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Integration through friendships in school classes - A study of pupils with a migrant background in school friendship networks at primary and secondary schools in Germany

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ABSTRACT

This paper deals with the integration of migrant children in informal communication networks in primary and secondary schools in Germany. The basic assumption is that these networks can serve as an indicator for the networking and embedding that take place within the class community and therefore can be used to investigate the integration of pupils with a migrant background. The initial results of our network analytical study reveal that pupils with a migrant background are well integrated into class networks. The study discloses that the migrant background does not serve as a conclusive characteristic of the pattern of class networks. The pupils are more or less networked with each other regardless of their migrant background, though it did emerge that children and adolescents born abroad, in particular, are far more likely to have outgoing relationships that remain unreciprocated. Remarkable is, that results from primary school correspond with data from secondary school.

Keyword: network analysis, integration, school research, friendships, primary school, secondary school

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1. Introduction

(Social) networks are found everywhere nowadays: not only the Internet and social platforms such as Facebook and Instagram connect us, networks are promoted in science policy and in everyday work. Networks can be forced out of social relationships based on affection, but also by an organizational unit through cooperation (Holzer 2010). Social relationships can be unique, but they can also result in yearlong friendships. School especially school classes offer a possibility for children and young people to form friendships. Not only since the migration movements in 2015/16, schools in Germany have been characterised by the integration of children and young people from different countries. But these developments have once again sparked a discussion in Germany about the integration of children with a migration background. Schools play an important role in the integration of children with a migration background. Not only school itself, but also relationships and friendships among the children can lead to better integration. According to Esser (2006), friendships can be seen as an indicator for the integration of children with a migration background. The extent to which children with a migration background are integrated into informal class structures is examined in this paper. For this purpose, friendship networks are examined with the help of a standardized questionnaire of children in grades 3 and 4 at primary schools in NRW (n=1,216) and compared with data from 52 classes of 940 pupils in grades 5-10 at secondary schools.

To investigate informal communication and contact structures in school classes and in the private sphere, the method of social network analysis is suitable. Within this study, a distinction is made between children with and without a migration background according to the question posed: "A person has a migration background if he or she or at least one parent was not born with German citizenship" (Federal Statistical Office, n.y.). In addition, according to Stanat & Edele (2011), a distinction is made as to whether the persons themselves are immigrants (1st

generation) or whether the persons themselves were born in Germany but have at least one parent born abroad (2nd generation).

The epistemological interest of the present study is to explore the extent to which children who do not directly belong to the majority society - i.e. children with a non-German family language - have arrived in the school world and whether successful integration processes can be found in the form of interethnic friendship relationships.

2. Friendship relations at school

2.1 Formal and informal education

School is the only institution in Germany that must be attended by all children and young people. Many tasks are assigned to it in order to provide all pupils with equal educational opportunities and thus enable them to participate in society in the future (Becker 2011). It is considered a place of "socially controlled and organized socialization" (Fend, 1981, 2). In this context, Fend (2009) describes and explains four functions of school: (1) enculturation, (2) qualification, (3) allocation and (4) integration:

The school teaches language and writing skills as well as values and norms and cultural understandings of the world.

Furthermore, school qualifies the students through skills and abilities for a later professional life.

By means of examinations, a performance hierarchy is created which allows allocation and distribution over career paths.

Through the participation of the pupils, they are to be integrated into society in order to legitimize the existing forms of social rule. This also includes preserving cultural diversity and identity and providing all children and young people with equal educational opportunities. In addition to language promotion, Fend (2009) also calls for the promotion of coexistence (of different religions).

Sometimes, however, the institution school does not fulfil these tasks, as international comparative studies such as PISA (2018) and TIMSS

(2015) show. Especially male pupils from educationally disadvantaged homes are strongly affected by educational poverty - this tendency becomes even more apparent when there is a migration background, as Quenzel and Hurrelmann already (2010) found.

The primary goal of school is formal education, which takes place in the classroom. There are numerous academic discourses and social discussions on how teaching and school should be structured (e.g. Hattie, 2009). Here, formal education is organized through curricula and framework guidelines (Harring, 2010).

In addition to this regulated function, the school offers an arena for everyday exchange between peers through informal education (Aufenvenne, Kuckuck, Leimbrink, Pochadt, Steinbrink, 2018 a). Informal education is not planned, but rather happens unplanned, indirectly and through incidental educational processes. Classical places of informal education are the family, media worlds and peers (Harring, 2010). In particular, interaction with peers is of great importance for almost all aspects of the personality development of children and young people (Trappmann, 2003).

