

National Research University
Higher School of Economics

As a manuscript

Vera V. Titkova

**SOCIAL NETWORK ANALYSIS OF FACTORS AFFECTING
POPULARITY AND SOCIAL EXCLUSION IN ADOLESCENT
ENVIRONMENT**

Thesis Summary for the purpose of obtaining PhD in Sociology HSE

Academic Supervisor:
PhD in biology
Daniel A. Alexandrov

Moscow, 2018

1. Statement of research problem

The current study is dedicated to the connection between social exclusion, behaviours and attitudes of adolescents both on individual and group level. Popularity and social exclusion are defined through the individual's position in the structure of friendships and negative relationships in the peer group. Adolescents create a certain social group structure, when they initiate or break their connections. The actions of the individuals are determined by their embeddedness in the social structure. Thus, these actions are conducted with accordance to group norms, values and the social status of the individual in the group.

A substantial part of research papers in the fields of educational sociology as well as social psychology focus on describing the significant connection between individual characteristics and social status of adolescents. The results of these studies demonstrate how popularity and social exclusion are determined by individual characteristics of the adolescent, such as gender, age, ethnic status, various social and psychological attitudes, as well as certain behaviours, for example, bullying and risky behaviours.

Other studies specify how various individual characteristics, attitudes or behaviours influence social status in the groups with various characteristics: in different types of educational institutions, in classes of different ethnic composition etc. However, comparison between different studies demonstrates that there is no solid understanding of which of the discovered connections remain stable regardless of outer conditions, as well as which of the connections change together with the social context.

The current study uses network analysis of positive and negative relationships in various groups of adolescents. The following approach provides a better understanding of significance of individual factors and general group characteristics for popularity and social exclusion of adolescents.

The research problem of the current study is relevant due to various reasons. First of all, there is a definite necessity to expand the current understanding of social structure of small adolescent groups, as well as the processes that lead to popularity

and social exclusion of these groups' members. An adolescent's popularity derives from the position they have in the social group. Popularity is studied through hierarchical relationships, approval, social dominance, support, compliance with group norms and values. The present variety in the definition of popularity, as well as the challenges arising while comparing the results of existing empirical studies dedicated to the matter, makes the new studies of social mechanisms determining the social structure formation relevant.

Secondly, expanding the knowledge on mechanisms of social exclusion becomes a relevant issue, when the student who is being excluded, is the one who classmates refuse to communicate with. The recent years have seen the appearance of the research papers defining social exclusion as participation in negative relationships (enmity, objection) rather than lack of friendships. In this case social exclusion is no longer defined as one's position on the scale from "unpopular to popular". This approach creates a new dimension of exclusion, namely "non-excluded to excluded".

Thirdly, the relevance of the current study is supported by applying the newest techniques of social network analysis. This provides more detailed, comprehensive and deep understanding of how various types of social structures are formed. Moreover, this approach allows to monitor the dynamics of their development. Sociometry has already been used by J. L. Moreno in 1930s. Its first appearance in Russia is connected to Y.L. Kolominsky, who used it in his research in 1970s. Back then the researchers' conclusions were based on the connection between the individual characteristics of the child with the number of social links they have. Since then the method has undergone some significant changes leading to its improvement. The newest techniques of social network analysis allow to perform complex analysis of social relations within the group; simultaneously analyze several types of relationships that exist between the students to test the hypothesis suggesting the existence of complex network structures; analyze the coevolution of social relationships and behaviour to study the processes of social selection and social influence.

2. Aim and objectives of the study

The aim of this study is to examine how popularity and social exclusion are connected to attitudes and behaviour of students, as well as to the characteristics of educational environment in the class. Popularity and social exclusion define the student's position in the social structure of the school class. The current study examines two different types of popularity: sociometric popularity (number of friends) and perceived popularity (attitudes about who is popular in class).

The aim is perceived through the following objectives:

1. Analysis of factors of sociometric and perceived popularity:
 - **how** do teenagers construct the term “popularity” in the Russian cultural context, and what criteria of popularity do they name
 - **analysis** of how perceived popularity is connected to academic success and behaviour of teenagers;
 - **analysis** of how sociometric popularity is connected to academic success and bullying in different educational environments;
 - **analysis** of relationship between sociometric popularity and perceived popularity with individual characteristic and negative ties being controlled.
2. Analysis of coevolution of friendship networks' structure and adolescents' behaviours
 - **analysis** of coevolution of friendship networks' structure and risky behaviours, such as smoking and alcohol consumption.
 - **analysis** of coevolution of friendship networks and academic attitudes.
3. Analysis of social exclusion factors:
 - **analysis** of connection between negative networks and individual characteristics of students;
 - **analysis** of connection between the structure of negative networks and friendship networks.

