agent-based model approaches however, SAOMs implement a statistical model that permits “regular” hypothesis tests about the way, and uncertainty with which, different factors are associated with changes in the network or in the network and behaviors.

The analyses assume changes in the network are organized around the actors, and that only one change can take place at a time. On having been assigned the opportunity, actors “decide” whether they want to make a tie, delete a tie or do nothing. They base their decisions on “evaluation” of the current structure of their local network, their own attributes and the attributes of others around them (again, the analyses do not assume actions are conscious).

The change process thus consists of a large number of small changes (the actor “decisions”), “mini-steps”. These are modeled by means of two probabilistic sub-processes. One sub-process is concerned with how often actors are assigned the opportunity to change a tie (add a tie, delete a tie, or do nothing). The so-called rate function controls this process. The likelihood of a tie change opportunity is assumed constant across actors in all analyses here. The second sub-process focuses on the decision an actor makes on having been assigned a tie change opportunity. The “evaluation function” controls this process. This function is the core of the model. A researcher defines it based on theoretical considerations and previous research. It is assumed to be a linear combination of a set of effects (and a random component) where the effects represent factors that are believed to play a role for the formation/maintenance of ties. Upon having been assigned a tie-change opportunity, an actor compares all possible local networks that can result from a tie change (including a non-change) and takes action. The action that generates the highest value of the evaluation function is the most likely to be taken. The weights of the effects are estimated by means of a so-called method of moments procedure. The results of the analysis are presented as logit coefficients and the interpretation of the results is analogous to that of a logistic regression analysis. I refer to Snijders et al (2010), Ripley et al (2014), and Snijders (2001) for detailed descriptions of the models and the estimation of the weights of the effects.

This research uses the model described above to test hypotheses about factors associated with network changes. In order to address questions of the relative importance of selection and social influence as sources of preference/belief similarity among friends – the co-evolution of friendship and desires/beliefs – it uses a more complex model, which is a combination of that described above and a similar model of changes in desires/beliefs. The change processes then are modeled together, which allows tests of the im-

portance of selection of similar friends while controlling for social influence and vice versa (see Snijders et al, 2010). The construction of all the models followed the recommendations presented in Snijders et al (2010).

The fit of the models to the data

The inferences made in this research rest on the assumption that the models correctly represent the processes giving rise to the observed data. In order for this to be a reasonable assumption, the models must be similar to the cross-sectional observations. I compared the models and the observed data with respect to some common network metrics; the distribution of sent and received friend nominations (outdegrees and indegrees, or naming of and naming by, respectively), relational distance (geodesic distances) and the different triadic configurations (the triad census) (see Ripley et al, 2014). The correspondence between the models and the data was good or reasonable in all cases.

The modeling of a continuous process of network change allows tests of hypotheses that imply a causal direction, for example whether preferences influence social category homophily. Three of the studies in this thesis test hypotheses of this kind. It is important to keep in mind, however, that a model cannot prove the direction of causality. At best it can be an indicator of a possible causal influence. Hence, inferences about causal influence must be based on theoretical arguments and previous research.

Outline of studies

All studies in this thesis are based on the data material described above and slightly different stochastic actor-oriented models.

Study 1: Do Adolescents Always Select Similar Friends? The interaction between homophily and a school's classroom structure

This study examines whether the importance of native/immigrant background homophily varies depending on whether friendships are formed/maintained within or across classroom groups. The results suggest adolescents select friends based on similarity in native/immigrant background between classroom groups. No such tendency is found within classrooms, implying that features of the school organizational structure moderates/enhances homophily.

