

## THE QUALITY OF INTER- AND INTRA-ETHNIC FRIENDSHIPS AMONG ROMA AND NON-ROMA STUDENTS IN HUNGARY

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**ABSTRACT** In this paper I compare the quality of inter- and intra-ethnic friendships. Previous studies suggest that interethnic friendships are less likely to be characterized by closeness and intimacy than friendships between same-ethnic peers. I analyze data from a Hungarian panel study conducted among Roma and non-Roma Hungarian secondary school students. The analysis of 13 classes shows that interethnic friendship nominations are indeed less often characterized by co-occurring trust, perceptions of helpfulness, or jointly spent spare time than intra-ethnic ones. This association holds true for self-declared ethnicity as well as peer perceptions of ethnicity. Focusing on the self-declared ethnicity of students, interethnic friendship nominations are also found to be less frequently reciprocated than intra-ethnic ones. Concentrating on ethnic peer perceptions, however, the outgoing nominations of non-Roma students are found to be more frequently reciprocated by classmates they perceive as Roma than by classmates they perceive as non-Roma.

**KEYWORDS:** adolescents, friendship, ethnic perceptions, interethnic relations

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## INTRODUCTION

Intra-ethnic friendships among students have been found to be more common than interethnic ones in most previous studies (e.g., Baerveldt et al., 2004; Moody, 2001; Mouw and Entwisle, 2006; Quillian and Campbell, 2003). The quality of interethnic friendships, however, has hitherto received less attention. Positive interethnic relations may not only be less common than intra-ethnic ones, but they might also be less likely to be characterized by intimacy. Studies that have examined the quality of cross-ethnic ties has found that interethnic friendships were reported to be less close and intimate than intra-ethnic ones (Aboud et al., 2003; Kao and Joyner, 2004). Moreover, cross-ethnic friendships were less stable than same-ethnic ones (Aboud et al., 2003; Rude and Herda, 2010).

Previous studies of interethnic relations usually treated race and ethnicity as fixed characteristics of students measured by racial or ethnic self-identification (e.g., Moody, 2001; Mouw and Entwisle, 2006; Quillian and Campbell, 2003) or the country of birth of the parents (Baerveldt et al., 2004; Tolsma et al., 2013; Vervoort et al., 2010). *Ethnic identification*, the way individuals identify themselves ethnically, however, may be different from *ethnic classification*, the way others categorize people as members of ethnic groups (Boda and Néray, 2015; Saperstein and Penner, 2012; Simonovits and Kézdi, 2014). Moreover, both ethnic identification and classification might be fluid and changeable over contexts and time (Ladányi and Szelényi, 2006; Saperstein and Penner, 2012). Analyses of interethnic relations, therefore, should distinguish between the effects of ethnic identification and classification, and take into account the fluid nature of both (Saperstein, 2006).

Boda and Néray (2015) analyzed the positive (friendship) and negative (disliking) relations between Roma and non-Roma students in the same dataset that is used in this paper. They found that friendship nominations between self-declared Roma students were more likely than interethnic nominations. Friendship nominations between self-declared non-Roma students, however, were not significantly more likely than cross-ethnic nominations. Roma students, moreover, preferred only those Roma peers whom they perceived as Roma and who themselves defined themselves as Roma as well. Non-Roma students tended to dislike those classmates whom they perceived as Roma. Some of these tendencies would have remained hidden if the authors had not differentiated between ethnic self-identification and classification by peers in the analysis.

The aim of this study is to further extend our current knowledge of friendship relations between Roma and non-Roma students. Accordingly, I compare the quality of inter- and intra-ethnic friendships and examine whether different results can be found according to the self-declared ethnic identification of students on the one hand, and peer perceptions of classmates' ethnicity on the other. To

explore this research question I undertake a descriptive analysis of data from 13 classes of a Hungarian panel study conducted among Roma and non-Roma secondary school students. I investigate whether there is ethnic segregation in friendship nominations, shared activities, trust relations, and perceived helpfulness nominations through analyzing network matrices of school classes. I also examine whether outgoing inter- and intra-ethnic friendship nominations differ from each other with regard to the proportion of reciprocated ties, co-occurring trust, perceived helpfulness, and jointly spent spare time nominations.

## THEORETICAL BACKGROUND

### Opportunities for friendship

Two major factors play a role in friendship formation: the *opportunities* of people to get to know each other, and the *preferences* they have when they choose their friends (Moody, 2001; Wimmer and Lewis, 2010; Zeng and Xie, 2008). In this section, I first introduce the relevant theoretical literature regarding students' opportunities to befriend each other. Then I continue by providing an overview of theories which focus on individual preferences.

Opportunities for contact are necessary in the formation of friendships. In the socio-psychological tradition, the *propinquity effect* describes the phenomenon that interpersonal attraction is greater towards others with whom people encounter more often (Festinger et al., 1950; Newcomb, 1961; Segal, 1974). If people often meet others who are different from them, the frequency of heterogeneous relations increases (Blau and Schwartz, 1984). Blau (1977a) theorized that the likelihood that people will form intergroup relations can be derived from structural conditions without taking into account any socio-psychological assumptions. For instance, the size of the ingroup influences the probability of intergroup relations, increasing the level of heterogeneity promotes intergroup relations, and intersecting social parameters increase the likelihood of intergroup associations, while strongly correlated parameters impede these associations.

