# "Whom Should I Talk To?": Role Prescription and Hierarchy Building in Supervised Living Groups

Schubert, Daniel; Brand, Alexander

Article

# "Whom Should I Talk To?": Role Prescription and Hierarchy Building in Supervised Living Groups

Daniel Schubert [1,]* and Alexander Brand [2]

[1] Faculty of Social Science, Ruhr University Bochum, Germany
[2] Institute of Social Sciences, University Hildesheim, Germany

* Corresponding author (daniel.schubert-p3r@ruhr-uni-bochum.de)

## Abstract

Adolescent asylum seekers have been an independent, yet understudied group in the German Youth welfare service since 2016. Due to the separation from their familiar surroundings, young people must establish new connections with their peers in supervised living groups. However, little is known about this special group in the youth welfare system as there are only a few studies covering the situation of adolescent asylum seekers in residential groups. In our study, we apply a mixed-methods approach to analyse the self-understanding of adolescent asylum seekers, social comparisons between the perceived own group and outside group and link them with data on the emergence of friendship ties among adolescent asylum seekers. Analytically, we describe institutional factors and narratives (qualitative focus) and access structural mechanisms (demographics, network organization principles) via network regression models (quantitative focus). Our results indicate a strong influence of a high level of upstreamness in the network in the tie creation and less influence from factors like age and religion. Following this, our study provides first indications about patterns of connection and separation in this niche group.

## Issue

This article is part of the issue "On the Role of Space, Place, and Social Networks in Social Participation" edited by Gil Viry (University of Edinburgh), Christoph van Dülmen (Thünen Institute of Rural Studies), Marion Maisonobe (CNRS), and Andreas Klärner (Thünen Institute of Rural Studies).

## 1. The Case of Supervised Living Groups

In February 2019, almost 39,000 children, adolescents, and young adults who have fled from their home countries were under the care of youth welfare in Germany; around 15,000 of them were underage and around 24,000 were young adults (Deutscher Bundestag, 2020). It is easily overlooked that these adolescents do not form a homogeneous group, but differ in terms of cultural background, religious affiliation, language, and family upbringing. The underage unaccompanied refugees came not only from geographical Arabic countries but also from African countries (Deutscher Bundestag, 2020).

In addition, the youths from Germany who are under the care of the youth welfare are also accommodated in stationary residential groups. Both the heterogeneity of the groups that emerged and the mechanisms of communalisation between arrivants, that were effective within and outside the group, are of interest to sociological research. In addition, some adolescents have to establish new relationships with their peers due to the separation from their familiar environment, while other adolescents still have contact with parents and siblings, who make certain demands on their children and thus become an external factor for the mutual behaviour in the residential groups and the people they interact with.

This influence of the family on young adults' friendship behaviour occurs in two ways: It can favour the emergence of some relationships while preventing the formation of others. In residential houses, the juveniles are supervised by caregivers, with whom they establish relationships (Jehles & Pothmann, 2016). An issue is that research focuses on care leavers or consequences of residential education. Consequently, there is a lack of studies that present and explain the reality of life for adolescents in residential groups (Strahl, 2020). Our study focuses on the influence of ethnic and religious backgrounds and hierarchical structures in living groups on the development and maintenance of friendships. To this end, qualitative and quantitative data will be collected in two living groups. We apply exponential random graph models (ERGMs) to investigate the factors favouring the emergence and the sustaining of friendships.

The article innovates in three ways: First, we can illustrate structuration processes for an under-researched special population with a strong institutional set of rules by choosing a subject-related research strategy to give the participants room for articulation while also gathering information for a more quantitative oriented design. Second, the interviews showed patterns of argumentation and decision-making in the network, following the assumption that edges in social networks are not just structural markers but rather observations, which must be revealed in a comprehensive approach (Basov & Kholodova, 2021). Third, by using ERGMs we can distinguish between different effects of homophily and hierarchy parameters obtainable by the upstreamness of nodes and thus showing the rivalling effects of order and similarity in exogenously constructed social groups.

## 2. Background

### 2.1. Underage Unaccompanied Refugees in Germany

Youth welfare in Germany has a broad spectrum of tasks and functions that must always be determined in interplay with social developments (Jordan et al., 2012). On the one hand, Youth welfare services shape these social developments to create, restore, or maintain positive living conditions for young people. On the other hand, it also reacts to the living conditions/life circumstances of its addressees and the different support and promotion offers that emerge (Jordan et al., 2012). As soon as the unaccompanied minor refugee arrives in Germany, they are taken into care by the local Youth Welfare Office (Federal Office of Justice, 2012, §42a). The Youth Welfare Office is responsible for finding a suitable living arrangement for the minor (Federal Office of Justice, 2013, § 1773, para. 1). Arriving refugees, including minors, are distributed throughout Germany via the Königssteiner Schlüssel. The Königssteiner Schlüssel is based on the tax revenue and the number of inhabitants of a municipality (Deutscher Caritasverband, 2017). In 2015, when the system was established as it is in place

nowadays, this entailed the challenge that some federal states and Youth Welfare Offices, that had little contact with minor refugees before, had neither the facilities nor the necessary quality standards for residential groups (Deutscher Caritasverband, 2017). The accommodation of underage unaccompanied refugees differs regionally in Germany, most unaccompanied minors (87%) are cared for in group homes (Jehles & Pothmann, 2016). This form of accommodation thus accounts for the largest share of placements.

### 2.2. Homophily and the Role of Physical Space on Friendship Emergence

The orientation towards friendship begins with the onset of puberty and becomes more intense with increasing age. In this phase, adolescents distance themselves more strongly from their parents and attach greater importance to relationships with peers of the same age to develop their own identity and a normative framework (Hurrelmann & Quenzel, 2013). Puberty begins around the age of 12 (Klima, 2020). Through digitalisation and social networks, it becomes harder to identify and cluster friendship networks of adolescents. Generally, we would associate young people's friendships with layers to classify the friends of adolescents: A particularly close and personal friend, a set of around five peers of the same sex and a loose compound of 10–20 adolescents who are also classified as "friends." This number rises if friends from digital settings are included (Hurrelmann & Quenzel, 2013).