The object of the current study is adolescents, 15 to 18 years of age, coming from schools and vocational schools of Saint Petersburg and Moscow District

(object of study). The study focuses on examining the social status (popularity/exclusion) of adolescents in the structure of negative networks and friendship networks in school classes. The study examines two main types of popularity: sociometric popularity and perceived popularity. Sociometric popularity is the number of indegree friendship nominations received from classmates. Perceived popularity is the number of indegree ties, received as an answer to the question “who is popular in class”? Social exclusion is the number of negative nominations extracted from the question “whom do you communicate least with from your class?”

3. Background

Modern studies in the framework of relational sociology describe social relations based on individual’s embeddedness in social networks. According to this approach, the individual is living in the network of social relations, and is actively using the opportunities provided by the network to reach their goals and aims. The network structure, in its turn, is creating favourable conditions or restrictions for the actions of an individual [Грашоветтер, 2009].

The studies on the matter demonstrate that adolescents adopt certain behaviours to acquire the high status in the group and avoid social exclusion. Most works prove that academic success is positively related to sociometric popularity, but has a negative relation with perceived popularity [Schwartz, 2006; Gorman, Kim, Schimmelbusch, 2002; LaFontana, Cillessen, 2002]. The fact that students with high sociometric popularity demonstrate outstanding academic achievements is not doubted [de Bruyn, Cillessen, 2006; Rodkin et al., 2000], but it does not mean, that academic success necessarily leads to being popular [LaFontana, Cillessen, 2002; Gorman, Kim, Schimmelbusch, 2002].

Ethnic status (migration history) does definitely have an effect on friendships and negative relations among adolescents. Ethnic segregation is often perceived as an obstacle that interrupts with integration of migrant children of various generations [Plenty, Jonsson, 2016]. The grounds for segregation vary between countries: in

American society the main determinant is racial status, in England ethnic minority is defined through having the experience of transborder migration (common «minority» experience) [Alba, Holdaway, 2013, pp. 123-124], in the countries of Western Europe the division is based on religious affiliation [Alba, 2005]. Pupils refuse to share a desk with their classmates originating from a religious minority; if teenagers have just arrived to the country of residence, they can easily face the risk of social isolation from the ethnic majority. [Plenty, Jonsson, 2016]. Cultural and historical peculiarities of the country together with urban housing segregation and ethnic composition of classes at school affect relationships within peer groups in various ways [Smith, van Tubergen, Maas et al, 2016; Alba, Holdaway, 2013 (book); Alba, Silberman, 2009; Kruse, 2017; Kruse, Smith, van Tubergen et al, 2016].

The connection between popularity, social exclusion and bullying/victimization of adolescents has been studied in various research papers [Vaillancourt, Hymel, 2006; Cillessen, Mayeux, 2004; Puckett et al., 2008; Smith et al., 2010]. Starting from the early school age, aggression acts as a strong predictor of perceived popularity [Xie et al., 2006]. Bullying is often consciously used by adolescents to preserve their social status [Dijkstra et al., 2008]. However, a whole number of papers describes a situation, where the status of the adolescent expressing aggression is determined by the characteristics of their social environment [Juvonen, Graham, 2014]. Whether the aggressor will be popular or socially excluded is determined by the attitude the other group members on bullying [Rodkin et.al., 2006; Aslund, 2009; Salmivalli, 2010; Salmivalli et.al., 1996].

Examining the connection between social status and risk behaviours the researchers pay attention to such factors as the presence of social pressure in the group, as well as the mutual influence between the adolescents. Students aspiring to acquire a higher social status tend to adopt behaviours practiced by their peers. The more popular the student is, the more their influence on the other group members is [Gommans et al., 2017; Cohen, Prinstein, 2006; Juvonen, Ho, 2008; Sandstrom, 2011]. Students' aspiration to become friends with the popular individual can drag them into practicing risky behaviours [Geven et al. 2013; Popp et al. 2008; Bot et al.,

2005; Deutsch et al., 2014].

The way adolescents behave is influenced by the class culture: trying to take the established norms into account, students choose behaviours and adopt attitudes, that will be approved of and supported within the group [Coleman, 1960, 1961]. Macro environment (cultural peculiarities and institutional characteristics of the country) influence individuals' behaviours as well as their preferences [Chen, French, Schneider, 2006, pp. 3-10; Chen, French, 2008]. The cultural context present in particular countries, as well as the school system and institutional rights are still not taken into account in current studies on popularity and social exclusion.

4. Theoretical framework of the study

The current study is based on relational approach originating from the classic works of G. Simmel and further developed at Harvard university as a result of researchers' aspiration to 'combine mathematical techniques and sociological concepts of social actions' [Prell 2012, p. 42]. Relational approach (H.White, P.Bearman, R. Gould, C. Tilly) examines social networks and structures in connection with the cultural context, including local norms and values [Fuhse, 2014]. Within the framework of this approach the individual is viewed as an actor embedded into various social relationships rather than an autonomous subject with a set of personal characteristics. The aim of this approach is to describe how the actor is formed by the social relations, as well as to understand the mechanisms of social structure formation based on the interactions between the actors of the network [Crossley, 2010, pp. 1-7]. The determined mechanism allows to provide explanations for social phenomena: the causal relationship between the narrow set of factors, actions and the result [Hedström, Ylikoski, 2010].