Blau's theory is based on the assumption that the formation of social relations depends on opportunities for social contact. *Contact theory* formulated by Allport (1954), however, suggests that the opportunity for interpersonal contact is a necessary but not sufficient condition for positive intergroup relations. In order to diminish intergroup conflict and individuals' prejudice towards members of the outgroup, status equality, common goals, intergroup cooperation, and the institutional support of the contact are also needed.

Pettigrew and Tropp (2006) found from a large-scale meta-analytic study that intergroup contact can indeed reduce intergroup prejudice, even in the absence of the optimal conditions defined by Allport (1954). If the contact situation meets Allport's conditions, the positive effect of contact on prejudice is even greater. Pettigrew (2008) argues, however, that intergroup contact can lead to negative experiences with members of the outgroup, which may negatively affect intergroup attitudes. Stark and co-authors (2013) found that disliking relations of students had an approximately equally strong influence on outgroup attitudes than liking relations did.

Moody (2001) pointed out that schools provide an important opportunity for students of different ethnic backgrounds to mix. Organizational features of schools influence both the opportunities for ethnic groups to come into contact with each other (Blau, 1977b; Coleman, 1961; Feld and Carter, 1998; Hallinan and Williams, 1989) and the social significance of interaction among them (Allport, 1954; Schofield, 1979). Schools can thus impede or foster the formation of interethnic friendship relations. Academic streaming, for instance, not only separates students but also creates a status differential among them if selection is based on school performance, which often correlates with students' social status and ethnicity (Epstein, 1985; Hallinan and Williams, 1987; Longshore and Prager, 1985). Extracurricular activities, however, provide the opportunity for cooperative interaction between students of different ethnic background and can promote the formation of interethnic friendships (Crain, 1981; Holland and Andre, 1987; Slavin and Madden, 1979).

The number and proportion of minority students in a school also influence the opportunity for intergroup contact. Feld and Carter (1998) argue that cross-ethnic ties are usually weak (Granovetter, 1983, 1973). One's capacity to create weak ties is not limited, unlike the formation and maintenance of close friendships. The number of potential weak ties, therefore, depends only on contact opportunities. Paradoxically, the number of potential interethnic ties is greatest if minority students are concentrated in one large school (Feld and Carter, 1998).

In contrast, people have limited capacity to form and maintain close relations (Van der Poel, 1993; Zeggelink, 1993). If minority students are concentrated in one large school instead of being equally distributed among more schools, they can have their desired number of friends from their own ethnic group, and may be less willing to befriend students of other ethnic groups. In line with the assumptions of Allport's contact theory, research results indicate that intimate, strong ties are important types of interethnic relations. It seems that it is the quality not the quantity of relations which contributes to the reduction of negative outgroup attitudes (Vervoort et al., 2011). Strong, affective relations are more likely to have lasting effects on attitudes and behavior than weak ones (Feddes et al., 2009; Munniksmas et al., 2013; Pettigrew, 1998).

## Preferences for friendship

Besides opportunity, the preferences of individuals also exert an influence on friendship choices. Theories which seek to explain people's preferences are rooted in two major disciplines: exchange theory is formulated based on the main assumptions of economics, while theories that explain the cognitive and affective aspects of relations belong to the psychological and socio-psychological tradition (Lőrincz, 2006).

*Exchange theory* (Homans, 1961; Thibaut and Kelley, 1959) argues that friendship choices can be explained by the goal of maximizing utility. The formation and maintenance of relations is costly but also provide benefits to individuals; correspondingly, people strive to minimize the costs and maximize the benefits they gain when they make decisions about their relations. The *investment model* of commitment processes adds the assumption that satisfaction and commitment in close relationships also depend on the former investments of partners (Rusbult, 1980).

Among psychological theories, there are several approaches that attempt to explain why people prefer to befriend similar others, a phenomenon known as the *homophily* principle in psychology, sociology, and network studies (Kandel, 1978; Lazarsfeld and Merton, 1954; McPherson et al., 2001). Socio-psychological explanations of the tendency to homophily suggest that similarities validate one's social identity (Festinger et al., 1950; Schachter, 1959), reduce potential conflict (Sherif et al., 1961), and contribute to the development of balanced social situations (Newcomb, 1961, 1956). Homophily has been identified on multiple social dimensions and can therefore increase ethnic segregation in different ways: directly through students' preference for same-ethnic friends, and indirectly by homophily towards other attributes that correlate with ethnicity (Moody, 2001; Wimmer and Lewis, 2010).

*Social identity theory* (Tajfel and Turner, 1979) also describes a potential explanatory mechanism for the prevalence of same-ethnic relations. Social identity theory states that individuals need to belong to a group with a positive identity. For many people ethnicity is considered to be a salient social dimension that can lead to the accentuation of differences among ethnic groups. Accordingly, it might increase prejudice and impede the possibility of the formation of positive interethnic relations (Baerveldt et al., 2004).