"Conceptually, the totality of all persons with whom a person has relationships can be described as his or her personal social network" (Laireiter & Lager, 2006, 70). In the context of this study, the social networks that children build up within their school class are of interest. Social relationships represent a central reference system for every person - regardless of age - which plays a key role in recognition, well-being and reflective self-assurance (Harring et al., 2010). With increasing age, at the latest with adolescence, the importance of relationships with peers increases and replaces the importance of family and parents. As a result, new educational and socialisation spaces for informal learning, such as the acquisition of social skills, are made possible in the school yard, during free periods but also in leisure time. "In this way, peer relationships - especially friendship relationships - have a significant influence on the acquisition of

social competences and promote the internalisation of professional and technical competences. From this perspective, the peer group offers a wide range of learning, experience and experimental opportunities, which contribute [to] development of individual lifestyles, norms, values and expressions" (Harring et al., 2010, 9). Friendships, unlike family relationships, are chosen voluntarily, which means that the people involved choose for their own sake and not because of certain roles or functions. Thus, friendships are a voluntarily chosen space, not controlled by adults, in which children and adolescents can practice their behaviour, lifestyles, expressions, etc., without the risk of sanctions (Harring et al., 2010).

In friendships, among other things, technical and professional skills are acquired, such as media and language skills, both of which are of enormous importance for today's pupils. The 15th Children and Youth Report also emphasises on the importance of informal learning places and the importance of language (Federal Ministry for Family Affairs, Senior Citizens, Women and Youth 2017). Reinders (2003) has demonstrated a positive influence on the acquisition of the German language for young people with a migration background when dealing with Germans of the same age. Conversely, German youths with regular contact to peers with a migration background show a higher openness towards other cultures and less xenophobia (Reinders, Mangolds, Greb, 2005).

2.2 Composition of social networks

Even though a distinction can be made between friendships and peer groups (from Salisch & Seiffge-Krenke, 1996), the peer group provides the framework by limiting the survey within a school class consisting of children of the same age. Within this peer group, children form friendships that can develop in the course of childhood from self-referential orientations to forms of partner-centred fair exchange (Petillon 2011). Selmann (1984) distinguishes five levels of friendship understanding in childhood, including short-

lived playmates, one-sidedly conceived friendships, but also trusting mutual relationships.

Children make friendships based on similarities (Berscheid, 1985). Friendships are by no means formed indiscriminately.

Gansbergen (2014) has investigated whether the proportion of German friends among children with a migration background has a positive effect on their success at school. When evaluating the data on primary school children, it became clear that most children have an educationally homogeneous network. The correlations of the grades with the characteristics of the friends are identical or comparable for children with and without a migration background. Accordingly, the proportion of German friends has no effect on the school performance of children with a migration background. Regardless of the migration background, the cultural and economic capital endowment of their family is decisive for pupils (Gansbergen, 2014).

Kuperschmidt, De Rosier & Patterson (1995) were able to show in Anglo-American children of primary school age that friends were formed not only in terms of gender and ethnic group ("black" vs. "white"), but also in terms of socio-demographic background, school performance and behaviour (e.g. shyness, dealing with aggression).

This phenomenon is called homophilia and is described in a large number of studies among children and young people in terms of gender and ethnic group (e.g. Boulton & Smith, 1996, Graham & Cohen, 1997). It has also been shown that homophilia with regard to ethnic groups, increases with age (Graham et al., 1998, Aboud, Mendelson & Purdy, 2003). However, these studies refer to the United States and United Kingdom English-speaking world only. For the German-speaking countries, Reinders & Mangold (2005) were able to show that homophilia and ethnic group (here a division into German, Italian and Turkish 14-year-olds) are less pronounced than in previous studies. Strohmaier, Nestler & Spiel (2006) were able to show in their study with 204 children in the 4th grade that the

tendency towards cultural homophilia is not as pronounced as in the studies from the Anglo-American area. Nevertheless, they were able to establish in their sample that the circle of friends among children with a German mother tongue is far more homophile than the circle of friends among children with a migration background. Following Esser (2006), they argue that the analysis of the cultural composition of the circle of friends can be used as a helpful indicator of the extent of social integration.

