Sex-mixed Classes, Sex-mixed Friendships? The Effect of Sex Composition of School Classes on Cross-sex Friendships Between Migrants and Natives

Abstract

Most friendships are between actors of the same sex. Earlier research explaining this phenomenon overlooked the role of the structural opportunities for forming friendships. Based on the opportunity theory a direct positive relation between the percentage of opposite-sex classmates and the proportion of cross-sex friendships is hypothesized and tested. Moreover, based on the intergroup contact theory and the social identity theory, an indirect relation through a person's gender-role orientation is hypothesized and tested. Furthermore, based on various arguments, it is expected that these effects are weaker for students with a migration background than for children without a migration background. Survey data of 3768 students from 222 Dutch school classes are analyzed by structural equation modeling. The findings indicate support for a direct effect of the percentage of opposite-sex classmates on the proportion of cross-sex friendships, but not for an indirect effect through a person's gender-role orientation. Moreover, the effects were equally strong for students with a migration background as for students without a migration background. Limitations, implications, and suggestions for future research are proposed.

Keywords: *cross-sex friendships, opposite-sex classmates, gender-role orientation, migration background, structural equation modeling*

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1. Introduction

Most friendships are homogeneous in terms of gender (Mcpherson, Smith-lovin, & Cook, 2001; Stehlé, Charbonnier, Picard, Cattuto, & Barrat, 2013). Studies report that between the 70 and 80 percent of the friendships in a network are between people of the same sex, both among adults (Lenton & Webber, 2006) and children (Smith & Inder, 1990). Unlike other studies in this field, this study will test the role of the gender composition of Dutch school classes on the proportion of cross-sex friendships (CSFs) in an adolescent's network. The gender composition of school classes can influence the proportion of CSFs by two mechanisms, which will both be tested in this study. Firstly, it can influence the opportunities for friendships (Blau, 1994). Secondly, the gender composition of a school class can influence a person's CSFs indirectly through their gender-role orientation. Gender role orientation is defined as: "the extent to which a person believes women should behave feminine and men behave masculine" (Bem, 1974). Additionally, scholars mention that adolescents with a migration background (hereafter referred to as migrants) usually have more traditional gender-role orientations than adolescents without a migration background (Koopmans, 2019; SCP, 2018). Hence, it is interesting to test the bearing migration background has on the proposed indirect relation through gender-role orientations. Although it is theoretically plausible that the indirect relation differs between migrants and natives, it has not yet been tested empirically.

Moreover, research explaining CSFs is necessary because CSFs influence society both negatively and positively. CSFs can, for example, increase the social capital of women while decreasing for men (McDonald, 2011), lower criminal behaviour among boys (McCarthy, Felmlee, & Hagan, 2004), inhibit gender-stereotypes (Maccoby, 1988), and have other benefits on the micro-level (see Bleske and Buss (2000) for an overview). Other scholars mention the negative effects of CSFs: they can increase substance use among teens (Grard et al., 2018), and negatively influence the career-decisions among adolescents: CSFs increase the probability of choosing majors associated to low earning jobs (van der Vleuten, Steinmetz, & van de Werfhorst, 2018). More empirical evidence about the factors that explain CSFs can help policy-makers and schools that aim to promote CSFs.

Earlier Research and Contribution to the Scientific Literature

This study contributes to the scientific literature because most research explaining CSFs overlook the structural opportunities for meeting cross-sex members. Instead, earlier research explained this

phenomenon from other perspectives, such as the homosocial norm (Felmlee, 1999; McDonnell & Mehta, 2016; O'Meara, 1989). According to this norm, CSFs cannot be platonic but only sexual (Rose, 1985). This norm can encourage same-sex friendships (SSFs) and discourage CSFs. Other scholars pay attention to the sexual attraction between the two friends which can inhibit the formation of CSFs (Bleske-Rechek et al., 2012; Reeder, 2017). Studies from these perspectives almost assume equal chances for meeting cross-sexually. Hence, they failed to benefit from a key explanation when it comes to homogeneity in networks: the structural chances to meet people of the opposite sex (Blau, 1994; Mcpherson et al., 2001). The more people of the other sex that are present, the more opportunities you have to befriend one. Meeting always preceded mating and, hence, it is important to pay attention to the percentage of opposite-sex people in the network of a person when explaining CSFs (Kalmijn, 1998; van Tubergen, 2020).

Moreover, the limited research explaining CSFs by the opportunities for meeting people of the opposite sex is mainly focusing on adults and organizational settings such as workplaces (Kalmijn, 2002; South, Bonjean, Markham, & Corder, 1982; Straits, 1996), but to a lesser extent on school classes and adolescents. This is unfortunate because of several reasons: firstly, CSFs during childhood have an influence on later cross-sexual friendship formation (Mcpherson et al., 2001; Mehta & Strough, 2009). Secondly, CSFs during adolescence influence career decisions among children (van der Vleuten et al., 2018). Thirdly, if the gender composition of school classes turns out to be a strong predictor for CSFs, these findings can help policy-advisors in influencing the number of CSFs. After all, it is easier to change the class-composition than, for example, change the homosocial norm.

Kovacs, Parker, and Hoffman (1996) were the only scholars I found that explained CSFs by the structural opportunities for meeting people of the opposite sex in the contexts of schools. They reported a positive correlation between the percentage of opposite-sex classmates and the number of CSFs in a network. Lamentably, this study focused on the USA and is therefore hard to generalize to the Dutch context because the formation of CSFs differs between cultures and countries (Strough & Covatto, 2002). Also, the study of Kovacs et al. (1996) tested this relation by analyzing a correlation, which does not allow to make predictions between variables nor to control for other variables. Using a structural equation model (SEM), this study provides a better way of analyzing the formation of CSFs (Field, Miles, & Field, 2012).

Additionally, I will test whether the indirect relation between the percentage of opposite-sex classmates and the proportion of CSFs through a person's gender-role orientation differs between migrants and natives. Strough and Covatto (2002) mentioned that the formation of cross-sex friendships differs between cultures. As adolescents with a migration background may be raised in a different culture than natives, it is theoretically plausible that the formation of CSFs is different for migrants than for natives. Moreover, scholars agree that gender-role orientations are an important predictor for the formation of CSFs (Lenton & Webber, 2006; O'Meara, 1989; Reeder, 2003). Since migrants have more traditional gender role orientations than natives (Koopmans, 2019; SCP, 2018), does that also mean that the formation of CSFs is different for adolescents with a migration background? As far as I know, this is the first study that will answer this question empirically. Scientific knowledge about the formation of CSFs among migrants may be helpful for integration processes because CSFs can help migrants inhibit gender-stereotypes (Maccoby, 1988) and increase the social capital among female migrants (McDonald, 2011). Therefore, it can help adolescents with a migration background in their socio-cultural and economic integration.

In sum, in this study I will answer the following research question: *To what extent is the relation between the percentage of opposite-sex classmates and the proportion of cross-sex friendships different between children with a migration background and without a migration background?* To answer this question I will use data of the Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) (Kalter et al., 2016). This data provides rich information about 14-year old natives and migrants and their social networks of 222 Dutch school classes (N=3768) and is therefore highly suitable for this study.

2. Theoretical Framework

Figure 1 visualizes the expected hypotheses. It shows that I expect a direct positive relation between the percentage of opposite-sex classmates and the proportion of CSFs in an adolescent's friendship-network (H1). Moreover, I hypothesize that a higher percentage of opposite-sex classmates leads to more progressive gender-role orientations of a student (H2). This is expected to, in turn, increase the proportion of CSFs (H3). Hence, I expect a mediation effect through gender-role orientation. Furthermore, Figure 1 shows that this mediation effect is expected to be weaker for migrants than for natives (H4 and H5). Therefore, I expect a so-called moderated-mediation effect. Below, I will elaborate on these expectations.

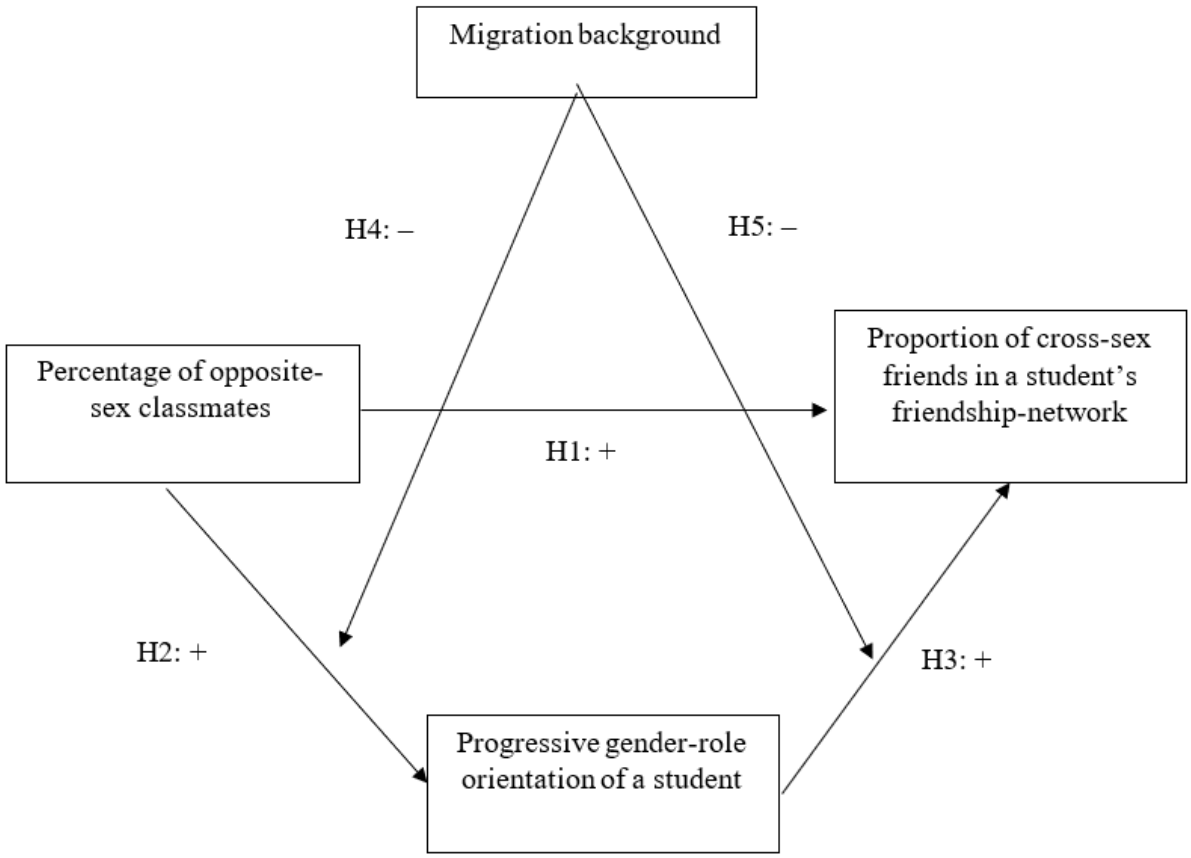


Figure 1: Visualization of the hypotheses

A Direct Effect of Sex Composition of the Class on CSFs

According to the opportunity theory unequal chances for meeting people of the opposite sex lead to more sex-homogeneity in friendships (Blau, 1994). The more people of the opposite sex there are in a classroom, the more opportunities there are to befriend classmates of the other sex, just because there are more of them (Kalmijn, 1998; van Tubergen, 2020). For example, a student is male and 80 percent of his classmates are female, when assuming no gender-preference in friendship formation, this would result in 80 percent of the friends of the student in the class to be CSF. On the other hand, in the event of single-sex education - where only one sex is present in a class - 0 percent of the student's friends would be CSF and 100 percent SSF.