Constituting factors of friendships are often school- or free-time activities. It should be noted that most relationships are generated through school, work, or voluntary employment (Louch, 2000). Feld (1981, 1982, 1984) noted that primarily purposeful activities create contact between individuals, resulting in a network of relationships. The neighbourhood already establishes proximity, as playgrounds and schools are shared by children. This is backed by Shrum et al. (1988) whose findings indicate that 88% of the friendships of third graders within their own grade level are found in the same school. School choice tends to group students with similar socio-economic backgrounds, abilities, and achievements into classes, thus supporting homophilic relationships (Kubitschek & Hallinan, 1998). Neckerman (1996) marks that especially among children and youths, this institutional setting is a key component for the stability of friendships. More recent research includes the places where people live, especially since residential areas usually show socio-economic and ethnic homogeneity (Kruse et al., 2016). In short, intra-ethnic friendship relationships arise from living in similar residential areas, which makes meetings easier to realize and the probability of meeting in contexts outside of school is higher (Mouw & Entwisl, 2006). Düvell (2005) writes that asylum seekers mostly find themselves isolated from other members of their community or other members

of the host society. Beirens and colleagues evaluated two community projects and showed that social bridges were created and strengthened by services that promoted emotional and social literacy skills and create opportunities for non-verbal communication and interaction (Beirens et al., 2005). This makes it clear that above all, opportunities and connections to other institutions are necessary to establish friendships outside the facilities where the youths live.

Kruse et al. (2016) point out that adolescents more frequently indicate adolescents from their neighbourhood as friends (Clément & Noels, 1992; Noels et al., 2010). Noels et al. (2010) suggest that people who were born in another country and generally have little contact with people in the host society identify more strongly with their society of origin, especially in intimate social situations. A study conducted by Leszczensky and Pink (2019) indicates that students with a strong ethnical identity tend to have a higher chance to have friends with a similar strong ethnic identity. They conclude that ethnically homophile friendship networks emerge from the interplay of the ethnic identification of both students. In their study, Verkuyten and Steenhuis (2005) investigated the stereotypes of youths about asylum seekers in the Netherlands. Therefore, they used focus groups discussion to get a deeper inside view of the stereotypes about Dutch, Moroccan, and asylum-seeking peers, and under which conditions the youths, which were between 10 and 12 years old, thought about friendships with group members of this category. It became clear that the described characteristics of Dutch and Moroccan children were quite similar. In contrast, in the descriptions of the asylum-seeking youths were put more emphasis on living conditions like living in an asylum seeker centre. The first reason why asylum seekers and Moroccan peers were rejected was that they were described as arrogant, aggressive, mean, dishonest, dirty, stupid, not nice, or quarrelsome. These characteristics were described by the interviewed persons as factual or as having an empirical nature. McPherson et al. (2001) emphasise that relationships among people who belong to the same religion are more likely to be close and more trusting, including help or support in emergencies. Collins (2004) developed a theory for religious belonging in which he assumes that rituals contribute to activating mechanisms that are focused on emotions and generate solidarity and belonging through common interactions. Contrarily, religion plays a rather subordinate role in more superficial relationships (McPherson et al., 2001). While religion has a high impact on socialisation, the experiences during puberty also play an important role.

While peer-related experiences are of utter importance, family factors also matter. Mak et al. (2018), as well as Rice et al. (1997), uncovered the unique role fathers play in youth's social anxiety and adjustment. Lam and colleagues showed that youths who spent more time with their fathers reported higher levels of social competence and self-worth (Lam et al., 2012). In the case of underage unaccompanied refugees, it is important that parents can still express their dislike when the adolescents have contact with groups of people who, according to the parents, have a bad influence on them. However, they are not on-site, which can cause the adolescents to have conflicts of loyalty toward their parents. This led to a situation where the adolescents have the impression that they are sitting on a fence, and this causes emotional stress (Hurrelmann & Quenzel, 2013). Due to the responsibility of the youth welfare service, the parents have no influence on which facilities their children live in, and which rules they have to obey, even if adolescents with different social and biographical backgrounds live there together. It is therefore likely that the social situation in the living group influences the development of friendships.

## 2.3. Types of Hierarchy

Accessing the hierarchical structure of a network can be difficult, especially when there is more than one root (Harary, 1955). Analogous to a biological tree, we can not identify a single node to which all branches would combine at some point in this case and have multiple "starting points" when starting to walk from a node with no incoming edges through the network. For our research, a node is simply a person who is either questioned or is mentioned by a young person in the interviews. Edges, which signal connections between nodes, are constructed if a person is referred to by an interviewed youth.

To characterise the hierarchical structure on a node level we look at the upstreamness (simplified: how "forward" is a node in a network if we order all nodes from only outgoing to only incoming edges) to evaluate the position in, e.g., tree-like structures. Interest in the specific role a node has concerning the number of in- and outflows is nothing new. Previous work in the field of biology (role in the food chain), economics (trade flows), and mathematics (directedness in a network) (Antràs et al., 2012; Lindeman, 1942; MacKay et al., 2020) showed here that such a form of analysis can foster a deeper understanding about path-dependencies in information flows and the relevance of position work.

In our case of a contact network in two supervised living groups, we can define high differences in upstreamness as an indicator for hierarchical grouping (Figure 1, right subfigure), while a dichotomic splitting in one group with a low level and another group with higher values would indicate a more star-like behaviour in the group processes (Figure 1, centric subfigure). The last can foster interpretations of a leader-centric organisation, a more diverse structure should rather indicate a form of social division of upkeeping of relationships between the members of the living groups. Nevertheless, in contrast to an equal distribution of upstreamness, for example in a directed circle (Figure 1, left subfigure), such structures indicate the existence of some form of social control and boundaries between the actors in our network.
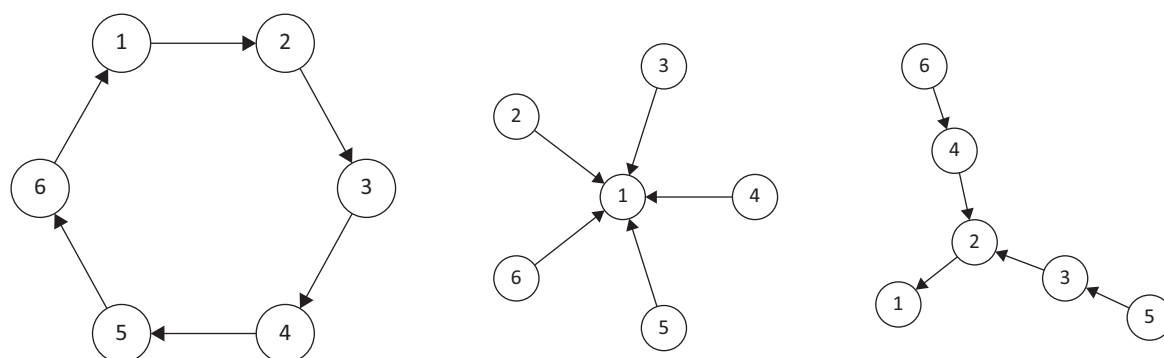
**Figure 1.** Prototypical representations of upstreamness structures. The left figure illustrates equal distribution, the figure in the middle shows a dichotomous distribution, and the right figure shows some differences in the levels.