*Balance theory* (Heider, 1946) provides another model for friendship formation. Balance theory expands the explanation of friendship development to multiple actors, and assumes that people strive to have balanced social relations and would like to avoid cognitive inconsistencies. Balanced relations occur when 'the friend of my friend is my friend' (also known as transitivity in social network

analysis) and ‘the enemy of my enemy is my friend’, but antipathy between one’s friends leads to psychological tension (Davis and Leinhardt, 1967; Heider, 1946; Holland and Leinhardt, 1971). Transitivity can also reinforce ethnic homophily in social networks. If one’s friends prefer to befriend co-ethnic peers, it is also more likely that one will form a new friendship tie with a co-ethnic peer: friends of friends are more likely to be your friends than unknown people.

## The focus of the present study

Windzio and Bicer (2013) suggest from a rational choice perspective that ethnic segregation might be more pronounced in closer and more intimate relations than in friendship nominations. In contrast to friendship nominations in classrooms, they argue, spending spare time together or visiting friends at home require more time and effort and are therefore more costly. Moreover, ethnic boundaries might be particularly important when parental acceptance is also needed to establish a tie. In line with their expectations they found that ethnic segregation was more pronounced in closer ties compared to friendship nominations among fourth-grade students, especially when parental approval was needed (for visiting a friend’s home, for example).

Though numerous studies have examined the prevalence and explanatory factors of interethnic friendships (e.g., Baerveldt et al., 2004; Boda and Néray, 2015; Moody, 2001; Mouw and Entwisle, 2006; Quillian and Campbell, 2003), less investigation has been devoted to addressing the question how the *quality* of inter- and intra-ethnic relations differs in terms of shared activities, trust, or intimacy. Kao and Joyner’s study (2004) is one of the few exceptions. These authors found that interethnic friendships are less likely to occur among best-friend nominations than among higher-order (i.e. second or third, etc.) nominations, and that interethnic friends usually share fewer activities than intra-ethnic friends. The authors argue that shared activities provide a valid indicator of the intimacy of friendships, and even those youths who tend to befriend pupils from ethnic outgroups form more intimate friendships with same-ethnic peers. Aboud and colleagues (2003) examined relations among primary school students and also found that, with regard to intimacy, mutual cross-race friendships were rated lower than same-race ones. Loyalty and emotional security, however, characterized both same- and cross-race friendships.

My research question focuses on how existing intra- and interethnic positive relations differ from each other regarding intimacy and closeness measured by mutuality, shared activities, helpfulness, and trust. More specifically, I examine the differences between cross- and same-ethnic friendship nominations with re-

gard to reciprocity, jointly spent spare time, trust, and perceived helpfulness. Based on the frequently observed homophily principle (Kandel, 1978; McPherson et al., 2001) and previous findings (Aboud et al., 2003; Kao and Joyner, 2004; Windzio and Bicer, 2013), I expect that even if students nominate friends from other ethnic groups, intimate friendships will be formed more often with same-ethnic peers. Interethnic friendship nominations will be thus less frequently characterized by mutuality, trust, helpfulness, and jointly spent spare time than intra-ethnic ones.

Roma people experience a higher level of discrimination and prejudice than any other ethnic group in Hungary. The situation is not different in the case of students; in surveys conducted in primary and secondary schools, roughly every second pupil expressed that they would be bothered if a Roma student sat next to them in a classroom (Csákó, 2011; Ligeti, 2006). In another study, however, Roma students tended to accept non-Roma students and to have more positive attitudes toward their non-Roma peers than vice versa (Kézdi and Surányi, 2008). In the analysis I thus differentiate between interethnic ties from Roma towards non-Roma and from non-Roma towards Roma students. Similarly, I analyze intra-ethnic nominations between Roma and intra-ethnic nominations between non-Roma students separately.

## DATA AND METHOD

### Participants

I analyzed the second-wave of a four-wave panel dataset. The study was conducted among Roma and non-Roma secondary school students in 44 classrooms from 7 schools (N= 1378 in Wave 2). The main objective of the project was to examine ethnic segregation in the social relations of students, and to investigate the associations between individuals' characteristics and their position in the structure of the class. Due to the main research question of the study, schools with a high proportion of Roma students were overrepresented in the sample. Schools were located in the capital city, and in a large town and in two middle-sized towns in eastern Hungary. First wave data were gathered in the autumn of 2010, just after the beginning of the academic year. Since this was the students' first year in secondary education, they had had limited opportunity to get to know their classmates by this time. Second wave data were gathered half a year later, in the spring of 2011. In the subsequent waves, the number of Roma students dropped significantly; I restricted therefore the investigation to the second wave of the research.

Students and parents received a consent form and an information letter describing the aim and procedure of the research before the start of data collection. Parents were asked to return the consent form if they did not want their child to participate in the study. Students with parental permission filled out a self-administered paper questionnaire during regular school hours, under the supervision of trained research assistants. Students were assured that their answers would be kept confidential and would be used for research purposes exclusively. They were also allowed to refuse to participate in the study, or to refuse to answer the questions they did not want to.

