Social Intelligence as a Predictor of Unpopularity

The Moderating Effect of Ethnicity

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Date: 12-06-2016

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Abstract

Popularity is an important and well-studied factor in social sciences. However, determinants of unpopularity have rarely been studied. Therefore this study examined the relation between unpopularity and social intelligence with ethnicity and academic achievement as potential moderators. It was hypothesized that unpopularity had a negative relation with social intelligence. Furthermore for the interaction effects of academic achievement and ethnicity it was hypothesized that there was a stronger negative relationship between social intelligence and unpopularity for the adolescents with lower academic achievement and for ethnic minorities. The participants of this study were 806 adolescents (353 boys, 453 girls; M age = 13.37, SD =.57) in Grade 8 of two secondary schools in the Netherlands. Bootstrap regression analyses revealed that there was a negative relationship between social intelligence and unpopularity. This indicated that unpopular participants were less socially intelligent. The results also indicated that there was an interaction effect of ethnicity. This indicated that there was a stronger relationship between less social intelligence and unpopularity for ethnic minorities. The interaction effect of ethnicity is a new finding and therefore highlights the importance of the role of ethnicity in relation to unpopularity.

Unpopular children are at risk for later maladjustment in adolescence and adulthood. Research indicates that there is a relationship between externalizing problems in adolescence and being unpopular (Laird, Jordan, Dodge, Pettit, & Bates, 2011). These unpopular children are more involved with antisocial peers during adolescence and this involvement with antisocial peers is correlated with more antisocial outcomes such as criminal and oppositional defiant behavior (Simons, Wu, Conger, & Lorenz, 1994). In addition, unpopular children are also at greater risk for dropping out of school (Parker & Asher, 1987), as adults they reveal poorer social functioning (Asher & Coie, 1990) and they are more likely criminal offenders (Parker & Asher, 1987). These results show that being unpopular could have severe outcomes in adolescence and young adulthood. It is therefore important to gain more inside into the determinants that are related to the popularity construct. Many studies focused on external factors such as socioeconomic status or attractiveness (Adler, Kless, & Adler, 1992), however, social-cognitive determinants of popularity, such as social intelligence may also play a significant role in relation to unpopularity. It is known that there is a relationship between popularity and social intelligence. Studies indicate that certain types of popular children show the most prosocial behavior (Van den Berg, Lansu, & Cillessen, 2015; Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010) and the popular children are seen by other children as the most prosocial children of the group (LaFontana & Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002). Most of the research has focused on the relationship between popular children and social intelligence, however, relatively little is known about the relationship between the unpopular children and their social intelligence. Therefore this study will focus on the relationship between unpopularity and social intelligence.

Popularity can be defined in two ways. First, sociometric popularity means being well-liked and well accepted by peers (Prinstein & Cillessen, 2003). The second definition, perceived popularity implies peers' perceptions of the social reputation, status and dominance of an individual in the peer group (Meijs et al., 2010; Prinstein & Cillessen, 2003). Individuals who are perceived as popular are not necessarily well-liked (Meisinger, Blake, Lease, Palardy, & Olejnik, 2007). On the other hand, individuals who score high on sociometric popularity are not always perceived as being popular (LaFontana & Cillessen, 1998). This implies that these two definitions need to be seen as different forms of popularity. The definition of unpopularity is seen as the opposite of popularity and refers to adolescents who are least liked and least popular.

Social intelligence is defined in many ways, however, the most wide-ranging definition is 'the ability to get along with people in general, being able to apply social

techniques and having knowledge of social matters' (Vernon, 1933). The more operational definition is the ability to interact in a socially acceptable way with others and the ability to avoid or solve conflicts appropriately (Merrel & Gimpel, 1998). Social intelligence can be identified by three factors: social information processing, social skills, and social awareness (Silvera, Matinussen, & Dahl, 2001).