## 2.4. Hypothesis

Following our previous considerations about connectivity structures in supervised living groups and hierarchical structuration, we specify the following hypothesis to evaluate which characteristics the youths and educators associate with friends.

We examine which characteristics adolescents associate with good friends. Since the literature emphasizes the trust component, we evaluate the youth's trustees (Hurrelmann & Quenzel, 2013). In the qualitative analysis, we focus primarily on shared experiences and stories and how these influence the emergence and maintenance of friendships. We also analyse how potential conflict topics are dealt with. More quantitatively, we evaluate the following hypothesis:

> H1: Structurisation in the networks follows homophilic tendencies in the demographic structure of the actors.

Here, we expect that shared cultural experiences ranging from religion to country of origin shape the in-group interaction processes between the adolescents because such manifest a frame of endogenous connectedness in the exogenously constituted supervised living groups. Furthermore, factors like a shared language should enable deeper communication between actors, enabling the formation of ties between the persons in the network.

While the institutional context imposes a dichotomous structure between caretakers and youths, we expect the processes to be much more granular because of the implicit restrictions in communicative patterns and establishment effects. Especially in the case of exogenous formation, as in our case, higher positioning and hierarchical closing can be a mechanism for youths to secure sparse resources and guarantee their influence in situations of a low trust level. Following this, we formulate our next hypothesis:

> H2: The probability of an edge between two actors correlates with the nodes' positions in the trophic structure of the network.

## 3. Methods and Data

We apply a sequential mixed method design, consisting of qualitative content analysis as a first step and an ERGM as a second.

For the qualitative content analysis, we used the method presented by Mayring (2015) to compare the two groups. Various institutions that run residential groups were contacted for the investigation. Only three organisations agreed to interview their staff and adolescents. Unfortunately, data from only two residential groups could be analysed, as no data from the third residential group was available from the educators. We conducted guideline interviews in two supervised living groups ($N_{caregiver}$ = 11, $N_{youth}$ = 10, total = 21) in June and July of 2018 to collect data for qualitative content analysis. The interviewees were given aliases to prevent re-identification. The questionnaire for the youths consists of two parts. In the first part, quantifiable characteristics, such as origin (country of birth, ethnic affiliation, and spoken languages) and religious background (religious affiliation, religiosity) measured with items from the World Value Survey (Inglehart & Norris, 2015) and the International Social Survey Programme (ISSP Research Group, 2021) are asked for. In the second part, name generators (modification of the social support questionnaire by Fydrich et al., 2007), are conducted to define the adolescents' network position. The questionnaire has already been used in a similar study by Metzner et al. (2018). For all friends mentioned in this name generator, the interviewee is asked to report their religiosity, place of residence, age, spoken languages, and country of birth. The questionnaire finishes with two questions about the characteristics of good friends.

A different questionnaire was conducted with caregivers. They were asked for their demographic characteristics and their reference juveniles. The name generator is aimed at their perception of the youths' relationships. Furthermore, name generators for supervised youths, who have a positive or negative relationship with each other were applied. In the end, the caregivers are also asked about the characteristics of good friends.

Regarding institutional factors, the organisation of the two groups is rather small and local. Both groups share the same guiding principles. The living groups are located in a town of just over 20,000 inhabitants. Both residential groups are three kilometres apart and can be reached within 25 minutes of walking. As it can happen that staff members work in both residential groups and that there are also joint activities with other residential groups of the organisation it is expected that the network exists across group boundaries. In living group one, there are six workers (two educators, two social workers, an intern, and a housekeeper) and in the other group, there are seven workers (three educators, two social workers, an English teacher, and an intern). In further analysis, all persons working in the residential groups in an educational context are classified as educators. This has the background that for adolescents, there is no difference between the different professions. In both living groups, the oldest adolescents were 19, and the youngest person lived in the second living group and was 12 years old. In living group one, the average age was 17.2 years, in living group two, it was 16.6 years. The living groups also differ in terms of gender ratio: There were no female residents in living group one, whereas two girls lived in the other group. Adolescents of Christian and Muslim faith lived in both living groups. The inhabitants' countries of origin of both groups are Afghanistan, Cameroon, Eritrea, Ethiopia, Germany, Guinea, and Syria. Living group one only consists of underage unaccompanied refugees, while the second living group consists of mostly adolescents born in Germany and only two underage unaccompanied refugees. In the following analysis, the language Arabic is used in the meaning of Modern Standard Arabic which is a language used in articles, literature and so on but is not an everyday language.

For our quantitative approach, we show some descriptive findings and evaluate the potential influence of factors of homophilic tendencies like language, country of birth, religion, and similar position in the network (position via trophic level and diversity) on the presence of an edge with multilevel ERGMs (Stewart & Schweinberger, 2018; Stewart et al., 2019). For our descriptive evaluation, we describe three metrics, namely degree, betweenness centrality, and network density. While degree simply describes the number of connections a node has, betweenness centrality allows for a more elaborate assessment of the position of a node $i$ in a network via measuring the number of shortest paths between two nodes passing through it (Freeman, 1977). The network density enables the calculation of the share of realised versus potential connections via a simple division (Frey, 2018). While demographic variables were adopted from the interviews, trophicality and diversity were computed according to Kones et al. (2009) from the network structure to measure the upstreamness of a node. This means we utilize the relative values of ingoing edges, represented by

increasing numbers, starting with the most bottom node (normally with an in-degree of 0) in the network.