Those classes where the response rate reached 80%, and to which at least three self-declared Roma students attended were selected from the sample. Thus, the subsample comprised 13 classes with a mean class size of 33 students ( $SD=4.32$ ). Three classes were vocational school classes and ten classes were technical school classes. The subsample contains only one secondary grammar school class. In the second wave, 171 boys (40.1%) and 255 girls (59.9%) attended these classes<sup>2</sup>. 33.8% of the students reported to being either Roma or both Roma and Hungarian. 74.2% of the pupils reported that the highest educational attainment of their father was no higher than vocational-level education; the figure is 65.3% for mothers. Table 1 describes the main characteristics of the classrooms.

**Table 1.** *Descriptive statistics about the subsample*

Class	School type	Type of settlement	N (T2)	Number of students self-declared as Roma only (T2)	Number of students self-declared as both Roma and Hungarian (T2)	Number of girls (T2)
1	Technical	Large town	27	8	6	24
2	Technical	Large town	28	10	3	21
3	Technical	Large town	32	5	5	20
4	Vocational	Large town	34	10	11	22
5	Technical	Middle-sized town 1	38	6	5	2
6	Grammar	Middle-sized town 1	37	0	4	14

<sup>2</sup> More girls than boys participated in the research because a lot of vocational and technical school classes in the sample provide education for professions that are more likely to be chosen by female students than by male students.

7	Technical	Middle-sized town 2	38	2	7	30
8	Vocational	Middle-sized town 2	25	9	3	0
9	Technical	Middle-sized town 2	38	4	5	18
10	Vocational	Middle-sized town 2	31	13	8	31
11	Technical	Capital	32	4	4	24
12	Technical	Capital	32	3	3	21
13	Technical	Capital	34	3	3	28
Total			426	77	67	255

## Measures

*Friendship.* Students were asked to evaluate their relationship to all other classmates. Positive and negative relations were measured on a scale ranging from -2 to 2, where -2 represented 'I hate him/her', -1 indicated 'I do not like him/her', 0 referred to 'He/she is neutral to me', 1 indicated 'I like him/her' and 2 represented 'He/she is my friend'. For each class, a friendship matrix was created in which a directed friendship tie was identified in the case that there was a 'He/she is my friend' nomination from individual *i* to *j*.

*Trust.* Students were asked to nominate all of their classmates whom they could trust ('If I had a secret, I would tell it him/her'). For each class, a trust matrix was created in which a directed tie was identified in the case that there was a nomination from individual *i* to *j*.

*Perceived helpfulness.* Students were asked to nominate all the classmates on whom they could count if they needed help ('If I needed help, I could count on him/her'). For each class, a perceived helpfulness matrix was created in which a directed tie was identified in the case that there was a nomination from individual *i* to *j*.

*Shared activities.* Students were asked to nominate all the classmates with whom they do the following activities: 1. 'We usually go home together'; 2. 'We have private classes or do sports together'; 3. 'We spend our spare time together'; 4. 'We study together'; 5. 'I usually sit next to him/her'. For each class, matrices were created in which a directed tie was identified in the case that was a nomination from individual *i* to *j* in the given network.

*Ethnicity.* In the present study I distinguish between self-declared ethnicity and perceived ethnicity according to the ethnic classification made by the students' classmates. Self-declared ethnic identification was measured by asking students to classify themselves as 'Hungarian', 'Roma', 'both Hungarian and Roma', or members of 'another ethnicity'. I recoded students belonging to the 'Hungarian' or 'other ethnicity' as non-Roma (N=282), and students belonging to the 'Roma' or 'both Roma and Hungarian' category as Roma (N=144). Where it was possible, missing data about students' ethnicity were imputed using data from the other waves<sup>3</sup>.

To measure peer perceptions of ethnicity, students were provided with a list of all classmates and were asked to nominate whom they considered Roma. Through this means I created a Roma perception network where for each dyadic relation  $i$  indicates that the respondent  $i$  has classified the given classmate  $j$  as Roma, and 0 indicates that the respondent has not considered the receiver to be Roma.

The self-declared ethnicity of students and peers' perceptions of their ethnicity are strongly correlated. Self-declared non-Roma students, on average, are classified as Roma by 2.5% of their classmates (SD=5.4%, min=0%, max=50%). Self-declared Roma students, in contrast, are nominated as Roma by 49.1% of their classmates on average (SD=25.4%, min=0%, max=92%). It can be seen, however, that classmates do not always agree about whom they consider Roma or non-Roma. Moreover, the ethnic self-identification of students and peers' ethnic perceptions differ from each other in many cases.

## Analytical Strategy

First, I calculated descriptive statistics for all the above-mentioned networks (presented in Table 2). Second, I summed the number of all types of interethnic (from Roma towards non-Roma; from non-Roma towards Roma) and intra-ethnic (from Roma towards Roma; from non-Roma towards non-Roma) directed friendship nominations separately for all classes. Then, for each class and each group, I calculated the proportion of reciprocated friendship nominations. I also calculated the number of cases when the friendship nomination co-occurred with 1.) an outgoing trust, 2.) an outgoing perceived helpfulness, and 3.) an outgoing

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<sup>3</sup> Although some changes in the self-reports of ethnic identification occurred between the different waves (with regard to the changes between the Roma and non-Roma categories, 3.2%, 2.3%, and 0.7% between the consecutive waves, respectively), ethnic self-identification reported in other waves is statistically the best predictor of the ethnic identification of students.

jointly-spent spare time nomination<sup>4</sup>, respectively, and calculated the proportions of these ties among the friendship nominations separately in the classrooms. At the end, I calculated the same indicators for the whole subsample as well (presented in Table 3), and tested whether inter-and intra-ethnic nominations differ from each other using a chi-squared test. I took into account receivers' ethnic self-identification first, and then repeated the same analysis using peer perceptions of receivers' ethnicity.

