PH.D. THESIS SUMMARY

Judit Pál

**Status and Negative Ties:
A Longitudinal Network Study among Adolescents**

Supervisors:

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Institute of Sociology and Social Policy

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Outline

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1.1 Introduction

All over the world, there is a substantial interest in understanding students' everyday life in schools (Bradshaw, Keung, Rees, & Goswami, 2011; Currie et al., 2012). Essentially, the school represents a key location in the life of students. Additionally, school is not only an institution for academic activities, but also a place to learn how to achieve respect among their fellows, how to build relationships with peers or how to deal with conflicts (Juvonen, 2006).

It seems negative relations (disliking, conflicted or bullying ties) are unavoidable parts of human relations as positive (friendship, cooperative) relationships. It is only in the past decade that researchers started to understand why, how and with what outcomes these negative relations occurred in adolescents' social communities (Card, 2010). Researchers started to be interested in analyzing negative relations, because they found that the negative emotional or physical ties such as disliking or bullying were present as risk factors. Being disliked or bullied, and being a bully might have long-term negative consequences, such as low academic achievement, dropout of schools, distress, aggressive behavior and internalizing problems (Jansen et al., 2012; Olweus, 1993; Pepler et al., 2006).

While the outcomes of negative ties are well represented in the literature, it is still less known how disliking and bullying relationships are established. However, understanding the evolution of negative social ties is not only for researchers but also for teachers and policy makers could be an important aim to build the most effective interventions programs. For instance, the successful KIVA program from Finland shows from an empirical aspect that disliking and bullying should be understood as group processes (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). It might happen that common friendship creates common enemies, while protective friendships could defend individuals from being bullied.

Achieving high ranking in the social ladder is not independent from the relations an individual has either. In the informal hierarchy, being friends with high status peers could raise the status of an individual, and vice-versa, being disliked by high status individuals could decrease the status of a peer (Faris & Ennett, 2012; Huitsing et al., 2012).

Based on all of these aforementioned empirical results, the PhD thesis examines how the negative, "dark side" of interpersonal relations and status positions interrelate among secondary school students in Hungary. Consequently, the thesis has two important goals. The first, the scientific aim is to measure and empirically analyze the interrelated dynamics of the negative relationships and the status positions of adolescents in secondary schools, using a

Hungarian longitudinal dataset. The second, the practical aim of the project is to offer insights and incentives for policy makers, school psychologists and teachers in Hungary.

1.2   Research framework

Motivation

The analysis of positive social relations represents an important tool for studying a wide range of social phenomena, such as segregation and coalition formation. Extensive information is available about the mechanisms that establish positive ties (Ibarra, 1992; Kandel, 1978), but less is known about the processes that contribute to the creation of negative ties (Clement & Harding, 1978; Quillian & Campbell, 2003). While the dynamics of positive networks and their effect on social and behavioral dynamics have been studied extensively (Hallinan, 1979; Lazarsfeld & Merton, 1954; Mercken, Snijders, Steglich, & de Vries, 2009; Steglich, Snijders, & West, 2006), less is known about the governing processes that establish negative ties, and what the role of negative relations in the foundation of these social phenomenon is (Huitsing, Snijders, van Duijn, & Veenstra, 2014; Labianca & Brass, 2006; Roda, 2014).

In the dissertation, we define negative ties as "*those judgments, feelings and intentions that one person has towards another person*" (Labianca & Brass, 2006, p. 597). We propose its classification by showing that negative ties have internal (such as disliking and hate) and manifest forms (such as gossiping, fighting).

The difficulty in analyzing negative ties comes from the empirical experience that measuring the *visible* (such as disliking or hate) and the *invisible* forms of negative ties (such as hitting or gossiping is relatively difficult (Labianca, 2012). Studies which identified successfully negative ties (in offices, hospitals and schools) find that compared to positive or neutral relationships, the appearance of negative relationships is relatively rare: on average, about eight percent of reported relationships are negative (Brass & Labianca, 1999; Gersick, Dutton, & Bartunek, 2000). Research also shows that individuals are more likely to give positive nominations, as the negative consequence for sending negative nominations is sometimes higher than building a positive social capital (Brass & Labianca, 1999). Consequently, the question is that which factors are responsible for the formation of negative ties. In what follows, we summarize these phenomena.