Earlier research confirmed the positive relation of opportunities for meeting intersexually on the formation of CSFs in organizational settings such as workplaces. Kalmijn (2002) found that the percentage of opposite-sex members in associations, workplaces, and fields of education significantly positively predicts the number of CSFs in the Netherlands, especially for women.

Other studies in the USA found that the proportion of female colleagues negatively relates to the number of male-friends among women (South et al., 1982; Straits, 1996). But more importantly for this study, also in school classes this theory was supported: Kovacs et al. (1996) found that the percentage of opposite-sex- classmates increases the number of CSFs, although this effect was weak. Overall, the literature is convincing: the higher the percentage of the opposite sex, the more chances there are to befriend someone of the opposite sex. Hence, I will hypothesize:

H1: The higher the percentage of opposite-sex classmates, the higher the proportion of CSFs in the student's friendship network will be.

An Indirect Effect Mediated by Gender-role Orientation

According to the *intergroup contact theory* can contact between two different social groups increase knowledge and empathy, and reduce anxiety towards that group. This can, in turn, reduce prejudice and stereotypes and hence increase the positive attitude towards that group (Allport, 1954; Pettigrew, 1998). Moreover, this relation is enhanced – although not indispensable – when it occurs under four 'optimal conditions': cooperation, common goals, institutional support, and equal status between the two groups (Allport, 1954; Pettigrew, 1998; Pettigrew & Tropp, 2006). Because this study focusses on school classes, these conditions are likely satisfied: the two sexes are prone to work together on assignments and during physical education, hence the sexes will cooperate and have common goals. Moreover, boys and girls will – in theory – be equal in status, and intergroup contact is probably supported institutionally, by for example the teacher.

When the size of the opposite sex in a classroom increases this will likely increase the contact of a student with the opposite sex (Blau, 1994). Hence, according to the intergroup contact theory, this contact with the opposite-sex will decrease the stereotypes and prejudice towards that group. This will, for example, result in children to overcome stereotypes like males as breadwinners and women as childcarers. Hence, the gender role orientation will become more progressive if the group size of the opposite sex is bigger in the school class.

Recently, the intergroup contact theory has been tested in school classes in multiple European countries. The researchers found that a higher proportion of outgroup members in a classroom decreased the prejudice and stereotypes towards that group (Bubritzki, van Tubergen, Weesie, & Smith, 2018). Furthermore, de Lemus, Moya, and Glick (2010) found that Spanish

adolescents who had a romantic relationship with a kid of the opposite sex hold more progressive gender-role orientation than children that did not have a romantic relationship. They argued that intensive contact with a kid of the opposite sex increased the knowledge about the attitudes and beliefs of the opposite sex. This would make the gender-role orientation more progressive. Thus, this study implicitly confirmed the intergroup contact theory between sexes among adolescents. Based on the intergroup contact theory and the reported studies I will therefore hypothesize:

H2: The higher the percentage of opposite-sex classmates, the more progressive the gender-role orientation of a student will be

If the gender-role orientation of the student is more progressive, I expect this will result in more CSFs in a student's friendship-network. Hence, gender role orientation will function as a mediator between the percentage of opposite-sex classmates and the proportion of CSFs of a student. Below I will give three arguments why gender role-orientation affects the formation of CSFs.

Homophily is the preference for people to interact with others that are similar to them (Byrne, 1971 cited in Byrne, 1997). This homophily works through multiple mechanisms: similarity leads to mutual confirmation and affection, eases communication, and feels psychological rewarding (Kalmijn, 2002). Moreover, men with progressive gender-role orientation are assumed to be more feminine and progressive women more masculine (Reeder, 2003). Based on this homophily it is expected that progressive men and masculine women have a stronger preference to interact with the opposite sex than their 'traditional counterparts'. Hence, progressive gender-role orientation will increase the CSF. Reeder (2003) supported this hypothesis: progressive gender-role orientation increases the number of CSFs, for both males and females.

A second argument is based on the social identity theory. According to this theory, people constantly put others into categories based on social traits such as race, sex, and age. This categorization leads to the realization that one belongs to a social group: people will create a social identity. Through a process of social comparison, persons who share similar traits as the self are categorized with the self and are labeled the 'in-group', persons who share dissimilar traits as the self are categorized as the out-group (Sets & Burke, 2000; Tajfel, 1981; Tajfel, Billig, Bundy, & Flament, 1971). Earlier research found that sex is one of the main characteristics of social categorization for adolescents, hence sex functions as an important social identity for adolescents

(Maccoby, 1988). According to Cameron and Lalonde (2001), traditional gender-role orientated men perceive bigger dissimilarities between men and women and have a stronger in-group identification. This stronger in-group identification and perceived differences between the sexes makes the aforementioned benefits of same-sex friendships (i.e. confirmation, easy communication, and psychological rewarding) over CSFs seem bigger (Kalmijn, 2002). Hence, a person with a traditional gender-role orientation will be less likely to form CSFs than a person with progressive gender-role orientations.

A third and last argument why gender-role orientation influences the proportion of CSFs is based on the perceived power differences between males and females (Monsour, Harris, Kurzweil, & Beard, 1994; O'Meara, 1989; Rose, 1985). Friendships are based on power equality and mutuality, if one of the actors in a friendship has more power than the other actor, the friendship feels less satisfying than when the two actors are equal in power (Fiebert & Fiebert, 1969; Veniegas & Peplau, 1997). Because men usually have more social power and more resources to barter than women, CSFs are 'challenging' and hard to form and maintain (O'Meara, 1989). People that hold more traditional gender-role orientations will perceive the opposite sex as not equal to them, while individuals that hold more progressive gender-role orientation will see classmates as equal in power. Hence, if a student holds more traditional gender-role orientations CSFs are seen as more challenging than if a student holds progressive gender-role orientations. Therefore (s)he is less likely to form and maintain CSFs. Earlier findings suggest that perceived power differences between the two sexes indeed inhibit people from forming CSFs (Lenton & Webber, 2006; Monsour et al., 1994). Based on the three arguments above and earlier findings, I will hypothesize:

H3: The more progressive the gender role orientation of a student, the higher the proportion of CSFs in a student friendship-network will be

Weaker Indirect Effect Among Students With a Migration Background

As migrants in the Netherlands are more exposed to traditional gender role orientations than natives (Pels, Distelbrink, & Postma, 2009), I expect that the mediation effect of gender-role orientation will be weaker for children with a migration background than for children without a migration background. In the Netherlands, 27 percent of the school-children were either born abroad or have one or more parent(s) who were born in a foreign country. The majority of them are from non-

western countries such as Turkey, Morocco, Suriname and the Dutch Antilles (CBS Statline, 2019). These are all countries that have lower gender-equality and more traditional gender norms than the Netherlands (UNDP, 2020; WEF, 2020). The first-generation migrants have more traditional gender-role orientation because they were more exposed to these traditional norms in their country of origin (Diehl, Koenig, & Ruckdeschel, 2009; Koopmans, 2019; SCP, 2018).

Also the second-generation migrants in the Netherlands hold more traditional gender-role orientations than their native counterparts (Demant & Pels, 2007). Studies showed that migrant parents transmit their traditional gender-role orientations to their offspring by raising their daughters differently than their sons. Daughters of migrants are more often asked to do household labour than sons and migrant parents have higher educational aspirations about their sons than about their daughters (Pels et al., 2009; SCP, 2015). On top of that, migrant children are more often interacting with other migrants peers (Mcpherson et al., 2001; SCP, 2012) than natives. Because these migrant peers hold more traditional gender-role orientations, migrants are more exposed to traditional gender-role orientations by their peers than natives. To conclude, children with a migration background are more surrounded by traditional gender role orientations because of either the culture in the country of origin, their parents, or their peers. I expect that this will affect the aforementioned indirect effect.

The hypothesized effect of the percentage of opposite-sex classmates on gender-role orientations (H2) will be weaker for migrants than for natives because of two reasons. Firstly, when a person holds opposing norms compared to their social environment (e.g. family and peers) this is sanctioned by the environment (Coleman, 1994; van Tubergen, 2020). Hence, violation of social norms is 'costly'. Because the social environment of a migrant consists of more traditional gender-role orientations, progressive gender-role orientations are a violation of this norm. Thus, it will be harder for migrants to have progressive gender-role orientations than for natives because the latter group lives in an environment that is more supportive of progressive gender-role orientations.

Secondly, the enhancing four 'optimal conditions' for intergroup contact – common goals, equal status, cooperation, and institutional support – (Pettigrew, 1998) are less likely to be met among migrants than among natives. This will make contact between the two sexes less likely to increase the progressive gender-role orientations among migrants. I expect that there will be less cooperation and common goals between the sexes among migrants because through socialization processes migrant boys are behaving more masculine than native boys and migrant girls more

feminine than native girls (Demant & Pels, 2007). This will inhibit migrant boys to interact with girls (and vice versa) more than native boys and girls (Maccoby, 1988). Hence, there will be less cooperation – and as a consequence – less common goals between the sexes among migrants than among natives. Moreover, as already mentioned, among natives the status between men and women is more equal than among migrants (Demant & Pels, 2007; Koopmans, 2019). Therefore, the optimal condition 'equal status' is more likely to be met among natives than among migrants. Based on the violation of norms-argument and optimal condition-argument, I will hypothesize:

H4: Students with a migration background will be less likely to have progressive gender-role orientations when the percentage of opposite-sex classmates increases than students without a migration background

In addition, the proposed positive relation between progressive gender-role orientation and CSFs (H3) is less likely to be positive among adolescents with a migration background, based on three arguments: cultural power differences between the sexes, the homosocial norm, and homophobia.