Study 2: Preferences for Cultural Diversity and Friend Selection: Social network dynamics in an upper secondary school

This study examines whether adolescents with a strong preference for cultural diversity have an extra propensity to nominate friends in school, whether adolescents select friends based on similarity in diversity preferences, and whether adolescents with a strong diversity preference have an extra propensity to select friends with a dissimilar background than their own in terms of parents' birth region. The results suggest that reporting a stronger diversity preference is associated with an extra propensity to nominate friends. Consistent with previous research, students also are found to select friends with similar backgrounds in terms of parents' birth region. In one of three background groups this tendency varies with diversity preferences; reporting a stronger diversity preference is accompanied by greater selection of friends with dissimilar backgrounds. The analysis reveals no evidence of selection of friends based on similarity in diversity preferences.

Study 3: Adolescent Friendship and Religiosity: Social network dynamics in a diverse school

This study examines whether adolescents select friends based on similarity in religiosity (defined as the importance attributed to religion), whether adolescents are influenced by the religiosity of their friends, and whether selection of friends based on similarity in religiosity varies with religious identity. The results suggest that some, but not all, students select friends based on similarity in religiosity. The analysis reveals no evidence of social influence with respect to religiosity over time.

Study 4: Religiosity and the Emergence of Similarity in Drinking and Smoking Behaviors among Adolescent Friends

This study investigates whether adolescents select friends with similar alcohol use and cigarette smoking behaviors, and – if so – whether these tendencies are explained by selection of friends based on similarity in religiosity. Consistent with previous research the results suggest adolescents select friends with similar drinking and smoking habits. Selection of friends with similar alcohol use is in turn found to be entirely explained by selection of friends with analogous religious beliefs and smoking habits. Similarity in smoking behavior is found to have a direct effect on friend selection.

Discussion – the results and their significance for the research area

The study of social networks has become well established in social science. As part of this development, the past several decades have seen an increasing interest in adolescent social relations. Some of the relevant research has focused on explaining similarity patterns in friendship with respect to social categories and have found homophily to be an important factor, or mechanism, influencing friendships. Although the study of social networks has also documented the importance of several other factors for the formation/maintenance of friendships, it has paid little attention to how different factors might interact. Surprisingly little attention has also been paid to how culturally constructed desires and beliefs might influence friend selection. Inspired by Hedström's (2005) strategy for sociological research – especially the idea that sociology should aim at uncovering social mechanisms based on the behavior of individuals – and the arguments that social identification processes (Edling & Rydgren, 2014) and broad value orientations (Vaisey, 2009) are likely to be important for understanding such mechanisms, this research is concerned with questions of whether – and if so how – social category homophily (the inclination to select similar friends in terms of social categories) interplays with a school's organizational structure, and whether – and if so how – individuals' desires and beliefs influence adolescent friend selection.

The results of the four studies outlined here suggest adolescents' inclination to select similar friends in terms of social categories does vary with a school's classroom structure and (for some students) different instances of preferences and beliefs. These findings have implications for contemporary substantive questions about friendship, immigration background and religiosity. The finding that homophily is important for friendship formation/maintenance between but not within classrooms suggests, for example, that homophily proclivities are activated/de-activated under certain circumstances, which has clear implications for policy aimed at promoting mixing. This finding also can be interpreted as suggesting the tendency towards homophily observed here is mostly an "automatic" process, as if students consciously preferred friends with a similar background, one would expect homophily tendencies to be constant across (e.g., classroom) boundaries in a school environment. The findings that preferences for cultural diversity and religiosity influence friend selection suggest that considering individual desires and beliefs can be important for better understanding friend selection.

The results presented here also can be interpreted as having implications for our understanding of social category homophily more generally. The evidence of variation in homophily suggests the process of selecting similar friends is more complex than often assumed. Social psychological research-

ers have suggested that homophily is driven by an innate human desire for similarity in associates (Festinger, 1954; Heider, 1946). Although not questioning this theoretical proposition, the results presented here suggest that innate desires combined with salient categories are not sufficient to explain the observed relational pattern. Understanding social category homophily also appears to require consideration of aspects of social organization, as well as variation in individual desires and beliefs.