McPherson et al (2001) have shown that actors are more likely to enter into relationships with others who are similar to them in terms of age, gender and ethnic origin. International studies have already demonstrated the high influence of ethnic composition on friendships (Baerveldt et al., 2007; Quillian & Campbell, 2003). Zentarra (2014) and Winkler et al. (2011) were also able to show in primary school children in Bremen that especially close friendships with children of the same ethnic origin (here Turkish and Russian children) are present.

Thus far there are few studies on networks of children (Laireiter & Lager 2006). Older studies on children's networks often focus on social incompetence and later misdevelopment (overview in Wittmann 1991). The importance of positive development in the focus of social interaction has been less studied so far. However, these studies could show that socially competent children develop better and can also adapt to situations later. In a study with 60 children, Laireiter & Lager (2006) were able to show that in the network and competence contexts investigated, social relationships are primarily influenced by specific socially oriented competences such as contact ability, self-confidence and appreciation by others. Kuckuck, Henrichwark and Jeschke (2020) can show that primary school children with a need for support have fewer friendly relationships than other children in the class and that a need for support is more likely to lead to homophilic friendships than a migration background. However, gender is the most limiting element of separation.

2.3 Interethnic peer relations and friendships

School is considered to play an important role in the integration of children with non-German family languages. Language is often seen as the essential moment of integration (Esser, 2006). Previous research on friendship networks has shown that children in secondary schools with a second-generation migration background have as many contacts as children without a migration background (Aufenvenne et al. 2018 a, b, c). However, children who were themselves born abroad (first generation) have significantly fewer friendship relationships.

Windzio and Bicer (2013) have also shown that ethnic segregation in school relationships (low-cost situations) is lower among primary school children than in private leisure contacts (high-cost situations) among interethnic friendships. In the case of inter-ethnic friendships, the situation is exactly the other way round: the closer the friendships in private life, the higher the relationships are in school.

Windzio (2012) examined the influence of parental contacts in friendship networks of primary school children and was able to show that there is less frequent contact between parents in inter-ethnic friendships and that the children are therefore less likely to be invited to leisure activities such as birthday parties. Bicer (2014) was able to show for German pupils in the 4th grade that the degree of heterogeneity within the class, i.e. children of different ethnicity, has an effect on friendship relationships. In contrast, class composition did not play a significant role in promoting interethnic friendship among Turkish pupils.

Previous research on integration, friendships, and school lacks network analytical data that would allow a comparison between primary and secondary school students in Germany. This article aims to close this research gap by addressing the following question: To what extent are pupils with a migration background integrated into school friendship networks and with whom do they maintain friendships?

3. Methodological process and description of the underlying data

Social Network Analysis (SNA) is a suitable method for investigating how children with a migration background are involved in friendship relations within school classes. The SNA can be used to analyse overall networks, which are defined as a previously delineated set of social actors (nodes) and relationships (edges/relations) existing between them (Steinbrink, Aufenvenne & Schmidt, 2013). In this study, a school class is an overall network, the actors are the individual pupils and the relationships are the mentions of the pupils among themselves. These relationships can be well captured by a network analysis (Bicer, Windzio & Wingers, 2014). Based on Fuhse (2016), it is assumed that the relationships surveyed are comparable. These data cannot provide any information about the exact intensity of the relationships; this would require additional qualitative surveys (e.g. through interviews). Nevertheless, the data can provide information on whether and how children with a migration background are included in class structures. When considering friendships as an indicator of inclusion in school classes, mutual (reciprocal) relationships are particularly useful.

Within the framework of the study, the migration background according to Stanat/Edele 2011 will be operationalized as follows: Second generation children with a migration background are born in Germany themselves, at least one parent was born outside Germany. Children with a first-generation migration background were born abroad (Stanat & Edele, 2011). The data of the present study was collected together with students during teaching research seminars at the University of Osnabrück and the Bergische Universität Wuppertal. Pupils of secondary schools (grades 5-10) in Lower Saxony were surveyed as well as children in grades 3 and 4 at primary schools in North Rhine-Westphalia. In total, data from 2,201 pupils from 113 classes is available (Tab.1).

