

# Double Standards or Social Identity? The Role of Gender and Ethnicity in Ability Perceptions in the Classroom

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## Abstract

This study aims at disentangling the effects of status generalization and social identity processes on ability perceptions among early adolescents. Double standards theory predicts that people use different standards for making inferences about others' abilities based on social status. Social identity processes, however, imply that people evaluate in-group members more positively than out-group members. We analyze cross-sectional dyadic peer nomination data from 21 primary school classes in Hungary ( $N = 392$ ,  $\bar{X}_{\text{age}} = 13$  years) with exponential random graph models. Next to ethnic self-identification, we use dyadic ethnic perceptions as a novel way of measuring ethnicity in the analysis. Our findings are mostly in line with social identity theory: Students are more likely to nominate in-group peers as clever compared with classmates from the out-group, in terms of both gender and ethnicity. Nonetheless, ethnic and gender biases in ability perceptions differ in some important ways.

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**Introduction**

Students' academic achievement, motivation, and self-concept are influenced by how their abilities are perceived by their peers (Gest, Rulison, Davidson, & Welsh, 2008). Classmates' perceptions of academic abilities might therefore play an important role in students' academic attainment, especially during early adolescence, when students' academic achievement and motivation often declines (Eccles et al., 1993). Perceptions of academic abilities, however, are not purely constructed from objective performance measures such as school grades or test scores but might be affected by potential biases.

Perceptions of abilities that we operationalize as who is considered as clever by the classmates might be biased due to unfavorable stereotypes toward certain lower status social groups or because students perceive their in-group and out-group peers differently (Grow, Takács, & Pal, 2016). On one hand, at the beginning of early adolescence, most children have already learned about and believe in broadly held stereotypes (McKown & Weinstein, 2003). Their ability perceptions might thus be affected by the stereotypes that girls and women (e.g., Bian, Leslie, & Cimpian, 2017; Furnham, Reeves, & Budhani, 2002; Kirkcaldy, Noack, Furnham, & Siefen, 2007; Storage, Horne, Cimpian, & Leslie, 2016), as well as members of certain ethnic and racial groups (e.g., Devine & Elliot, 1995; Fries-Britt & Griffin, 2007; Ghavami & Peplau, 2013; Steele, 1997; Steele & Aronson, 1995), are believed to have lower cognitive abilities compared with boys, men, and members of other ethnic and racial groups.

Double standards theory (Foschi, 1996, 2000) suggests that people use different standards for making inferences about others' abilities based on their groups' social status. Members of low-status groups such as women and members of minorities might be judged by a stricter standard than high-status individuals due to status generalization processes. Based on this theory, one can expect that the abilities of girls are perceived differently than those of boys and members of disadvantaged minorities are evaluated less likely as clever than members of the majority, even when considering the same level of performance (Foschi, 2000; Grunspan et al., 2016).

On the other hand, ability perceptions might be influenced by social identity processes (Tajfel, 1982; Tajfel & Turner, 1979) and in-group favoritism (Rutland, 1999). Gender and ethnicity are salient dimensions along which

social categorization occurs and people differentiate themselves (Boda & Néray, 2015; McPherson, Smith-Lovin, & Cook, 2001) during early adolescence, when youth's ethnic identity develops (Hamm, Brown, & Heck, 2005; Hitlin, Brown, & Elder, 2006; Phinney, 1993; Rivas-Drake, Umaña-Taylor, Schaefer, & Medina, 2017) and peer groups are often segregated along ethnic and gender lines (Clark & Ayers, 1992; Moody, 2001; Shrum, Cheek, & Hunter, 1988; S. Smith, Maas, & van Tubergen, 2014; Stark & Flache, 2012).

Whereas double standards theory predicts that low-status individuals must perform better than high-status individuals to be perceived as clever, social identity processes play a role in the differentiation of ability perceptions within and between groups. Social identity theory suggests that social groups try to establish a positive distinctiveness from other groups, and therefore, people evaluate in-group members more positively than out-group members. Driven by social categorization and in-group favoritism along the lines of gender and ethnicity, early adolescents might evaluate their in-group members' abilities more positively than those of their out-group members in order to arrive at more favorable social comparisons.

These theoretical frameworks are relevant for the study of early adolescents for several reasons. First, early adolescents start to see high academic ability as an indicator of intelligence and smartness (Harari & Covington, 1981; Nicholls, 1978; Rosenholtz & Simpson, 1984b). Second, they already understand and are aware of stereotypes toward ethnic and gender groups (McKown & Weinstein, 2003; Phinney, 1989; E. P. Smith, Walker, Fields, Brookins, & Seay, 1999), and they are highly susceptible to their peers' opinions (Knecht, Burk, Weesie, & Steglich, 2011). Third, although gender segregation in peer relations possibly starts to decline during early adolescence, peer groups are still to a large extent segregated along gender lines (Maccoby, 1998; Mehta & Strough, 2009; Poulin & Pedersen, 2007; Shrum et al., 1988). At the same time, early adolescents are increasingly aware of ethnic cleavages (Phinney, 1993).

Previous studies relied on students' self-declared ethnicity for analyzing ethnic differences in ability perceptions (e.g., Grow et al., 2016). Ethnic self-identification and perceptions by others, however, often differ from each other (Boda & Néray, 2015; Kisfalusi, 2016; Messing, 2014; Telles & Lim, 1998), and ability perceptions probably depend more on how students perceive others than how these peers identify themselves. The main novelty of our study is that in addition to self-identification, we investigate the role of perceived ethnicity in the formation of ability perceptions. We differentiate these dimensions of ethnicity and investigate how students' self-declared ethnicity and dyadic peer perceptions about their ethnic group membership are associated with ability perceptions.

We investigate ability perceptions among Roma and non-Roma Hungarian primary school students. Gender and ethnicity are relevant status characteristics in Hungary (Grow et al., 2016; Szalai, 2003). The Roma constitute a highly disadvantaged ethnic minority group, which has been living in Hungary for centuries, but experience separation and exclusion by the majority society (Kertesi & Kézdi, 2011). There is a significant gap between the Roma and non-Roma population as for their employment rate and average level of education (Kemény & Janky, 2006; Kertesi & Kézdi, 2011). The Roma face the strongest discrimination and prejudice among all ethnic groups in Hungary (Váradi, 2014). Furthermore, negative stereotypes concerning cognitive abilities exist and are widely shared (Bordács, 2001; Ligeti, 2006).

### *Double Standards in Evaluation*

Status characteristics theory (Berger, Cohen, & Zelditch, 1972), developed in the framework of expectation states theory (Berger, Conner, & Fisek, 1974; Correll & Ridgeway, 2006; Ridgeway, 1991), offers an explanation for why women and members of certain ethnic and racial groups are often perceived as less competent, have fewer opportunities to participate, and are less influential in the decision-making processes in task groups. Racial, ethnic, and gender categories are diffuse characteristics that carry different status values in most societies; certain states of these categories (e.g., men, Whites) are being evaluated more positively than others. Through the process of status generalization, people form performance expectations based on these diffuse characteristics assuming that people belonging to higher valued categories will perform better in solving tasks than people belonging to lower valued categories (Correll & Ridgeway, 2006; Ridgeway, 1991).

Double standards theory (Foschi, 1996, 2000) extends status characteristics theory by providing a theoretical explanation for the phenomenon that lower status individuals are considered less competent than higher status individuals even if they achieve the same level of performance. The theory argues that different performance expectations toward low and high status individuals activate the use of different standards for the assessment of others' abilities. Low-status individuals are therefore judged by a stricter standard than high-status individuals and have to provide better performance in order to receive the same level of ability perceptions. Experimental evidence suggests that women and low-status ethnic and racial minorities are less likely to be considered competent than men and members of a high-status ethnic group, even when performance information is available that could contradict the expectations (for a review, see Foschi, 2000).