Network related factors in establishing negative social relations

Positive and negative relations emerge by external and network-related factors. The external factors are mainly described as characteristics of individuals and groups, like race, ethnicity, gender, age, and social status. Positive relations are principally created by homophile mechanisms: those who share similar social characteristics, or share similar beliefs and values are more likely to be positively connected (Kenis & Knoke, 2002; McPherson et al., 2001). Similar values and beliefs, geographical proximity, membership of the same community, and family ties could increase the probability of establishing positive ties (McPherson, Smith-Lovin, & Cook, 2001). For example, let us assume two students who live in Budapest, both are 15 years old, they attend the same school and like listening to rock music. As they live in the same city, they are of the same age, and they share the same taste of music, consequently they are more likely to become friends, as if they lived in two different cities, while one of them is a 34 years woman who enjoys going to jazz concerts. These *assortative mechanisms* highlight the importance of actor attributes in creating ties, and also becoming central in a network or in forming a network tie (Rivera et al., 2010). For instance, those who have been working in the same organization for some time are more likely to become *bridge actors* that connect different divisions through their informal networks. While there are hundreds of articles that prove the existence of the power of similarity in creating positive relations, less is known about whether different (*heterophobia*) (Takács, Maes, & Flache, 2015) or similar (*homophobia*) characteristics may influence the establishment of negative ties.

Research also suggests examining the network nature of establishing a tie between two individuals or two organizations (Rivera et al., 2010). *Embeddedness* in social networks is gradually seen as an origin of human achievement, social stratification, and actor behavior (Rivera et al., 2010). Actor-related *network positions* could also explain (such as betweenness, closeness) why those who are bridges or popular in a network are more likely to attract more nominations (Ibarra & Andrews, 1993; Kadushin, 2004). *Structural network patterns* such as tendency for reciprocity or triadic configurations emphasize why existing relationships matter in creating a tie in a consecutive time point (Hallinan, 1979; Hallinan & Williams, 1989; Snijders, 2011). *Structural balance* is the most prominent theory that explains the interrelation of positive and negative ties (Cartwright & Harary, 1956; Doreian & Stokman, 1997; Heider, 1946, 1958). The theory describes that if we observe the smallest subgroups, the triad configurations in a network, we could expect that the relations between three actors either become balanced or not. It explains that it is more likely that "the friend of

my friend becomes my friend", or the other way around "the enemy of my friend becomes my enemy". The theory also describes that common enemies could create friendship, and friendship could create common enemies as well.

The importance of negative ties and social status in research on adolescence

Negative relations are the main target of the research on adolescence, which is a particularly important period of social development. Especially, because it has long-lasting consequences for later life (Coleman, 1961). Adolescents' well-being are mainly determined by the individual properties, the environment where they live, and their relationships with their families, teachers, and peers (Lippman, Moore & McIntosh, 2011). Studies that successfully measured negative relations found that negative interactions have a disproportionally greater effect on satisfaction, mood, and stress than positive relations; a phenomenon which has been described as a *negative asymmetry* (Labianca, Brass, & Gray, 1998; Moerbeek & Need, 2003). Those who are the receiver or sender of negative relations are more likely to be isolated and neglected by their peers (Faris & Felmlee, 2014).

Competing for status and being dominant represent a crucial factor in establishing and maintaining relationships (Coleman, 1961). From a developmental perspective, adolescents are mainly competing for admiration and dominance in closed groups (Faris & Felmlee, 2014; Pellegrini & Long, 2002), because acquiring a relatively high status represents the major tool for being seen in a community (Lindenberg & Steg, 2007). Therefore, establishing negative ties seems a foremost underlying force to achieve high status (Faris & Ennett, 2012; Rodkin & Berger, 2008), so that negative relations are mainly driven by status mechanisms (Berger & Dijkstra, 2013; Veenstra, Lindenberg, Munniksma, & Dijstra, 2010).

Status has been conceptualized in various ways in the sociological and social-psychological literature (Parkhurst & Hopmeyer, 1998). However, *status* could be best described as a position in a social system that one individual holds, such as a child in family, a student, a parent or a professional (Linton, 1936). This explains the location of the individual within a group, and it reflects his or her place in the social network of privileges, duties, and rights (Linton, 1936).