Firstly, as already mentioned, equality between peers is essential for the formation and maintenance of friendships (Fiebert & Fiebert, 1969; O'Meara, 1989; Veniegas & Peplau, 1997). The perceived power differences between men and women are expected to lead people holding progressive gender role orientation having more CSFs than people holding traditional gender-role orientations. But among migrants, the power-differences between men and women *are* bigger (Demant & Pels, 2007; Koopmans, 2019). This will complicate the formation and continuation of CSFs even stronger for migrants than for their native counterparts.

Secondly, the homosocial norm states that CSFs are more likely to be sexual instead of platonic (Felmlee, 1999; McDonnell & Mehta, 2016; Monsour et al., 1994; O'Meara, 1989). According to this norm, (social) power-differences between men and women give men an exclusive range of resources available in a society, whereas women only have a few resources. As a consequence, men have more to offer to each other in a SSF than women can offer to men. Because the only need men cannot fulfill to each other in a friendship is sexuality (assuming heterosexuality), CSFs can only be sexual and not platonic (Rose, 1985). Implicitly, this theory argues that when power-differences between the sexes are big, the homosocial norm will be stronger. Alternatively, when the power-differences are small, women can offer the same resources

to men as men, hence friendships are more likely to be platonic. As already mentioned, among migrants the power differences between the sexes are bigger than among natives. Consequently, the homosocial norm will be stronger among migrants. Moreover, this homosocial norm complicates the formation and continuation of CSFs because the actors in this dyadic friendship are often victims of gossip, bullying, and harassment by their peers (O'Meara, 1989). In their qualitative study, Al-Attar et al. (2017) found that children expressed fear of being bullied because of their CSFs being misconstrued for being romantic in nature. Therefore, children prefer SSFs over CSFs. This effect was found to be more prominent in Egypt than in Belgium. This supports the argument of Rose (1985) that the homosocial norm is more prominent when the power differences between the sexes are big, as is the case between Egypt and Belgium (UNDP, 2020; WEF, 2020). In other words: based on the homosocial norm, friendships between two opposite sexes will be ended because of the gossips or will end up in a sexual or romantic relationship, and this effect is expected to be stronger among migrants.

Lastly, homophobia is found to be a strong negative predictor for CSFs[1] (Altmann & Roth, 2020; Martino, 2000). According to O'Meara (1989), men having CSFs are often labeled as homosexual by their peers. Since homophobic men do not appreciate this label, they are inhibited to form CSFs. Especially young homophobic men are afraid of being labeled 'feminine' or 'weak' by their peers. They will, therefore, emphasize their masculinity by avoiding platonic friendships with girls (Bird, 1996). Using in-depth interviews Martino (2000) showed that Australian homophobic boys create gender-homophily (preference for SSFs over CSFs) and hence decrease the proportion of CSFs. Because students with a migration background are more often homophobic and are also more surrounded by homophobic peers or parents than students without a migration background (Koopmans, 2019; SCP, 2013), they will be more inhibited to form CSFs than natives. As natives are less constrained by homophobia, it will be easier for them to have CSFs. Based on these three arguments – power differences, homosocial norm, and homophobia – and the related literature, I argue that it is harder for migrants to form and maintain CSFs than for natives. Hence I will test the following hypothesis:

[1] This argument about homophobia is more applicable among migrant men than among migrant women (Kite & Whitley, 1996). Still, I see this argument as relevant but expectations should be made with care.

H5: Students with a migration background will have a lower proportion of CSFs in their friendship network when the gender-role orientation is more progressive than students without a migration background

3. Data and Methods

Data and Sample

I used Dutch data of the CILS4EU-project (Children of Immigrants Longitudinal Survey in Four European Countries) (Kalter et al., 2016). This is a longitudinal cross-national dataset that aims to get insights about the social, cultural, and structural integration of immigrants in European countries. Because of access restrictions I was only able to use the first wave of the Dutch data. This wave is assumed to have the highest statistical power compared to the other waves because drop-out rates are usually high in longitudinal studies, therefore the first wave has the highest number of participants. The data were collected in the winter of 2010-2011, using a three-stage stratified sample design. In the first stage, secondary schools were stratified based on their proportion of students with a migration background. To increase the number of migrants, these schools were oversampled. Nonresponses by schools were replaced by comparable schools in terms of school type and region. Small schools and schools for students with learning disabilities were not sampled. In the second stage, approximately two classes inside each school were randomly sampled for participation. In the third stage, inside each class, all students were sampled for participation, although between the 5 and 30 students per class participated. In total, 4363 Dutch students from 222 school classes participated in this study (N = 4363). The response rate for this data was 78.9 percent. The students filled in the survey by paper and pencils anonymously during school time and were always able to refuse answers (Kalter et al., 2016).

Out of these 4363 respondents, students answering *'do not know' or* '*will not tell*' on one or more questions were deleted for analyses. Moreover, univariate outliers ($z > |4.7|$) on age were deleted, these students were 17.5 years or older (N = 3). Furthermore, first-year classes (*brugklassen*) were excluded from analyses because the 36 students in these classes were multivariate outliers (Mahalanobis Distance > 113, $z > 8.0$). Moreover, school classes smaller than ten students were deleted for analysis (N = 148) because these classes would lead to too many missings on the dependent variable. This can be explained by the construction of this variable: the student nominated their five best friends in the class. It was possible that the respondent nominated

classmates that were not sampled for this study, hence, I did not have information about the sex of these friends. Retaining small classes would disturb the data. Lastly, 572 students reported no friend or no friend that participated in the study, these cases were deleted for analyses. In total, the analyses are conducted among 3768 students, of whom 30.18 percent have a migration background.

Measurements

Dependent variable – In order to measure the proportion of CSFs in a student's friendship network, the respondents were asked who his/her best friends in the class are. The respondents could name between zero and five students in their class. I used these answers to create a so-called ties-as-cases dataset, where each tie between ego (respondent) and alter (friend) is a case. After this, I dichotomized a variable that indicates whether the friendship between ego and alter is between students of the same sex (0) or opposite sex (1). As a final step, I calculated the mean over these five friendship-dummies, whereby at least one valid value is needed to get a score. This way I get a value that ranges between 0 and 1 and measures the proportion of CSFs in the friendship network. For example: a student is a girl and named 3 female alters and one male alter, then her proportion of CSFs in her friendship-network equals (0 + 0 + 0 + 1) / 4 = 0.25. Because I am interested in the formation of CSFs from the perspective of ego, friendship nominations are measured in one direction. I did not check whether alter also nominated ego. As mentioned earlier, the respondents were able to nominate classmates that were not sampled. Because I did not have information about their sex, these friendships are missing.

Shapiro-Wilk test indicated that this variable is not normally distributed but right-skewed ($W = 0.56$; $p < .001$; Skewness = 2.263; $z = 59.55$). I attribute this to the fact that 76 percent of the students had a proportion of zero CSFs, as a lot of respondents only mentioned one (sampled) friend and this friend was of the same sex.

Mediator – In line with earlier studies (e.g. van der Vleuten, Steinmetz, & van de Werfhorst, 2018) gender-role orientation is measured by attitudes towards house-hold labour divisions. More specifically, the mean is taken of four items: " *In a family who should do the following…" (1) …take care of the children, (2) …cook, (3) …earn money, (4) …clean the house*. For each item, the students could answer by "*mostly the man*", "*mostly the woman*", or "*both about the same*". These values are coded in such a way that a high value indicates a progressive gender-role orientation. So if the respondent answered "mostly the man" for the more 'feminine tasks' – cooking, taking care

of children and cleaning – they are given a value of two, a value of one when they answered "both about the same" and a value of zero when they answer "mostly the woman". Because earning money is traditionally seen as a masculine task (Kroska, 2004), it was coded oppositely. These four scores were averaged whereby at least three scores were needed to get a valid scale. The scale (theoretically) ranges between 0 and 2 and is treated as an interval-level variable.

Moreover, Explanatory Factor Analysis (EFA) showed that the scale is unidimensional and is thus measuring a single latent construct. This Gender-role orientation scale only consists of one *eigenvalue* higher than one. Hence, according to the Kaiser-Guttman Criterion ($K > 1$), this scale is unidimensional (Brown, 2015; Netemeyer, Bearden, & Subhash, 2003). Because of the non-normal distribution of the four items, the factor loadings are extracted using Principal Axis Factoring (PAF) and were non-orthogonally rotated (Brown, 2015). Table 1 displays the factor loadings of the items, it shows that all items have high loadings, well above |.3|.

Furthermore, reliability tests (Cronbach's alpha, Lambda-2, and Lambda-4) indicate that the scale is 'acceptably reliable' ($\alpha = .656$, $\lambda_2 = .659$, $\lambda_4 = .675$). Although these are below the $\alpha >$ .7-criterion (Netemeyer et al., 2003) I still use this scale because the EFA revealed that the scale is unidimensional and reliabilities above .65 are sufficient for research purposes, especially when the scale only consists of four items (Netemeyer et al., 2003). Moreover, it was not possible to add more theoretically correlated items, and deleting items did not increase the reliability of the scale.

Table 1: Factor loadings for gender-role orientation items

Item	Factor-loading
In a family who should do the following: *take care of the children?*	.628
In a family who should do the following: *cook?*	.620
In a family who should do the following: *earn money?*	.601
In a family who should do the following: *clean the house?*	.430
Percentage of variance	48.86%
Eigenvalue	1.95
Cronbach's α, Lambda-2, Lambda-4	.656; .659; .675

Moderator – Having a migration background is operationalized according to the definition of the CBS (2016): "*a person who was born abroad or who has at least one parent who was born abroad"*. The migration background of the respondent is measured by asking the student where (s)he, the father, and mother were born. If the respondent was born abroad or has one or more parent(s) who were born in a foreign country I gave the respondent a value of '1', otherwise a value

of '0'. Unfortunately, due to feasibility issues, I did not have information about the specific country of births. Bubritzki et al. (2018) used the same data and report that most children with a migration background were from Morocco, Turkey, and Suriname, so I assume it is the same in this study.

Independent variable – The percentage of opposite-sex classmates was constructed by aggregating the sum of boys and girls in each class separately. This way I have information about the number of boys and girls in each class. I used this information to calculate the percentage of opposite-sex classmates, by using the following formula:

$$Percentage\ of\ opposite\ sex\ classmates_j = \frac{N_i}{(N_j - 1) + N_i} \times 100\%$$

Where N_i is the number of students in the class having sex *i*, and N_j is the number of students in the class having sex *j*. Whereby *i* can either be a boy or a girl but is the opposite sex of *j*. In other words: if the respondent is a boy, the percentage of opposite-sex classmates is calculated by the number of girls in his class divided by the number of girls, plus the number of boys, minus one because a student cannot befriend himself, times 100 percent. This way, I get a value that ranges between 0% (no opposite-sex classmates) and 100% (only opposite-sex classmates).