Status characteristics theory and double standards theory were developed to provide theoretical frameworks for the emergence of status-related performance expectations and ability perceptions in collectively oriented task groups. Empirical studies suggest, however, that similar status generalization processes occur in educational settings as well (Alexander, Entwisle, & Thompson, 1987; Cohen, 1982; Cohen & Lotan, 1995; Correll & Ridgeway, 2006). Foschi (1996; Foschi, Lai, & Sigerson, 1994) argued that the activation of a double standard depends on whether gender or ethnicity is salient in the situation. If gender is salient in the setting, men will be judged by a more lenient standard than women in two cases: if the task is considered masculine, or not explicitly linked to gender. If the task is considered feminine, however, male participants do not benefit from the double standard. There is no clear evidence that educational tasks are considered either masculine or feminine. Grow et al. (2016), for instance, found no significant gender differences in ability perceptions among Hungarian adolescents. Several other studies suggest, however, that boys are more likely to be perceived as competent in educational settings as well (e.g., Correll, 2001; Goddard Spear, 1984; Grunspan et al., 2016).

Correll and Ridgeway (2006) have emphasized that status generalization processes might occur in every situation where individuals have to make socially important and valid comparative performance evaluations. Grading in schools represents such an evaluation: Grades are important determinants of educational advancement and provide the opportunity for making comparisons between students. Based on double standards theory we expect that when *controlling for grades, girls are less likely than boys to be considered clever by their classmates* (Hypothesis 1a) and *controlling for grades, Roma students are less likely than non-Roma students to be considered clever by their classmates* (Hypothesis 1b).

Foschi et al. (1994) have argued, however, that the perceivers' own level of the relevant status characteristic (e.g., whether the perceiver is male or female) might also affect the formation of performance expectations toward others. They have provided experimental evidence that male, but not female, participants exhibited a double standard based on gender. Male participants considered male job applicants with slightly better academic records as more competent than female applicants. If the female applicant was the better performer, however, male participants did not consider her as more competent than male candidates. Female participants did not show such a bias. Grunspan et al. (2016) have found similar results by showing that male, but not female, students underestimated the academic performance of female biology students. It might occur thus that *controlling for grades, girls are more likely than boys to consider their female peers as clever* (Hypothesis 2a) and

*controlling for grades, Roma students are more likely than non-Roma students to consider their Roma peers as clever* (Hypothesis 2b).

### ***In-Group Favoritism in the Evaluation of Performance***

In contrast to double standards theory, which predicts that members of the high status group are considered more competent, social identity theory (Tajfel, 1982; Tajfel & Turner, 1979) suggests that students attribute higher competence to their in-group members than to out-group members. Social identity theory argues that individuals categorize people along several dimensions, make comparisons between these categories, and are motivated to identify with positively valued groups in order to achieve a positive self-concept or high self-esteem (Abrams & Hogg, 2010). Individuals try to distance themselves from less desired groups, but if they are classified into a category, they attempt to positively redefine in-group attributes, and establish a positive distinctiveness from other social groups by evaluating in-group members more positively (Tajfel, 1982; Tajfel & Turner, 1979).

Based on findings of stereotype content research (Fiske, Cuddy, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002) it has been suggested that different social groups show in-group favoritism in different domains, especially if status relations are legitimate and stable (Grow, 2016; Oldmeadow & Fiske, 2010). In such contexts, high-status groups pursue positive distinctiveness in status-relevant domains such as competence, while low-status groups show in-group favoritism in domains related to warmth. If status differences are unstable and permeable such as during the American civil rights movements and feminist movements, however, low-status groups might also strive to be evaluated positively in the competence domain (Oldmeadow & Fiske, 2010).

The legitimacy of the social system devaluing women and minority groups has been questioned in present-day society. Therefore, status relations are not uniformly considered as stable and impermeable as before. Based on social identity theory, we thus expect that both male and female, and both Roma and non-Roma students show in-group favoritism in the formation of ability perceptions. We hypothesize that *students are more likely to consider their in-group members than their out-group members as clever, in terms of both gender* (Hypothesis 3a) and *ethnicity* (Hypothesis 3b).

Table 1 provides a schematic overview of the proposed hypotheses. In the analysis, we calculate conditional odds ratios (ORs), which show the odds of being perceived as clever in the different types of dyads compared with a reference category (non-Roma students perceiving non-Roma students as clever and girls perceiving girls as clever, see details in the “Analytical Strategy” section). Social identity theory suggests that positive ability

**Table 1.** The Hypothesized Likelihoods of the Different Types of Dyadic Relations According to DST and SIT.

Gender	DST	SIT	Ethnicity	DST	SIT
Boy → boy	1	1	Non-Roma → non-Roma	1	1
Girl → girl	2	1	Roma → Roma	2	1
Girl → boy	2	3	Roma → non-Roma	2	3
Boy → girl	3	3	Non-Roma → Roma	3	3

Note. DST = double standards theory; SIT = social identity theory; 1 = most likely nominations; 2 = between most and least likely nominations; 3 = least likely nominations.

perceptions (nominating the other as clever) between in-group members (boy-boy, girl-girl, non-Roma–non-Roma, and Roma-Roma nominations) will be more likely than between out-group members (girl-boy, boy-girl, Roma–non-Roma, and non-Roma–Roma). Double standard theory, in contrast, suggests that positive ability perceptions between boys and between non-Roma students will be the most likely, whereas they will be the least likely in boy-girl and non-Roma–Roma dyads, with girl-girl, girl-boy, Roma-Roma, and Roma–non-Roma dyads somewhere in between.

### *The Importance of Ethnic Perceptions in Ability Perceptions*

The conceptualization and measurement of ethnicity are not self-evident (Roth, 2016; Saperstein, Kizer, & Penner, 2016). Its different operationalizations as ethnic self-identification and ethnic perceptions of others do not always match (Ladányi & Szelényi, 2006; Messing, 2014; Telles & Lim, 1998) and might affect social relations differently (Boda, 2018; Boda & Néray, 2015; Penner & Saperstein, 2015). Hence, research findings might depend on which ethnic dimension a researcher concentrates on. Perceived ethnicity might be more appropriate than ethnic self-identification if discrimination, segregation, or inequalities are in the center of the analysis (Roth, 2016).

Ability perceptions depend on how individuals perceive others. In the previous sections we have argued that ability perceptions are affected by how students perceive each other's performance, social status, and group membership. How they perceive each other's group membership might depend on how they identify themselves, on one hand, and how they perceive the other's ethnicity, on the other hand. In this article we argue that analyzing students' perceptions about their classmates' ethnicity in relation to their perceptions about these classmates' abilities can provide us with further insights into ability perceptions among ethnic groups. We thus investigate whether we find

different associations between ethnicity and ability perceptions by including ethnic self-identifications and ethnic peer perceptions in the analysis.

### *The Present Study*

The present study tests the proposed hypotheses among male and female, Roma and non-Roma, Hungarian sixth-grade primary school students. We analyze cross-sectional dyadic peer nomination data from 21 primary school classes (392 students from 16 schools) using exponential random graph models (ERGMs; Lusher, Koskinen, & Robins, 2013; Robins, Pattison, Kalish, & Lusher, 2007). ERGMs provide statistical models for social networks and allow us to take into account the social network embeddedness of ability perceptions. Controlling for endogenous network processes is necessary to avoid the overestimation of the effects of gender and ethnicity.

Our study moves beyond previous research in three major ways. First, we use a novel way of measuring ethnicity. We do not only focus on students' ethnic self-identification but in line with the social psychological and sociological view on identity, we also include ethnic peer perceptions in the analysis. More precisely, as we have information from every respondent about the perceived ethnicity of all classmates, we rely on the directed network of ethnic nominations in our analysis. We believe that our novel measurement brings us closer to the understanding of social processes in which labels by peers might be more important than self-declared and often nondisclosed identities.