Status has two types: ascribed status and achieved status. *Ascribed status* is assigned to an individual on the basis of the position in society; such a status may be given by birth or by placement (Foladare, 1969). For example, in an educational setting, a student may enjoy a particular status because of being born in a rich, influential family. *Achieved status* describes status or the position that a person has given by his own personal achievements (Foladare,

1969). This status is given by the ability, capacity and the efforts of the individuals. For example, a person who is able to exhibit his ability in sports, education or professional life is seen as having higher and better status.[1]

Research on adolescence has also different status conceptualizations, which describe different status hierarchies. These informal social systems are based on a person own evaluation on his or her peers' position in the group or on the perception of other peer's opinion about a third individual's position. Individuals' positions are also defined by choosing their friends or by disliking their peers.

There are three main status conceptualizations in adolescent literature, which are the followings. *Positive peer regard o*r *acceptance* is measured by liking nominations; and *negative peer regard* or rejection is measured by disliking other students in the community (Cillessen & Rose, 2005; Coie, Dodge, & Coppotelli, 1982; Coie & Kupersmidt, 1983; Newcomb & Bukowski, 1983). *Peer admiration* describes who is perceived as competent and of high status (Coleman, 1961; Cuddy, Fiske & Glick, 2008; Fiske, Cuddy, & Glick, 2007). Peer admiration is often operationalized by peer ratings on "who is admired" or "respected" (Becker & Luthar, 2007). These measures have in common that they all aggregate individual nominations about a direct relationship between the respondent and the target individual to a general score (most typically indegree). By contrast, *perceived popularity* describes social reputation, and defines the importance of power and influence in a group by asking students about who they *perceive* as popular or unpopular in the class (de Bruyn & Cillessen, 2006; Luthar & McMahon, 1996). Hence, this measure aggregates individual perceptions on popularity.

In this thesis, we determine status by the perceptions of peers, exploring its dyadic, tie level nature. In particular, we measure *first-degree status perceptions* by asking students who they look up to or look down on. This is to be differentiated from the perceived status position, which we define as *second-degree status perception*. It was measured by asking students who they think that their peers look up to or look down on. We believe that a new way of status conceptualization (such as taking perceived admiration mechanisms into account) helps to understand more clearly what motivates negative ties to create.

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[1] In the dissertation, I concentrated on exploring achieved, rather than ascribed status.

Visual summary of the research framework

Figure 1 gives a brief overview of why it is necessary to study negative relations among adolescents. The key points include four effects that may all contribute to the formation and establishment of negative ties. The first one is the assortative and dissortative mechanisms through the influence of individual factors. The second one is the existing network patterns while the third is the role of status perceptions. Finally, it also incorporates how the peer structure through the interrelation with positive ties contribute to the formation of negative ties.

Figure 1 also illustrates how the research done in this dissertation puts forward a better understanding of negative tie formation.

Figure 1: *Visualization of the research framework*
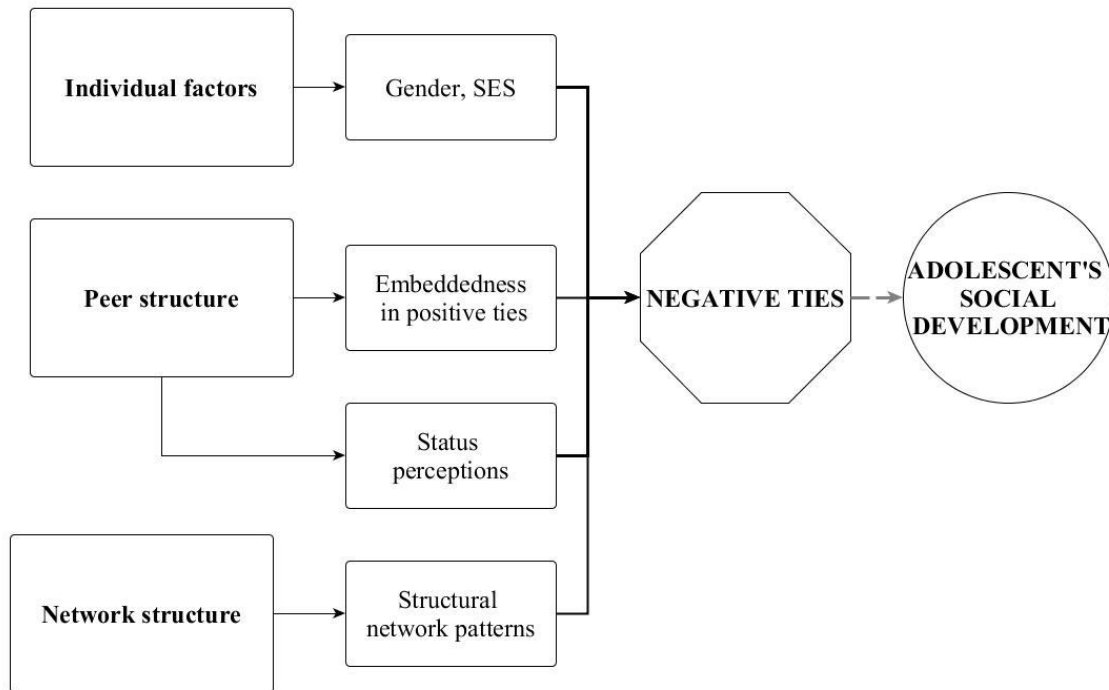
1.3 Research questions