Using the approach formulated by M. Granovetter and his followers to analyze the structure of economic interactions of individuals [Грановеттер, 2002], the current study focuses on studying the interactions of adolescents within one class. Discussing popularity is impossible without considering social networks (ties). Creating and breaking social ties, such as friendships and negative ties determines

the adolescent's opportunity to influence the structure of the teenage community. The embeddedness of the adolescent's actions in the network allows his/her peers to influence his/her individual characteristics. The current study uses several middle range theories, describing the following mechanisms [Merton, 1968, pp. 39-73]: Ecological approach [Bronfenbrenner, 1981], Balance theory [см. Heider, 1958], Social identity theory [Tajfel, 1984], Social misfit theory [Wright, Giammarino, Parad, 1986], Social exchange theory [Хоманс, 1984], Differential association-reinforcement theory [Akers et al, 1979], Goal-framing approach [Lindenberg, 2008] and others.

The main methodology used in the study is social network analysis. Network analysis is an individual direction of Social structural approach in sociology, that originated from the theory of social exchange introduced by G. Homans.

5. Personal contribution of the author to the problem development and data collection

The author of the thesis has made the following contribution to the study: (1) The author has conducted a systematic review and analyzed the results of the prior studies. It has demonstrated the present gap in understanding the connection between popularity, social exclusion, and behaviour both on the individual and the group level. The author has determined the possible directions for the future studies; (2) The author has determined the theoretical framework of the study of social status/exclusion of adolescents; (3) The author has selected solid methodological basis to solve the research problem, operationalize social status and analyze the structure of social relations.

The author contributed to collecting data used in the current study at every stage of preparing and conducting the study. As a research fellow at Laboratory of Sociology in Education and Science, the author of the thesis together with the research team was creating the instrument: questionnaires completed by respondents as well guides for semi-structured interviews with students. The author conducted the survey and the interviewing, managed data collection, developed database

architecture for data entry and analysis; coded answers to open questions; prepared the network data (conducted data unification and transferred the databases into the format, suitable for the software); performed preliminary analysis. The author has independently performed quantitative analysis (from operationalization of terms and selecting methods for analysis to model specification and interpretation) as well as qualitative analysis (including transcription of the interviews). The author has conducted comprehensive step-by-step analysis of the empirical base, provided detailed interpretation of the results at each stage, and placed the results of the thesis into the wider context of her area of research.

6. Methods of data collection and analysis

The empirical base of the current study had been comprised by the following sources:

- **three** cross-sectional surveys organized by Laboratory of Sociology in Education and Science of NRU HSE in 2010 and 2014 in secondary schools, secondary schools with focus on particular subjects, gymnasiums and lyceums of St. Petersburg and the Moscow District (with the support of the Center for Fundamental Research of the Higher School of Economics);

- **longitudinal survey** conducted by Laboratory of Sociology in Education and Science of NRU HSE between 2013 and 2015 in three educational institutions of secondary and primary vocational education in St. Petersburg;

- **semi-structured interviews** with 62 students from grades 9 to 11 from 15 schools.

Overall, to analyze the social structures the current study uses data from 200 secondary schools (1200 students from years 9-10) and three vocational schools (320 students from years 1-3 of study; 3 waves, two times a year: in October and April). The instruments surveying school-age adolescents were created by the research team of Laboratory of Sociology in Education and Science of NRU HSE.

The survey was conducted during cross-sectional studies of schoolchildren from Saint Petersburg (156 schools, 8280 students) and the Moscow District (50

schools, 3155 students). All the students present on the day of survey were participating. Classes where more than 25% of students have not participated in the survey had been excluded from the sample. Vocational schools have certain peculiarities, such as individual study plans, a lot of practical lessons (workshops etc) as well as rare attendance. Thus the survey in vocational schools was held in several stages until all the students in the group had undergone it. This method of collecting data on friendships and negative relationships allows seeing the structure of the social relations between the students in one class (and its dynamics in the longitudinal studies held in vocational schools). The students have also answered questions about the socioeconomic characteristics of the family: occupation and education of the parents, ethnic status, migration history, academic performance, socio-psychological attitudes, such as educational motivation, anti-school attitudes, professional involvement (for vocational schools); risk behavior (smoking and alcohol consumption) and social aggression (for vocational schools).

The students completed the surveys under supervision of the researchers. Teachers and other members of school administration did not participate in conducting the survey. The respondents had to fill in the questionnaires themselves. Prior to the beginning of the survey the researchers gave the respondents instructions on how to fill in the questionnaire and answered respondents' questions. During the survey the researchers stayed in class and ensured the discipline was maintained throughout the questionnaire completion.

Interviewing of the respondents was held in schools. They were selected randomly - every 5th person on the class list. In case the person was absent, the next person on the class list was asked to participate. Teachers and other members of school staff did not participate in conducting the interviews. If the informant gave their permission, the interviews were recorded. In other cases, the interviewer took notes and then compiled a detailed diary. For analyzing the interviews the Open coding approach with the subsequent analysis of the selected categories was used.