Second, we control for teachers' evaluations by including students' grade point averages (GPA) in the analysis. Therefore, we examine whether students attribute different levels of abilities to members of lower and higher status groups given the same level of academic performance. In Hungarian schools, students usually are largely aware of their classmates' grades. Hence, we can assume that grades serve as important signals regarding peers' abilities. Grow et al. (2016) analyzed ability perceptions among Hungarian secondary school students and found that Roma students were less likely than non-Roma students to be perceived as clever by their classmates, but did not find such a difference between girls and boys. Grow and his colleagues, however, have not controlled for students' grades in their analysis, only for peers' perceptions of who have good grades in the class. We argue that controlling for the exact grades extends this analysis. On one hand, the peer perception of who have good grades in the class is a binary variable in contrast to our continuous measure of academic achievement. On the other hand, peer perceptions of who have good grades in the class might be similarly biased as peer perceptions of abilities, resulting in a stronger association between the two measures than between grades and ability perceptions.



Third, we consider that students' ability perceptions are interdependent in compound ways. Developmental theories and empirical findings suggest that as adolescents mature, their social environment exerts a stronger influence on them and peers' opinions become especially important (Hartup, 1993). In school, classmates and friends in particular are the relevant peers. For instance, students might develop the same opinion concerning the abilities of classmates (Hughes & Zhang, 2007; Váradi, 2014); they might reciprocate favorable or unfavorable attributions; or simply may follow the crowd and adjust their ability perceptions to that of the majority in the classroom. For these reasons of nonindependence, we follow Grow et al. (2016) and model ability perceptions as social network processes with the use of ERGMs. ERGMs allow us to investigate the effects of gender and ethnicity on ability perceptions, and control for interdependencies between students' perceptions.

## Method

### *Procedure*

Survey data were collected on site in the spring of 2015, among Roma and non-Roma Hungarian primary school students as part of an ongoing panel study.<sup>1</sup> Data from one wave were chosen because we were interested in the patterns of ability perceptions and not in how they change. Data from one particular wave (the fourth wave) were chosen because by this time we believed that social skills were necessarily developed among preadolescent participants to form ability assessments about their peers; because for this wave, grading and the measurement of ability perceptions were the closest in time; and because the perceptions and assessments of teachers (GPA) who were typically new in the fifth grade (Waves 1 and 2) are stabilized by this time. All participating students were enrolled in the sixth grade<sup>2</sup> ( $N = 1,054$  students, 53 classes in 34 schools in 28 settlements). The schools were located in the capital city ( $n = 5$ ), in towns ( $n = 9$ ), and in villages ( $n = 20$ ) in the central part of Hungary. The sampling aimed to ensure high variance with respect to ethnic composition of school classes. As a consequence, schools with a high proportion of low-status and Roma students were overrepresented in the sample.

Before the data collection took place, students and parents received an information letter describing the aim and procedure of the research. Parents were asked to indicate on a consent form whether they would allow their child to take part in the study. Students who had been granted parental permission (96.9%) filled out a self-administered tablet-based questionnaire during regular school lessons, under the supervision of trained research

assistants. Students were assured that their answers would be kept confidential and used for research purposes exclusively. They were also allowed to refuse to participate in the study.

### Participants

For the purpose of the present analysis, we selected those classes from the sample where the response rate reached 75%,<sup>3</sup> the number of participating students was higher than 10, students' school-registered grades were available to the researchers, and at least three self-declared Roma and three self-declared non-Roma students attended the class. Based on these selection criteria, our initial subsample consisted of 25 classes. Later, four more classes had to be excluded from the analysis due to convergence problems<sup>4</sup> (see details about model convergence in the "Analytical Strategy" section). Excluded classes were not significantly different from those included in terms of network density, class size, the proportion of self-declared Roma students in the class, and the proportion of male students in the class.

The final subsample comprised of 21 classes from 16 schools with a mean class size of 19 students ( $SD = 3.7$ ). In the final subsample, students were 13.1 years of age on average ( $SD = 0.8$ ) during the fourth wave of the data collection. Among students, 53.1% were female and 50% declared to be Roma. The mean proportion of boys was 47.7% ( $SD = 10.2$ , minimum = 33.3%, maximum = 68.8%), and the mean proportion of self-declared Roma students was 51.6% ( $SD = 19.4$ , minimum = 14.3%, maximum = 82.4%) in the classes.

### Measures

*Peer perceptions of being clever.* Students were provided with a list of all classmates and they were asked to nominate all classmates they considered clever. For each class, an adjacency matrix has been created, where a directed tie is present and coded as 1 if student  $i$  nominated student  $j$  as clever. Dyads where there were no nominations from  $i$  to  $j$  were coded as 0. These ties were used as the dependent variable in the ERGMs. Missing outgoing ties of students who were not present in the fourth wave (8.7%) were imputed with the unconditional mean (i.e., 0 if the network density is smaller than 0.5 and 1 if the density is higher than 0.5, see Huisman, 2009).

*Gender.* Students were asked to declare their gender. We included both the sender's and receiver's gender, and the interaction between these variables in

the analysis. While the boy sender parameter indicates whether boys are more or less likely to send nominations than girls, the boy receiver parameter shows whether boys are more or less likely to receive nominations. The interaction between these two variables represents whether boys are likely to nominate boys.

*Self-declared ethnicity.* In every wave of the data collection, students were asked to classify themselves as “Hungarian,” “Roma,” “both Hungarian and Roma,” or members of “another ethnicity.” Students who declared to be Roma or both Roma and Hungarian at least once<sup>5</sup> in the first four waves of the data collection were coded as Roma, students who never declared to be Roma or both Roma and Hungarian were coded as non-Roma.<sup>6</sup> For the 10 students who did not give valid answers on ethnicity, we imputed the missing data using the ethnic classification given by their headmaster.<sup>7</sup>

While the Roma sender parameter indicates whether Roma students are more or less likely to send nominations than non-Roma students, the Roma receiver parameter represents whether Roma students are more or less likely to receive nominations. The interaction between these two variables shows whether Roma students are likely to nominate Roma students.

*Ethnic peer perceptions.* Students were provided with a list of all classmates and they were asked to nominate whom they consider Roma. For each class, an adjacency matrix has been created, where, for each dyadic relation, 1 indicates that the respondent (sender) classified the given classmate (receiver) as Roma, and 0 indicates that the respondent did not consider the receiver as Roma. These ties were included as dyadic covariates to model the effect of ethnic perceptions in the analysis.

*GPA.* In the Hungarian educational system, students receive summary grades ranging from 1 (fail) to 5 (excellent) from every subject at the end of each semester. Students’ grades are mostly known by classmates as well; therefore, they can influence whom classmates consider as clever. Administrative data on summary grades from the end of the fall semester (January 2015) were collected from class records for each student, before the fourth wave of data collection. We calculated GPAs for every student based on the summary grades from five subjects: mathematics, literature, Hungarian grammar, history, and foreign language.<sup>8</sup> In the analysis, we controlled for the receiver’s GPA in each dyadic relation. Missing data on grades (2.8%) were imputed with grades received in the preceding (June 2014) or in the following semester (June 2015).

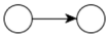
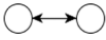
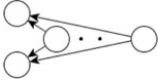
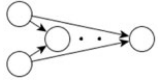
*Friendship.* Previous research showed that students are more likely to nominate their friends as clever than to nominate classmates who are not their friends (Grow et al., 2016). Moreover, Foschi (2000) proposed that positive and negative sentiments (e.g., like and dislike) can affect performance expectations and competence standards. Therefore, we controlled for friendship relations between classmates in the analysis. Controlling for friendship meant that we assumed that friends tended to nominate each other as clever and we were interested in status generalization and ability perceptions that go beyond these ties. Students were asked to nominate who their friends are in the class. For each class, a friendship matrix has been created, where a directed friendship tie is present if there is a “He or she is my friend” nomination from individual  $i$  to  $j$ . Friendship ties were included as dyadic covariates in the ERGMs.