In line with recent research, the results highlighted here thus suggest the study of adolescent social networks can benefit by considering the interplay between homophily and other factors as determinants of friendship (McFarland et al, 2014; Block & Grund, 2014; Block, 2015), and by taking seriously the role of culturally constructed desires and beliefs as factors influencing friend selection (Vaisey & Lizardo, 2010; Edling & Rydgren, 2014).

The finding that immigration background homophily varies within and between classrooms also suggests that future studies can benefit from expanding the boundaries within which they examine tie formation/maintenance, such that networks studied do not coincide with bounded activity groups within larger contexts, for example classrooms in a school. Expanding the boundaries of social network research when feasible might contribute to better understanding of the relationship between social networks and extra-network aspects of social organization. Recent years have seen calls for such efforts (Doreian & Conti, 2012; Entwistle et al, 2007). To the extent that the results presented here hold in other contexts, an interesting topic for future research also would be to consider variation in homophily with respect to the circumstances of individual encounters/meetings and desires/beliefs simultaneously.

Here it has only been possible to examine a few instances of the interaction between different factors influencing friendship, and the role of individual desires and beliefs in friend selection processes. There are many more possibilities. McFarland et al (2014) present a theoretical framework for understanding how different micro-level tie formation mechanisms can be expected to vary systematically across organizational structures. Such frameworks are useful for generating hypotheses for smaller delimited studies like the present. Attempting to systematically examine interaction between factors on different levels of analysis appears a promising direction for future research, not least for the study of social networks that consists of many small-scale examinations. The large datasets including social relations collected in recent years and the large amount of data available in online settings promise to make such efforts easier.

The analyses presented here were made possible in part by the longitudinal and detailed character of the data obtained. However, the smaller size of the network examined and its geographic restriction also means wider generalizability of the results is unclear. In order to allow more far-reaching conclusions the results presented here need to be corroborated in future studies.

Future research could consider the questions addressed here using larger datasets. It could also consider other kinds of preferences and beliefs as well as additional dimensions of social category homophily.

Although not widely generalizable, the findings presented here are representative of the cohort studied. They suggest that different factors *can* interact in their effect on adolescent friend selection and that individuals' desires and beliefs *can* play a role for friend selection. This makes the project useful for generation of hypotheses for future research and in interpreting results of larger less detailed analyses. Systematic examination of how different factors interact in their effect on friendship and other relations, and the role of individual desires and beliefs in these processes promises to contribute to painting a more nuanced picture of relational dynamics, and to better capture the complexity of social life.

Finally, and importantly from a practical perspective, research contributing to better understanding of group formation/relations, and breaking down negative stereotypes, has much to offer to the development of policies promoting civil society.

References

- Ahrne, G. (2014) *Samhället mellan oss*. Stockholm: Liber.
- Alexander, C., Piazza, M., Mekos, D., & Valente, T. (2001). Peers, schools, and adolescent cigarette smoking. *Journal of adolescent health, 29*(1), 22-30.
- Allport, G. (1954). The Effect of Contact (pp. 261-282) in *The Nature of Prejudice*. Reading, MA: Addison-Wesley.
- Baerveldt, C., Van Duijn, M., Vermeij, L., & Van Hemert, D. (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.
- Bauman, K., & Ennett, S. (1994). Peer influence on adolescent drug use. *American Psychologist, 49*(9), 820.
- Blau, P. (1977). *Inequality and heterogeneity*. New York, NY: Free Press.
- Block, P. (2015). Reciprocity, transitivity, and the mysterious three-cycle. *Social Networks, 40*, 163-173.
- Block, P., & Grund, T. (2014). Multidimensional homophily in friendship networks. *Network Science, 2*(02), 189-212.
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Cheadle, J., & Schwadel, P. (2012). The 'friendship dynamics of religion' or the 'religious dynamic of friendship'? A social network analysis of adolescents who attend small schools. *Social Science Research 41*, 1198-1212.
- Cheadle, J., & Williams, D. (2013). The role of drinking in new and existing friendships across high school settings. *Health, 5* (6C), Paper ID 33385, 8 pages.
- Cohen, J. (1980). Socio-economic status and high-school friendship choice: Elmtown's youth revisited. *Social Networks, 2*(1), 65-74.
- Coleman, J. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.