There appears to be a relationship between social intelligence and popularity. Studies suggest that both types of popularity are positively linked to social intelligence. Sociometric popular children appear to have good social intelligence (LaFontana & Cillessen, 2002), are prosocial, and helpful to their peers (Coie & Kuperschmidt, 1983). Perceived popular children also appear to have good social intelligence, however, more likely will use these skills as social control in the peer group (Adler & Adler, 1998). There is also some evidence for a relationship between unpopular children and their social intelligence. LaFontana & Cillessen (2002) stated that unpopular children were described by their peers as unaware how to fit in with peers and seen as children who do not understand how to behave well in a peer group. The study of van den Berg, Lansu and Cillessen (2015) indicated that unpopular children showed less prosocial behavior than children who were seen as average or as highly perceived popular. These studies stated that popular children showed good social intelligence, while the unpopular children had the least social intelligence. Although these studies have included findings of unpopular children, they mainly focused on the results referring to determinants of popularity instead of unpopularity. Unpopularity is by its definition seen as the opposite of popularity, however, it appears that not all the determinants of (un)popularity are the same (van den Berg, Lansu and Cillessen, 2015; Xie, Boucher, Hutchins, & Cairns, 2006). This implies that being not popular is not necessarily the same as being unpopular. Being nominated as unpopular is different from not being nominated at all. For that reason it is important to look specifically at the predictors of unpopularity and possible interacting variables such as academic achievement and ethnicity.

There are several factors that could play a moderating role in the relationship between unpopularity and social intelligence. The relationship between unpopularity and social intelligence appears to differ for academic achievement. It is found that sociometric popularity positively correlates with intelligence (Newcomb, Bukowski, & Pattee, 1993) and academic achievement (Hatzichristou & Hopf, 1996). LaFontana & Cillessen found a correlation between perceived popularity and high academic achievement (LaFontana & Cillessen, 2002). Yet another study found the opposite, namely that low academic achievement was related to perceived popularity (Hopmeyer Gorman, Kim, &

Schimmelbusch, 2002). These findings show that the relationship between academic achievement and sociometric popularity is univocal, however with respect to the relationship between academic achievement and perceived popularity the results are mixed.

A second factor that could play a role as a moderator is ethnicity. The relationship between unpopularity and social intelligence appears to be different for ethnicity. The social identity theory of Tajfel (1982) substantiated the assumption that popularity is partly determined by ethnicity. The theory describes why ethnic majorities tend to see ethnic minorities as less well-liked and less popular. The theory states that people see themselves as part of a group and this determines how people see themselves and others. People divide other people who are the same in their group, in the *in-group*, and people who are different, in the *out-group*. People often see others of their in-group as well-liked and popular and they reject people of the out-group more easier. Based on this theory it can be assumed that ethnic minorities can be seen as the out-group because they are the minority in the society. Therefore, the majority of the population might evaluate these individuals as less popular and less well-liked (Abrams, Rutland, Cameron, & Marques, 2003). There is some research that supports this theory for both kinds of popularity. The study of Jackson, Barth, Powel and Lochman (2006) stated that black children generally receive less and more rejected sociometric nominations compared with white children in the group. Also, when ethnic minorities are the minorities of the group, they are less nominated as perceived popular or socially accepted than the peers of the ethnic majority group (Meisinger et al., 2007), suggesting that popularity differs as a function of ethnicity. Moreover, it is found that ethnic minorities can fit in the group and be accepted by their peers if they are able to adopt a bicultural identity, which means that they can switch between cultural meaning systems in response to cultural cues (Rutland et al., 2012). If ethnic minorities have good social skills they are able to adopt a bicultural identity and they will be more accepted by their peers (Rutland et al., 2012). Having less social skills seems to have an adverse effect on especially ethnic minorities because those ethnic minorities with less social intelligence have fewer abilities to adopt a bicultural identity. As a results they are less accepted by their peers thus easier be nominated as unpopular.

This study will build on previous literature by focusing on unpopularity and possible determinants of unpopularity. In line with previous studies, it is expected that there are relations between unpopularity and determinants of social intelligence, academic achievement and ethnicity. The previous results of social intelligence are univocal, however, the relevance in this study lies in the focus on unpopular adolescents. In regard to academic achievement

and unpopularity, there are mixed findings and therefore more research is needed to shed light on the proposed relations. Although all variables are studied individually and in relation to unpopularity, the interaction between them has not been studies previously.