Several methods of data analysis were used to solve the research goals of the

current study. The network analysis approach was used in two ways:

1. Network analysis was applied to compute individual characteristics (sociometric popularity, perceived popularity, social exclusion). These characteristics were used as dependent variables in logistic and negative binomial regressions, as well as in multilevel modeling.

2. Special techniques of network analysis have been applied to model the links between the actors of the network. To analyze cross-sectional network data the current study applied two techniques: p2 models and exponential random graph models. Longitude network data was analyzed using stochastic actor-based models.

7. The main results of the study

The findings of this study demonstrate how popularity and social exclusion are connected to behaviours, attitudes and characteristics of students both on individual and group level. The current research makes a distinction between two types of popularity: sociometric and perceived. Sociometric popularity and social exclusion are positions that an individual has in the structure of friendships and negative relationships. Perceived popularity reflects how famous the student is among their peers. Sociometric popularity reflects the student's involvement into friendships. Sociometric popularity, social exclusion and perceived popularity reflect various social relations and behaviours of adolescents.

The current study analyzed how the social status of an adolescent is connected with their academic performance, educational attitudes and risky behaviours, such as smoking and drinking. The focus was on examining the connection between the social status with belonging to an ethnic minority as well as the connection of the social status with various roles in the situation of bullying. The results of analysis are presented below.

The relations between social status and academic performance are gender-specific (the connection is stronger for girls rather than boys) and are determined by the group context.

For girls academic achievement has a positive connection with their social status regardless of the level of educational motivation in the group. Even in the classes, where most pupils are not motivated to demonstrate academic performance, getting high marks helps girls to gain sociometric popularity. For boys the connection between status and academic performance is determined by their group context. In classes with high or average level of academic motivation the relationship between sociometric popularity and academic success is positive (but the connection is weaker than in the case with girls). In classes with low level of educational motivation the higher the boys' marks are compared to the class average, the lower their sociometric popularity is. This means that in such peer groups, boys' academic aspirations become a risk and are connected with loss of friendships.

The effect of group context for the relationship between social status and academic success is present on the class level rather than school level. Moreover, it is only relevant in certain cases: such classes comprised only 7% of the sample. In 93% of classes academic achievement is significant for high social status of both girls and boys. These results contradict a number of studies conducted in a number of schools in America and Western Europe, that have concluded that academic success is seen as "not masculine", and high marks, as well as demonstrating interest in studies damages boys' social status within the group and makes them eventually hide their aspiration to get good marks or balance their success with rebellious behaviour [Adler et al., 1992; Cillessen, Rose, 2005; Warrington et al., 2000]. In case with this study, the marginalization of straight-A male students had only been found in a small number of classes. In this case to achieve a higher status adolescents take different factors into account, be it sports achievements that were recognized by J.S. Coleman in the 60s, or aggressive behaviour and dominance.

The results of the current study demonstrate that in the school environment friendships are formed according to similarity (homophily) in academic achievement.

Academic achievement is a very important predictor when it comes to

friendships. It is quite unlikely for a straight-A student to be friends with someone who mostly gets D's. It is important to understand that vocational schools have various specializations, and that makes comparing students' academic achievement difficult. Thus, in the current study it was chosen to compare adolescents' educational and professional attitudes: negative attitude towards getting education (anti-school attitudes) as well as motivation to master the chosen profession and make it their future occupation (professional involvement). The results demonstrate that boys and girls build their friendships based on professional involvement homophily. Students initiate friendships with the classmates that share their desire to become an electrician, a florist or a mechanic. In this case social status within the group changes depending on anti-school attitudes of adolescents, but this effect varies for boys and for girls. The longitudinal data used in the current survey does only allow making statements about how anti-school attitudes influence the social status of students. It was discovered, that the social status of boys does not change because of their attitude towards studies: no matter how strong their anti-school attitudes might be, it won't affect their position in the peer group. For girls the opposite is the case: negative attitude towards education lowers the number of friendships, which means their status in the peer group becomes lower as well. Thus, girls who are interested in being friends with their peers in the group gradually change their anti school attitudes towards more positive. Moreover, girls are strongly affected by their peers, and they gradually adjust their attitudes to fit with the ones of their friends.

Homophily in academic achievements is confirmed by the results of other studies, that prove the importance of social selection based on academic performance in the school environment [Brechtwald, Prinstein, 2011; Ryan, 2000]. The process of social influence that is only found among girls, can be explained by their predisposition to build friendships and adjust their behaviours according to their social circle [Rose, Rudolph, 2006; Lansford, Parker, 1999]. The fact that anti-school attitudes do not influence boys' social status within the group the same way can be explained by the overall low level of motivation, same as in the case with the

7% of school classes with low motivation. Average level of educational motivation in vocational schools is significantly lower than in secondary schools. Thus, one can suggest that in this educational environment other factors of achieving and preserving a high social status, rather than academic achievement and motivation, become important.