## RESULTS

### Descriptive analysis

I calculated the average density, the average reciprocity, and the average in- and outdegree over all classrooms for all networks. I also calculated the average density of nominations from Roma towards Roma, from Roma towards non-Roma, from non-Roma towards Roma, and from non-Roma towards non-Roma students based on the ethnic self-identification of senders and receivers. Results are presented in Table 2.

In most networks, the densities are quite low. In the case of trust networks, for example, the average density of the 13 classes is 5.79% in the second wave. In the case of perceived helpfulness, 8.52% of all possible nominations were actually present on average in the classes. The low densities and average degrees of the networks of shared activities (going home together, having private classes or doing sports together, spending spare time together, studying together) show that students only participate in the above-mentioned activities with a few classmates. On average, students mention one classmate with whom they spend their spare time or go home together. Studying, having private classes or doing sport together with a classmate happens even more rarely.

In all studied networks, intra-ethnic nominations are more common than inter-ethnic ones based on students' self-declared ethnicity. Examining intra-ethnic (Roma–Roma and non-Roma–non-Roma) and interethnic (Roma–non-Roma and non-Roma–Roma) matrices, I find large differences in the average densities of the networks. In the case of second-wave friendship nominations, for instance,

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<sup>4</sup> Shared activities were measured by different items. Most networks of shared activities, however, had very low densities. Moreover, some of these relations do not exclusively depend on students' decisions. Being deskmates, for instance, may depend on teacher's instructions. Going home together may be influenced by pupils' living in the same village. Therefore, I decided to analyze only the network of *jointly spent spare time* nominations.

more than 20% of all possible Roma–Roma and non-Roma–non-Roma ties (and less than 6% of all possible Roma–non-Roma and non-Roma–Roma ties) are actually present in the classes on average. This association can be found in the case of every other network item as well. Based on the ethnic self-identification of the students, 29.1% of the friendship nominations are cross-ethnic nominations. Including peer perceptions of receivers' ethnicity, 26.2% of the friendship nominations occur between ethnic groups.

**Table 2.** Descriptive statistics about friendship, trust, perceived helpfulness, being deskmates, going home together, having private classes/doing sport together, spending spare time together, and studying together networks in T2

	Friendship	Trust	Perceived helpfulness	Desk-mate	Going home together	Private classes/sport together	Spending spare time together	Studying together
Total number of nominations	1791	672	1018	1706	509	282	444	126
Average density over all classrooms (SD)	15.65% (3.05%)	5.79% (2.88%)	8.52% (3.51%)	15.15% (3.96%)	4.35% (1.51%)	2.07% (2.86%)	3.73% (1.75%)	1.07% (0.62%)
Average reciprocity over all classrooms (SD)	33.20% (10.22%)	22.96% (11.37%)	20.24% (10.63%)	36.41% (9.86%)	32.67% (12.33%)	29.02% (35.11%)	28.52% (14.26%)	15.28% (17.50%)
Average in-/outdegree	4.56	1.71	2.59	4.34	1.30	0.72	1.13	0.32
Average density of non-Roma → non-Roma nominations (SD)	18.63% (5.23%)	7.52% (3.95%)	10.16% (5.18%)	20.06% (7.58%)	6.52% (2.89%)	2.08% (2.36%)	6.36% (3.79%)	1.79% (1.62%)
Average density of non-Roma → Roma nominations (SD)	6.04% (6.74%)	1.49% (1.37%)	2.42% (1.85%)	6.37% (5.15%)	0.88% (1.13%)	0.42% (0.56%)	0.88% (0.74%)	0.17% (0.29%)
Average density of Roma → non-Roma nominations (SD)	5.85% (4.33%)	1.48% (1.37%)	2.91% (2.34%)	4.79% (3.58%)	1.15% (1.01%)	0.85% (1.98%)	0.72% (0.61%)	0.15% (0.29%)
Average density of Roma → Roma nominations (SD)	21.70% (5.72%)	10.28% (6.09%)	13.60% (8.19%)	19.28% (7.56%)	5.52% (3.53)	5.76% (11.56%)	5.09% (3.99%)	2.13% (2.38%)

Note: average densities of inter- and intra-ethnic nominations are calculated based on the self-declared ethnic identification of students

## The quality of intra- and interethnic friendships

Table 3 presents a comparison of the quality of inter- and intra-ethnic friendships across the 13 classrooms in the second wave of the research. First, senders' and receivers' self-declared ethnicity were taken into account. Second, senders' ethnic self-identification and peer perceptions of receivers' ethnicity were included in the analysis.