Based on the proposed theoretical overview, we have three main research questions. These research questions are organized as follows.

Individual factors

Question 1 - Assortative and dissortative mechanisms in establishing negative ties

How do individual factors (gender, ethnicity, status positions) induce the formation of different forms of negative relations among adolescents?

Peer structure

Question 2 – Embeddedness in positive networks

How do positive relations contribute to negative tie formation?

Question 3 –Status perceptions

How do status perceptions contribute to negative tie formation?

Network structure

Question 4 – Structural network patterns

How does the structure of negative networks influence the boost and the maintenance of negative ties?

To understand these questions, we conducted three studies using the most up-to-date methodological tools in social network and adolescent research. The first study is a cross-sectional analysis to understand manifest negative tie formation, such as bullying and victimization tie formation. The second and the third study use longitudinal analysis to understand disliking, the internal form of negative ties.

In the first empirical paper, (Chapter 2) we present a cross-sectional analysis. First, we analyze how status positions based on peer admiration and peer acceptance influence the formation of bullying and victimization. Second, we examine how the self-proclaimed bullying and victimization networks differ from each other. Third, we test the role of existing network patterns and network independent attributes, such as socio-economic status and gender, to explain the creation of bullying and victimization ties.

In the second empirical paper (Chapter 3) we focus on understanding who is nominated negatively and who gives negative nominations. First, we examine how positions of the four types of status measures affect the indegree centrality for negative relations,

therefore being refused and the outdegree centrality for negative relations, therefore being hostile. Second, we elaborate on how results for negative indegree and outdegree centrality differ from what we observe in the positive networks. Third, we examine that the status positions of individuals, created as perceived by other peers, do have a greater effect on refusal and hostility or the personal perceptions.

In the third analytical paper (Chapter 4), we concentrate on understanding the evolution of internal forms of negative relations. First, we analyze to what extent disliking relations depend on how adolescents perceive the relative informal status of their peers. Second, we elaborate on how positive relations are interrelated with negative relations. Third, we test the role of existing network patterns, gender and socio-economic status in explaining the formation of negative relations. Table 1 summarizes the examined factors of this thesis.

Table 1: *Summary of the examined factors*

Question	Examined factor	Focus: negative ties		
		Chapter 2	Chapter 3	Chapter 4
Q1	Individual factors	X	X	X
Q2	Interrelations with positive ties	-	-	X
Q3	Status perceptions	X	X	X
Q4	Structural network patterns	X	-	X

1.4 The Study Design: "Wired into Each Other"

The proposed research questions were tested on the Hungarian longitudinal national network panel data "Wired into Each Other: Network Dynamics of Adolescents in the Light of Status Competition, School Performance, Exclusion and Integration" ("Wired into Each Other," 2010).[2] This panel data on networks and behavior provide an excellent empirical view on the social development of adolescents, their norms, relations, and behavior. The study was conducted between 2010 and 2014, and was funded by the Hungarian Scientific Research Fund (OTKA) (K/81336).[3] MTA TK "Lendület" Research Center for Educational and Network Studies (RECENS) and the Corvinus University of Budapest, Institute of Sociology and Social Policy gathered the data using a survey method.

Complete network data were collected from each class, representing the sample unit of our study. School classes are understood as small communities which become and remain closed groups during high school years in Hungary. As a result, 9th graders were chosen to be involved into the first wave of the data collection, because they were freshly brought together shortly before the data collection had started. Moreover, school classes can be described as closed communities or micro-networks where the actors spend a lot of time together and they form strong emotional ties with other members of the community.