Present study

The present study had three aims (Figure 1). The first aim was to examine the relation between social intelligence and sociometric and perceived unpopularity. It was hypothesized that social intelligence had a negative relation with sociometric unpopularity and perceived unpopularity. The second aim was to examine the interaction effect of academic achievement and social intelligence on sociometric and perceived unpopularity. For both sociometric and perceived unpopularity it was expected that there was a stronger negative relationship between social intelligence and unpopularity for the adolescents who had lower grades. For perceived popularity, the scientific support for this hypothesis was not univocal, however it was reasoned in line with the found relationship for unpopularity in general. The third aim was to examine the interaction effect of ethnicity and social intelligence on sociometric and perceived unpopularity. It was hypothesized that there was a stronger negative relationship between social intelligence and sociometric unpopularity for ethnic minorities.

Figure 1 Study model

Method
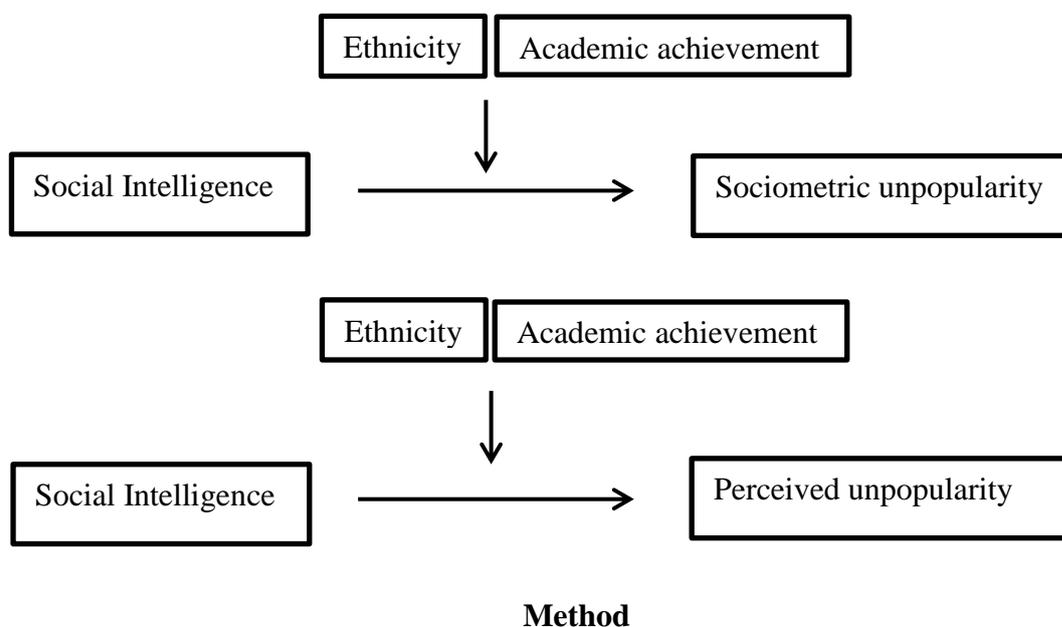
Participants and procedure

The participants were 806 adolescents (353 boys, 453 girls; *M* age = 13.37, *SD* =.57) in Grade 8 of two secondary schools in the Netherlands. The participants were in three secondary school tracks; pre-vocational (159 boys, 187 girls), general secondary (83 boys,

125 girls), and college prepatory (111 boys, 141 girls. Participants were mostly born in the Netherlands (92.9%), 1% in Morocco, 4% in Turkey, and 3.5% of other ethnic or national origin (3.1% did not specify their origin).

The data used for this study were obtained from a cross-sectional project examining peers and bullying behavior among adolescents. Participants completed the questionnaire in their classroom under the guidance of a researcher who explained the procedures and the confidentiality of the answers. Passive parental permission was obtained through a letter. Parents were informed about the purpose of the study and the voluntary nature of participation. Parents could react to this letter if they did not agree that their child would participate in the study.

Measures

Unpopularity. Unpopularity was measured as part of peer nomination questions. The classmates were defined as the reference group. Unpopularity was assessed with two constructs: sociometric unpopularity ('Classmates who you like least'), and perceived unpopularity ('Classmates who are least popular'). For each question the number of nominations was unlimited, however they were not allowed to nominate themselves. The number of nominations received for each participant was counted and standardized to z-scores within classrooms to control for differences in classroom size.