- Cook, J. (2013). The dynamics of network-religion autocorrelation in adolescent friendship networks. *Sociology Theses, Dissertations & Student Research*. Paper 28. <http://digitalcommons.unl.edu/sociologydiss/28>
- Davis, J. (1970). Clustering and hierarchy in interpersonal relations: Testing two graph theoretical models on 742 sociomatrices. *American Sociological Review*, 35(4), 843-851.
- Demerath, N. (2000). The rise of “cultural religion” in European Christianity: learning from Poland, Northern Ireland, and Sweden. *Social Compass*, 47(1), 127-139.
- De Vries, H., Candel, M., Engels, R., & Mercken, L. (2006). Challenges to the peer influence paradigm: results for 12–13 year olds from six European countries from the European Smoking Prevention Framework Approach study. *Tobacco Control*, 15(2), 83-89.
- DiMaggio, P. (1997). Culture and cognition. *Annual review of sociology*, 23, 263-287.
- DiMaggio, P., & Garip, F. (2012). Network effects and social inequality. *Annual Review of Sociology*, 38, 93-118.
- Doreian, P., & Conti, N. (2012). Social context, spatial structure and social network structure. *Social networks*, 34(1), 32-46.
- Edling, C. (2012). Analytical Sociology is a Research Strategy. *Sociologica*, 6(1), 0-0.
- Edling, C., & Rydgren, J. (2014). Analytical Sociology: Bringing Culture and Identity Back In. *Sociologica*, 8(2), 1-20.
- Ejerfelt, L. (1984). Civil Religion, Made in Sweden. *The Church and Civil Religion in the Nordic Countries of Europe*, 78-81.
- Ennett, S., Bauman, K., & Koch, G. (1994). Variability in cigarette smoking within and between adolescent friendship cliques. *Addictive behaviors*, 19(3), 295-305.
- Entwistle, B., Faust, K., Rindfuss, R., Kaneda, T. (2007). Networks and contexts: Variation in the structure of social ties. *American Journal of Sociology* 112(5), 1495-1533.
- Emirbayer, M., & Goodwin, J. (1994). Network analysis, culture, and the problem of agency. *American journal of sociology*, 99(6), 1411-1454.
- Erikson, E. (2013). Formalist and relationalist theory in social network analysis. *Sociological Theory*, 31(3), 219-242.
- Esping-Andersen, G. (2013). *The three worlds of welfare capitalism*. John Wiley & Sons.
- Evans, J. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255-278.
- Feld, S. (1981). The focused organization of social ties. *American Journal of Sociology*, 86(5), 1015-1035.
- Feld, S., & Carter, W. C. (1998). Foci of activity as changing contexts for friendship. In Adams, R., Graham, A. (Eds.). *Placing friendship in context* (pp 136-152). Cambridge: Cambridge University Press.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Fisher, L., & Bauman, K. (1988). Influence and Selection In the Friend-adolescent Relationship: Findings from Studies of Adolescent Smoking and Drinking. *Journal of Applied Social Psychology*, 18(4), 289-314.
- Frank, K., Muller, C., Mueller, A. (2013). The embeddedness of adolescent friendship nominations: The formation of social capital in emergent network structures. *American Journal of Sociology* 119, 216-253.