Self-administered pencil-based surveys were completed during regular classes with the help of trained interviewers. The questionnaire used for the data collection contained relational information between classmates and also background questions about the pupils' learning attitudes, information about their past school performance and their social-family background. The relational information was gathered by using sociometric methods (Mérei, 1971).

The data collection in each class took no more than 45 minutes. During all waves of data collection, passive permission was required from the parents to sign and return if they consent for their child to participate in the project. The respondents and their parents were informed about the nature and duration of the study. Passive consent forms from the parents are stored in locked cupboards at the MTA TK "Lendület" Research Center for Educational and Network Studies (RECENS).

The students without permissions were not included in the analysis, and the students who were absent during the data collection were coded as missing. The students were assured that their answers would be kept confidential and used for research purposes only. Relational information was collected between classmates only. For gathering network items, the full roster method was used, so that all students in a class could indicate their relationships with all classmates.[4]

The sample in the first wave contains 9th grade students from 44 secondary school classes of 7 Hungarian secondary schools nationwide in the country. The final population covers each type of institutional settings of 9th grade students located in differently sized settlements. Schools in the sample are located in Budapest, the capital of Hungary, in one county capital in Eastern Hungary, and two towns with maximum 13,000 habitants, also in Eastern Hungary. From a network perspective, we could expect different dynamics of the relations between classmates as the contexts might differ. In addition, as studies in a general

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[4] A detailed description of our data protocol, including data storage, protection, and destruction is available online at: http://recens.tk.mta.hu. last access: 23/02/2015

grammar school could start in grade 5, grade 7, and grade 9, we chose students starting their secondary studies in grade 9. The sample contains one class where students started their secondary studies in the 5th grade, and one in the 8th grade. In the final sample, 15 classes are from general grammar schools (preparing students for the secondary school final examination), 14 classes are from vocational secondary schools (preparing students for the secondary school final examination with pre-vocational elements), and 15 classes are from vocational training programs (the program contains general subject courses with vocational guidance, preparing students for entering into a program that requires 10 years of general education altogether). Students in 12 classes were studying in the capital, Budapest, 17 classes were found in cities with maximum 13,000 inhabitants, and 15 classes located in a county capital with 55,000 inhabitants.

In total, 1,622 students participated in the first three waves of the study. The number of participants decreased by 20% from wave 1 to wave 3. The survey response rate was above 80% in all three waves, and increased from wave 1 to wave 3, from 86% to 88.5%. In each wave, there were students who joined the sample. There were 44 classes in wave 1, while in wave 3, four classes disappeared or were merged with other classes. There was also some internal "moving" within the sample. It is important to underline that the gender composition of the sample is distort and does not represent the rate of males and females in the secondary educational system, as it is more gender-balanced (KSH, 2012). In the target population 50% of students are males. In the sample, in each wave, the number of males is about 40%, which reflects sampling features only. This might slightly influence the results, but we have no knowledge whether this happens systematically or randomly.

1.5 Methods

The research questions were analysed by regression models, descriptive and analytical empirical network methods, such as exponential random graph models (ERGM, also referred to in the literature as p*), and stochastic-actor based models (SABMs). The unit of the analysis compromises individuals and school class networks.

Panel regression allows for analyzing how, over time, no changing attributes influence certain specificities of the observed individuals or institutions. The panel approach is possible because each student was surveyed repeatedly over multiple (three) years in our data. Panel regression analysis allows us to control for time-invariant, potentially omitted factors – both observed and unobserved ones. Therefore, we use between and within variation

in the differences between students, and the time-series or within-subject information reflected in the changes within subjects over time. This is achieved by including individual level (in our case, student level) fixed effects in the regressions. This allows for a more rigorous test of our hypotheses on the relationship between status positions in negative and positive peer regard (McManus, 2011).

To test the research questions about the structural parameters and the network evolution, the ERGM (Robins, Pattison, Kalish, & Lusher, 2007) and the SABM are used (Snijders, van de Bunt, & Steglich, 2010; Steglich et al., 2006). These two network methods were used in chapter 3 and chapter 4.