Social intelligence. Social intelligence was measured with the Tromsø Social Intelligence Scale (Silvera et al., 2001). The 21-items scale included three 7-item subscales of social intelligence: social information processing, social skills and social awareness. Each item described social skill or ability (e.g., 'I understand the feelings of others') and it was scored on a 7-point scale (1 = does not describe me at all; 7 = describes me very well). The internal reliability of the scale was found to be satisfactory (Cronbach's α = .78). A composite social intelligence score was computed by averaging the 21 items (M = 4.78, SD = .63).

Academic achievement. Academic achievement was measured with three self-report items concerning academic performance in three courses. Participants were asked to rate their average grade for English, math and language education (Dutch). In the Dutch system grades are between 1.0 and 10.0 with a 10.0 indicating a perfect score. Participants were asked to give their average grade as precisely as possible rounded to one decimal point. A composite academic achievement score was computed by averaging the three items (*M* = 7.03, SD = .63).

Ethnicity. Ethnicity was measured with the question concerning in what country the participants were born. The participants had six response options (1 = Netherlands, 2 = Suriname, 3 = Netherlands Antilles, 4 = Morocco, 5 = Turkey, 6 = Another country, namely) and based on these responses the participants were divided into an ethnic majority group (born in the Netherlands) and into an ethnic minority group (born outside the Netherlands).

Strategy of analyses

Several sets of analyses were conducted. First, assumptions were checked for the main study variables. Of all the main study variables, outliers were detected and a test of normal distribution of the scores was computed. Second, descriptive statistics were conducted for the main study variables, as well as the intercorrelations. Hypotheses were examined with SPSS version 21. The hypotheses were examined with stepwise regression analyses. The first step consisted of social intelligence as the independent variable. Unpopularity (sociometric and perceived in a separate analysis) as the dependent variable and gender as the control variable. In this study we controlled for gender as studies indicated that popularity differs among gender (e.g. LaFontana & Cillessen, 2002). In the second step, the interaction effects of academic achievement and ethnicity were tested. First, the interaction and independent variables had to be centered and the interaction term was made by the measurement of the product of the two centered variables. Then the second step of the regression analysis was performed with the interaction term as an independent variable and both unpopularity constructs as dependent variables.

Results

Preliminary Analysis

The check of the data showed that there was an acceptable amount of missing data (< 20%). There were no outliers detected among the main study variables. The test of normality showed that both the constructs of unpopularity were slightly left skewed. Social intelligence and academic achievement were both normally distributed. Because of the non-normality of the unpopularity constructs, the analyses were conducted with bootstrap regression analyses.

Table 1 shows the means and standard deviations for perceived unpopularity, sociometric unpopularity, social intelligence, academic achievement, ethnicity and gender of the study sample. Peer nominations of unpopularity were standardized within class.

Table 1 Descriptive statistics for main study variables

	M	SD
Perceived unpopularity	-.003	.97
(% nominated unpopular)	(51.9)	
Sociometric unpopularity	-.001	.96
(% nominated unpopular)	(61.2)	
Social intelligence	4.78	.63
Academic achievement	7.03	.80
Ethnicity (% ethnic majority)	95.9	
Gender (% boys)	43.8	

Table 2 shows the intercorrelations between the same study variables. Among the main study variables several significant correlations were found. A significant correlation between perceived and sociometric unpopularity was found. Higher scores on perceived unpopularity were associated with higher scores on sociometric unpopularity. Both unpopularity constructs were significant correlated with social intelligence. Higher scores on social intelligence were associated with lower scores on both constructs of unpopularity. Social intelligence was also significantly correlated with academic achievement and gender. Higher scores on social intelligence were associated with higher academic achievement. Girls scored higher on social intelligence compared to boys. Boys scored higher on unpopularity compared to girls.

Table 2 Correlations among main study variables

	1	2	3	4	5	6
1. Perceived unpopularity						
2. Sociometric unpopularity	.45**					
3. Social Intelligence	-.24**	-.15**				
4. Academic Achievement	.02	-.05	.09*			
5. Ethnicity	-.05	-.04	-.05	-.01		
6. Gender	-.02	-.10*	.10**	.05	.03	

$* p < .05, ** p < .01$

Regression analysis of perceived unpopularity

The results for the model predicting perceived unpopularity are shown in Table 3. As can be seen in the table social intelligence significantly predicted perceived unpopularity (B = -.386, SE = .054, $p = .000$). This indicated that perceived unpopular participants were less social intelligent. Academic achievement, ethnicity and gender did not significantly predicted perceived unpopularity. In step 2, the interaction effects of social intelligence and academic

achievement (B = -.060, SE = .075, p = .418), and social intelligence and ethnicity (B = -.200, SE = .338, p = .564) were both not significant.