Control variables – In this study, I controlled for sex, age, educational level of the class, number of classmates, having a romantic relationship, and having at least one cross-sex sibling. Firstly, boys and higher educated people are more likely to form CSFs. Men are thought to see CSFs more as a gateway for sexual relationships than women and are thus more likely to form CSFs (Bleske & Buss, 2000; Lenton & Webber, 2006). Higher educated people are better able to communicate with different people and may thus have more CSFs (Mcpherson et al., 2001; McPherson, Smith-Lovin, & Brashears, 2006). Also, research showed that there are differences in gender-role orientations in sex (Rammstedt & Rammsayer, 2002) and educational level (Bolzendahl & Myers, 2004). Sex is dichotomized as boy (1) and girl (0). The educational level of the class is measured by four dummies: (1) pre-vocational education (*vmbo* (Including *B, K, GL*)), (2) pre-vocational education: theoretical learning (*mavo*), (3) school of higher secondary education (*havo*) and (4) pre-university education (*vwo* (including *Gymnasium*).

In addition, I controlled for whether the respondent has a romantic relationship and a cross-sex sibling. It is found that a romantic relationship positively affects the progressive gender-role orientations among children because intensive contact with the opposite sex increases the knowledge of the attitudes and beliefs of the opposite sex (de Lemus et al., 2010). Using the same

argument, I also controlled for having a cross-sex sibling. Moreover, the social network of the romantic partner and cross-sex sibling could function as a gateway for more CSFs (Lenton & Webber, 2006). Having a romantic relationship is measured by asking the respondent whether (s)he has a romantic relationship and is dichotomized as (1) yes and (0) no. Having a cross-sex sibling is measured by asking the students whether they have a brother or a sister. If the respondent is a girl and has (at least one) brother or is a boy and has (at least one) sister it was ascribed a value of 1, otherwise a value of 0. Because the educational level of the class, sex, romantic relationships, and cross-sex siblings could function as a confounder in the mediator-dependent variable effect, it is crucial to control for these variables in order to get a better picture of the hypothesized effects.

Due to puberty and sexual interest in the opposite sex, age is found to be a positive predictor for CSFs among children between the age of 12-15 (Strough & Covatto, 2002). Hence, I will control for age. Age is measured by asking the respondent in which year and month (s)he was born. Lastly, I controlled for the number of classmates in a class. The more classmates the student has the more options for friendships. So in a small class, the student is more likely to form CSFs because there are fewer opportunities for alternative friendships. This variable is measured by the number of students in every class, minus one – because the student cannot nominate him/herself.

Table 2: Descriptive statistics of the data. Group-differences are tested by independent sample T-test or Chi-square test (total $N = 3768$)

		No Migration Background		Migration Background		
	Range (min/max)	Mean	SD	Mean	SD	Δ Groups
Proportion of CSFs	0 / 1	0.10	0.21	0.11	0.23	$t = 1.698^{*\dagger}$
Gender role orientation	0 / 1.67	0.61	0.36	0.57	0.37	$t = 3.799^{***}$
% of opposite-sex classmates	0 / 100	44.15	18.81	44.72	18.80	$t = 0.055$
Boy	0 / 1	0.49		0.46		$x^2 = 0.307$
Age	13.3 / 17.4	15.03	0.53	15.24	0.63	$t = 10.767^{***\dagger}$
Romantic relationship	0 / 1	0.20		0.23		$x^2 = 5.768^{**}$
Cross-sex sibling	0 / 1	0.57		0.60		$x^2 = 3.484^{**}$
Vmbo	0 / 1	0.19		0.32		$x^2 = 136.75^{***}$
Mavo	0 / 1	0.37		0.33		
Havo	0 / 1	0.22		0.19		
Vwo	0 / 1	0.22		0.16		
Number of classmates	9 / 29	21.68	4.55	20.48	4.97	$t = 8.280^{***\dagger}$
N		2631		1137		

$^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$ – one sided; †= adjusted for inequality of variances, because Levene's test = $p < 0.5$.

Table 2 summarizes the descriptive statistics of the variables used in this study. It shows that approximately 10 percent of the friends are CSF (M = 0.10, SD = 0.21), this does not differ a lot between migrants and natives. Moreover, Table 2 shows that the percentage of opposite-sex classmates is on average 44 percent (M = 44.15, SD = 18.81). Furthermore, the native adolescents scored 0.61 on a scale ranging from 0 to 2 on gender-role orientation (M = 0.61, SD = 0.36), while migrant children scored 0.57 (M = 0.57, SD = 0.37), so migrant children are slightly more traditional in gender-role orientations. Although this difference is small, it is significant (t(3766) = 3.799; p < .001). Lastly, it is important to note that the migrant students are overrepresented in lower education (*vmbo* and *mavo*) and their native counterparts overrepresented in *havo*- or *vwo*-classes (x^2(3, 3768) = 136.75; p < .001).

Analytical Strategy

In order to test my five hypotheses, mediation, and moderated-mediation effects, I used a Structural Equation Model (SEM) with the package 'Lavaan' in R (Rosseel, 2012). Before testing the hypotheses, I checked whether the assumptions for SEM are met. To save space, this information can be found in Appendix A. I preferred SEM over other methods such as OLS-regressions, because in a SEM I can easier test the direct, indirect, and moderating effects in one model and assess its fit. Moreover, SEM is preferred when testing 'complicated' mediation effects such as moderated mediation (Wood, Goodman, Beckmann, & Cook, 2008).

To see if there is any difference in the coefficients between migrants and natives, I firstly did an omnibus test. Concretely, I estimated and compared two models: in the first one, all coefficients are freely estimated between migrants and natives. This is the unconstrained model. In the second model, - the constrained model – all coefficients are constrained to be equal between the two groups. By the use of a Chi-square difference test for nested models I could assess whether the unconstrained (nested) model fits the data better than the constrained model. If this is the case, it indicates that at least some coefficients differ between migrants and natives. After this, to get a more detailed picture of these different coefficients, I used a SEM multi-group analysis. This means that every coefficient in the model is estimated separately for students with and without a migration background. I did this by 'labeling' every coefficient separately for natives and migrants and analyzing the significance of the differences in coefficients.

To test if there is a mediation effect of the percentage of opposite-sex classmates on the proportion of CSFs through the gender role orientations of a student, I multiplied the first path (from the percentage of opposite-sex classmates to gender-role orientations) with the second path (from gender-role orientations to the proportion of CSFs). By analyzing it's *z*-value and *p*-value, I can see if the expected mediation effect is supported. This method is preferred over more classical approaches such as the Baron and Kenny-method (1986) or the Sobel's test (1982), because the Baron and Kenny-method has low statistical power and the Sobel's test assumes that the product of two regression-coefficients is normally distributed, which is often not the case (Wood et al., 2008). By testing the indirect effect in SEM, I was able to bootstrap the standard errors of the indirect effect (1000×). This way, I could relax the assumption of normally distributed indirect effect. Moreover, testing for moderated-mediation effects is complicated when using the aforementioned classical approaches (Wood et al., 2008). By analyzing the *p*-value of the difference in indirect effect between migrants and natives I test for a moderated mediation effect.

Furthermore, given the right-skewed distribution of the dependent variable – 'the proportion of CSFs' – I ran Poisson regressions with robust standard errors as a sensitivity test. This method is preferred over other linear-regression methods (such as SEM or OLS) when the dependent variable is a proportion with a high incidence of 0 (Kieschnick & Mccullough, 2003). Hence, it is important to check whether the findings were influenced by the methods used in this study. The results of this sensitivity test can be found in Appendix C.

4. Results

Model Fit

As earlier mentioned, two models are estimated and their fit is compared. The model where all coefficients are freely estimated between the groups fits the data well ($x^2(2) = 0.125$, $p = .939$; CFI = 1; RMSEA = 0.050, CI90: [0.000, 0.100]). The constrained model also fits the data well, but worse than the unconstrained model ($x^2(20) = 32.863$, $p = .035$; CFI = .971; RMSEA = 0.018, CI90: [0.050, 0.290]). According to the Chi-square difference test for nested models, the nested (constrained) model fits the data significantly worse than the unconstrained model ($\Delta x^2 = 32.737$, $p = 018$). This means that at least some coefficients are different between migrants and natives. Below, I will elaborate on the model. Figure 2 visualizes the main findings of the study (unstandardized). It shows that there is a significantly positive direct effect, but no mediation nor

a moderated mediation effect. Appendix B shows the main findings with standardized coefficients. For the sake of readability, none of the uncontrolled effects are shown in Table 3 and Figure 2. Still, extramural tests showed that the magnitude of the coefficients is equally strong and comparable.