The ERGM are mainly used for cross-sectional analysis. A network configuration refers to a small set of nodes with a subset of ties amongst the nodes that are based on non-directed graphs or directed graphs. The ERGM framework explains which configuration explains global network properties better, such as density, centralization or transitive triads. The ERG models estimate by probability distribution that a given network configuration has a higher or lower chance to occur than in a random network (Robins et al., 2007). The coefficients of an ERGM estimation could be interpreted as logistic regression models. In this dissertation, the software package MPnet is used for ERGM analysis (Wang, Robbins, Koskinen, & Pattison, 2014).

The SABMs are developed to estimate changes in longitudinal network data (Snijders et al., 2010). SABM assume that each actor in a network is evaluating their position in the current network according to the current network's characteristics, which are the specifications found in the model. These changes can be assumed to be the results of endogenous processes although external factors are also included (Prell, 2011).

When we used ERGMs and SABMs, first, we conducted the analysis class by class, more precisely network by network, and then we conducted a meta-analysis (Snijders & Baerveldt, 2003). A meta-analysis uses a statistical approach to combine the results from multiple studies and results in an effort to increase power, and improve estimates of the size of the effect. Essentially, a meta-analysis produces a weighted average of the study results included (Snijders & Baerveldt, 2003). Results can be generalized to a larger population; the accuracy of estimates can be improved as more data is used (Snijders & Baerveldt, 2003).

Finally, for the separate analysis, we programmed scripts in R, using various network methods and packages related to social statistics, such as RSIENA, Stata, and SPSS.

1.6 Results

In what follows, we summarize the results of the three empirical chapters.

1.6.1 Chapter 2: Identifying the Role of Status Positions in Bullying and Victimization Networks[5]

The first empirical study (the second chapter of the dissertation) analyzed the role of individual factors, the existing network structures and the impact of individual-level status considerations in bullying and victimization networks.

Question

Peer perceived status positions have a profound impact on who the bully and the victim is. The chapter examines how peer admiration and peer acceptance influence the formation of self-proclaimed bullying and victimization relations. Moreover, the study also detects how bullying mechanisms could differ when we measure it either from the bully's or the victim's perspective.

Key variables and methods

The main question is examined on a cross-sectional sample (843 students across 29 classes in 7 schools) using a meta-analysis of separate exponential random graph models (ERGM). For the dependent variables, we captured various aspects of *self-percieved bullying* and *victimization*, such as physical, verbal and relational aggression. We combined these aspects into one bullying and victimization network.

For the independent variables, we created a status position based on peer admiration, calculated by subtracting the sum of indegree nominations of admiration based on status downward perception ("who do you look down on") from status upward perception ("who do you look up to"). Then, we standardized the values creating centered z-scores within classes. For peer acceptance, we used the nominations of a five-point Likert-scale. Each student had to indicate their relationship with all classmates according to the following descriptions: "I hate him/her" (-2), "I dislike him/her" (-1), "He/she is neutral to me" (0), "I like him/her" (+1), or "He/she is a good friend" (+2). Then, we calculated the negative indegree nominations of this scale (-1 and -2), and z-standardized them. Due to the design of the scale,

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[5] The chapter is based on the working paper 'Pál, Judit & Kisfalusi, Dorottya (2015): Identifying status positions: The role of peer admiration and peer acceptance in adolescents' bullying networks.

negative and positive networks were mutually exclusive. Finally, we subtracted indegree nominations of negative relations from positive relations and z-standardized these values.

Main results

1) A marked association between large variation between peer admiration and peer acceptance is found. In both networks, there are students who were "black sheep" as they received a considerable amount of nominations, or "active" as they sent large numbers of nominations.

2) As hypothesized, students become victims when they are mainly unaccepted or disrespected by their peers. Pupils are more likely to bully those who are dissimilar in the admiration and in the acceptance status hierarchy.

3) No evidence is found that a high level of admiration leads to becoming a bully.

4) Results also demonstrate gender similarity in bullying and victimization processes, while socio-economic status does not affect who the bully or the victim is.

5) Finally, estimations seem more robust in the bullying than in the victimization networks. The study managed to show that admiration has an impact on bullying relations.

1.6.2   Chapter 3: The Effect of Perceived Status Positions on Becoming Rejected and Hostile

The second empirical study (the third chapter of the dissertation) analyzed the role of individual factors, and the impact of individual-level status perceptions on who is giving and receiving negative nominations.