- French, D., Purwono, U., & Triwahyuni, A. (2011). Friendship and the religiosity of Indonesian Muslim adolescents. *Journal of Youth and Adolescence* 40, 1623-1633.
- Freeman, L. (2004). The development of social network analysis. *A Study in the Sociology of Science*.
- Giddens, A. (1984). The constitution of society: Outline of the theory of structuration. Univ of California Press.
- Goodreau, S., Kitts, J., & Morris, M. (2009). Birds of a feather, or friend of a friend? Using exponential random graph models to investigate adolescent social networks. *Demography*, 46(1), 103-125.
- Gross, N. (2009). A pragmatist theory of social mechanisms. *American Sociological Review*, 74(3), 358-379.
- Hallinan, M. (1982). Classroom racial composition and children's friendships. *Social Forces* 61(1), 56-72.
- Harris, K., Halpern, E., Whitsel, J., Hussey, J., Tabor, P., Entzel, and J. Udry. 2009. The National Longitudinal Study of Adolescent to Adult Health: Research Design [WWW document]. URL: <http://www.cpc.unc.edu/projects/addhealth/design>.
- Hartup, W. (1993). Adolescents and their friends. *New Directions for Child and Adolescent Development*, 1993(60), 3-22.
- Hechter, M. (2000). *Containing nationalism*. Oxford: Oxford University Press.
- Hedström, P. (2005). *Dissecting the social: On the principles of analytical sociology*. Cambridge: Cambridge University Press.
- Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology*, 21(1), 107-112.
- Homer, P., & Kahle, L. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of personality and social psychology*, 54(4), 638.
- Huckfeldt, R. (2009). Interdependence, density dependence, and networks in politics. *American Politics Research*, 37(5), 921-950.
- U.S. Department of State (2009). International Religious Freedom Report 2009: Sweden. Retrieved from <http://www.state.gov/j/drl/rls/irf/2009/127339.htm> (2016-01-11)
- <http://www.state.gov/j/drl/rls/irf/2009/127339.htm>
- Jaccard, J., Blanton, H., & Dodge, T. (2005). Peer influences on risk behavior: an analysis of the effects of a close friend. *Developmental psychology*, 41(1), 135.
- Kallstenius, J. (2010). De mångkulturella innerstadsskolorna: Om skolval, segregation och utbildningsstrategier i Stockholm (Doctoral dissertation). Stockholm Studies in Sociology New Series 49. Retrieved from <http://su.diva-portal.org>
- Kalmijn, M. (1998) Homogamy and intermarriage: Causes, patterns, trends. *Annual Review of Sociology* 24, 395-421.
- Kao, G., & Joyner, K. (2004). Do race and ethnicity matter among friends? *The Sociological Quarterly*, 45(3), 557-573.
- Kossinets, G. (2006). Effects of missing data in social networks. *Social networks*, 28(3), 247-268.
- Kossinets, G., & Watts, D. (2009). Origins of homophily in an evolving social network. *American Journal of Sociology*, 115(2), 405-450.
- Kroeber, A., & Parsons, T. (1958). The concepts of culture and of social system. *American Sociological Review*, 23(5), 582-583.
- Lazarsfeld, P., & Merton, R. (1954). Friendship as a social process: A substantive and methodological analysis. In Berger, M., Abel, T., Page, C. (Eds.), *Freedom and Control in Modern Society* (pp 18-66). New York: Van Nostrand.