To do so we estimated the trophic level $s_i$ for each node $i$ according to:

$$s_i = 1 + \sum_{j=1}^{n} \left( \frac{T_{ij}^*}{T_i} \cdot TL_j \right)$$

with $T_{ij}$ as edges from node $j$ to $i$, where $j$ represents the columns of the edge matrix and $i$ the rows; $T_{ij}^*$ is the edge matrix, excluding edges to and from external (nothing from outside the defined network). $T_i$ is the total number of incoming edges (indegree). Following this, we observe that a node with no incoming edges has a trophic level $s_1 = 1$. Similarly, we can calculate each node's diversity structure via the trophic diversity via the formula:

$$d_i = \sum_{j=1}^{n} \left( TL_j - \left( TL_i - 1 \right) \right)^2 \cdot \frac{T_{ij}^*}{T_i}$$

describing the differences in preference of connections between actors of varying upstreamness (Soetaert & Kones, 2014). To characterize the inequality in the distributions of $s_i$ and $d_i$ we use Lorenz curves (Gastwirth, 1971) to compare the cumulative shares against an equal distribution of such.

Following this, we use ERGMs. Such models are stochastic in a way that we utilise countable network structures and compare them with simulated random networks to identify the super random properties of actor pairs and network structures (e.g., triads) that stand out for the emergence of such a network. More simply, the dependent variable in the ERGMs is the existence of a tie between two actors. Then, we estimate the probability that a network connection will occur dependent on network statistics like the prevalence of homophily regarding node-wise attributes or local configurations like, e.g., triads or degree (in our case nodes with a degree of exactly 1 to model persons with exactly one reference person; see Lusher et al., 2013). In our model, we additionally assume local dependence as described by Schweinberger and Handcock (2015) to model in-group specific effects which should be ubiquitous due to distinct differences between the two supervised living groups. Therefore, we used all named persons in our network, containing everyone for whom information is available via the interviews. In the next steps, we first focus on the qualitative results of our analysis, featuring concise examples from the participants. Following, we illustrate some network measures before we evaluate the results of our network regression modelling. Finally, we double-check whether these results are also evident in the qualitative evaluation.

## 4. Results

The qualitative interviews were analysed with the focus on how good and bad friends are described and how the

friendships developed. The focus relied on factors like the place where they met the person for the first time, religious affiliation and language. In both residential groups, the adolescents answered the question about what makes a good friend similarly. It was said that this person must be someone you can trust and who respects you: "A friend is someone who respects you, who you can confide in" (Arnaud, 16 years old, Christian from Cameroon). However, some young people also reported that they did not discuss religious issues or issues concerning the situation in their country with their best friends because they were afraid that this would lead to conflicts, and possibly break their friendship. When asked who he could trust, Aditya (18 years old, Shia from Afghanistan) replied: "My best friend is Yanis. He lives in a city 30 km away and is Sunnite. We don't talk about religion, that would only lead to problems." In contrast, many religious motives were also chosen in the interviews, for example, two young people answered the question of who they trust only with "God" (e.g., Arnaud, 16, Christ from Cameroon). Religious background plays a big part in their daily life but they do not have many people they can talk about this topic. Although some of the youths were involved in sports and were already members of various clubs, this did not lead to automatically establishing friendships outside the living group. On the contrary, especially young people who had not been living in the housing group for long had met their close friends either in their home country or during the flight. Here, a young person emphasizes that a friend is a person who can relate to personal pain: "A friend is the one who knows your pain and whatever you want, he will always stand by your side" (Abdoulaye, 16 years old, Muslim from Guinea). The interview with Abdoulaye was dominated by many negative emotions stemming from the flight. He described only the time he had spent with this friend as positive. He also mentioned that he would like to visit this friend, even though he lives so far away. The common flight contributed to a feeling of solidarity and this bond still lasts over the long distance. The friend resides 300 km away in another German city, but they still have close contact. The interviews with the first residential group were dominated by negative emotions and stories about the flight. This can be seen as an indicator that therapeutic interventions would be needed. In light of the number of persons working in the residential groups, this seems to be an impossible task.

Regarding the second living group, the situation was slightly different. One structural component that stands out is the common cleaning on Saturday. This means that all the young people must clean their rooms and take turns cleaning different shared rooms in the facility, e.g., the kitchen. Likewise, the evening meal is usually eaten in the group. These components show that the second living group pays more attention to joint activities in which the adolescents perceive themselves as equals. In the first living group, after the first adolescents had already lived there, such common rituals were

introduced, but it turned out that the youths resisted these activities. Therefore, the educators stopped trying to enforce a common dinner. This opens the space to maintain one's own habits regarding food. A distinctive feature in the first living group was a shared meal during Ramadan among the Muslims. These results indicate that the joint dinners were an opportunity for the adolescents to meet as equals, thus creating a place where an exchange was possible. The educators answered the question about the characteristics of a good friend similarly to the adolescents but pointed out that most of them need a long time after their arrival before they trust people again. That is why they only speak of friendship-like relationships in living group one.

However, trust was central in all definitions of friendships, even educators and educated people agreed on this. The head of the first living group stated that adolescents who speak Arabic and have a basic knowledge of German are often used as support during conversations about conflicts. Regularly, the adolescents then translate the statements of the educators into Arabic and the statements of the respective adolescents into German. However, different dialects are typically subsumed under the term Arabic, although they are only apparently similar from the outside perspective. It should be noted that Arabic, as it is taught in most language courses, is usually a language that young people have hardly got to know. This makes people with certain languages feel disadvantaged. These tensions are then transferred to the youths who translate. The conflict is usually about the right translation and wording and which language/dialect is the "right" one. The adolescents feel unfairly treated as a result, and further tensions arise, especially if they feel that their native language is not considered equal to other languages. Likewise, this translation assistance puts the youths in a difficult position, as it makes them appear disloyal to the other youths. Another problem that arises from this is that the caregivers cannot check what exactly has been translated and the adolescents are additionally put in a position of power, which can lead to conflicts.

The head of living group one summarises: "If he is alone with Afghans, for example, the educator has no chance to guide them in any way, because he doesn't understand a word." The different languages and pronunciations accordingly make everyday pedagogical life difficult and can lead to the development of hierarchies among adolescents.