The current study pays special attention to the connection between social status and status of the ethnic minority. Integration of ethnic minority children (migrants) and the role school plays in this process is extremely significant. Methods of social network analysis provide an instrument that allows to study real social interactions of adolescents with different migration status. The current study examines interethnic relations both through friendship connections, as well as the structure of negative relations.

Relationships between adolescents are ethnically segregated in many countries (USA, England, Germany, Sweden, and Netherlands) [Moody, 2001; Leszczensky, Pink, 2015; Plenty, Jonsson, 2016; Santos, Kornienko, Rivas-Drake, 2017]. Ethnic composition of school and neighborhood play a very important role in creating opportunities for interethnic relations [Munniksma, Scheepers, Stark, 2016; Smith, van Tubergen, Maas et al, 2016; Alba, Holdaway, 2013 (book)]. The current study demonstrated that migrant kids are not socially excluded or subjected to segregation by their peers, who represent the ethnic majority. The analysis of the structure of friendships demonstrates that adolescents, which belong the ethnic majority, do not pay much attention to the ethnic status of their friends: they have as many representatives of the ethnic minority among their friends, as the structure of the class allows. Some prior studies have shown, that adolescents are ‘ethnically blind’ while choosing their friends and their number of friends from an ethnic minority is proportional to the proportion of foreign students in the class [Иванюшина, Александров, 2012; Baerveldt et al., 2007; Vermeij et al., 2009]. This is different from the situation in American schools, where racial differences basically become one of the main criteria for segregation among adolescents [Moody, 2001]. Due to

the fact that Russian schools are polyethnic and separate ethnic groups are not quite presented, the current study used the term “visible minority”. Analysis of structure of negative social relations demonstrated that adolescents representing the ethnic majority are more likely to create negative ties within their own group, rather than with ethnic minority group members. Ethnic minority adolescents are more often establishing friendships rather than negative ties within their own group. As has been demonstrated by the previous studies, ethnic minority groups are normally more solid rather than the ethnic majority groups [Goodreau, Kitts, Morris, 2009]. This tendency is more relevant for certain ethnic groups as well [Smith, Maas, van Tubergen, 2014].

Therefore it can be concluded that at school ethnic minorities do not meet barriers created by the ethnic majority, and are not discriminated. Supposedly, for adolescents the ethnic status of their classmates is less significant than some other indices, such as academic performance or, as some studies have demonstrated, music tastes [Thijs, Verkuyten, 2014]. In this case, studying together with representatives of various ethnic groups helps ethnic majority adolescents build positive attitudes towards representatives of different nationalities and develop intercultural communication skills [Moody, 2001; Pettigrew, Tropp, 2006]. The following applies to the ethnic minority adolescents as well. As has been demonstrated in the current study, they tend to establish friendships within their own group. Thus, studying together with ethnic majority adolescents, as well as establishing friendships with them, helps migrant adolescents integrate.

Another significant determinant of high social status of an adolescent in a group is displaying social aggression. Victimization increases the risk of marginalization of the adolescent by their peers.

Aggressors demonstrate high sociometric popularity regardless of how widespread bullying is in the group. Prior studies show that there is a negative connection between aggressive behavior and sociometric popularity [Cillessen, Rose, 2005]. Adolescents who are being aggressive towards their peers are normally

being judged [Dijkstra et.al., 200; Aslund, 2009; Salmivalli, 2010; Salmivalli et.al., 1996]. However, this effect is contextual: if aggressive behavior is regularly practiced in the adolescent group, then aggressors can become popular [Rodkin et.al., 2006]. The results of analysis of friendship networks in vocational schools slightly contradict the prior studies: regardless of how popular bullying is, being friends with the aggressor can be an attractive option for their classmates. Male aggressors are especially popular in classes with high level of aggression; female aggressors show high sociometric popularity regardless of how aggressive their class is overall.

Aggressive environment in the classroom creates a certain context for connection between social status and being “the victim” in the group. If bullying is practiced in the group, its victims become marginalized by their peers. This results in the victims having less friends, rather than complete isolation. Normally adolescents, which had been bullied by their peers, stick together seeking protection and support [Huitsinga, van Duijna, Snijders et al., 2012]. However, the fact that marginalization is present demonstrates that adolescents can display aggression without fear of judgment or disapproval from their peers [Sijtsema, Veenstra, Lindenberg et al., 2009]. This can be possibly explained by a suggestion that in vocational schools being friends with the victim becomes “dangerous”, because being close to the victim increases the chances to get bullied as well [Sentse, Dijkstra, Salmivalli et al., 2013].

The following results of the current study demonstrate how social inclusion is connected to individual characteristics of adolescents. Network analysis of structure of negative relations showed that the lower students’ academic performance and sense of belonging to the school community (compared to the average level in class) are the fewer classmates want to communicate with them. At the same time the risk of negative relationships between students increases with the difference in achievement and sense of belonging: straight-A students do not communicate with students who perform badly, and vice versa. Due to the fact that these results are

derived from cross-sectional data, here can be no conclusions made about the causal relationships. However, it can be suggested that low academic performance leads to social exclusion, which, in its turn, negatively affects one's sense of belonging.