*Structural effects.* The interdependencies of students’ ability perceptions are modeled by structural parameters. The arc parameter represents the students’ baseline tendency to nominate others as clever. Beyond this baseline tendency, we controlled for three structural parameters in the ERGMs. The reciprocity parameter models whether students tend to reciprocate each other’s nominations. Reciprocity is a general pattern in social networks (Snijders, 2002) and has been identified as significant also in ability perceptions (Grow et al., 2016). The shared in-ties parameter indicates whether it is likely to occur that students are nominated as clever by the same classmates. A positive shared in-ties parameter would imply similarity in receiving clever nominations from classmates. The shared out-ties parameter indicates whether it is likely to occur that students nominate the same classmates as clever. A positive shared out-ties parameter would imply similarity in ability perceptions in the classroom that is beyond other effects in the model. We experimented with models including additional structural parameters as well (see details in Footnote 10), but not all models converged with these parameters. The graphical representations of the structural parameters can be found in Table 2.

### *Analytical Strategy*

Students’ opinions about their classmates’ abilities are not independent from their peers’ opinions. The effects of actor attributes such as gender and ethnicity might thus be overestimated without controlling for these endogenous processes. Therefore, data were analyzed using ERGMs (Lusher et al., 2013; Robins et al., 2007), which explicitly model the dependences among nominations.

**Table 2.** Description and Graphical Representation of the Structural Parameters Included in the ERG Models.

Parameter	MPNet name	Description	Graphical representation
Arc	arc	Occurrence of ties	
Reciprocity	reciprocity	Occurrence of reciprocated ties	
Shared in-ties	A2P-D	Structural equivalence based on in-ties (being nominated by the same students)	
Shared out-ties	A2P-U	Structural equivalence based on out-ties (nominating the same students)	

Note. ERG = exponential random graph.

The dependent variable is the directed tie between students: Its value is 1 if student *i* nominated student *j* as clever and 0 otherwise. Possible independent variables include binary, categorical, and continuous individual attributes, dyadic covariates, and network configurations representing endogenous structural processes of the network. The signs of the parameters show whether a given network configuration is more or less likely to occur (positive and negative parameter values, respectively) than we would expect by chance.

Attribute-based parameters in the model show whether students with higher values on the attribute are more likely to send (sender effect) or receive (receiver effect) nominations than students with lower values on that attribute. The GPA receiver parameter, for instance, shows whether students with higher grades are more likely than students with lower grades to be nominated as clever, net of the effects of all other parameters included in the model. Similarly, the boy sender parameter indicates whether boys are more likely than girls to send nominations, whereas the boy receiver parameter shows whether boys are more likely than girls to receive nominations. The interaction between boy sender and boy receiver parameters models whether boys are likely to nominate boys. By considering these parameter estimates simultaneously, conditional ORs for each type of dyad (e.g., boy-girl, girl-boy, boy-boy nominations) can be calculated and compared with a reference category (e.g., girl-girl nominations). The hypotheses can be tested by the pairwise comparison of the relevant ORs. To assess whether there are statistical significant differences between the ORs, additional Wald tests are carried out.

To estimate our ERGMs, we used the MPNet program (Wang, Robins, Pattison, & Koskinen, 2014). MPNet estimates the parameters via Monte Carlo maximum likelihood methods (Snijders, 2002). The estimation procedure converges if the simulated networks are similar enough to the observed graph, which is expressed by a  $t$  ratio. After convergence is reached, the goodness of fit (GOF) measures of the models are assessed (Koskinen & Snijders, 2013). First, we estimated ERGMs with the configurations described before for each class separately. Then, we undertook a meta-analysis using the “metafor” R package (Viechtbauer, 2010) by testing whether the values of the parameters significantly differed from 0, indicating general tendencies in the networks across classes.

We estimated three different types of models based on the different operationalization of students' ethnicity. In Model 1, the *self-declared* ethnicity of the sender and the receiver, and the interaction between these two variables were included. In Model 2, the self-declared ethnicity of the sender was included, and we used Roma perception as a *dyadic covariate* to capture the ethnicity of the receiver. We also included an interaction term between the self-declared ethnicity of the sender and the perceived ethnicity of the receiver. In Model 3, the self-declared ethnicity of both the sender and the receiver, the perceived ethnicity of the receiver, and the interactions between these variables were included.

## Results

### Descriptive Analysis

Table 3 presents the descriptive statistics of the dependent and independent variables. The average density<sup>9</sup> of the clever nomination network is 32% ( $SD = 10\%$ ) across the classes. On average, students are nominated by 5.7 classmates as clever. Girls are significantly more often nominated as clever than boys ( $z = -4.57, p < .001$ ). Self-declared non-Roma students are significantly more often nominated as clever than self-declared Roma students ( $z = -5.17, p < .001$ ). There are no significant differences among the groups, however, with regard to the tendency of nominating others as clever.

The students' mean GPA obtained at the end of the fall semester is 2.95 ( $SD = 1.06, 1 = \text{fail}, 5 = \text{excellent}$ ). On average, girls have higher GPAs than boys ( $z = -4.49, p < .001$ ), and self-declared non-Roma students receive higher GPAs than self-declared Roma students ( $z = -8.02, p < .001$ ). Not surprisingly, there is a strong positive correlation between GPA and being nominated as clever ( $r = .742, p < .001$ ).

**Table 3.** Descriptive Statistics About the Dependent and Independent Variables Among Girls, Boys, Roma, and Non-Roma.

	Girls		Boys		Roma		Non-Roma	
	$\bar{X}$	<i>SD</i>	$\bar{X}$	<i>SD</i>	$\bar{X}$	<i>SD</i>	$\bar{X}$	<i>SD</i>
Clever indegree	6.71	4.73	4.55	3.49***	4.61	3.86	6.78	4.50***
Clever outdegree	5.75	4.53	5.63	4.79	6.09	4.84	5.30	4.43
Friendship indegree	5.33	2.71	4.96	2.52	5.46	2.64	4.86	2.59*
Friendship outdegree	4.98	4.07	5.36	4.66	5.91	4.66	4.41	3.90**
Roma perception indegree	5.68	5.67	7.19	6.07*	10.76	4.48	2.02	3.36***
Roma perception outdegree	6.28	4.13	6.51	5.21	7.31	5.05	5.47	4.05***
GPA	3.17	1.03	2.69	1.04***	2.52	0.95	3.37	0.99***

Note. *N* = 392 students, 21 classes. GPA = grade point average.

†*p* < .1. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001 for a Mann–Whitney test of differences in mean ranks.

The average density of the friendship network is 30% (*SD* = 8%) across the classes. On average, students are nominated by 5.2 classmates as being a friend. Whereas there are no significant differences in the indegrees and outdegrees based on students’ gender, self-declared Roma students more often send ( $z = -3.16, p < .01$ ) and receive ( $z = -2.03, p < .05$ ) friendship nominations than self-declared non-Roma students.

The data show that although self-declared Roma students are classified as Roma more often than non-Roma students ( $z = -14.15, p < .001$ ), they are not consistently classified as Roma by their peers.