However, religious motives were not in the foreground in the interviews of the second group, and the young people seldom sought advice and help in religious scriptures. Furthermore, the young people spoke openly about religious topics among them. The interviews also showed that the young people in the second living group built up more relationships, so they named an average of three to four people in the name generators, among them also people who had not lived in the living group but belonged to the host society. They were also able

to name people they did not like and give reasons for that. These people lived in their immediate environment or encountered them in everyday life, which is different from the situation in living group one. When it comes to language, an issue that caused or strengthened many conflicts in living group one, the head of the second living group says that it is of little importance in everyday life because the adolescents are supposed to speak German with each other, a language most of them are fluent in.

In the following section, the network structure will be focused upon. Therefore, we first look at the overall network structure and some descriptive measures (Table 1). Regarding general network descriptors, we see a generally right-skewed degree distribution. We observe a similar type of behaviour for the betweenness centrality scores, indicating a generally hub-centric structurisation of the network. Similarly, the relatively low network density (0.038) indicates a sparse connectivity structure in the network.

When assessing the diversity and trophicality scores for each node in our dataset (Figure 2), it is observable that in general, the distribution of trophicality is much more equal than that of diversity. This effect is present even when looking at the living groups separately. An interpretation here might be the general tendency of actors to find their position in a not extremely hierarchical way (no one rules all). This indicates some hierarchical grouping because diversity in contact with members outside their hierarchical position is weakly pronounced.

To check which factors, show meaningful correlations with edge creation, we now discuss the results of our multilevel ERGMs (Table 2). For this, we describe the stepwise construction of selected terms and showcase significant results.

First, we start with a simple model (model 1), only containing an edge-coefficient. The negative, relatively high value indicates a low density of the bespoken network. In the next step, we included a degree term to account for low-to-moderate values in the frequency distribution for nodal degrees. Following this, we observe no significant effect ($p > 0.05$) for the degree counts of 1 (model 2). In the following model (model 3), we included homophily terms for age, language, country of origin, and religion. Here, we found a positive, but no

**Table 1.** Measures of the network.

| Metrics | N | Mean | St. Dev. | Min | Pctl(25) | Pctl(75) | Max |
|---|---|---|---|---|---|---|---|
| Degree | 66 | 2.49 | 2.59 | 1 | 1 | 2 | 12 |
| Betweenness Centrality | 66 | 80.70 | 193.65 | 0.00 | 0.00 | 28.00 | 996.73 |
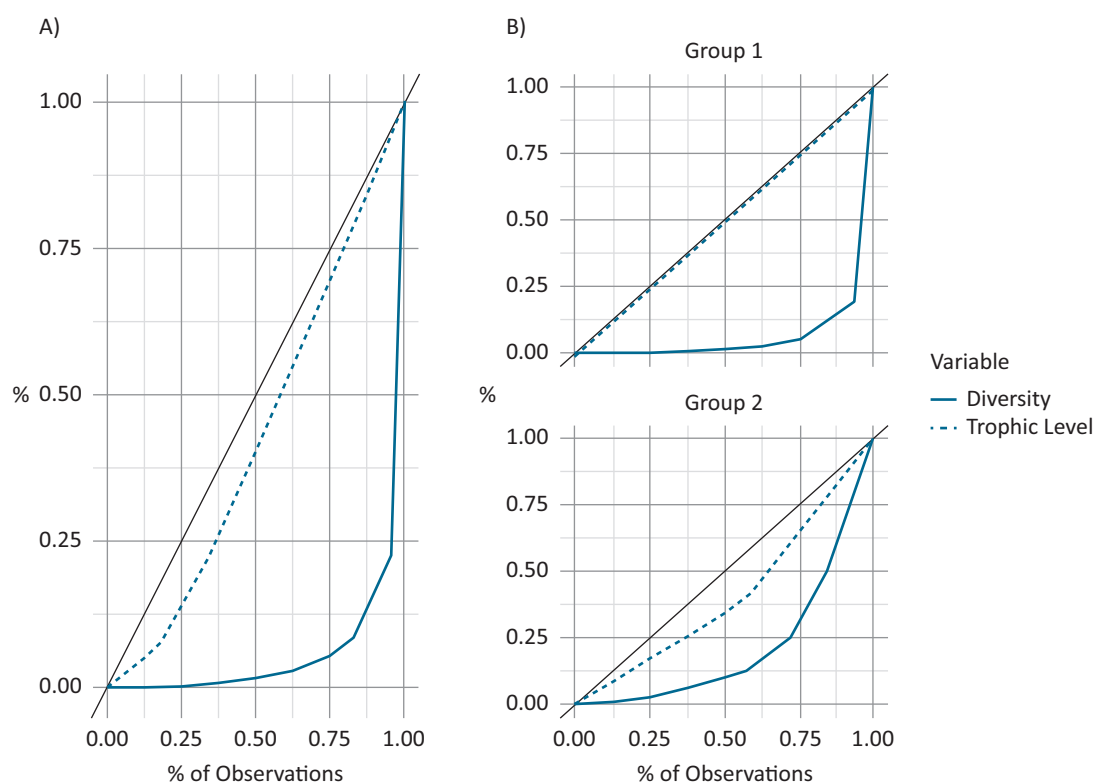


**Figure 2.** Distribution of trophic levels and diversity for both supervised living groups (subfigure A) and facetted for each group (subfigures B). Notes: All subfigures show the Lorenz Curves for the two variables; a reasonable fit with the diagonal line would symbolise near equal distribution.

**Table 2.** Results of the multilevel ERGMs.

| | M1: Control | | M2: Degree Effect | | M3: Homophily | | M4: Homophily + Status | |
|---|---|---|---|---|---|---|---|---|
| | Est. | Std. Error | Est. | Std. Error | Est. | Std. Error | Est. | Std. Error |
| Edges | −1.40*** | 0.22 | −1.67*** | 0.22 | −2.26*** | 0.46 | −0.71 | 0.60 |
| Degree 1 | | | −1.19 | 0.70 | −1.23 | 0.72 | −1.06 | 0.67 |
| Abs. Diff Age | | | | | −0.02 | 0.05 | 0.06 | 0.05 |
| Homo. Language | | | | | 2.05*** | 0.65 | 1.09 | 0.73 |
| Homo. Country | | | | | −0.87 | 0.78 | −1.04 | 0.85 |
| Homo. Religion | | | | | 0.13 | 0.56 | 0.48 | 0.62 |
| Abs. Diff Trophic Level | | | | | | | −0.70*** | 0.21 |
| Abs. Diff Diversity | | | | | | | 0.22*** | 0.01 |
| N | 23 | | 23 | | 23 | | 23 | |
| BIC | 139.79 | | 140.97 | | 148.19 | | 135.39 | |