Just under half of the children at primary schools

(49%) and over half of the pupils at secondary schools have no migration background (Tab. 2). A standardized questionnaire was used for the data collection, which has already been tested with secondary school students (Aufenvenne et al., 2018a, 2018b, 2018c) and was then modified and used for the survey with primary school children (Kuckuck et al., 2020). In addition to attributes of the individual children such as age, gender, language spoken at home and relational data for friendships was collected. For this purpose, questions are asked about school and private friendship relationships (e.g. Who would you like to sit next to when working with a partner? Who do you invite to your home?). On the prepared questionnaire the children find the first names of each child in their own class, so that the corresponding answers only have to be circled. The data collection takes about 25 minutes per class. Language barriers or problems have

hardly ever occurred so far, but there are at least two students per survey who could help with problems and questions. In addition to the student survey, the teachers of the respective class also fill out a questionnaire in order to obtain further information about the children (special educational needs, time spent in Germany, class affiliation, etc.) After all data has been entered into an Excel table (relations and attributes), the data is anonymised and adjusted. Each child is given a code which allows the assignment to a class, but does not allow any further conclusions such as the name. The stored attributes such as gender and age can be recognized depending on the question. After cleansing and anonymizing the data, they are evaluated and illustrated with the help of the network analysis programs UCInet (Borgatti et al., 2009) and Gephi (Bastian, et al., 2009).

Table 1: Number and distribution of classes examined (n=113)

Primary School		Secondary School					
3. Kl.	4. Kl.	5. Kl.	6. Kl.	7. Kl.	8. Kl.	9. Kl.	10. Kl.
n=34	n= 27	n= 9	n= 7	n= 6	n= 8	n= 7	n= 10
n= 61		n= 52					

Table 2: Distribution of pupils according to migration background (n= 2,201)

	Primary School	Secondary School
Pupils without a migration background	49 %	55 %
Pupils with a migration background of the 2nd generation	17 %	13 %
Pupils with a migration background of the 1st generation	34 %	32 %

With the help of these programs, various calculations on the friendship networks in the classes can now be performed.

For this article the degree centrality is calculated in the first step. "Degree centrality is the sum of the relations that an actor has to other actors in the network" (Steinbrink et al. 2013). For this

purpose, all relations of a child are counted. Pupils with many relationships within their classroom network can be considered more important than those with few relationships. A distinction can be made between inbound relationships (Indegree) and outbound relationships (Outdegree). Inbound relationships thus show how often a pupil A was mentioned by her classmates. Outgoing relationships show how many classmates A names. The data also shows who names whom or is named by whom. The calculation thus provides information about the social activity of individual pupils and is thus an indicator of their sociability. The mutual naming (reciprocal relationships) is of particular importance when considering friendship relationships. Reciprocal relationships are defined as relationships between at least two students who name each other (Fuhse, 2016). Friendship relationships can only be discussed when they are named reciprocally. For this purpose, two-tailed t-tests were calculated to determine statistical significance with a significance level of <0.05 .

Further results can be obtained by calculating the homophilie value. "One speaks of homophilia when the similarities of actors with regard to certain characteristics (attributes) are also reflected in the network structure in a superficial

way" (Steinbrink et al., 2013, 54). This makes it possible to indicate within a class whether pupils with certain attributes (gender, migration background) are more strongly networked with one another. Homophilia is indicated by means of the normalized E-I-Index. "[Roughly speaking], networks with values between -0.5 and -1 can be interpreted as homophilic and those with values between 0.5 and 1 as heterophilic" (Steinbrink et al., 2013, 54).

4. results

4.1 Density

The analysis of the class networks shows how differently the classes are structured. There are classes in which the pupils have many relationships with each other and classes in which the number of relationships is much smaller. This is shown in Figure 1 by the number of lines between the individual points. The calculation of the density values underlines the range of the different class structures. The minimum value is 0.07, the maximum value is 0.43 relationships (average value is 0.22). In classes with low density values there are thus proportionally fewer relationships between the children than in classes with higher density values.