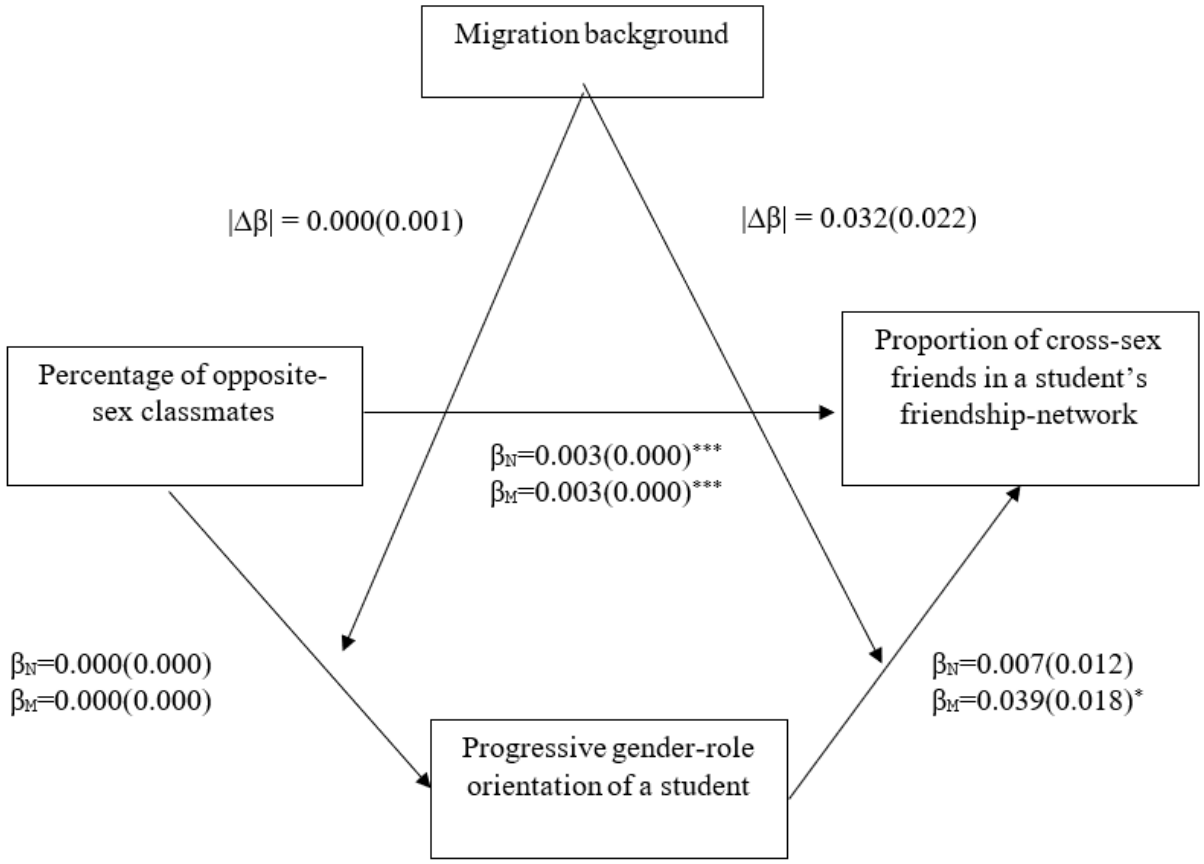


Figure 2: SEM-path model.
Notes: β_N = coefficient for natives, β_M = coefficient for migrants. SE between brackets. All coefficients are controlled for the control variables and unstandardized. Appendix B shows the standardized coefficients. Model fit: ($x^2(2)$ = 0.125, p = .939; CFI = 1; RMSEA = 0.050, CI90: [0.000, 0.100]). $^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$ – one sided.

Direct effect

Table 3 shows that the percentage of opposite-sex classmates and the control variables together explain 8.1 percent and 9.7 percent of the variance in the proportion of CSFs for natives and migrants respectively ($R^2_{natives}$ = .081 and $R^2_{migrants}$ = .097). Furthermore, it shows a significantly positive relation between the percentage of opposite-sex classmates and the proportion of CSFs in a student's network, both among natives (β = 0.003, *z* = 10.912, *p* < .001/2) and migrants (β = 0.003, *z* = 7.707, *p* < .001/2). This means that, all else being equal, every percent point extra in

opposite-sex classmates increases the expected student's proportion of cross-sex friendships in a network by 0.003.

Table 3: Unstandardized SEM-coefficients split by migration background. SE = standard error [a]

Dependent variable:	Proportion of CSFs			Gender Role Orientation		
	Natives β (SE)	Migrants β (SE)	Δ Groups |Δβ| (SE)	Natives β (SE)	Migrants β (SE)	Δ Groups |Δβ| (SE)
Intercept	– 0.478***	– 0.224		0.331	0.831	
	(0.134)	(0.165)		(0.210)	(0.280)	
Percentage of opposite sex classmates	0.003***	0.003***	0.000	0.000	– 0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Gender role orientation	0.007	0.039*	0.032			
	(0.012)	(0.018)	(0.022)			
Boy	0.000	0.015	0.015	– 0.116***	– 0.107***	0.009
	(0.008)	(0.014)	(0.016)	(0.014)	(0.021)	(0.026)
Age	0.033***	0.015	0.018	0.020	– 0.013	0.033
	(0.009)	(0.011)	(0.014)	(0.014)	(0.018)	(0.023)
Romantic relationship	0.055***	0.045**	0.010	0.025	– 0.006	0.031
	(0.012)	(0.017)	(0.021)	(0.017)	(0.025)	(0.030)
Cross-sex sibling	0.013	– 0.011	0.002	– 0.020	– 0.065**	0.045*
	(0.008)	(0.013)	(0.016)	(0.014)	(0.022)	(0.026)
Vmbo	Ref.	Ref.		Ref.	Ref.	
Mavo	0.012	0.027	0.015	– 0.004	0.023	0.027
	(0.014)	(0.019)	(0.024)	(0.020)	(0.026)	(0.034)
Havo	– 0.015	0.058**	0.073**	0.020	0.087**	0.067*
	(0.015)	(0.024)	(0.028)	(0.023)	(0.031)	(0.038)
Vwo	– 0.018	0.001	0.019	0.058**	0.126***	0.068*
	(0.016)	(0.023)	(0.028)	(0.024)	(0.035)	(0.042)
Number of classmates	– 0.002	– 0.004**	0.002			
	(0.001)	(0.002)	(0.002)			
R^2	.081	.097		.034	.047	
N	2631	1137		2631	1137	

	Native	Migrant	Δ Indirect effect (SE)
Indirect effect (SE)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)

Note: |Δβ| = Absolute difference in unstandardized β-coefficients between migrants and natives. [a] Bootstrapped SE. ***$p < .001$; **$p < .01$; *$p < .05$ – one sided.

To put this in perspective: a student in a class with a high percentage of opposite-sex classmates – one standard deviation above the mean is expected to have, *ceteris paribus*, eleven percent point more cross-sex friends than a person in a class with a low percentage of opposite-sex classmates –

measured as one standard deviation below the mean[2]. Moreover, this coefficient is almost equally strong uncontrolled for the control variables (β = 0.003, z = 16.628, p < .001/2). In sum, the null hypothesis is rejected in favour of the alternative hypothesis: students that have a higher percentage of opposite-sex classmates have more CSFs.

Mediation and moderated mediation effect

Table 3 also shows that the percentage of opposite-sex classmates, together with the control variables explains 3.4 percent of the variance in gender role orientation among natives and 4.7 percent among migrants (R^2 = .034 and R^2 = .047). It also shows that there is no significant effect between the percentage of opposite-sex classmates and gender role orientations among natives (β = 0.000, z = 1.261, p = .207/2) and migrants (β = 0.000, z = 0.730, p = .465/2). A higher percentage of opposite-sex classmates does not make the gender-role orientation more progressive. Hence, I failed to reject the null hypothesis that there is no effect between the percentage of opposite-sex classmates and gender-role orientations: hypothesis 2 is not supported. Furthermore, this effect is not weaker for students with a migration background than for students without a migration background (Δβ = 0.000, z = 1.319, p = .187/2). Therefore, I found no support for hypothesis 4.

In addition, this progressive gender-role orientation did not predict the proportion of CSFs among natives (β = 0.007, z = 0.564, p = .573/2), but it did among migrants (β = 0.039, z = 2.107, p = .035/2). This means there is partial support for hypothesis 3. Still, the overall effect (when the migrants and natives are combined) is not significantly positive (β = 0.017, z = 1.481, p = .102/2). Hence, I failed to reject the null hypothesis that gender-role orientation does not predict the proportion of CSFs: hypothesis 3 is not supported. Moreover, the effect of gender-role orientation on the proportion of CSFs in a friendship network is not significantly different between migrants and natives (Δβ = 0.032, z = 1.452, p = 1-.146/2). This is against my expectation that the effect of gender-role orientations on the proportion of CSFs in a network is less likely to be significant among migrants than among natives. Therefore, there is no support for hypothesis 5.

Consequently, there is also no mediation effect from the percentage of opposite-sex classmates on the proportion of CSFs, through gender-role orientation, both among migrants ($\beta_{indirect}$ = 0.000, z = 0.624, p = .532/2) and students without a migration background ($\beta_{indirect}$ = 0.000, z = 0.423, p = .672/2). Moreover, there is no significant difference in the indirect effect

[2] $[(M + SD) \times \beta] - [(M - SD) \times \beta] = [(44.15 + 18.81) \times 0.003] - [(44.15 - 18.81) \times 0.003] = 0.11$

among migrants and natives ($\Delta\beta_{indirect}$ = 0.000, z = 0.726, p = .468/2). In other words: there is no moderated mediation effect. These effects are also visualized in Figure 2.

As a sensitivity test, hypotheses 1, 3, and 5 are tested by a poisson regression. To save space, these findings are shown in Appendix C. The outcome of the sensitivity test is the same as under SEM: I found support for hypothesis 1, but not for hypotheses 3 and 5.

5. Conclusion and Discussion

This study aimed to answer the following research question: *To what extent is the relation between the percentage of opposite-sex classmates and the proportion of cross-sex friendships different between children with a migration background and without a migration background?* This study found support for the opportunity theory of Blau (1994) in Dutch schools. Both among migrants and natives, it was found that more opportunities for cross-sex friendships – having more opposite-sex classmates – led to more cross-sex friendships. This finding is in line with earlier findings from organizational settings such as the workplace (Kalmijn, 2002; South et al., 1982; Straits, 1996) and American schools (Kovacs et al., 1996). This is an important scientific contribution because the opportunity theory was barely used as an explanation for CSFs in schools, so this study filled in a scientific gap. This conclusion indicates that policy advisors or schools that aim to promote CSFs are recommended to make the classes mixed in gender, this way the opportunities for meeting, and thus mating, are the highest.

Although the opportunity theory is supported, this study found no support for the indirect relation between the percentage of opposite-sex classmates and the proportion of CSFs through a student's gender-role orientation. Moreover, contradicting to my expectations, this study found that the relations were equally strong between students with and without a migration background. In sum: according to this study, there is a direct relation between the percentage of opposite-sex classmates and the proportion of CSFs, but no indirect relation, both among migrants and natives.

There are multiple reasons why this study found no indirect relation nor a moderating-effect for migration background. It is, for example, possible that the intergroup contact theory of Allport (1954) is less applicable for intersexual contact than it is for (e.g.) interethnic contact because sex is less dominated by structural effects of category size. After all, men and women are roughly equal in numbers (Mcpherson et al., 2001). This means that there is (in general) only a small minority-majority difference between the sexes. Hence the intersexual contact does not lower the stereotypes

of a person towards the opposite sex. Moreover, it is possible that contact between the two sexes is not enough institutionally supported by for example the teachers. If this is the case, cross-sex contact is less likely to lead to progressive gender-role orientations (Allport, 1954; Pettigrew, 1998). Furthermore, Liddell and Kruschke (2018) report that averaging multiple ordinal variables and treating it as an interval scale increases the chances for a type II-error (i.e. failing to find a true effect). In this study, the gender-role orientation was measured by averaging four ordinal scales and treated as an interval scale. It could be possible that this operationalization led to the wrong conclusion that the intergroup contact theory is not supported in this study.