Notes: ** $p < 0.05$; *** $p < 0.01$; "Abs.Diff" stands for "absolute difference" and "Homo." is for homophily regarding the term.

significant effect of age ($p > 0{,}05$). We observed no significant effects for matching country of origin, and religion ($p > 0.05$), and a strong positive, significant effect of language ($p < 0.05$). When including hierarchy and diversity variables via homophily terms (model 4), we observe that a higher difference in trophic levels is connected to a significantly lower probability of observing an edge between two nodes ($p < 0.05$). On the other hand, we observe an ever so slightly positive, significant effect of differences in the diversity level between nodes ($p < 0.05$). This leads us to the conclusion that hierarchy is relatively tree-like in our sample, as high differences in the levels are associated with negative edge probabilities. We also conclude that positions, which bridge between levels, are not rewarded with higher connectivity, indicating a structurally "unattractive" position in the network for people addressing multiple persons of various levels. The BIC indicates a better fit for the model including the hierarchy terms (model 4) than for all previous models, showing the relevant role of these terms (in concordance with H2) and the relatively low relevance of factors like age, religion, and country of birth (contrary to H1).

**5. Discussion**

As the network analysis points out, bridging between diverse levels of hierarchy seems not to be rewarded, but a relatively high position in the structure correlates with a higher probability of forming an edge with another actor. Following this, we can provide some evidence for H2. This indicates some form of hierarchical structuration in the network. The observation that the inclusion of positioning terms in ERGMs leads to non-significant effects of demographic factors, like age and language, provides negative evidence for H1. A possible explanation derives from the qualitative interviews. The predominant problem here might be language issues, as educators and residents mostly have solely German as their common language. Adolescents who are fluent in

both Arabic (as a common youth language) and German (as the predominant language of the educators) might be in the place of translating between educators and youths with lower levels of German, which might put them in negative roles by the other adolescents. This can be illustrated by the quote from the head of group one: "Depending on the region or the country of origin. That you can put your foot in other pitfalls. So, you need to have some background knowledge about culture. Even things that we don't even think about." The mistakes that the educator makes are transferred to the adolescent, who translates. Furthermore, as highlighted above, the Arabic languages differ greatly from each other, and the correct translation of a term depends highly on the education level and country of origin of the mediator. Additionally, we observe no significant stable effect of nationality and age. While this is contrary to some previous research (Eckert, 2012; Hurrelmann & Quenzel, 2013), such effects may be partially influenced by the sample composition. The high amount of male-identifying individuals in combination with the small number of observations may dilute the effects of age-wise-separated groups in favour of wide, but shallowly structured groups (e.g., gangs of male youths cliques). Regarding country-wise effects, the divergence in the group composition may also give some clues about founding structurization. Consistent with Noels et al. (2010), our qualitative evaluation indicates differences in the way that foreign-born people are less open to creating relationships in a new environment when comparing groups one and two, but this may be confounded by the factor of a shared language (higher in group two), or the very different amounts of institutionalised common activities (Feld, 1981; Louch, 2000). The reason for the absence of friendships outside of the residential groups might be that the refugees, contrary to locals, do not yet attribute a social component to such activities. This reinforces the findings of the study by Beirens et al. (2005). Therefore, the clubs need to be particularly sensitive to

the fact that young people feel that they are in good hands there, otherwise regular sport is the only training that does not lead to the creation of social bridges. Especially for the educators, it was not comprehensible why no social ties were created outside the residential groups. The joint dinners in the second residential group were seen by the educators as an opportunity for the two refugees to bring in their culture and thus reduce prejudices from the other adolescents in the residential group. This confirms the findings of Verkuyten and Steenhuis (2005) that when negative stereotypes are broken down, there is more acceptance among adolescents and thus positive relationships are built. Furthermore, it is notable that the age distribution is relatively small which may prevent processes of age-wise disintegration. Another factor is religion. We were unable to observe a significant effect of shared belief on the building of connections between the youths. This is consistent with previous work by McPherson et al. (2001) stressing the subordinate role of religion in superficial relationships as in our case.

## 6. Conclusion

In this article, we presented a mixed-method approach to characterise hierarchical patterns in the relationship structure of youths' supervised living groups. The research processes included a first qualitative step with guided interviews and a quantitative analysis using network measures for in-network hierarchies and multilevel ERGMs to provide a holistic view of legitimising (qualitative) and demographic (quantitative) factors. The results of our analysis indicate that language is a central aspect of the development of relationships in residential living groups. The qualitative analysis also shows why religious affiliation does not seem to have much influence: Since religious affiliation is a sensitive topic, and adolescents only discuss such topics with people they trust, it becomes clear that such topics are rarely discussed with other people because they hardly trust other adolescents. Likewise, a flight is a profound experience that has led some young people to forge friendships during this time. It was evident in all interviews that the young people found it particularly difficult to build trust with people. The educators also noticed this. This finding should be considered when caring for young people. This problem could be exacerbated by a high turnover of staff. Due to the lack of trust, superficial and pragmatic relationships were formed in group one which were based on a tit-for-tat approach. One example is the relation between Najafi (17 years old, Muslim from Afghanistan) who shared a bike with another adolescent from the group but not had any other contact with him. In the second residential group, more intimate relationships developed, which also seems to be based on the exchange of different young people at eye level. Due to the high importance of language, the country of origin also loses importance. Nevertheless, it must be noted that language and country of origin often are inseparable. In addition, it shows that above all, group-specific processes lead to the development of friendships rather than the sole consideration of individual characteristics. Only the interaction between the adolescents explains the development of friendships.

Further research needs to address the processes leading to such structures on a broader level, including factors like the temporal dimension of network building and the geospatial distribution of resources potentially supporting the arouse of inequalities. While ERGMs help to differ the influence of network configurations like triadic closure, homophily, and reciprocity, methods for the evaluation of networks beyond dyad-wise structuring and towards hypergraphs can be of utter interest, which seems to enrich perspectives on group configurations and complex distribution (or spreading) behaviour (de Arruda et al., 2020; Seidman, 1981). Considerations expanding the classical network representation towards a hyperbolic representation of graphs (Keller-Ressel & Nargang, 2020) can help to foster a better understanding of rivalling effects between hierarchy and similarity in the observed network, but also more classical approaches like analysing specific brokerage roles (Gould & Fernandez, 1989) might help understanding node wise configurations in the supervised living groups. Further studies should additionally examine the extent to which an ethnic identity develops among adolescents and what factors it is made up of.