### Meta-Analysis of the ERGMs

Table 4 presents the results of the meta-analysis of the separate ERGMs. The arc parameter represents a baseline tendency for sending nominations, and its negative parameter value across the three models reflects the low density of the clever nominations. The reciprocity parameter is not statistically significant from zero, indicating that the occurrence of mutual nominations is not more or less likely than expected by chance, given the inclusion of the set of further explanatory variables. The nonsignificance of reciprocity effect is probably the result of two contradicting mechanisms: the mutual acknowledgment of abilities in some dyadic relations and the realization of superiority in other dyadic relations. The positive shared in-ties parameter shows that some students are nominated as clever by the same classmates or in other words, there is similarity in receiving clever nominations. The negative

Table 4. Meta-Analysis of Exponential Random Graph Models.

	Model 1		Model 2		Model 3	
	Estimate	SE	Estimate	SE	Estimate	SE
Structural parameters						
Arc	-6.521	0.506	-6.222	0.440	-6.491	0.500
Reciprocity	-0.108	0.141	-0.140	0.115	-0.148	0.129
Shared in-ties (A2P-D)	0.571	0.123	0.547	0.115	0.553	0.116
Shared out-ties (A2P-U)	-0.363	0.045	-0.338	0.048	-0.358	0.048
Gender						
Boy sender	-0.540	0.129	-0.545	0.133	-0.580	0.137
Boy receiver	-0.999	0.182	-0.953	0.179	-1.076	0.188
Boy Sender $\times$ Receiver	1.112	0.218	1.076	0.228	1.139	0.230
Roma ethnicity						
Roma sender	-0.322	0.144	-0.263	0.134	-0.411	0.165
Roma receiver (self-declared)	-0.040	0.205			0.216	0.246
Roma Sender $\times$ Receiver (self-declared)	0.976	0.285			0.581	0.344
Roma receiver (peer perceived)			-0.382	0.223	-0.530	0.272
Roma Sender $\times$ Receiver (peer perceived)			0.992	0.265	0.874	0.315
Control variables						
GPA receiver	1.761	0.176	1.699	0.162	1.765	0.171
Friendship	1.171	0.142	1.233	0.156	1.195	0.152

Note.  $N = 392$  students, 21 classes. In Model 1, receivers' self-declared ethnicity was included; in Model 2, dyadic peer nominations representing peers' perceptions of receivers' ethnicity were used. In Model 3, both self-identification and peers' perceptions were considered. GPA = grade point average.



**Table 5.** The Effect of Gender on Ability Perceptions.

		Receiver's gender	
		Girl	Boy
Model 1	Girl	1.000	0.368***
	Boy	0.583***	0.652**
Model 2	Girl	1.000	0.386***
	Boy	0.580***	0.656*
Model 3	Girl	1.000	0.341***
	Boy	0.560***	0.597**

Note. Conditional odds ratios are presented, reference category: girl-girl nominations.  
 † $p < .1$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

shared out-ties parameter, however, reflects that given the set of explanatory variables, once students agreed to nominate the same classmate as clever, it is unlikely that they have a further confirmatory tendency to agree upon the ability perceptions of others. The positive GPA receiver parameter indicates that students with higher grades are more likely to be considered clever than students with lower grades. The positive parameter for the friendship tie shows that students are more likely to nominate their friends as clever than classmates who are not their friends.<sup>10</sup>

*Assessing the hypotheses with regard to gender.* Based on the parameter estimates obtained in the ERGMs for boy sender, boy receiver, and the interaction between boy sender and boy receiver, we calculated conditional ORs for each kind of dyad compared with the girl-girl reference category. These conditional ORs are presented in Table 5 and show whether a given dyad occurs significantly more or less likely than nominations in the reference category (between two girls). In order to draw conclusions regarding statistically significant differences between the likelihoods of any other two dyads, we conducted additional Wald tests (not presented in the tables).

Based on double standards theory we have expected that controlling for grades, girls are less likely than boys to be considered clever by their classmates (Hypothesis 1a). Contrary to this expectation, boys are similarly likely to nominate both girls and boys as clever (Wald tests: ORs: 0.58 vs. 0.65,  $z = 0.60$ ,  $p = .55$  in Model 1; ORs: 0.58 vs. 0.66,  $z = .55$ ,  $p = .58$  in Model 2; ORs: 0.56 vs. 0.60,  $z = .34$ ,  $p = .74$  in Model 3), whereas girls are less likely to nominate boys than girls as clever (OR = 0.37 in Model 1, OR = 0.39 in Model 2, OR = 0.34 in Model 3,  $p < .001$ ).

We have also anticipated that controlling for grades, girls are more likely than boys to consider their female peers as clever (Hypothesis 2a). In other words, we assumed that boy-girl clever nominations are less likely than nominations between girls. Although boy-girl nominations are indeed less likely than nominations between girls (OR = 0.58 in Model 1, OR = 0.58 in Model 2, OR = 0.56 in Models 3,  $p < .001$ ), girls are actually more likely to nominate other girls compared with the likelihood of any other dyad (including boy-boy nominations). Thus, with regard to gender, the results are not in line with the predictions based on double standards theory.

Based on social identity theory, we have formulated the hypothesis that students are more likely to consider their in-group (same-gender) peers than out-group peers as clever (Hypothesis 3a). In line with this expectation, girl-boy (OR = 0.37 in Model 1, OR = 0.39 in Model 2, OR = 0.34 in Model 3,  $p < .001$ ) and boy-girl (OR = 0.58 in Model 1, OR = 0.58 in Model 2, OR = 0.56 in Model 3,  $p < .001$ ) nominations are indeed less likely than nominations between girls. Girl-boy nominations are also less likely than nominations between boys (Wald tests: ORs: 0.37 vs. 0.65,  $z = 4.19$ ,  $p < .001$  in Model 1; ORs: 0.39 vs. 0.66,  $z = 3.29$ ,  $p < .001$  in Model 2; ORs: 0.34 vs. 0.60,  $z = 3.39$ ,  $p < .001$  in Model 3). In contrast to the hypothesis, however, the likelihood of boy-girl nominations does not significantly differ from the likelihood of nominations between boys (Wald tests: ORs: 0.58 vs. 0.65,  $z = 0.60$ ,  $p = 0.55$  in Model 1; ORs: 0.58 vs. 0.66,  $z = 0.55$ ,  $p = 0.58$  in Model 2; ORs: 0.56 vs. 0.60,  $z = 0.34$ ,  $p = 0.74$  in Model 3). The results are thus only partially in line with the predictions of social identity theory (see the overview of the hypotheses in Table 1).

*Assessing the hypotheses with regard to ethnicity.* Based on the parameter estimates obtained in the ERGMs for Roma sender, Roma receiver (self-declared), Roma receiver (peer perceived), and the interaction between Roma sender and Roma receiver (both self-declared and peer perceived), we calculated conditional ORs for each kind of dyad compared with the non-Roma–non-Roma reference category. These conditional ORs are presented in Table 6 and show whether a given dyad occurs significantly more or less likely than nominations in the reference category (between two non-Roma students). In order to draw conclusions regarding statistically significant differences between the likelihoods of any other two dyads, we conducted additional Wald tests (not presented in the tables).

We have anticipated that controlling for grades, Roma students are less likely than non-Roma students to be considered clever by their classmates (Hypothesis 1b). Thus, we assumed, that Roma-Roma clever nominations are less likely than Roma–non-Roma nominations, and that non-Roma–Roma

**Table 6.** The Effect of Ethnicity on Ability Perceptions ( $n = 347$ ).

		Receiver's ethnicity			
Sender's self-declared ethnicity		self-declared Non-Roma	self-declared Roma		
Model 1	Non-Roma	1.000	0.961		
	Roma	0.724*	1.848*		
Model 2	Non-Roma	1.000	0.682†		
	Roma	0.769*	1.414		
		Non-Roma	“Consistent” Roma (both perceived and self-declared)	Only self-declared Roma	Only perceived Roma
Model 3	Non-Roma	1.000	0.731	0.341	0.589†
	Roma	0.663*	2.074*	1.470	0.935

Note. Conditional odds ratios are presented, reference category: non-Roma–non-Roma nominations.