Additionally, I did not find that the progressive gender-role role orientations increase the proportion of CSFs. This is against my expectation and earlier findings of Lenton and Webber (2006) and Reeder (2003). One explanation why this can be the case is that Reeder (2003) and Lenton and Webber (2006) both asked their respondents whether they *behave* masculine or feminine, while this study looked at whether the respondent thinks that women *should behave* 'feminine' and men 'masculine'. Although this seems like a small difference, it can influence the outcome of the study seriously. As already mentioned, I expected that a student with a progressive gender-role orientation will be more similar to the opposite sex. Hence, they will be more likely to form CSFs. This argument is more concerning the actual 'gender-behaviour' than the attitude towards 'gender-behaviour'. Hence, the operationalization of gender-role orientation in this study can lead to different outcomes than the results of Reeder (2003) and Lenton and Webber (2006) who found that progressive gender-role orientations lead to more CSFs.

Furthermore, I did not find a moderating relation for migration background. This means that, according to this study, the direct and indirect effect is equally strong for migrants and natives. This is surprising because I expected that the social environment of migrants, the social norms they are surrounded by, will lead to different effects between natives and migrants. The main explanation for this finding is that most arguments assume that the migrants in this study have a non-western background and that their environment has more traditional gender-role orientations. Unfortunately, the data did not reveal the specific country of birth for the student or their parents. This means that a great share of the migrants in the sample may be from western countries[3].

[3] On the other hand, Bubritzki, van Tubergen, Weesie, & Smith (2018) used the same data and report that a vast majority of the migrants in their sample are from non-western countries such as Marocco, Turkey and Suriname.

Because these countries are somewhat equal in gender-role orientation (UNDP, 2020; WEF, 2020) as the Netherlands, this can influence the outcomes of the analyses.

Limitations and Future Research

Just like all social research, this study also has its limitations. Firstly, the data used in this study were clustered: students are nested in classes and the classes are nested in schools. This means that the residuals can be correlated, and this violates the assumption of SEM that the cases are independent (Field et al., 2012). Unfortunately, it was not feasible to test the hypotheses in a multilevel SEM. Secondly, the missing data in this study were not 'missing completely at random' (MCAR). This means that some respondents had higher chances of having missing values than other students (Van Buuren, 2018). In this study, I used listwise deletion to deal with the missing data. According to Van Buuren (2018), using listwise deletion when the data are not MCAR can lead to an overestimation of the standard error. Consequently, this may increase the risk of a type-II error. Imputing the missing data by multiple imputation methods is preferred in these circumstances but unfortunately this was out of the current study's scope. Thirdly, given the structure of the data it was only possible to measure the proportion of CSFs in the student's school class. It could be possible that the respondent has CSFs, but these friends are not his/her classmates. Lastly, even if this study would have found a relation between the gender-role orientation of the student and the proportion of CSFs in a network, it would not mean that there is a causal relation between progressive gender-role orientation and the proportion of CSFs. One could also argue that the association is reversed: more CSFs lead to more knowledge about the beliefs and attitudes of the other sex and hence progressive gender-role orientation (Allport, 1954; Pettigrew, 1998). A longitudinal study or an experiment would be better to find causal effects. These aforementioned limitations are all out of the current study's scope, thus future research is needed to address this.

Still, this study provided interesting arguments about why the adoption and use of gender-role orientation in forming CSFs may vary across groups and cultures. Future research could test whether countries differ in the proposed indirect relation between the percentage of opposite-sex classmates and the proportion of CSFs. As hypothesized in this study, small power differences between men and women may lead to more CSFs (O'Meara, 1989; Rose, 1985). Does that imply that the formation of CSFs differs between countries that emphasize gender equality such as Sweden, Finland, or Norway and countries that do this to a lesser extent? Future research is needed

to test this empirically. In conclusion, this study contributed to the scientific literature by showing that the chances for meeting and hence mating cross-sexually are important when explaining sex-homogeneity in friendships. Moreover, this study opened doors for future research.

References

Al-Attar, G., De Meyer, S., El-Gibaly, O., Michielsen, K., Animosa, L. H., & Mmari, K. (2017). "A Boy Would Be Friends With Boys … and a Girl … With Girls": Gender Norms in Early Adolescent Friendships in Egypt and Belgium. *Journal of Adolescent Health*, *61*(4), 30–34. https://doi.org/10.1016/j.jadohealth.2017.03.013

Allport, G. W. (1954). *The nature of prejudice*. Cambridge: Addison-Wesley publishing company.

Altmann, T., & Roth, M. (2020). Individual differences in the preference for cross-sex friendship (heterosociality) in relation to personality. *Personality and Individual Differences*, *157*, 1–6. https://doi.org/10.1016/j.paid.2020.109838

Baron, R. M., & Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, *42*(2), 155–162. https://doi.org/10.1037/h0036215

Bird, S. R. (1996). Welcome to the men's club homosociality and the maintenance of hegemonic masculinity. *Gender and Society*, *10*(2), 120–132. https://doi.org/10.1177/089124396010002002

Blau, P. (1994). *Structural contexts of opportunities*. Chigago: Chicago Press.

Bleske-Rechek, A., Somers, E., Micke, C., Erickson, L., Matteson, L., Stocco, C., Schumacher, B., & Ritchie, L. (2012). Benefit or burden? Attraction in cross-sex friendship. *Journal of Social and Personal Relationships*, *29*(5), 569–596. https://doi.org/10.1177/0265407512443611

Bleske, A. L., & Buss, D. M. (2000). Can men and women be just friends? *Personal Relationships*, *7*(2), 131–151. https://doi.org/10.1111/j.1475-6811.2000.tb00008.x

Bolzendahl, C. I., & Myers, D. J. (2004). Feminist Attitudes and Support for Gender Equality: Opinion Change in Women and Men, 1974-1998. *Social Forces*, *83*(2), 759–789. https://doi.org/10.1353/sof.2005.0005

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). New York: Guilford Publications.

Bubritzki, S., van Tubergen, F., Weesie, J., & Smith, S. (2018). Ethnic composition of the school

class and interethnic attitudes: a multi-group perspective. *Journal of Ethnic and Migration Studies*, *44*(3), 482–502. https://doi.org/10.1080/1369183X.2017.1322501

Byrne, D. (1971). *The attraction paradigm* (1st ed.). Academic Press.

Byrne, D. (1997). An Overview (and Underview) of Research and Theory within the Attraction Paradigm. *Journal of Social and Personal Relationships*, *14*(3), 417–431. https://doi.org/https://doi.org/10.1177%2F0265407597143008

Cameron, J. E., & Lalonde, R. N. (2001). Social identification and gender-related ideology in women and men. *British Journal of Social Psychology*, *40*(1), 59–77. https://doi.org/10.1348/014466601164696

CBS. (2016). *Wat verstaat het CBS onder allochtoon?*. Retrieved from https://www.cbs.nl/nl-nl/faq/specifiek/wat-verstaat-het-cbs-onder-een-allochtoon-

CBS Statline. (2019). *Jeugdmonitor*. Retrieved from https://jmopendata.cbs.nl/#/JM/nl/dataset/71009NED/table?fromstatweb

Coleman, J. S. (1994). *Foundations of social theory* (1st ed.). Cambridge: Harvard university press.

de Lemus, S., Moya, M., & Glick, P. (2010). When Contact Correlates with Prejudice: Adolescents' Romantic Relationship Experience Predicts Greater Benevolent Sexism in Boys and Hostile Sexism in Girls. *Sex Roles*, *63*(3), 214–225. https://doi.org/10.1007/s11199-010-9786-2

Demant, F., & Pels, T. (2007). Islam en gender bij Marokkaanse jongeren in Nederland. *Pedagogiek*, *26*(2), 157–171.

Diehl, C., Koenig, M., & Ruckdeschel, K. (2009). Religiosity and gender equality: comparing natives and Muslim migrants in Germany. *Ethnic and Racial Studies*, *32*(2), 278–301.

Fagot, B. I., Rodgers, C. S., & Leinbach, M. D. (2000). Theories of Gender Socialization. *The Developmental Social Psychology of Gender*, *65*.

Felmlee, D. H. (1999). Social Norms in Same- and Cross-Gender Friendships. *Social Psychology Quarterly*, *62*(1), 53–67. https://doi.org/10.2307/2695825

Fiebert, M. S., & Fiebert, P. B. (1969). A Conceptual guide to friendship formation. *Perceptual and Motor Skills*, *28*(2), 383–390. https://doi.org/https://doi.org/10.2466%2Fpms.1969.28.2.383

Field, A., Miles, J., & Field, Z. (2012). *Discovering statistics using R* (First). London: Sage

Publications.

Grard, A., Kunst, A., Kuipers, M., Richter, M., Rimpela, A., Federico, B., & Lorant, V. (2018). Same-Sex Friendship, School Gender Composition, and Substance Use: A Social Network Study of 50 European Schools. *Substance Use and Misuse*, *53*(6), 998–1007. https://doi.org/10.1080/10826084.2017.1392976

Kalmijn, M. (1998). Intermarriage and Homogamy: Causes, Patterns, Trends. *Annual Review of Sociology*, *24*(1), 395–421. https://doi.org/10.1146/annurev.soc.24.1.395

Kalmijn, M. (2002). Sex Segregation of Friendship Networks: Individual and Structural Determinants of Having Cross-Sex Friends. *European Sociological Review*, *18*(1), 101–117. https://doi.org/10.1093/esr/18.1.101

Kalter, F., Anthony, H., Hewstone, M., Jonsson, jan O., Kalmijn, M., Kogan, I., & van Tubergen, F. (2016). *Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) – Reduced version. Reduced data file for download and off-site use. GESIS Data Archive, Cologne, ZA5656 Data file Version 1.2.0*. https://doi.org/10.4232/cils4eu.5353.1.2.0

Kieschnick, R., & Mccullough, B. D. (2003). Regression analysis of variates observed on (0, 1): Percentages, proportions and fractions. *Statistical Modeling*, *3*(3), 193–213. https://doi.org/10.1191/1471082X03st053oa

Kite, M. E., & Whitley, B. E. (1996). Sex differences in attitudes toward homosexual persons, behaviors, and civil rights: A meta-analysis. *Personality and Social Psychology Bulletin*, *22*(4), 336–353. https://doi.org/10.1177/0146167296224002

Koopmans, R. (2019). *Het vervallen huis van de islam* (1st ed.). Amsterdam: Prometheus.