Question

Understanding the association between perceived peer status positions and rejection processes represents an important question in adolescent research. This chapter examines how individuals' perceived status positions are associated with being rejected or becoming hostile in the classroom.

Key variables and methods

The main question is examined on a longitudinal sample (N=1, 281) using random and fixed effects panel regression models.

Perceived status positions, rejection and hostility are all identified by social network measures. For the dependent variables, we used a five-point Likert-scale to collect sociometric data on the emotional ties between students. We merged the values -1 and -2 of the scale to create the negative social network. We suggest that in a negative network, indegree centrality identifies who is refused, while outdegree centrality detects who is hostile within a group.

For the independent variables, four types of peer perceived status perceptions are defined, which are recognized either as a personal status attribution to an individual or as a personal status assessment of other peers' opinion about another individual. The *first-degree upward status position* describes who is respected, by accumulating nominations on the question "who do you look up on". The *second-degree upward status position* designates who is seen as disrespected by others when aggregating nominations on the question "who is looked up on by peers". The *first-degree downward status position* defines who is disrespected by aggregating nominations on the question "who do you look down on". The *second-degree downward status position* detects who is seen as disrespected by others when adding up the nominations on the question "who is looked down on by peers".

Main results

1) Results suggest that those who are highly respected, disrespected, or seen as respected by others are likely to be rejected and to become hostile.

2) These results are supported by the analysis of the positive network as well.

3) The implication of the results is that individuals' own status attribution is not always consistent with the personal perception of the status order in a community.

4) Consequently, this inconsistent connection between these two distinct forms of status perception might result in rejection and hostility.

1.6.3 Chapter 4: Status Perceptions Matter Understanding Disliking Among Adolescents[6]

The third empirical study (the fourth chapter of the dissertation) analyzed the role of individual factors, the impact of dyadic status perceptions, the embeddedness of positive ties, and the role of existing structural network patterns on the evolution of disliking relations.

Question

The emergence of disliking relations is the origin of severe social problems depends on how adolescents perceive the relative informal status of their peers.

Key variables and methods

We test the proposed question using stochastic actors based models (SABMs), across 585 students from 16 classes in five schools through three waves. We used a five-point Likert-scale to collect network data on disliking and friendship. For the interrelation of status perceptions, we used the created network data of these first- and second-degree status perceptions.

Main results

1) As hypothesized in this chapter, individuals dislike those who they look down on (*disdain*) and conform to others by disliking those who they perceive as being looked down on by their peers (*conformity*).

2) The inconsistency between status perceptions also leads to disliking, when individuals do not look up to those who they perceive to be admired by peers (*frustration*).

3) No evidence is found that adolescents do not dislike those who they look up to (*admiration*).

4) Moreover, disliking agreement with friends could lead to friendship formation and status perception hierarchy leads to the formation of disliking ties, as those who are low in the hierarchy are also more likely to be nominated as disliked.

5) Result also suggests that same-gender students are slightly more likely to dislike one another or to become friends.

6) Further, boys received more friendship nominations than girls.

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[6] The chapter is based on the paper 'Pál, Judit; Stadtfeld, Christoph; Grow, André & Takács, Károly (2015): Status perceptions matter: Understanding disliking among adolescents'. The original version of the paper is accepted for publication for the *Journal of Research on Adolescence*.

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1.8 Publication List of the Author related to the PhD subject

Publications in English

Journal articles

Pál, J., Stadtfeld, C., Grow, A. & Takács, K. (forthcoming): Status perceptions matter: Understanding disliking among adolescents. *Journal of Research on Adolescence.* http://onlinelibrary.wiley.com/doi/10.1111/jora.12231/abstract; doi: 10.1111/jora.12231

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Lőrincz L., Néray, B. & Pál, J. (2011): Hungary. In G.A. Barnett (Ed.): *Encyclopedia of Social Networks*, SAGE Publications Inc.

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Csaba, Z.L. & Pál, J, (2013): QAP elemzése egy kelet-magyarországi kisváros középiskoláiban [Thousand faces of aggression – QAP analysis of hatred and aggression in two high schools in an Eastern Hungarian town]. In B. Néray, & A. Vörös (Eds.). *Wired schools – Network research in an Eastern Hungarian town* (pp. 13-30). Széchenyi István College for Advance Studies, Budapest : L'Harmattan, Budapest, ISBN 978-963-236-717-0 (in Hungarian)