† $p < .1$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

nominations are less likely than nominations between two non-Roma students. No significant ethnic differences have been found when non-Roma students nominated perceived non-Roma students versus perceived Roma students as clever; however, a statistical trend is observed in this relationship (OR = 0.68,  $p < .1$  in Model 2). We do not find significant difference, furthermore, if self-declared ethnicity is considered in Model 1 (OR = 0.961,  $p = .85$ ). Contrary to the expectation of Hypothesis 1b, moreover, Roma students are more likely to nominate Roma peers than non-Roma peers as clever both if self-declared ethnicity is considered (Wald test: ORs: 1.84 vs. 0.72,  $z = 3.47$ ,  $p < .001$  in Model 1) and if the sender's perception about the receivers' ethnicity is included in the model as a dyadic covariate (Wald test: ORs: 1.41 vs. 0.77,  $z = 5.20$ ,  $p < .001$  in Model 2).

We have also expected that controlling for grades, Roma students are more likely than non-Roma students to consider their Roma peers as clever (Hypothesis 2b). In other words, we assumed that non-Roma–Roma clever nominations are less likely than nominations between Roma students. Non-Roma–Roma nominations are indeed less likely than nominations between Roma students both if receiver's self-declared ethnicity is considered (Wald test: ORs: 0.96 vs. 1.84,  $z = 2.90$ ,  $p < .01$  in Model 1) and if the sender's perception about the receivers' ethnicity is included in the model (Wald test:

ORs: 0.68 vs. 1.41,  $z = 3.38$ ,  $p < .001$  in Model 2). Interestingly, however, after controlling for grades, Roma students are more likely to nominate Roma peers as clever, than the likelihood of any other dyad (including non-Roma–non-Roma nominations). With regard to ethnicity, the results are not consistent with predictions of the double standards theory as no significant effects have been found. Nevertheless, a statistical trend has been found, where non-Roma students are less likely to nominate those students as clever who they perceived to be Roma as compared with those they perceived to be non-Roma.

Based on social identity theory, we have formulated the hypothesis that students are more likely to consider their in-group (same-ethnic) peers than out-group peers as clever (Hypothesis 3b). In line with this expectation, Roma–non-Roma (Wald tests: ORs: 0.72 vs. 1.84,  $z = 3.47$ ,  $p < .001$  in Model 1; ORs: 0.77 vs. 1.41,  $z = 5.20$ ,  $p < .001$  in Model 2) and non-Roma–Roma (Wald tests: ORs: 0.96 vs. 1.84,  $z = 2.90$ ,  $p < .01$  in Model 1; ORs: 0.68 vs. 1.41,  $z = 3.38$ ,  $p < .001$  in Model 2) nominations are indeed less likely than nominations between Roma students, independently of how we measure receiver's ethnicity. Roma–non-Roma nominations are also less likely than nominations between non-Roma students (OR = 0.72,  $p < .05$  in Model 1; OR = 0.77,  $p < .05$  in Model 2; OR = 0.66,  $p < 0.05$  in Model 3). No significant ethnic differences have been found when non-Roma students nominated non-Roma students versus Roma students as clever; however, a statistical trend is observed in this relationship if ethnic perceptions are taken into account (OR = 0.68,  $p < .1$  in Model 2).

In sum, the findings are mostly in line with the hypothesis derived from social identity theory (see the overview of the hypotheses in Table 1). It is important to note, moreover, that compared with students who are consistently identified as Roma (both self-declared and perceived) and who are self-declared Roma but not perceived as Roma, Roma students are less likely to nominate those students as clever whom they perceive as Roma, but who identify themselves as non-Roma (OR = 2.07 for consistent Roma, OR = 1.47 for only self-declared Roma, OR = 0.94 for only perceived Roma, Model 3).

The meta-analysis indicated significant heterogeneity among the classes with regard to every parameter except for reciprocity in Model 2 (see Table A1 in the appendix). Therefore, we tested whether the proportion of boys and the proportion of Roma students in the class moderated the effects of gender and ethnicity in the ERGMs. We did not find any significant interaction effects.

In an additional analysis, we calculated conditional ORs taking into account both gender and ethnicity at the same time. Results can be found in

Table A2 in the appendix. The reference category is the non-Roma girl–non-Roma girl nomination, and the ORs show the likelihoods of the other types of dyads compared with this reference category.<sup>11</sup> Results suggest that for girls, gender seems to be a more important characteristic of ability perceptions than ethnicity. Both Roma and non-Roma girls are more likely to nominate (Roma and non-Roma) girls than boys as clever. For boys, ethnicity seems to be more important than gender. Non-Roma boys are more likely to nominate non-Roma students (girls and boys) than Roma students (girls and boys) as clever. Similarly, Roma boys are more likely to nominate Roma students (girls and boys) than non-Roma students (girls and boys) as clever. The joint analysis of gender and ethnicity also supports the predictions of social identity theory: Every group is most likely to nominate those students as clever who belong to their in-group in terms of both gender and ethnicity.

## Discussion

In this study, we examined ability perceptions among 13-year-old Hungarian primary school students. We investigated how status characteristics and social identity processes play a role in forming students' judgments of their peers' abilities. We analyzed ability perceptions with ERGMs as we posited that they are interdependent with each other. Furthermore, we controlled for publicly observable grades because students' ability perceptions are likely to be influenced by the teachers' evaluation.

Based on double standards theory we expected that controlling for grades, female and Roma minority students are less likely than male and non-Roma students to be considered as clever by their classmates (Hypotheses 1a and 1b). Furthermore, we hypothesized that although double standards are set for high- and low-status students, low-status students are less likely to accept them. Therefore, we expected that female and Roma students are more likely than male and non-Roma students to consider their female and Roma peers as clever, respectively (Hypotheses 2a and 2b).

Moreover, we contrasted predictions of status characteristics theory with that of social identity theory and in-group favoritism. Based on the latter theoretical considerations, we formulated the hypotheses that controlling for grades, students are more likely to consider their in-group members than their out-group members as clever, in terms of both gender and ethnicity (Hypotheses 3a and 3b).

Our findings are mostly in line with the predictions of social identity theory. Controlling for grades, students are more likely to nominate their in-group peers than classmates from the out-group as clever. One exception has been found: Boys are similarly likely to nominate both boys and girls as

clever. No significant ethnic differences were found when non-Roma students nominated non-Roma students versus Roma students as clever. Nevertheless, a statistical trend was observed in this relationship if ethnic perceptions were taken into account.

The findings did not strongly support double standards theory. With regard to gender, one explanation might be that students' main tasks in primary school are considered feminine (Foschi, 1996; Foschi et al., 1994). Whereas there are sharp differences in the test scores of Roma and non-Roma students with Roma students having significantly lower test scores than their non-Roma peers (Kertesi & Kézdi, 2011), girls increasingly outperform boys in school. Their advantage in reading literacy has grown in the last decades, and they have caught up to boys also in science and mathematics. According to the latest PISA (Program for International Student Assessment) results, for instance, 15-year-old Hungarian female students significantly outperformed their male peers in reading comprehension, while they did not significantly underperform boys on the science and mathematical literacy tests.<sup>12</sup> Thus, it is possible that school performance is considered rather a feminine task also among early adolescents.

Moreover, there are further important differences between gender and ethnicity that might be considered. Whereas ethnic self-identification and classification often changes in different contexts and over time (Saperstein & Penner, 2012; Telles & Paschel, 2014), gender is a more stable characteristics of individuals. In the case of ethnicity, reverse causality might also work: Students can be perceived as Roma because they are not considered as clever. To disentangle the effect of ethnic perceptions on ability perceptions and the effect of ability perceptions on how a student's ethnicity is perceived by their classmates, future research that models cross-network effects is necessary.