Kovacs, D. M., Parker, J. G., & Hoffman, L. W. (1996). Behavioral, Affective, and Social Correlates of Involvement in Cross-Sex Friendship in Elementary School. *Child Development*, *67*(5), 2269–2286. https://doi.org/10.1111/j.1467-8624.1996.tb01856.x

Kroska, A. (2004). Divisions of domestic work: Revising and expanding the theoretical explanations. *Journal of Family Issues*, *25*(7), 900–932. https://doi.org/10.1177/0192513X04267149

Lenton, A. P., & Webber, L. (2006). Cross-sex friendships: Who has more? *Sex Roles*, *54*, 809–820. https://doi.org/10.1007/s11199-006-9048-5

Liddell, T. M., & Kruschke, J. K. (2018). Analyzing ordinal data with metric models: What could

possibly go wrong? *Journal of Experimental Social Psychology*, *79*, 328–348. https://doi.org/10.1016/j.jesp.2018.08.009

Maccoby, E. E. (1988). Gender as a Social Category. *Developmental Psychology*, *24*(6), 755–765. https://doi.org/10.1037/0012-1649.24.6.755

Martino, W. (2000). Policing Masculinities: Investigating the Role of Homophobia and Heteronormativity in the Lives of Adolescent School Boys. *The Journal of Men's Studies*, *8*(2), 213–236. https://doi.org/10.3149/jms.0802.213

McCarthy, B., Felmlee, D., & Hagan, J. (2004). Girl Friends Are Better: Gender, Friends, and Crime Among School and Street Youth. *Criminology*, *42*(4), 805–836. https://doi.org/10.1111/j.1745-9125.2004.tb00537.x

McDonald, S. (2011). What's in the "old boys" network? Accessing social capital in gendered and racialized networks. *Social Networks*, *33*(4), 317–330. https://doi.org/10.1016/j.socnet.2011.10.002

McDonnell, A., & Mehta, C. M. (2016). We could never be friends: Representing cross-sex friendship on celebrity gossip web sites. *Psychology of Popular Media Culture*, *5*(1), 74–84. https://doi.org/10.1037/ppm0000032

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review*, *71*(3), 353–375. https://doi.org/10.1177/000312240607100301

Mcpherson, M., Smith-lovin, L., & Cook, J. M. (2001). Birds of Feather: Homophily in Social Networks. *Annual Review of Sociology*, *27*, 415–444.

Mehta, C. M., & Strough, J. N. (2009). Sex segregation in friendships and normative contexts across the life span. *Developmental Review*, *29*(3), 201–220. https://doi.org/10.1016/j.dr.2009.06.001

Monsour, M., Harris, B., Kurzweil, N., & Beard, C. (1994). Challenges Confronting Cross-Sex Friendships:"Much Ado About Nothing?" *Sex Roles*, *31*, 55–77.

Netemeyer, R. G., Bearden, W. O., & Subhash, S. (2003). *Scaling procedures: issues and applications* (1st ed.). London: Sage publications.

O'Meara, J. D. (1989). Cross-sex friendship: Four basic challenges of an ignored relationship. *Sex Roles*, *21*(7), 525–543. https://doi.org/10.1007/BF00289102

Pels, T., Distelbrink, M., & Postma, L. (2009). *Opvoeding in de migratiecontext: Review van*

onderzoek naar de opvoeding in gezinnen van nieuwe Nederlanders. Retrieved from http://www.expoo.be/sites/default/files/atoms/files/opvoeding20in20de20migratiecontext_2699.pdf

Pettigrew, T. F. (1998). Intergroup Contact Theory. *Anual Review of Psychology*, *49*, 65–85. https://doi.org/10.4324/9781315646510

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*(5), 751–783. https://doi.org/10.1037/0022-3514.90.5.751

Rammstedt, B., & Rammsayer, T. H. (2002). Gender Differences in Self-Estimated Intelligence and their Relation to Gender-Role Orientation. *European Journal of Personality*, *16*(5), 369–382. https://doi.org/10.1002/per.454

Reeder, H. (2017). "He's Like a Brother": The Social Construction of Satisfying Cross-Sex Friendship Roles. *Sexuality and Culture*, *21*(1), 142–162. https://doi.org/10.1007/s12119-016-9387-5

Reeder, H. M. (2003). The effect of gender role orientation on same- and cross-sex friendship formation. *Sex Roles*, *49*(3–4), 143–152. https://doi.org/10.1023/A:1024408913880

Rose, S. M. (1985). Same- and cross-sex friendships and the psychology of homosociality. *Sex Roles*, *12*(1), 63–74. https://doi.org/10.1007/BF00288037

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. R package version 0.5-15. *Journal of Statistical Software*, *48*(2), 1–36.

SCP. (2012). *Dichter bij elkaar?*. Retrieved from https://www.scp.nl/Publicaties/Alle_publicaties/Publicaties_2012/Dichter_bij_elkaar/Dichter_bij_elkaar.org

SCP. (2013). *Acceptance of lesbian, gay, bisexual and transgender individuals in the Netherlands 2013*. Retrieved from https://www.scp.nl/english/Publications/Publications_by_year/Publications_2013/Acceptance_of_lesbian_gay_bisexual_and_transgender_individuals_in_the_Netherlands_2013

SCP. (2015). *Opvoeden in niet-westerse migrantengezinnen Een terugblik en verkenning*. Retrieved from https://www.scp.nl/publicaties/publicaties/2015/09/18/opvoeden-in-niet-westerse-migrantengezinnen

SCP. (2018). *De religieuze beleving van moslims in Nederland*. Retrieved from

https://www.scp.nl/publicaties/publicaties/2018/06/07/de-religieuze-beleving-van-moslims-in-nederland

Sets, J. E., & Burke, P. J. (2000). Identity Theory and Social Identity Theory. *Social Psychology Quarterly*, *63*(3), 224–237. https://doi.org/10.3102/0013189X0629800

Smith, A. B., & Inder, P. M. (1990). The Relationship of Classroom Organisation to Cross-age and Cross-sex Friendships. *Educational Psychology*, *10*(2), 127–140. https://doi.org/10.1080/0144341900100202

Sobel, M. E. (1982). Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models. *Sociological Methodology*, *13*, 290–312. https://doi.org/10.2307/270723

South, S. J., Bonjean, C. M., Markham, W. T., & Corder, J. (1982). Social Structure and Intergroup Interaction: Men and Women of the Federal Bureaucracy. *American Sociological Review*, *47*(5), 587–599.

Stehlé, J., Charbonnier, F., Picard, T., Cattuto, C., & Barrat, A. (2013). Gender homophily from spatial behavior in a primary school: A sociometric study. *Social Networks*, *35*(4), 604–613. https://doi.org/10.1016/j.socnet.2013.08.003

Straits, B. C. (1996). Ego-net diversity: Same- and cross-sex coworker ties. *Social Networks*, *18*(1), 29–45. https://doi.org/10.1016/0378-8733(95)00254-5

Strough, J. N., & Covatto, A. M. (2002). Context and age differences in same- and other-gender peer preferences. *Social Development*, *11*(3), 346–361. https://doi.org/10.1111/1467-9507.00204

Tajfel, H. (1981). *Human Groups and Social Categories: Studies in Social Psychology* (1st ed.). Cambridge: Cambridge University press.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology*, *1*(2), 149–178. https://doi.org/10.1002/ejsp.2420010202

UNDP. (2020). *2020 Human Development Perspectives Tackling Social Norms: A game changer for gender inequalities*. Retrieved from http://hdr.undp.org/en/gsni

Van Buuren, S. (2018). *Flexible Imputation of Missing Data* (2nd ed.). Utrecht: CRC press.

van der Vleuten, M., Steinmetz, S., & van de Werfhorst, H. (2018). Gender norms and STEM: the importance of friends for stopping leakage from the STEM pipeline. *Educational Research and Evaluation*, *24*(6–7), 417–436.

https://doi.org/10.1080/13803611.2019.1589525

van Tubergen, F. (2020). *Introduction to sociology* (1st ed.). Abingdon: Routledge.

Veniegas, R. C., & Peplau, L. A. (1997). Power and the quality of same-sex friendships. *Psychology of Women Quarterly*, *21*, 279–297.

WEF. (2020). *Global Gender Gap Report 2020*. Retrieved from https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality

Wood, R. E., Goodman, J. S., Beckmann, N., & Cook, A. (2008). Mediation testing in management research: A review and proposals. *Organizational Research Methods*, *11*(2), 270–295. https://doi.org/10.1177/1094428106297811

Appendix A: Assumption Tests

Before testing the hypotheses, a few assumptions for structural equation modeling have to be tested. These assumptions are almost the same as assumptions for OLS-regression: linear relationship, normal distribution of residuals, independence of observations, no outliers, and no multicollinearity. Below I describe how I handled all of these assumptions.

Linear Relationship

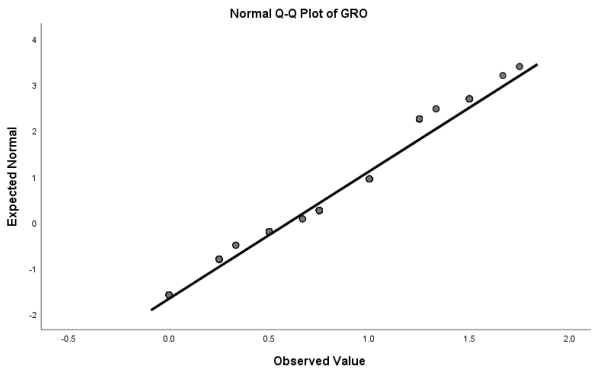
To test whether the relations between the numerical independent variables and the proportion of CSFs are linear, I first analyzed the scatter plots. Second I tested whether the predictors explained significantly more variance in the dependent variables when a quadratic term was added, using incremental F-tests. If the R^2 significantly increases when a quadratic term is added, it means that the relation is not linear. This was not the case for all numeric independent variables on both gender-role orientation and the proportion of CSFs, except for the relation of the percentage opposite-sex classmates on the proportion of CSFs. This relation explained significantly more variance on the dependent variable when a quadratic term was added ($\Delta R^2 = .013$, $F(2, 3815) = 51.322$, $p > .001$). I attribute this to the right-skewness of the dependent variable, which is accounted for in the sensitivity analysis.