- Levin, H. (1998). Educational Vouchers: Effectiveness, Choice, and Costs. *Journal of Policy Analysis and Management*, 17(3), s. 373–392.
- Lewis, K., Kaufman, J., Gonzalez, M., Wimmer, A., & Christakis, N. (2008). Tastes, ties, and time: A new social network dataset using Facebook. *Social networks*, 30(4), 330-342.
- Lewis, K., Gonzalez, M., & Kaufman, J. (2012). Social selection and peer influence in an online social network. *Proceedings of the National Academy of Sciences*, 109(1), 68-72.
- Lubbers, M. (2003). Group composition and network structure in school classes: a multilevel application of the p* model. *Social Networks*, 25(4), 309-332.
- Lusher, D., Koskinen, J., & Robins, G. (2012). Exponential random graph models for social networks: Theory, methods, and applications. Cambridge, MA: Cambridge University Press.
- Lödén, H. (2008). Swedish: Being or becoming? Immigration, national identity and the democratic state. *International Journal of Social Sciences*, 3(4), 257-264.
- Marmaros, D., & Sacerdote, B. (2006). How do friendships form? *The Quarterly Journal of Economics*, 79-119.
- Mayer, A., & Puller, S. (2008). The old boy (and girl) network: Social network formation on university campuses. *Journal of public economics*, 92(1), 329-347.
- McFarland, D., Moody, J., Diehl, D., Smith, J., & Thomas, R. (2014). Network Ecology and Adolescent Social Structure. *American sociological review*, 79(6), 1088-1121.
- McPherson, M., Smith-Lovin, L. Cook, J. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415-44.
- Mercken, L., Snijders, T., Steglich, C., & de Vries, H. (2009). Dynamics of adolescent friendship networks and smoking behavior: Social network analyses in six European countries. *Social Science & Medicine*, 69(10), 1506-1514.
- Mercken, L., Steglich, C., Knibbe, R., De Vries, H. (2015). Dynamics of friendship networks and alcohol use in early and mid-adolescence. *Journal of Studies on Alcohol and Drugs*, 73, 99-110.
- Miles, A. (2015) The (Re)genesis of values: Examining the importance of values for action. *American Sociological Review*, 80(4), 680-704.
- Mollenhorst, G., Edling, C., & Rydgren, J. (2014). Psychological well-being and brokerage in friendship networks of young Swedes. *Social Indicators Research*, 123(3), 897–917.
- Moody, J. (2001). Race, school integration and friendship segregation in America. *American Journal of Sociology*, 107(3), 679-716.
- Mouw, T. & Entwistle, B. (2006). Residential segregation and interracial friendship in schools. *American Journal of Sociology*, 112(2), 394-441.
- Nilsson, Å. (2004) Efterkrigstidens invandring och utvandring. Örebro: Statistics Sweden.
- Parsons, T. (1970) [1951]. The social system. London: Routledge.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90(5), 751.
- Portes, A., Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98(6), 1320-1350.
- Regnerus, M., Smith, C., & Smith, D. (2004). Social context in the development of adolescent religiosity. *Applied Developmental Science* 8, 27-38.
- Rew, L., & Wong, Y. (2006). A systematic review of associations among religiosity/spirituality and adolescent health attitudes and behaviors. *Journal of adolescent health*, 38(4), 433-442.