## Conflict of Interests

The author declares no conflict of interests.

## References

Antràs, P., Chor, D., Fally, T., & Hillberry, R. (2012). Measuring the upstreamness of production and trade flows. *American Economic Review*, *102*(3), 412–416. https://doi.org/10.1257/aer.102.3.412

Basov, N., & Kholodova, D. (2021). Networks of context: Three-layer socio-cultural mapping for a Verstehende network analysis. *Social Networks.* Advance online publication. https://doi.org/10.1016/j.socnet.2021.03.003

Beirens, H., Hughes, N., Hek, R., & Spicer, N. (2007). Preventing social exclusion of refugee and asylum seeking children: Building new networks. *Social Policy and Society*, *6*(2), 219–229. https://doi.org/10.1017/S1474746406003484

Clément, R., & Noels, K. A. (1992). Towards a situated approach to ethnolinguistic identity: The effects of status on individuals and groups. *Journal of Language and Social Psychology*, *11*(4), 203–232.

Collins, R. (2004). *Interaction ritual chains*. Princeton University Press.

de Arruda, G. F., Petri, G., & Moreno, Y. (2020). Social contagion models on hypergraphs. *Physical Review Research*, *2*(2). https://doi.org/10.1103/PhysRevResearch.2.023032

Deutscher Bundestag. (2020). *Unterrichtung durch die Bundesregierung: Bericht der Bundesregierung zur Situation unbegleiteter Minderjähriger in Deutschland* [Information by the federal government. report of the federal government on the situation of unaccompanied minors in Germany] (Bundesdrucksache 19/17810). https://dserver.bundestag.de/btd/19/178/1917810.pdf

Deutscher Caritasverband. (2017). *Unbegleitete minderjährige Flüchtlinge in Deutschland* [Unaccompanied minor refugees in Germany: Legal requirements and their implementation]. Lambertus.

Düvell, F. (2005). *Active participation of immigrants in the United Kingdom: Report of the European POLITIS research project*. University of Oldenburg.

Eckert, R. (2012). *Die Dynamik jugendlicher Gruppen Über Zugehörigkeit, Identitätsbildung und Konflikt* [The dynamics of adolescent groups: About belonging, identity formation and conflict]. Beltz Juventa.

Federal Office of Justice. (2012). Sozialgesetzbuch (SGB)—Achtes Buch (VIII): Kinder- und Jugendhilfe [Social security code—8th book: Child and youth welfare]. https://www.gesetze-im-internet.de/sgb_8

Federal Office of Justice. (2013). *Bürgerliches Gesetzbuch* [German civil code]. http://www.gesetze-im-internet.de/englisch_bgb

Feld, S. L. (1981). The focused organization of organizational ties. *American Journal of Sociology*, *86*, 1015–1035.

Feld, S. L. (1982). Structural determinants of similarity among associates. *American Sociological Review*, *47*, 797–801.

Feld, S. L. (1984). The structured use of personal associates. *Social Forces*, *62*, 640–652.

Freeman, L. C. (1977). A set of measures of centrality based on betweenness. *Sociometry*, *40*(1). https://doi.org/10.2307/3033543

Frey, B. (Ed.). (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation*. SAGE. https://doi.org/10.4135/9781506326139

Fydrich, T., Sommer, G., & Brähler, E. (2007). *F-SozU: Fragebogen zur Sozialen Unterstützung* [F-SozU: Social support questionnaire]. Hogrefe.

Gastwirth, J. L. (1971). A general definition of the Lorenz curve. *Econometrica*, *39*(6). https://doi.org/10.2307/1909675

Gould, R. V., & Fernandez, R. M. (1989). Structures of mediation: A formal approach to brokerage in transaction networks. *Sociological Methodology*, *19*, 89–126.

Harary, F. (1955). The number of linear, directed, rooted, and connected graphs. *Transactions of the American Mathematical Society*, *78*(2), 445–463. https://doi.org/10.1090/S0002-9947-1955-0068198-2

Hurrelmann, K., & Quenzel, G. (2013). *Lebensphase Jugend: Eine Einführung in die sozialwissenschaftliche Jugendforschung* [The life phase of youth: An introduction to adolescent research in the social sciences]. Beltz Juventa.

Inglehart, R., & Norris, P. (2005). *Rising tide: Gender equality and cultural change around the world*. Cambridge University Press.

ISSP Research Group. (2021). *International social survey programme: Social inequality V—ISSP 2019*. https://doi.org/10.4232/1.13829

Jehles, N., & Pothmann, J. (2016). Mengen, Verteilungen und Durchschnittswerte. Ausgewählte Daten zu unbegleiteten minderjährigen Flüchtlingen [Quantities, distributions, and averages: Selected data on unaccompanied minor refugees]. In D. J. Fischer & G. Graßhoff (Eds.), *Sozialmagazin Sonderband* [Social magazine special issue] (Vol 1, p. 33–43). Beltz Juventa.

Jordan, E., Maykus, S., & Stuckstätte, E. C. (2012). *Kinder- und Jugendhilfe Einführung in Geschichte und Handlungsfelder, Organisationsformen und gesellschaftliche Problemlagen* [Child and youth welfare: Introduction to history and fields of action, forms of organisation, and social problems]. Beltz Juventa.

Keller-Ressel, M., & Nargang, S. (2020). Hydra: A method for strain-minimizing hyperbolic embedding of network- and distance-based data. *Journal of Complex Networks*, *8*(1). https://doi.org/10.1093/comnet/cnaa002

Klima, R. (2020). Pubertät [Puberty]. In D. Klimke, R. Lautmann, U. Stäheli, C. Weischer, & H. Wienold (Eds.), *Lexikon zur soziologie* [Encyclopaedia of sociology] (p. 620). Springer Fachmedien Wiesbaden.