First, I focused on investigating whether interethnic friendship nominations are less frequently reciprocated than intra-ethnic ones. Including self-declared ethnicity in the analysis, I found that nominations from Roma towards Roma and from non-Roma towards non-Roma students are more often reciprocated than nominations from Roma towards non-Roma, and from non-Roma towards Roma. Whereas every second Roma–Roma and non-Roma–non-Roma nomination was reciprocated, only 39.54% of Roma–non-Roma and 41.27% of non-Roma–Roma nominations were mutual regarding the whole subsample. A chi-squared test indicates a statistically significant difference between inter- and intra-ethnic friendship nominations with regard to mutuality ( $p < 0.001$ ).

Including peer perceptions of receivers' ethnicity in the analysis, the results slightly change. Although a chi-squared test again shows that there exists a statistically significant difference between inter- and intra-ethnic friendship nominations with regard to mutuality ( $p < 0.01$ ), the proportion of reciprocated friendship nominations from non-Roma towards Roma becomes higher (51.24%) than the proportion of mutual ties among non-Roma students (48.31%). The relations, thus, in which Roma students are the receivers of the ties, are more often mutual than ties sent to non-Roma students, independently of the ethnicity of the sender of the nomination. From another perspective, the outgoing nominations of non-Roma students are more often reciprocated by classmates they perceive as Roma than by classmates they perceive as non-Roma.

Second, I examined whether interethnic friendship nominations are less frequently characterized by a co-occurring trust nomination than intra-ethnic ones. Analysis of both self-declared ethnicity and ethnic classification of peers indicates that, indeed, compared to cross-ethnic friendship nominations, higher proportion of same-ethnic nominations occur together with a trust nomination (36.14% and 32.79% compared to 18.63% and 22.22%; 44.27% and 30.83% compared to 17.29% and 28.10%). The main difference is that when including peer perceptions of receivers' ethnicity in the analysis, the proportion of friendship ties co-occurring with a trust tie is higher in the case of Roma receivers (by 8.13 and 5.88 percentage points for Roma–Roma and non-Roma–Roma nominations, respectively) and lower in the case of non-Roma receivers (by 1.96 and 1.34 percentage points for non-Roma–non-Roma and Roma–non-Roma nominations, respectively) compared

to the analysis of receivers' self-declared ethnicity. A chi-squared test indicates that there is a statistically significant difference between inter- and intra-ethnic friendship nominations with regard to co-occurring trust nominations as concerns both self-identification and peers' ethnic perceptions ( $p < 0.001$ ).

Third, I investigated whether nominated interethnic friends are less frequently perceived as helpful than intra-ethnic ones. Friendship nominations towards co-ethnic peers more often co-occur with a perceived helpfulness nomination than cross-ethnic friendship nominations when both self-declared and perceived ethnicity are taken into account (39.46% and 40.28% compared to 28.90% and 28.97%; 48.62% and 38.35% compared to 24.50% and 32.23%). When including peer perceptions of ethnicity into the analysis, however, the proportion of friendship ties co-occurring with a perceived helpfulness nomination is higher in all types of dyads (by 9.16, 1.93 and 2.76 percentage points) except with the non-Roma–non-Roma dyads (where it is smaller by 3.26 percentage points), compared to the case of ethnic self-identification. A chi-squared test indicates a statistically significant difference between inter- and intra-ethnic friendship nominations with regard to co-occurring perceived helpfulness nominations as concerns both self-identification and peers' ethnic perceptions ( $p < 0.001$ ).

Finally, I analyzed whether interethnic friendship nominations are less frequently characterized by a co-occurring jointly spent spare time nomination than intra-ethnic ones. Analyzing both self-declared and perceived ethnicity I found that the proportion of friendship nominations co-occurring with a jointly shared spare time nomination is indeed higher in intra-ethnic dyads than in interethnic ones (18.07% and 23.89% compared to 11.79% and 13.89%; 20.16% and 22.46% compared to 11.53% and 15.70%). There are only negligible differences in the results if I include perceived ethnicity compared to self-declared ethnicity (1-2 percentage points difference in every type of dyad). A chi-squared test shows that there is a statistically significant difference between inter- and intra-ethnic friendship nominations with regard to co-occurring jointly spent spare time nominations when both self-identification and peers' ethnic perceptions are incorporated in the analysis ( $p < 0.001$ ). In the case of Roma students, however, the difference between outgoing inter- and intra-ethnic nominations regarding the proportion of co-occurring jointly spent spare time nominations is larger when peer perceptions of receivers' ethnicity compared to ethnic self-identification (8.63 percentage points compared to 6.28 percentage points) are included. In the case of outgoing nominations of non-Roma students, however, the difference is smaller when it incorporates ethnic peer perceptions (6.76 percentage points compared to 10 percentage points). This association also holds in the case of reciprocated nominations, as well as taking into account the proportion of co-occurring trust and perceived helpfulness relations.