The antipathy of peers can be associated with adolescent's low academic performance at school [Gorman, Schwartz, Nakamoto et al., 2011; Lease, Musgrove, Axelrod, 2002]. However, it is the difference in academic performance and attitudes towards school that leads to antipathy between students. Students who are successful in their studies and support school culture normally dislike their peers, who are not as academically successful and do not share their passion towards education [Laursen, Bukowski, Nurmi et al., 2010]. More than two thirds of cases of antipathy between adolescents are connected to the essential differences between them, including differences in behaviours and group norms [Guroglu, Haselager, van Lieshout et al., 2009; Laursen, Bukowski, Nurmi et al., 2010].

Other characteristics of adolescents that are not directly connected to their school life, such as gender, social economic status are less significant in establishing negative relationships. Boys and girls are equally prone to be bullied by their peers, even though girls are more likely to initiate negative relations. Prior studies demonstrate contradicting results: some studies show that boys are more involved into negative relationships than girls [Card, 2010]; others say that negative relationships are more likely to be established between adolescents of the same gender [Pal, Stadtfeld, Grow et al., 2015]; others deny the presence of gender differences regarding adolescents' involvement in negative relationships [Güroglu et al., 2009].

Socioeconomic status of adolescents has a very weak, but significant connection with negative relationships within the class. Regardless of the fact that the difference in socioeconomic status of pupils does not necessarily increase the possibility of antipathy between them, some pupils with very high socioeconomic status (compared to the group average) get more negative nominations. This can possibly be explained by the fact that adolescents with higher socioeconomic status might look down on their peers, which fosters resentment [Pal, Stadtfeld, Grow et

al., 2015].

For studying the connection between risky behaviours (alcohol consumption and smoking) with the friendship network structure of adolescents, the current study used longitudinal data from vocational schools. Social status of adolescents among their peers does not necessarily depend on their behaviours regarding smoking or alcohol consumption, but these practices do have an influence on adolescents' friendship networks. It has been discovered that popularity is not necessarily connected to adolescents' active involvement into risky behaviours, contrary to what has been demonstrated in prior studies [Gommans et al., 2017; Cohen, Prinstein, 2006; Juvonen, Ho, 2008]. Risky behaviours do not affect marginalization or popularity of students. Boys and girls with high levels of risky behaviours are not prone to either being more active in establishing friendly relationships or being more attractive friend options to their peers. One possible explanation is that risky behaviours are quite widespread in vocational schools, thus, they stop determining the social status formation. Another possible explanation, based on other studies is that the importance of risky behaviour fades away eventually; for age groups 15 to 18 it just stops being 'cool' [Knecht et al., 2010; Burk et al. 2012].

Overall, the results of the current study demonstrate the mechanisms of social selection and social influence. Boys and girls are guided by similarities in smoking and drinking practices when choosing friends (social selection); and adjust their risky behavior practices to the ones of their friends (social influence). This means that friendship networks become a mean of spreading risky behaviours among adolescents. Previous studies on the impact of risky behaviours on the structure of adolescent social relations show mixed results: some focus on the effect of social selection, the others on - the effect of social influence, while the third group of studies emphasizes the importance of both processes [Steglich et al 2012; Mercken et al., 2013; Burk et al., 2012; Kiuru et al., 2010; Steglich et al., 2010].

Perceived popularity, which is defined as 'being seen', 'being noticeable',

'being recognizable' acts as one more index of social status. Both quantitative and qualitative data demonstrates that adolescents perceive the term 'popular' as a negative one. The idea of popularity is seen as some students positioning themselves above the rest, thus, having a popular classmate inherently contradicts the idea of equality. In some of the interviews adolescents have named negative words, such as 'celebs' or 'rogue ones' as synonyms to the word 'popular'.

Considering perceived popularity, both Western European and American researchers show, that popular adolescents comprise a heterogeneous group. They can either be friendly and be loved by everyone, or become aggressive manipulators [Vaillancourt, Hymel, 2006; Cillessen, Mayeux, 2004; Puckett et al., 2008; Cillessen, Rose, 2005; Dijkstra et al., 2008; Xie et al., 2006]. In the interviews analyzed in the current study no one from the students implied that popular classmates are being manipulative towards others, or behave disrespectfully towards the classmates. Thus, using the word 'popular' during the interview allows getting narratives about adolescents with prosocial behaviour.

Adolescents name various criteria of perceived popularity for girls and for boys. Girls are normally perceived as popular because they are fashionably dressed, attractive, kind, nice, and cute. Boys are seen as popular if they can stand their ground, are good at sports, do not recognize authorities and confront the teachers, practice risky behaviours. Almost all the studies regardless of the country and the time they were conducted at, agree on these gender differences [LaFontana, Cillessen, 2002; Lease, Kennedy et al., 2002; Rodkin et al., 2000; Vaillancourt, Hymel, 2006; Dijkstra et al., 2010]. The fundamental difference from the results of the prior studies is that in Russian schools there are no gender differences regarding the importance of academic performance as a criterion of popularity among peers. Being smart and winning academic competitions does not put any kind of stigma on boys. The quantitative data demonstrates that the adolescents that are considered popular because of being smart have better grades rather than their peers, are well-disciplined: are always ready for class, never skip lessons and are not being late for class.