Table 3 Regression results predicting perceived unpopularity from social intelligence, academic achievement, ethnicity, interaction of social intelligence and academic achievement, and interaction social intelligence and ethnicity

	ΔR^2	B	SE (B)	β	Sig. (p)
Step 1	.06*				
Social intelligence		-.386	.054	-.249	.000
Academic achievement		.052	.042	.043	.213
Ethnicity		-.287	.168	-.059	.088
Gender		.018	.068	.009	.793
Step 2	.002				
SI x AA		-.060	.075	-.032	.418
SI x Ethnicity		-.200	.338	-.025	.564

* p > .05. SI social intelligence, AA academic achievement.

*Regression analysis of sociometric unpopularity*

The results for the model predicting sociometric unpopularity are shown in Table 4. As can be seen in the table social intelligence significantly predicted sociometric unpopularity (B = -.216, SE = .054, p = .000). This indicated that sociometric unpopular participants were less social intelligent. Gender significantly predicted sociometric unpopularity (B = -.158, SE = .068, p = .021). This indicated that boys were more likely nominated as sociometric unpopular. Academic achievement and ethnicity did not significantly predicted perceived unpopularity. In step 2 the interaction effect of social intelligence and ethnicity (B = -.542, SE = .258, p = .028) was significant. This indicated that the effect of having less social skills on unpopularity is stronger for ethnic minorities than for ethnic majorities. The interaction effect is shown in figure 2. The interaction effect of social intelligence and academic achievement (B = -.032, SE = .074, p = .644) was not significant.

Table 4 Regression results predicting sociometric unpopularity from social intelligence, academic achievement, ethnicity, interaction of social intelligence and academic achievement, and interaction social intelligence and ethnicity

	ΔR^2	B	SE (B)	B	Sig. (*p*)
Step 1	.03*				
Social intelligence		-.216	.054	-.141	.000
Academic achievement		-.044	.042	-.037	.295
Ethnicity		-.199	.170	-.041	.242
Gender		-.158	.068	-.081	.021
Step 2	.004				
SI x AA		-.032	.074	-.018	.644
SI x Ethnicity		-.542	.258	-.070	.028

* p > .05. SI social intelligence, AA academic achievement.