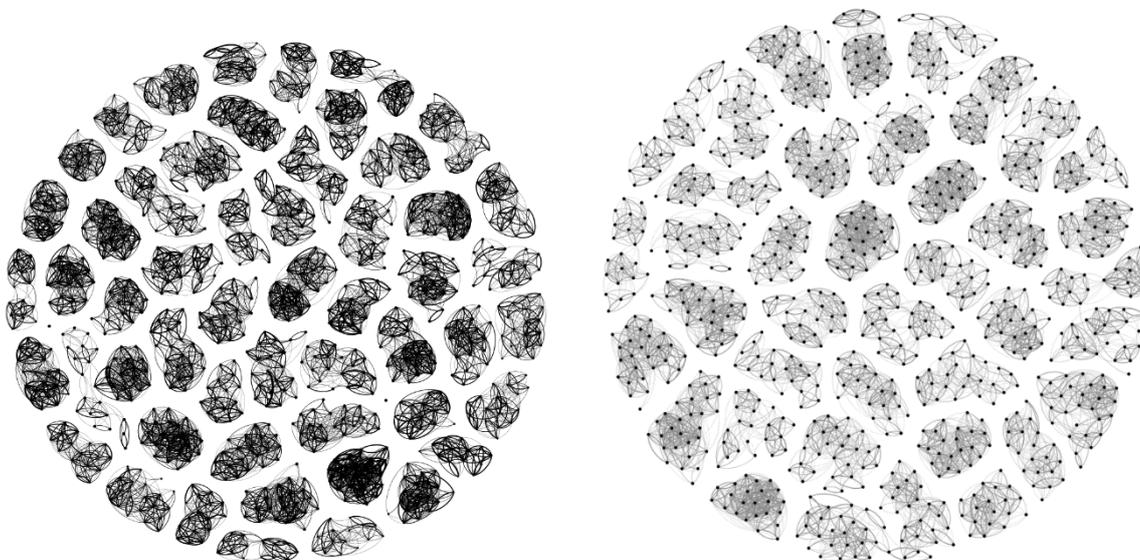


Fig. 1: Overview of networks of the analysed primary school classes (n=61) pupils (left) and with classes at secondary schools (n= 52) (right) (own representation) (dots = pupils; lines = relations)

4.2 Centrality of pupils

The calculation of degree centrality is important for determining the position of pupils with a migration background and those who need support (Tab. 3). There is a statistically significant difference in network activity between the children

without a migration background and those of the first generation in terms of incoming, outgoing and reciprocal relationships (< 0.05). Not statistically significant are the mean values of the relationships between the children without a migration background and the children of the second generation.

Table 3: Degree centrality

	Indegree		Outdegree		reciprocal relations	
	Primary School	Secondary School	Primary School	Secondary School	Primary School	Secondary School
Pupils without a migration background	9,0	10,1	8,6	9,7	6,8	7,3
Pupils with a migration background of the 2nd generation	8,6	8,8	8,6	8,9	6,6	6,2
Pupils with a migration background of the 1st generation	6,3	6,4	8,7	11,4	4,9	4,7

When comparing the average number of relationships, it becomes clear that the children without a migration background and the children of the second generation have far more ingoing, outgoing and reciprocal relationships than the children of the first generation. This phenomenon applies to primary and secondary school classes alike. There is a large difference between outgoing and incoming relationships among first generation children in secondary schools (11.4 to 6.4 average relationships). This may be an indicator of the sociability of pupils in the

On the other hand, this could also be an indicator that efforts are not reciprocated by in-depth relationships. It is also clear that reciprocal relationships are lower in all three groups.

4.3 Homophily

In addition to the average number of relationships as an indicator of integration, interests include who students have friendships with. For this reason, friendship relationships are considered from the perspective of gender and migration background. For this purpose, the statistical homophile value is calculated using the E-I Index (see Table 3) (E-I Index: values between -0.5 and -1 are referred to as homophile). While the migration background in no way leads to separation within the class, the formation of friendships is homophilic in terms of gender.

Table 4: Homophile

Homophile	Primary School	Secondary School
Gender	-0,55	-0,68
migration background	-0,18	-0,17

5. Discussion

Informal communication networks - i.e. the representation of incoming and outgoing as well as reciprocal relationships - can be used as indicators for successful integration into class structures. It can be noted that the social structures within the classes studied vary greatly in density and intensity. The extent to which children with a migration background are integrated into the informal class structures could be analysed here using certain criteria.

The examination of reciprocal relationships shows that children of the first generation have fewer reciprocal relationships than their classmates without a migration background or the second generation. Outgoing relationships are significantly more often not reciprocated. The reasons for the results regarding the migration background could be the shorter length of stay in Germany and/or the limited German language skills that often accompany this. It is noticeable that the results do not vary between primary and secondary school, but continue.

It has become clear that gender leads to segregation, which can also be seen in a number of other studies (Boulton & Smith, 1996, Graham & Cohen, 1997).

In order to be able to investigate these results further, supplementary qualitative surveys are planned.

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