- Ripley, R., Snijders, T., Boda, Z., Vörös, A., & Preciado, P. (2014). Manual for SIENA version 4.0 (version July 22, 2015). Oxford: University of Oxford, Department of Statistics; Nuffield College. <http://www.stats.ox.ac.uk/siena/>
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture*, 2(1), 11.
- Schaefer, D. (2010). A configurational approach to homophily using lattice visualization. *Connections*, 30(2), 21-40.
- Shrum, W., Cheek, Jr., C., MacD. Hunter, S. (1988). Friendship in school: Gender and racial homophily. *Sociology of Education* 61(4), 227-239.
- Simmel, G. (1971). Georg Simmel on individuality and social forms, edited by D. Levine. Chicago: University of Chicago Press.
- Smith, C. (2003). Theorizing religious effects among American adolescents. *Journal for the Scientific study of Religion*, 42(1), 17-30.
- Smith, S. Maas, I, & Van Tubergen, F. (2014) Ethnic ingroup friendships in schools: Testing the by-product hypothesis in England, Germany, the Netherlands and Sweden. *Social Networks* 39, 33-45.
- Snijders, T. (2001). The Statistical Evaluation of Social Network Dynamics. *Sociological Methodology*, 31(1), 361-395.
- Snijders, T. (2005). Models for longitudinal network data. In Carrington, P., Scott, J, & Wasserman, S., eds. *Models and Methods in Social Network Analysis*, 215-247. New York: Cambridge University Press.
- Snijders, T. (2011). Statistical models for social networks. *Annual Review of Sociology* 37, 131-153.
- Snijders, T., van de Bunt, G, & Steglich, C. (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks*, 32, 44-66.
- Spillman, L. (1995). Culture, social structures, and discursive fields. *Current Perspectives in Social Theory*, 15(1), 129-54.
- Srivastava, S., & Banaji, M. (2011). Culture, cognition, and collaborative networks in organizations. *American Sociological Review*, 76(2), 207-233.
- Stark, T., & Flache, A. (2012). The Double Edge of Common Interest Ethnic Segregation as an Unintended Byproduct of Opinion Homophily. *Sociology of Education*, 85(2), 179-199.
- Statistics Sweden (2015) Befolkningen. Retrieved from http://www.scb.se/sv/_/Hitta-statistik/Statistik-efter-amne/Befolkning/ (2015-12-01)
- Strauss, C., & Quinn, N. (1997). *A cognitive theory of cultural meaning*. Cambridge: Cambridge University Press.
- Svensson, Y., Burk, W., Stattin, H., & Kerr, M. (2012). Peer selection and influence of delinquent behavior of immigrant and nonimmigrant youths: Does context matter? *International Journal of Behavioral Development*, 36(3), 178-185.
- Swidler, A. (1986). Culture in action: Symbols and strategies. *American sociological review*, 273-286.
- Swidler, A. (2001). *Talk of Love: How Culture Matters*. Chicago: University of Chicago Press.
- Tigervall, C., & Hübinette, T. (2010). Adoption with complications: Conversations with adoptees and adoptive parents on everyday racism and ethnic identity. *International Social Work*, 53(4), 489-509.
- Vaisey, S. (2009). Motivation and Justification: A Dual-Process Model of Culture in Action1. *American Journal of Sociology*, 114(6), 1675-1715.
- Vaisey, S., & Lizardo, O. (2010). Can cultural worldviews influence network composition? *Social Forces*, 88(4), 1595-1618.

- Vanhoutte, B., & Hooghe, M. (2012). Do diverse geographical contexts lead to diverse friendship networks? A multilevel analysis of Belgian survey data. *International Journal of Intercultural Relations*, 36(3), 343-352.
- Vermeij, L., Van Duijn, M., & Baerveldt, C. (2009). Ethnic segregation in context: Social discrimination among native Dutch pupils and their ethnic minority classmates." *Social Networks*, 31 (4), 230-239.
- Wasserman, S., Pattison, P., 1996. Logit models and logistic regression for social networks: I. An introduction to Markov graphs and p*. *Psychometrika* 61, 401-425.
- Weber, M. (1983) [1918-20]. *Ekonomi och samhälle*. Lund, Sweden: Argos.
- Wellman, B. (1997). Structural analysis: From method and metaphor to theory and substance. In Wellman, B., Berkowitz, S., (Eds.), *Social structures: A network approach* (pp 19-61). New York: Cambridge University Press.
- Wimmer, A. (2008). The making and unmaking of ethnic boundaries: A multilevel process theory1. *American journal of sociology*, 113(4), 970-1022.
- Wimmer, A. (2009). Herder's Heritage and the Boundary-Making Approach: Studying Ethnicity in Immigrant Societies. *Sociological Theory*, 27(3), 244-270.
- Wimmer, A., & Lewis, K. (2010). Beyond and below racial homophily: ERG models of a friendship network documented on Facebook. *American Journal of Sociology*, 116(2), 583-642.
- Windzio, M., & Wiggins, M. (2014). Religion, friendship networks and home visits of immigrant and native children. *Acta Sociologica*, 57(1), 59-75.
- Zeng, Z., & Xie, Y. (2008). A preference-opportunity-choice framework with applications to intergroup friendship. *AJS; American journal of sociology*, 114(3), 615.