**Table 3.** Analysis of inter- and intra-ethnic nominations based on receivers' self-declared ethnicity and peer perceptions of receivers' ethnicity across the 13 classrooms (T2)

	Number of friendship nominations	% of reciprocated friendship nominations	% of co-occurring trust nominations	% of co-occurring perceived helpfulness nominations	% of co-occurring jointly spent spare time nominations
<i>Receivers' self-declared ethnicity</i>					
Roma–Roma	332	52.11%	36.14%	39.46%	18.07%
non-Roma–non-Roma	921	50.81%	32.79%	40.28%	23.89%
<b>intra-ethnic</b>	<b>1253</b>	<b>51.16%</b>	<b>33.68%</b>	<b>40.06%</b>	<b>22.35%</b>
Roma–non-Roma	263	39.54%	18.63%	28.90%	11.79%
non-Roma–Roma	252	41.27%	22.22%	28.97%	13.89%
<b>interethnic</b>	<b>515</b>	<b>40.39%</b>	<b>20.39%</b>	<b>28.93%</b>	<b>12.82%</b>
<i>Peer perceptions of receivers' ethnicity</i>					
Roma–Roma	253	57.31%	44.27%	48.62%	20.16%
non-Roma–non-Roma	1064	48.31%	30.83%	38.35%	22.46%
<b>intra-ethnic</b>	<b>1317</b>	<b>50.04%</b>	<b>33.41%</b>	<b>40.32%</b>	<b>22.02%</b>
Roma–non-Roma	347	39.77%	17.29%	24.50%	11.53%
non-Roma–Roma	121	51.24%	28.10%	32.23%	15.70%
<b>interethnic</b>	<b>468</b>	<b>42.74%</b>	<b>20.09%</b>	<b>26.50%</b>	<b>12.61%</b>

Note: the total numbers of inter- and intra-ethnic friendship nominations based on receivers' self-declared ethnicity and peer perceptions of receivers' ethnicity are different due to missing data about self-declared ethnicity and nominations. Friendship nominations were not included in the analysis if the ethnicity of the sender or the receiver was unknown.

Windzio and Bicer (2013) suggested that ethnic segregation is more pronounced in closer relations than in friendship nominations because closer ties are more costly than friendship nominations. They also hypothesized that the densities of these costly networks are lower than those of friendship networks. In line with their argument, I indeed found that the densities of the trust, perceived helpfulness, and jointly spent spare time nominations are much lower, than the density of friendship nominations (see Table 2). In Table 4, I also compared the proportion of interethnic nominations in these networks. Through examining both ethnic self-declaration and peer perceptions of ethnicity I found that the proportion of interethnic ties are indeed lower in the trust, perceived helpfulness, and jointly spent spare time networks than in the friendship networks across the 13 classrooms.

**Table 4.** *Proportion of interethnic nominations in the given networks based on receivers' self-declared ethnicity and peer perception of receivers' ethnicity across the 13 classrooms (T2)*

	Self-declared ethnicity	Peer perception of ethnicity
Friendship	29.13%	26.22%
Trust	19.92%	17.60%
Perceived helpfulness	22.89%	18.93%
Spending spare time together	19.08%	16.91%

## DISCUSSION

In this study I compared the quality of inter- and intra-ethnic friendships and examined whether the results are different when the self-declared ethnic identification of students and peer perceptions of classmates' ethnicity is included in the analysis. Previous findings suggested that interethnic friendships are less likely to be characterized by closeness and intimacy than intra-ethnic ones. Therefore, I expected that interethnic friendship nominations would be less frequently characterized by mutuality, trust, helpfulness, and jointly spent spare time than intra-ethnic ones. Moreover, based on an argument of Windzio and Bicer (2013) I examined whether closer relations are more likely to be segregated along ethnic lines than friendship networks.

First, I undertook a descriptive analysis of data from 13 classes of a Hungarian panel study conducted among Roma and non-Roma secondary school students. I investigated whether there is ethnic segregation in the friendship, trust, and perceived helpfulness relations and shared activities through analysing network matrices of the classes. Second, I examined and tested whether inter- and intra-ethnic friendship nominations differ from each other with regard to the proportion of reciprocated ties, co-occurring trust, perceived helpfulness, and jointly spent spare time nominations.

The main finding of this paper is that – in line with expectations – interethnic friendship nominations are indeed less often characterized by co-occurring outgoing trust, perceived helpfulness, or jointly spent spare time nominations than intra-ethnic ones. This association holds when self-declared ethnicity and peer perceptions of ethnicity are incorporated into the analysis. In the case of Roma students as senders of nominations, however, the difference between outgoing inter- and intra-ethnic nominations regarding these indicators is larger when this factor (peer perceptions of receivers' ethnicity compared to receivers' ethnic

self-identification) is included. In the case of outgoing nominations of non-Roma students, the difference is smaller when ethnic peer perceptions are included in the analysis.

Through analyzing the self-declared ethnicity of both senders and receivers I also found that interethnic friendship nominations are less often reciprocated than intra-ethnic ones. In the case of peer perceptions of receivers' ethnicity, however, outgoing nominations of non-Roma students are slightly more often reciprocated by classmates they perceive as Roma than by classmates they perceive as non-Roma. In other words, friendship nominations where Roma students are the receivers of the ties are more often mutual than ties with non-Roma students, independently of the ethnicity of the sender of the nomination.