We have interesting results derived from our innovative measurement of ethnicity. We have found that Roma students are less likely to consider those peers as clever whom they perceive as Roma, but who identify themselves as non-Roma, than those Roma peers who identify with the Roma group. This finding is in line with previous studies, which showed that Roma students are likely to dislike and bully peers whom they perceive as Roma, but who, at the same time, do not identify themselves as Roma (Boda & Néray, 2015; Kisfalusi, 2016). Based on our results, self-declared Roma students differentiate themselves from peers whom they perceive as Roma, but who themselves identify as non-Roma through ability perceptions.

Analyzing ability perceptions among Hungarian secondary school students, Grow et al. (2016) found that whereas students' gender did not play a significant role in ability perceptions, self-declared Roma students were less likely to be perceived as able than self-declared non-Roma students.

In contrast, we found that both gender and ethnicity play a role in ability perceptions. The difference in the findings with regard to gender can be explained by the changing salience of gender between early adolescence and adolescence. Peer groups of children and early adolescents are more likely to be segregated than those of adolescents (Maccoby, 1998; Mehta & Strough, 2009; Poulin & Pedersen, 2007; Shrum et al., 1988). Gender might thus play a more important role in in-group processes among younger than among older adolescents, which supports the synthesis of social identity and developmental theories regarding gender stereotypes about academic abilities in early adolescence (Kurtz-Costes, Copping, Rowley, & Kinlaw, 2014).

Moreover, while most studies find that gender stereotypes become less flexible during adolescence, school transitions might reverse this process and gender stereotypes become more flexible (Alfieri, Ruble, & Higgins, 1996). Evidently, other important developmental and social processes such as the dynamics of romantic relations could also be influential for the changing role of gender stereotypes.

We have also found that students having higher grades are more likely to be perceived as clever than students having lower grades. This finding is in line with previous research that showed that school grades and other types of teacher evaluations play an important role in ability perceptions. Gest et al. (2008), for instance, showed that grades are robust predictors of students' academic reputations among their peers in elementary school classes. Rosenholtz and Rosenholtz (1981) also found that teacher evaluations influence peer ratings on school ability.

Our finding that friends are more likely to be perceived as clever is also in line with theoretical predictions and previous research findings. Foschi (2000) argued that feelings of liking and disliking might affect performance expectations, while Rosenholtz and Simpson (1984b) proposed that students might attribute higher ability levels to their friends due to greater personal knowledge and sympathy. Grow et al. (2016) indeed found that adolescents are more likely to perceive their friends as clever compared with classmates who are not their friends. Similarly, Gest et al. (2008) showed that peer academic reputations are correlated with peer social preference among elementary school students.

Controlling for friendship relations was important in our analysis because early adolescents are likely to form same-gender and same-ethnic peers (Clark & Ayers, 1992; Moody, 2001; Shrum et al., 1988; S. Smith et al., 2014; Stark & Flache, 2012), and as it is shown in the analysis, they are likely to nominate their friends as clever. Without controlling for friendship, we would not be able to rule out the alternative explanation that students are likely to nominate their in-group peers as clever because they are likely to befriend

them and nominate their friends as clever. In this study we showed that students are likely to nominate their in-group peers as clever even if they are not their friends.

The significance of structural parameters in our analyses demonstrated the nonindependence of ability perceptions and the appropriateness of the use of social network methodology. The positive shared in-ties parameter indicates that once two students received a nomination of being clever by a third individual, they are likely to share further incoming nominations. This means that students nominated as clever likely share their nominators. Controlling for the shared in-ties mechanism, however, the effect of the shared out-ties parameter is negative. The latter indicates that once students agreed on ability perceptions of a third individual, they are not likely to share further outgoing nominations.

Our study is not without limitations. Previous studies showed that organizational features of the classes can affect students' ability perceptions (Filby & Barnett, 1982; Rosenholtz & Rosenholtz, 1981; Rosenholtz & Simpson, 1984a, 1984b). Rosenholtz and Simpson (1984a) found, for instance, that there is greater inequality among students' ability perceptions and higher consensus about each students' school ability in classrooms if the concept of academic ability is narrowly defined. In classrooms in which ability can be evaluated based on multiple skills and performance dimensions, the stratification of ability perceptions is lower. Moreover, Moody (2001) showed that school organizational features influence students' inter-ethnic relations. Similarly, organizational features might affect ability perceptions among different ethnic and gender groups. In our study, however, we did not focus on organizational features of the classrooms in the analysis. Different characteristics of the classrooms might affect students' ability perceptions differently and explain the significant between-classroom variance of the parameters estimated in the meta-analysis. Future research should investigate the role of classroom features in ability perceptions among cross-gender and cross-ethnic peers.

Furthermore, Foschi (1996) described the conditions under which double standards might be activated. One of the conditions suggests that students not only should know each other's grades but they should also think that these grades are unbiased. Teachers, however, might hold biased perceptions of the abilities of certain ethnic or gender groups. Moreover, grades might be affected by students' behavior (Dee, 2005; Pedulla, Airasian, & Madaus, 1980) or teachers' discriminative grading practices (Burgess & Greaves, 2013; Lavy, 2008; Lindahl, 2007). If these biases occur and students are aware of them, then this condition of the theory might not be fulfilled.



The intersectional approach suggests that gender and ethnicity often interact in person perception (Ghavami & Peplau, 2013; Goff, Thomas, & Jackson, 2008; Johnson, Freeman, & Pauker, 2012). Whereas Blacks, for instance, are stigmatized with negative stereotypes about their competence and intelligence, these stereotypes hold especially for Black men (Steinbugler, Press, & Dias, 2006; Wingfield, 2009). Gender and Roma ethnicity might similarly intersect. In an ERGM framework, however, testing interaction effects between gender and ethnicity would have resulted in an inflated number of parameter estimates (since every attribute is captured by three different parameters) with decreased statistical power. Therefore, we only concentrated on the main effects of these attributes. Additive effects of gender and ethnicity showed more evidence for favoring in-group peers than for the existence of double standards, but future studies should focus more on the intersection of gender and ethnicity in the formation of ability perceptions in the Hungarian context.

Despite its limitations, the empirical findings in this study provide a new understanding of ability perceptions in classrooms. Our data set provided a unique opportunity to analyze students' ability perceptions net of the effect of teachers' performance evaluations. Our findings have shown that besides school grades, gender, ethnicity, and peers' opinions play a considerable role in the formation of ability perceptions among classmates. Moreover, by using a novel way to measure students' ethnicity we highlighted important differences between the effects of ethnic self-identification and peers' ethnic perceptions.

## Appendix

Table A.I. Meta-Analysis of Exponential Random Graph Models With Between-Group Statistics.