Kones, J. K., Soetaert, K., van Oevelen, D., & Owino, J. O. (2009). Are network indices robust indicators of food web functioning? A Monte Carlo approach. *Ecological Modelling*, *220*(3), 370–382. https://doi.org/10.1016/j.ecolmodel.2008.10.012

Kruse, H., Smith, S., van Tubergen, F., & Maas, I. (2016). From neighbors to school friends? How adolescents' place of residence relates to same-ethnic school friendships. *Social Networks*, *44*, 130–142. https://doi.org/10.1016/j.socnet.2015.07.004

Kubitschek, W. N., & Hallinan, M. T. (1998). Tracking and students' friendships. *Social Psychology Quarterly*, *61*(1), 1–15.

Lam, C. B., McHale, S. M., & Crouter, A. C. (2012). Parent–child shared time from middle childhood to late adolescence: Developmental course and adjustment correlates. *Child Development*, *83*(6), 2089–2103. https://doi.org/10.1111/j.1467-8624.2012.01826.x

Leszczensky, L., & Pink, S. (2019). What drives ethnic homophily? A relational approach on how ethnic identification moderates preferences for same-ethnic friends. *American Sociological Review*, *84*(3), 394–419. https://doi.org/10.1177/0003122419846849

Lindeman, R. L. (1942). The trophic-dynamic aspect of ecology. *Ecology*, *23*(4), 399–417.

Louch, H. (2000). Personal network integration: Transitivity and homophily in strong-tie relations. *Social Networks*, *22*(1), 45–64. https://doi.org/10.1016/S0378-8733(00)00015-0

Lusher, D., Koskinen, J., & Robins, G. (2013). *Exponential random graph models for social networks: Theory, methods, and applications. Structural analysis in the social sciences* (Vol. 35). Cambridge University Press. https://doi.org/10.1017/CBO9780511894701

MacKay, R. S., Johnson, S., & Sansom, B. (2020). How directed is a directed network? *Royal Society Open Science*, *7*(9). https://doi.org/10.1098/rsos.201138

Mak, H. W., Fosco, G. M., & Feinberg, M. E. (2018). The role of family for youth friendships: Examining a social anxiety mechanism. *Journal of Youth and Adolescence*, *47*(2), 306–320. https://doi.org/10.1007/s10964-017-0738-9

Mayring, P. (2015). *Qualitative Inhaltsanalyse Grundlagen und Techniken* [Qualitative content analysis: Basics and techniques]. Beltz.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415–444.

Metzner, F., Zimmer, I., Wolkwitz, P., Wlodarczyk, O., Wichmann, M., & Pawils, S. (2018). Soziale Unterstützung bei unbegleitet und begleitet geflüchteten Jugendlichen und jungen Erwachsenen nach der Ankunft in Deutschland. Ergebnisse einer Befragung in "Willkommensklassen" an Hamburger Berufsschulen [Social support for unaccompanied and accompanied refugee adolescents and young adults after arrival in Germany: Results of a survey in "welcome classes" at Hamburg vocational schools]. *Zeitschrift Für Flüchtlingsforschung*, *2*(1), 3–31.

Mouw, T., & Entwisle, B. (2006). Residential segregation and interracial friendship in schools. *American Journal of Sociology*, *112*(2), 394–441. https://doi.org/10.1086/506415

Neckerman, H. J. (1996). The stability of social groups in childhood and adolescence: The role of the classroom social environment. *Social Development*, *5*, 131–145.

Noels, K. A., Leavitt, P. A., & Clément, R. (2010). To see ourselves as others see us: On the implications of reflected appraisals for ethnic identity and discrimination. *Journal of Social Issues*, *66*(4), 740–758.

Rice, K. G., Cunningham, T. J., & Young, M. B. (1997). Attachment to parents, social competence, and emotional well-being: A comparison of Black and White late adolescents. *Journal of Counseling Psychology*, *44*(1), 89–101. https://doi.org/10.1037/0022-0167.44.1.89

Schweinberger, M., & Handcock, M. S. (2015). Local dependence in random graph models: Characterization, properties and statistical inference. *Journal of the American Statistical Association*, *77*(3), 647–676. https://doi.org/10.1111/rssb.12081

Seidman, S. B. (1981). Structures induced by collections of subsets: A hypergraph approach. *Mathematical Social Sciences*, *1*(4), 381–396. https://doi.org/10.1016/0165-4896(81)90016-0

Shrum, W., Cheek, N. H., & Hunter, S. M. (1988). Friendship in school: Gender and racial homophily. *Sociology of Education*, *61*, 227–239. https://www.jstor.org/stable/2112441

Soetaert, K., & Kones, J. K. (2014). *Package NetIndices, network indices and food web descriptors in R*. Universidad Autónoma del Estado de Morelos. http://www2.uaem.mx/r-mirror/web/packages/NetIndices/vignettes/NetIndices.pdf

Stewart, J., & Schweinberger, M. (2018). *mlergm: Multilevel exponential-family random graph models*. CRAN.R Project. https://CRAN.R-project.org/package=mlergm

Stewart, J., Schweinberger, M., Bojanowski, M., & Morris, M. (2019). Multilevel network data facilitate statistical inference for curved ERGMs with geometrically weighted terms. *Network Science*, *59*, 98–119. https://doi.org/10.1016/j.socnet.2018.11.003

Strahl, B. (2020). *Heimerziehungsforschung in Deutschland:Eine Expertise für das Zukunftsforum Heimerziehung* [Institutional care research in Germany: An expert report for the future forum on institutional care]. Internationale Gesellschaft für erzieherische Hilfen.

Verkuyten, M., & Steenhuis, A. (2005). Preadolescents' understanding and reasoning about asylum seeker peers and friendships. *Journal of Applied Developmental Psychology*, *26*(6), 660–679. https://doi.org/10.1016/j.appdev.2005.08.002

**About the Authors**

**Daniel Schubert** holds a bachelor's degree in social work and a master's degree in sociology and political science. He is currently working as a research assistant at the Chair of Sociology, Urban and Regional Studies at the Ruhr University Bochum. His research interests are in the areas of social inequality and changes in people's attitudes. In his research, he uses computational and statistical methods, especially agent-based modelling, and social network analysis for the analysis of social processes and change dynamics of norms.

**Alexander Brand** is a research assistant in the field of political science at the University of Hildesheim with a master's degree in sociology. His research focuses on applying computational and statistical methods for the studies of complex social systems, particularly social network analysis, natural language processing, and agent-based modelling. Additionally, he is interested in novel approaches to combine these methods with digital trace data.