This phenomenon can be explained by different mechanisms. First, it is possible that friendship nominations sent by non-Roma students towards students they perceive as Roma are slightly more often reciprocated by the receivers than nominations sent towards peers they perceive as non-Roma. Second, it is also possible that non-Roma students tend to slightly more often reciprocate friendship nominations they receive from classmates they perceive as Roma than those they receive from classmates they perceive as non-Roma. Third, it is also possible that the high mutuality between non-Roma and perceived Roma peers is a by-product of other endogenous network formation processes. Future studies should examine tie formations between Roma and non-Roma students longitudinally to test which one of these mechanisms causes the observed patterns of reciprocity in friendship nominations.

These findings show that peer perceptions of ethnicity may add valuable insight to the analysis of interethnic relations (Boda and Néray, 2015; Saperstein, 2006). Whereas social theories have widely recognized and emphasized that ethnicity and race are social constructs (American Sociological Association, 2003; Barth, 1969; Brubaker, 2009), empirical studies still usually treat these concepts as the fixed characteristics of individuals. Saperstein et al (2013) warn that, except in some subfields, empirical sociological research has not yet incorporated the constructivist approach into the standard practice of research. They suggest that researchers should be more reflexive and critical when using ethnic and racial categories in their analyses and explicitly address how the selected mode of operationalization affects their results. In this study I found that the inclusion of peer perceptions of classmates' ethnicity considerably alter the results compared to when the self-declared ethnic identification of students is included.

Another important finding is that students in the sample tended to nominate very few classmates with whom they do different activities together outside school (such as doing sport, having private classes, studying, spending spare time, or going home together). Several researchers have pointed out that extra-

curricular activities can provide important opportunities for mixing for students of different ethnic backgrounds (Crain, 1981; Holland and Andre, 1987; Moody, 2001; Slavin and Madden, 1979). Friendship integration might thus increase if schools could provide more extracurricular activities and attract more students to these programs.

The common ingroup identity model suggests that students of different ethnic backgrounds can be united under a common group identity by creating and strengthening a more inclusive group category (Gaertner et al., 1989). If students share a common interest in a sport or musical activity, for instance, their common group identity can be defined based on this activity. Stark and Flache (2012) warn, however, that interventions designed to create a common ingroup can fail if students' opinions and interests correlate with ethnicity. Successful interventions thus require a thorough investigation of students' interests and attitudes.

One major limitation of this study is that I was only able to do a cross-sectional analysis. In the first wave, the densities of the networks were too small to draw conclusions regarding the quality of interethnic friendships due to the early date of data collection (at the beginning of the first academic year) in the field of secondary education. In the third wave, the number of Roma students dropped significantly in the sample. Future research could investigate changes in the quality of interethnic friendships over time.

Another limitation is that I only examined the proportion of reciprocated friendship nominations and the proportion of co-occurring trust, perceived helpfulness, and jointly spent spare time nominations without taking into account the dependency among ties and without controlling for students' characteristics (e.g., gender, or socio-economic status) and the more complex structural characteristics of the networks. It is possible that not only students' preferences, but other processes of network dynamics (e.g. transitivity, gender homophily) influence the formation of ties among students. Boda and N  ray (2015) controlled for these structural effects and found that friendship nominations were more likely between Roma students than between non-Roma students, but cross-ethnic nominations were not significantly less likely than nominations within the non-Roma group. Similarly, the trust, perceived helpfulness, and jointly shared spare time networks, and their interrelatedness with friendship networks should be more thoroughly analyzed in the future.

A third limitation is that data about parents' attitudes were not available. Parental acceptance of interethnic relations influences students' inclinations to befriend peers from ethnic outgroups (Windzio and Bicer, 2013). Moreover, due to status considerations or concerns about cultural transmission, parents from different ethnic groups might accept interethnic friendships of their children differently (Munniksma et al., 2012). Potential differences in the attitudes of Roma

and non-Roma parents regarding contact with outgroup members might thus affect their children's inter- and intra-ethnic friendship nominations.

The data did not allow for the examination of the effect of the students' neighborhood. Similarly to schools, neighborhoods provide an opportunity for interethnic contact and thus can shape preferences for interethnic friendships. Not only the proportion of ingroup and outgroup members in schools, but those in an individuals' neighborhood might affect their outgroup attitudes and preferences for interethnic friendships (Kruse et al., 2016; Vermeij et al., 2009). The ethnic diversity of neighbourhoods, however, not only affects interethnic friendships through outgroup attitudes but through meeting opportunities as well. Mouw and Entwisle (2006) and Kruse et al. (2016) found that adolescents are likely to befriend peers who live nearby, or who are friends of a friend living nearby. Residential segregation, however, plays only a minor role in interethnic friendship formation within schools. Whether residential segregation in Hungary explains friendship segregation among Roma and non-Roma students, however, remains an open question.

The major novelty of this study is that I was not only able to analyze friendship relations, but I was also able to capture the quality of inter- and intra-ethnic friendships with various network items. Moreover, I not only analyzed interethnic relations based on the self-declared ethnicity of students, but included peer perceptions of classmates' ethnicity in the analysis as well.

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