	Model 1				Model 2				Model 3										
	Estimate	SE	p	Tau <sup>2</sup>	Q	p	Estimate	SE	p	Tau <sup>2</sup>	Q	p	Estimate	SE	p	Tau <sup>2</sup>	Q	p	
Structural parameters																			
Arc	-6.521	0.506	<.001	3.112	51.325	<.001	-6.222	0.440	<.001	2.261	52.829	<.001	-6.491	0.500	<.001	2.859	47.208	.001	
Reciprocity	-0.108	0.141	.443	0.202	41.597	.003	-0.140	0.115	.222	0.076	29.157	.085	-0.148	0.129	.253	0.135	33.475	.030	
Shared in-ties (A2P-D)	0.571	0.123	<.001	0.277	142.836	<.001	0.547	0.115	<.001	0.236	132.161	<.001	0.553	0.116	<.001	0.241	132.729	<.001	
Shared out-ties (A2P-U)	-0.363	0.045	<.001	0.026	57.116	<.001	-0.338	0.048	<.001	0.030	61.859	<.001	-0.358	0.048	<.001	0.029	58.601	<.001	
Gender																			
Boy sender	-0.540	0.129	<.001	0.176	44.873	.001	-0.545	0.133	<.001	0.194	46.786	.001	-0.580	0.137	<.001	0.208	47.306	.001	
Boy receiver	-0.999	0.182	<.001	0.322	38.625	.007	-0.953	0.179	<.001	0.321	40.002	.005	-1.076	0.188	<.001	0.352	40.071	.005	
Boy Sender × Receiver	1.112	0.218	<.001	0.398	34.806	.021	1.076	0.228	<.001	0.491	37.923	.009	1.139	0.230	<.001	0.494	37.306	.011	
Roma ethnicity																			
Roma sender	-0.322	0.144	.025	0.202	44.042	.002	-0.263	0.134	.050	0.223	52.644	<.001	-0.411	0.165	.013	0.302	52.420	<.001	
Roma receiver	-0.040	0.205	.847	0.364	35.478	.018							0.216	0.246	.380	0.567	36.985	.007	
Roma Sender × Receiver (self-declared)	0.976	0.285	.001	0.869	42.106	.003							0.581	0.344	.091	1.269	42.568	.002	
Roma Sender × Receiver (self-declared)																			
Roma receiver (peer perceived)							-0.382	0.223	.086	0.533	45.240	.001	-0.530	0.272	.051	0.840	50.294	<.001	
Roma Sender × Receiver (peer perceived)							0.992	0.265	<.001	0.687	39.987	.005	0.874	0.315	.006	0.934	38.241	.008	
Control variables																			
GPA receiver	1.761	0.176	<.001	0.492	95.224	<.001	1.699	0.162	<.001	0.407	89.170	<.001	1.765	0.171	<.001	0.446	86.547	<.001	
Friendship	1.171	0.142	<.001	0.291	93.217	<.001	1.233	0.156	<.001	0.369	108.613	<.001	1.195	0.152	<.001	0.338	98.616	<.001	

Note.  $N = 392$  students, 21 classes. Estimated parameters, estimated standard errors, estimated amount of total heterogeneity, and test statistics for heterogeneity are present. In Model 1, receivers' self-declared ethnicity was included; in Model 2, dyadic peer nominations representing peers' perceptions of receivers' ethnicity were used. In Model 3, both self-identification and peers' perceptions were considered.

**Table A2.** The Joint Analysis of the Effects of Gender and Ethnicity on Ability Perceptions.

Sender's gender and ethnicity		Receiver's gender and ethnicity											
		Non-Roma girl	Roma girl	Non-Roma boy	Roma boy	Only self-declared Roma girl	Only self-declared Roma boy	Only perceived Roma girl	Only perceived Roma boy				
Model 1	Non-Roma girl	1.000	0.961	0.368	0.354								
	Roma girl	0.725	1.848	0.267	0.680								
	Non-Roma boy	0.583	0.560	0.652	0.627								
	Roma boy	0.422	1.077	0.473	1.206								
Model 2	Non-Roma girl	1.000	0.682	0.386	0.263								
	Roma girl	0.769	1.415	0.296	0.546								
	Non-Roma boy	0.580	0.396	0.656	0.448								
	Roma boy	0.446	0.820	0.504	0.928								
Model 3	Non-Roma girl	1.000	0.341	0.731	0.249	Only self-declared Roma girl	0.241	Only self-declared Roma boy	0.423	Only perceived Roma girl	0.589	Only perceived Roma boy	0.201
	Roma girl	0.663	0.226	2.075	0.708	“Consistent” Roma (both perceived and self-declared) girl	1.471	“Consistent” Roma (both perceived and self-declared) boy	0.502	Only perceived Roma girl	0.935	Only perceived Roma boy	0.319
	Non-Roma boy	0.560	0.596	0.409	0.436		0.695		0.740		0.330		0.351
	Roma boy	0.371	0.395	1.162	1.237		0.824		0.877		0.524		0.558

Note. Conditional odds ratios are presented, reference category: non-Roma girl–non-Roma girl nominations.

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## **Notes**

1. The first four waves of the data collection were conducted in the fall of 2013, in the spring and fall of 2014, and in the spring of 2015. At the time of conducting the analysis, data from the fifth (spring of 2016) and sixth waves (spring of 2017) were not available. The student questionnaire was almost identical in all waves. In this study, we use the variables measured at the fourth wave of the data collection, except for the variable “self-declared ethnicity,” which was constructed based on students’ self-declared ethnicity in the first four waves (see details in the “Measures” sections).
2. In the Hungarian educational system, primary school education lasts for 8 years and secondary school education lasts for 4 years. Although several secondary grammar schools offer 6-year or 8-year education, the majority of the students start secondary education in the ninth grade.
3. The overall participation rate in the included 21 classes is 91.3%. In statistical models for social networks, typically a 20% cut-off rate is used for missing data (Huisman, 2009; Ripley, Snijders, Boda, Vörös, & Preciado, 2017). In this study, only one class has a response rate below this threshold (with a 78.6% participation rate). We conducted additional analyses without this class and found no substantial differences in the results.
4. One class had to be excluded from the analysis due to convergence problems in all models. Two classes were excluded due to convergence problems in Model 2, and one class was excluded due to convergence problems in Model 3. We

repeated the meta-analysis by including these three classes in the models in which they converged ( $n = 24$  classes for Model 1,  $n = 22$  classes for Model 2), and obtained similar results as in the final analysis. These results suggest that the patterns of ability perceptions might be similar in the excluded classes as well.

5. Only 7.9% of the students consistently declared to be Roma only. In all, 12.8% declared to be Roma in some waves and both Roma and Hungarian in other waves, 5.4% declared to be both Roma and Hungarian in every wave, and 23.2% declared to be Roma and/or both Roma and Hungarian in some waves and Hungarian in other waves. These data are consistent with the phenomenon that many Hungarian Roma tend to declare both Roma and Hungarian identities if multiple choices are allowed (Kertesi & Kézdi, 2011; Simonovits & Kézdi, 2014).
6. Four students declared to belong to another ethnicity (Rumanian, Polish, Russian, Rumanian-Italian).
7. In the total sample, 92.2% of the students who were classified as Roma by the headmaster declared to be Roma, and 84.9% of the students who were classified as non-Roma by the headmaster declared to be non-Roma.
8. In Hungary, subjects in natural sciences such as physics, biology, and chemistry are incorporated in the curriculum at later grades.
9. The number of nominations present in the network divided by the number of all possible nominations.
10. As a rule of thumb, in exponential random graph models (ERGMs), the goodness of fit (GOF) of a configuration can be regarded as acceptable if the difference between the observed value and the mean over the simulated sample of graphs, divided by the standard deviation (the GOF  $t$  ratio), is not higher than 2 in absolute value (Koskinen & Snijders, 2013). In nine classes, the GOF procedure yielded  $t$  ratios higher than 2 for some omitted parameters. In seven classes, including the in-ties spread and/or out-ties spread parameters (parameters reflecting the dispersion of the in-ties and out-ties distribution, respectively) improved the GOF of the model. In these models, we obtained very similar parameter values for all other parameters as in our final models. Therefore, we do not present the results of these extended models in the table. We emphasize, however, that the value of the out-ties spread parameter was significantly positive based on the meta-analysis of these seven classes. Furthermore, we repeated the analysis without controlling for the friendship relation between students, and obtained similar results as in our final analysis.
11. To test whether the differences between the odds ratios are statistically significant, a series of pairwise comparisons using additional Wald tests should have been carried out. The results of this additional analysis should thus be interpreted with bearing in mind that differences might not necessarily be statistically significant.
12. See the PISA (Program for International Student Assessment) 2015 results at <https://nces.ed.gov/surveys/pisa/pisa2015/index.asp>

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## Author Biographies

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