Normal Distribution of the Dependent Variable and Mediator

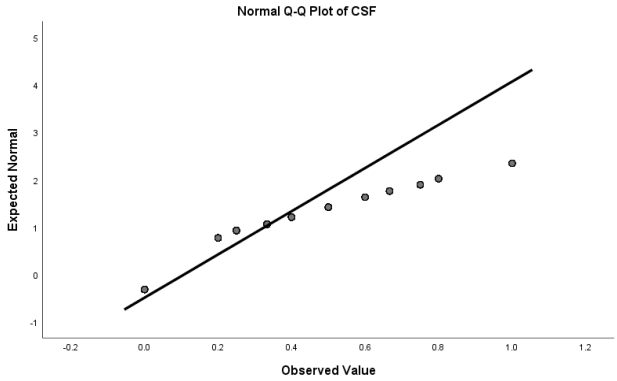
The dependent variable – proportion of CSFs in friendship network – is not normally distributed according to the Shapiro Wilk test ($W = .56$; $p < .001$; Skewness = 2.263; $z = 59.55$). This is also visualized by the Q-Q-plot in Figure A1b and A1d: the dots are far below the line. I solved this by testing the hypotheses with a poisson regression as a sensitivity analysis. The gender-role orientation is a mediator and should therefore also be normally distributed. This is approximately the case (see Figure A1a and A1c).

Independence of Observations

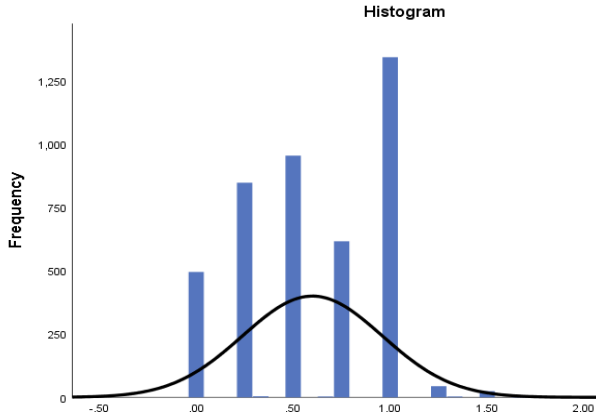
Unfortunately, the data is clustered: students are nested in classes and these classes are nested in schools. It was not feasible to account for this in a multilevel test. This assumption is violated.



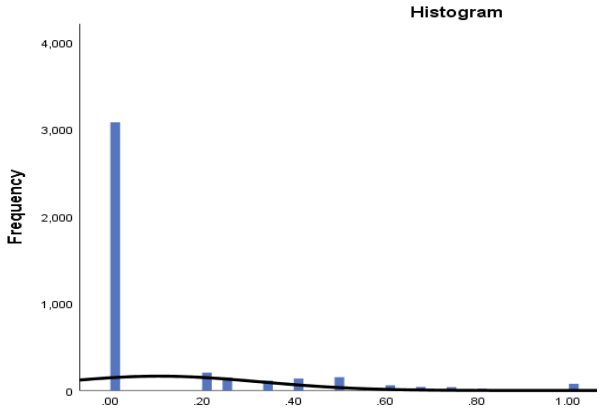
A1a: Q-Q-plot Gender role-orientation



A1b: Q-Q-plot proportion of CSFs



A1c: Histogram Gender role-orientation



A1d: Histogram proportion of CSFs

Figure A1: Normality tests for the mediator and dependent variable

No Univariate, Bivariate and Multivariate Outliers

Univariate outliers were only found on the variable 'age'. These three cases were deleted. I tested for bivariate outliers for all independent variables (including the control variables) on the mediator and dependent variables, but I did not find any bivariate outliers. I checked for multivariate outliers by analyzing the Mahalanobis distance. In total 35 cases were multivariate outliers ($z > 8$) and therefore deleted for further analysis. These cases were all in their first year of education (*brugklas*).

No Multicollinearity

I checked for multicollinearity, by analyzing the variance inflation factor (VIF) the VIF's of all predictors. These were all below 10, so I could safely interpret the parameters.

Appendix B: standardized path model

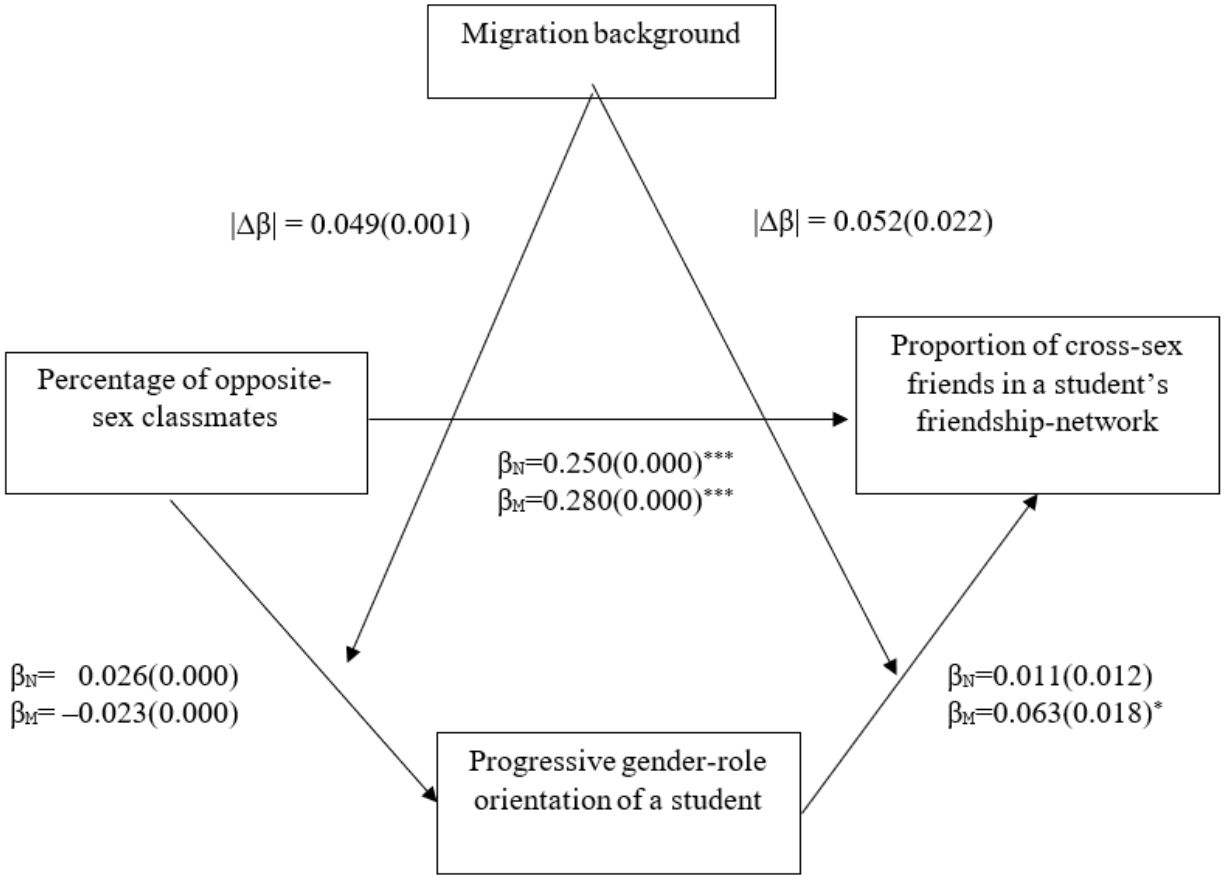


Figure B1: SEM-path model.

Notes: β_N = coefficient for natives, β_M = coefficient for migrants. All coefficients are controlled for the control variables and standardized. SE between brackets. Model fit: ($x^2(2) = 0.125$, $p = .939$; CFI = 1; RMSEA = 0.050, CI90: [0.000, 0.100]). $^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$ – one sided.

Appendix C: Sensitivity Test

As earlier mentioned, the distribution of the proportion of CSFs is not normally distributed but inflated around zero. Structural equation models are sensitive for such distributions and hence hypotheses 1, 3, and 5 are tested by Poisson regressions, which is often preferred for dependent variables with inflated distributions around zero. The outcomes of the sensitivity test are shown in Table C1. This table shows in the left column the effects of the poisson regressions by natives and in the right column for migrants. Moreover, Table C1 shows that the percentage of opposite-sex classmates positively predicts the proportion of CSFs in a network. The IRR equals 1.054 for natives (Wald-CI90 = 1.043, 1.066) and 1.051 for migrants (Wald-CI90 = 1.035, 1.068), a significant result. Concretely, this indicates that if the percentage of opposite-sex classmates were to increase by one point, the IRR for the proportion of opposite-sex classmates would be expected to increase by a factor of 1.053 or 1.051, while holding all other variables constant. This finding is in line with the results of the SEM-analysis, hence I can still reject the null-hypothesis that the percentage of opposite-sex classmates does not predict the proportion of opposite-sex classmates. Furthermore, gender-role orientation does not predict the proportion of CSFs in a network among natives (IRR = 1.160, Wald-CI90 = 0.557, 2.416) nor among migrants (IRR = 1.417, Wald-CI90 = 0.611, 3.288). This result is slightly different than the results from the SEM-analysis, because the latter found that the effect was positive and significant among migrants, but the Poisson regression does not.

Still, I failed to reject the null-hypothesis that gender-role orientation does not positively predict the proportion of CSFs in a network. Hence, hypothesis 3 is not supported. Although the poisson regressions do not allow me to check for significant differences between the coefficients of migrants and natives, I can see that the coefficient of gender-role orientation on the proportion of CSFs is higher among migrants than among natives (1.160 vs. 1.417). Also, the Wald 90-percent confidence intervals overlap. Hence, I found not enough evidence to support hypothesis 5: I failed to reject the null hypothesis.

Table C1: Sensitivity test with Poisson regressions split by migration background. Dependent variable: the proportion of CSFs.

	Natives			Migrants		
	β	IRR	Wald 90CI IRR	β	IRR	Wald 90CI IRR
Intercept	–18.389***			– 6.750		
% opposite sex classm.	0.053***	1.054	1.043; 1.066	0.050***	1.051	1.035; 1.068
Gender role orientation	0.148	1.160	0.557; 2.416	0.348	1.417	0.611; 3.288
Boy	0.198	1.219	0.733; 2.028	0.213	1.237	0.631; 2.423
Age	0.854**	2.350	1.444; 3.823	0.062	1.064	0.656; 1.725
Romantic relationship	0.723**	2.060	1.198; 3.543	1.256**	3.512	1.637; 7.535
Cross-sex sibling	– 0.639**	0.528	0.327; 0.852	– 0.050	0.951	0.485; 1.864
Vmbo	Ref.	Ref.		Ref.	Ref.	
Mavo	0.300	1.349	0.731; 2.490	0.828	2.288	0.847; 6.183
Havo	– 0.003	0.997	0.457; 2.178	– 0.558	0.572	0.099; 3.314
Vwo	0.604	1.830	0.794; 4.216	0.216	1.241	0.326; 4.727
Number of classmates	– 0.065**	0.937	0.888; 0.989	– 0.077	0.926	0.851; 1.008
N	2631			1137		