There is a significant connection between sociometric popularity and perceived popularity. However, certain groups of students only have one type of popularity, for example, high perceived popularity together with low sociometric popularity. These adolescent groups have different behaviours, as well as attitudes and academic performance. Some adolescents, which are academically successful and are well disciplined (compared to the class average), have high sociometric popularity, but their level of perceived popularity is low. These students have the lowest risk of being socially excluded. At the same time, the students with an opposite position (low sociometric popularity and high perceived popularity) often misbehave, show up late, skip lessons and ignore homework, thus, they have a higher risk to be socially excluded.

Adolescents establish their friendships and negative relationships in various ways. Friendship networks are twice as dense as negative networks. 96 percent of adolescents are involved in friendship networks, 70 percent are involved in negative relationships. Friendships between students in class have high reciprocity and transitivity. Reciprocity is twice as low for negative networks. As demonstrated in other studies, base effects, such as reciprocity, transitivity, homophily can vary in positive and negative networks [Yap, Harrigan, 2017; Huitsinga, van Duijna, Snijders et al., 2012; Boda, Neray, 2015]. Transitional structures such as ‘my friend’s friend is my friend’ are very rare or even absent in negative networks [Yap, Harrigan, 2017]. Adolescents reciprocate friendship nominations more often, rather than negative relationships [Boda, Neray, 2015].

In friendship networks ties are distributed more equally rather than in negative networks: all the students in class have some friends, whereas all the negative ties can be concentrated on one person. One class can have pupils, who are avoided by many classmates at once, as well as students, who are not involved into any negative relationships at all. As demonstrated by the analysis, adolescents are normally not unified in their negative relationships: some people might avoid communication with certain classmates, whereas others dislike someone else. It is quite necessary to

mention that the effects are not equally displayed in all the classes in the sample. As demonstrated by the prior studies, in some groups positive ties are concentrated around individual participants [Yap, Harrigan, 2017; Huitsinga, van Duijna, Snijders et al., 2012], in others, on the contrary, they are spread more evenly [Boda, Neray, 2015; Jiao, Wang, Liu et al., 2017].

Analysis of relationship between the structures of positive and negative networks demonstrated that friends make similar choices on whom to avoid, and often choose both pupils who are close to each other as their enemies. This means that adolescent groups create conditions for strengthening negative ties with friendship ties and vice versa: my friend's friends are my friends, and my friend's enemies are my enemies. This reflects how the class is divided into separate friendship cliques that have strong friendship ties formed inside them. Moreover, there are negative ties established between different cliques. The following demonstrates that studying relationships between adolescents requires a multidimensional approach that demonstrates a general tendency to form positive links with those who have an equivalent structure of negative networks [Huitsinga, van Duijna, Snijders et al., 2012; Pal, Stadtfeld, Grow et al., 2015].

8. General conclusions of the study

The results presented above suggest that adolescents in Russian schools pay a lot of attention to academic success. Good grades as well as positive academic attitudes are connected to high social status, whereas low grades and negative academic attitudes result in social exclusion and loss of social status. Adolescents choose to preserve the social connections that are beneficial for supporting or increasing one's academic achievement, thus, getting high social status or avoiding social exclusion. The following demonstrates the mechanisms described in Social exchange theory [Хоманс, 1984], that focuses on building social ties that provide a balance between costs and benefits.

In cases when building a relationship is not beneficial, for example, if the other

person does not share one's interests, or is not as successful with studies, negative ties are established. This can be explained by the fact that relationships in adolescent groups are balanced and are based on structural equivalence, which means that adolescents communicate with their friends' friends, and avoid the people their friends dislike. The following fits into the structure described by the Theory of structural balance [Heider, 1958].

Adolescents establish friendships or negative relationships based on their own successes/attitudes and the successes and attitudes of others aiming to achieve or perceive social status. This can be perceived as implementation of the mechanism described by the Goal-framing theory [Lindenberg, 2008]. If the group does not support the value of education, the punishment mechanism, described by Social misfit theory, comes in place. In this case, positive achievements are punished as something that is contradicting with group norms [Wright et al., 1986].

The absence of social exclusion and discrimination towards adolescents of another ethnicity from their ethnic majority peers means there are opportunities for them to get successfully integrated. Ethnic minority adolescents create friendship ties more often rather than negative ties within their own group, which can be partially explained by Social identity theory [Tajfel, 1984]. Ethnic minority adolescents can form groups based on a similar migration experience, cultural and socioeconomic similarity. By forming solid friendship groups among themselves and building negative relationships with the rest, ethnic minority adolescents increase their group identity and cohesiveness.