Figure 2 Interaction effect between social intelligence and ethnicity on sociometric unpopularity
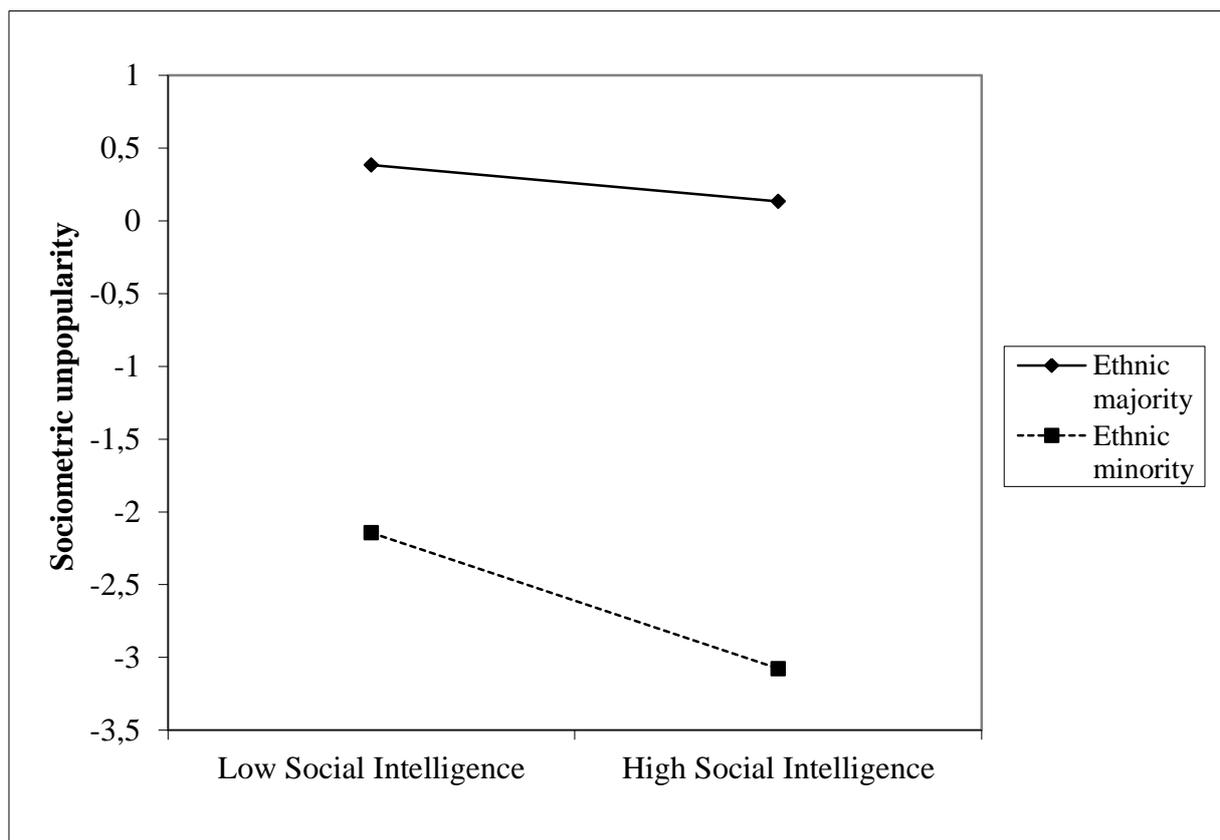
Discussion

This study confirmed that sociometric and perceived unpopular children are less socially intelligent. The results supported the hypotheses of the studies of LaFontana and

Cillessen (2002) and van den Berg, Lansu and Cillessen (2015) indicating that unpopular children were seen as less socially intelligent by peers. The added value of the current study is that the results confirmed that the unpopular children were actually less social intelligent and not only seen by others as less social intelligent. Moreover, this study was based on only the unpopular nominations which is important to consider since studies indicated the determinants of popularity and unpopularity are not the same (van den Berg, Lansu en Cillessen, 2015; Xie, Boucher, Hutchins, & Cairns, 2006). The study of Meijs et al. (2010) indicated that less popular children are less social intelligent, however, no results have been available about receiving unpopular nominations and social intelligence. Therefore the current study was the first to confirm the hypotheses that unpopular children are less social intelligent and it shows that social intelligence is an important determinant for both popularity and unpopularity.

        The results also confirmed that the relation between being sociometric unpopular and less social intelligent is stronger for ethnic minorities than for ethnic majorities. This indicated that when ethnic minorities have less social skills they are harder judged by peers regarding their unpopularity. Being less socially skilled has a bigger effect on being unpopular for ethnic minorities than ethnic majorities. Interestingly ethnicity itself did not predict sociometric unpopularity, although it seems like in figure 1 that there is a trend towards less unpopular nominations for the ethnic minorities. The means of both constructs of unpopularity (ethnic minority: sociometric; M = -0.167 and perceived; M = -0.217, ethnic majority: sociometric; M = 0.006 and perceived; M = 0.975) show the same trend. It is remarkable to observe that, in contradiction with the in-out group theory of Tajfel (1982), it seems that ethnic minorities were less nominated as unpopular. This finding could be explained by the study of Cozby (2003) which stated that attitudes of prejudice or ethnocentrism are considered socially unacceptable in society and therefore participants respond in a socially desirable manner. It is also remarkable that this interaction effect is only found for sociometric unpopular children. It seems that ethnic minorities need social intelligence more than ethnic majorities to be less unpopular. Especially sociometric popularity is about being liked, being able to work together and being accepted by peers. It could be that social intelligence is an important determinant factor in being liked or disliked and thus an important factor in being able to fit in the group, especially for ethnic minorities. This could be explained by the social identity theory of Tajfel (1982). This theory describes that it is harder for the out-group, the ethnic minorities, to be liked by the in-group, the ethnic majorities. It could be that this effect is particularly visible when it involves social

intelligence. It might require good social skills to get accepted by the outgroup and when lacking these skills adolescents might more easily will be nominated as unpopular compared to in-group members with less social intelligence.