High social status of aggressors demonstrates that aggression is perceived as approved behaviour in adolescent groups. Due to the fact that aggressors become more attractive friends, rather than the victims, the latter become even more marginalized by their peers. Aggression is used by adolescents to achieve the aim: high social status. Group context creates favorable conditions and recognizes this behaviour as acceptable. As a result, we can see two mechanisms that are, quite likely, supporting each other – the mechanism described by the Goal-framing approach [Lindenberg, 2008], as well as the mechanism presented by the Theory of

social identity [Ojala, Nesdale, 2004; Kwon et.al., 2012]. Adolescents realize that they act according to group norms and preserve their group identity and status [Ojala, Nesdale, 2004].

Similarities in risky behaviour practices lower the “costs” of establishing friendly relationships within the group, which is perfectly described in Social exchange theory mechanisms [Хоманс, 1984]: the adolescent does not have to make any extra effort (bear any extra costs) to create a friendship. The social influence of peers on the spread of risky behaviours among adolescents can be explained by the mechanisms of social reinforcement, suggested by Differential Association-Reinforcement Theory [Kim, Akers, Yun, 2013; Burgess, Akers, 1966]. According to this theory, behaviours are learned and acquired through social connections, and if friends approve of a certain behaviour, it will be successfully reproduced.

Analysis of interviews demonstrated that in current Russian cultural context a popular adolescent is someone who is friendly, responsible, ready to help others and academically successful. This image corresponds with the one described in some studies conducted in Eastern Asia, but contradicts with the idea of popularity as a characteristic that is based on social dominance and high position in the group hierarchy, presented in studies originating from America and Western European countries. Criteria that the high social status in the group is based on, according to the ecological approach, can be connected to the historical and cultural contexts [Chen, French, Schneider, 2006, c.3-10]. As stated by G. Hofstede, Russian society is more collectivist rather than the one in USA and some Western European countries [Hofstede, Hofstede, Minkov, 2010]. Therefore, it can be suggested that perceiving popularity as discrepancy of equality among adolescents is associated with the prevalence of values of collectivism in the teenage environment. One can suggest that as a result of Russian institutional system of school education (the same class composition for 11 years) a more blended structure of social relations develops

with the absence of a distinct hierarchical structure of the group. This does also affect the specificity of the term ‘popularity’ in the context of Russia.

Presented results are a contribution to theoretical concepts of the factors and mechanisms of status formation in different group contexts. Its’ results allow to make corrections to existing theories and scientific perceptions. The effects of social context can be local depending on the situation. In particular cases they can also be a result of a coincidence. We have not been able to find contextual effects on the school level: some effects were noticeable on the class level only in 7% of the cases, or when there has been a particular contingent ‘concentrated’ in the group. This also makes it impossible to consider gender differences as linking the status and behavior of adolescents in a strictly defined way. Gender differences which affect factors and mechanisms of popularity are not universal and can be mediated by group context.

The majority of studies on social status in small adolescent groups are conducted in USA and Western Europe. However, the results might not be relevant in different cultural contexts, which were demonstrated in the current study on the case of the term ‘popularity’.

The educational environment in Russian schools is built in the way that encourages academic achievements and attitudes as one of the main axis used by young adolescents to build their relationships and social status. The exception is the context of rarely encountered classes, where the adolescent environment itself supports strong anti-school attitudes and social aggression. This can be considered a valuable scientific and practical result, because academic culture and academic performance are school environment parameters that are changeable and subject to control. Thus, it is possible to create effective programmes to improve an unfavorable adolescent environment.

9. Publications

Titkova V.V., Ivaniushina V.A., Alexandrov D.A. Smart, Pretty or Independent: Who Is Popular at School? // *Voprosy obrazovaniya*. 2017. № 4. P. 171–198.

Titkova V.V., Ivaniushina V.A. Antipathy Among Adolescents: What Leads to Its Occurrence // *Sotsiologicheskiy Zhurnal*. 2017. № 4. P. 171–198.

Titkova V.V., Ivaniushina V.A., Alexandrov D.A. Adolescent Aggression: Group Norms and Social Status Among Peers // *Sotsiologicheskiy Zhurnal*. 2016. № 1. P. 54-71.

Titkova V.V. Adolescent drinking behavior and depression in vocational schools // *Sociology of education*. 2016. № 4. P. 74-83.

Titkova V.V., Ivanyushina V.A., Alexandrov D.A. Sociometric popularity in a school context // *Voprosy obrazovaniya*. 2013. № 4. P. 145–167.

Titkova V.V., Alexandrov D.A., Ivaniushina V.A. Four roles of social aggression: aggressors, fighters, victims and witnesses // *April International Academic Conference on Economic and Social Development (4 books)*. / E. Yasin. Book. 4. M.: HSE Publishing House. 2016. P. 590-601.

Titkova V., Ivaniushina V. A., Alexandrov D. A. Sociometric popularity in a school context / *NRU Higher School of Economics. Series EDU "Education"*. 2013. No. 10.