The results did not confirm the hypothesis that there is a stronger relationship between social intelligence and both forms of unpopularity for the adolescents with lower academic achievement. This is not in line with previous findings which described a relation between social intelligence and popularity for adolescents who have a lower grade (Newcomb, Bukowski, & Pathee, 1993; Hatzichristou & Hopf, 1996; LaFontana & Cillessen, 2002; Hopmeyer Gorman, Kim, & Schimmelbusch, 2002). Nevertheless these studies focused on popularity and academic achievement instead of on unpopularity. The non-finding could be explained by the findings of the studies of van den Berg, Lansu and Cillessen (2015) and Xie, Boucher, Hutchins, & Cairns (2006) which described that the determinants of the constructs of popularity and unpopularity are different. This indicates that the concepts of popularity and unpopularity might not be seen as two extremes on the same scale. Therefore the results of the studies which focused on popularity might not one to one be generalized to the unpopularity construct. A second explanation could be that the earlier findings were not sufficiently univocal because of the different measurements of academic achievement. Previous studies did also use evaluations of teachers or used the mean of all the grades instead of only languages and mathematic courses.

Overall the current results are consistent with previous studies on popularity and they emphasize the importance of social intelligence in relation to unpopularity, especially for ethnic minorities. The uniqueness of this study lies in the focus on the unpopular children, instead of popular children, and in the interesting finding that for ethnic minorities the relation between being sociometric unpopular and less social intelligent is stronger than for ethnic majorities and therefore ethnic minorities are harder judged by peers regarding their unpopularity if they have less social skills.

Although this study had several strengths, there were some limitations in this study. First this study was based on a cross-sectional research and therefore it was not possible to determine the direction of the relationships. Although it is assumed that the direction of the relation is from social intelligence to (un)popularity, it might be very interesting to have longitudinal evidence to support this assumption. Especially because it seems that the relationship between social intelligence and unpopularity is bidirectional. It is found that social intelligence develops during the childhood and adolescence (Beauchamp & Anderson, 2010). It appears that isolated children develop less social skills (Spence, 2003). Due to their

unpopular status unpopular children are more isolated from the group (LaFontana & Cillessen, 2002). Therefore it would be very interesting to follow these children over time to get a better understanding of the direction and possible bidirectional relationship between social intelligence and unpopularity. Second, the sample size of the ethnic minorities was small, only 4,1% of the sample size consisted of ethnic minorities. The small sample size may also be the result of the insufficient way of determining ethnicity. Ethnicity was based on the country the participants were born, correctly also the country where the parents were born should be determined. If the sample size would be larger, the power of this study would increase and a main effect of ethnicity may be found. The interaction effect of ethnicity was only found for sociometric unpopularity and not for perceived unpopularity. The non-significant finding of perceived unpopularity could be explained by the literature described earlier, however, it might also be an effect of a lack of power. Third, the unpopularity constructs were left skewed. This could have had an effect on the results because many children received no unpopularity nominations and thus scored low on the unpopularity construct. In the analyses it was tried to overcome this by using the bootstrap method.

The findings of this study have implications for future research and intervention approaches. Unpopular children are more often bullies and victims of bullying than other children (Boulton & Smith, 1994). In bullying prevention programs it may be important to have a focus on the social intelligence, especially because both the bullies and bullied children are less social intelligent. If those children improve their social intelligence, they will more likely act in a socially accepted way in interactions with other peers and, as a result, they will less likely be involved in bullying situations either as bully or victim.

This study gave new insights into determinants of unpopularity. Social intelligence, and in interaction with ethnicity were important determinants in unpopularity. Future research could further look into the determinants of unpopularity and disentangle possible interacting variables, making use of a longitudinal design to get more insight into the direction and possible bidirectional relationships. Second, this study showed that not all the determinants of popularity are equal to the determinants of unpopularity. This gives rise to gain more insight into the determinants of unpopularity to get a better understanding of the construct unpopularity. This knowledge can be used to intervene and prevent adolescents from being socially rejected or even from being bullied.

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