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## The conditioning of social networking sites in the formation of migratory chains of unaccompanied foreign minors

### Il condizionamento dei siti di social networking nella formazione delle catene migratorie dei giovani stranieri non accompagnati

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**Abstract.** The relational uprooting faced by young unaccompanied minors, when they undertake a migratory process, it places them in a situation of extreme vulnerability. Timeshare in the Center for Minors offered relationships between themselves, which are later maintained and reflected on social networking sites. The content that can be shared on social networking sites could condition the subsequent migratory itinerary travel and the migratory chains that are formed. In this study, the profiles on social networking sites of 51 unaccompanied minors were analyzed one year after having passed through a Center for Minors located in Malaga (Spain). Through social networks analysis, netnography and certain algorithms for community detection, cohesion and emotion analysis, the connectedness and interaction patterns shown by these young people on social networking sites (Facebook) will be analyzed, identifying leaderships and detecting communities that influence the formation of migratory chains. The results show how the patterns of connectedness, interaction and leadership reflect migratory chains.

**Keywords:** communities, migratory chains, social networking sites, unaccompanied foreign minors.

**Riassunto.** Lo sradicamento relazionale affrontato dai giovani minori non accompagnati, quando intraprendono un processo migratorio, li pone in una situazione di estrema vulnerabilità. La condivisione del tempo nel Centro per i Minori ha permesso loro di instaurare relazioni che vengono poi mantenute e riflesse sui siti di social network. I contenuti condivisibili sui social network potrebbero condizionare il successivo itinerario di viaggio migratorio e le catene migratorie che si formano. In questo studio sono stati analizzati i profili sui siti di social network di 51 minori non accompagnati un anno dopo che erano transitati da un Centro per Minori situato a Malaga (Spagna).

Attraverso la social network analysis, la netnografia e alcuni algoritmi per il rilevamento della comunità, la coesione e l'analisi delle emozioni, verranno analizzati i modelli di connessione e interazione mostrati da questi giovani sui siti di social network (Facebook), identificando le leadership e rilevando le comunità che influenzano la formazione delle catene migratorie. I risultati dimostrano come i modelli di connessione, interazione e leadership riflettono le catene migratorie.

**Parole chiave:** comunità, catene migratorie, siti di social networking, minori stranieri non accompagnati.

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## 1. INTRODUCTION

Migration has repercussions on society as a whole and gives place to changes, especially in those who emigrate. The migratory process generates some instability and strong stress levels on the individuals due to the dual change, cultural and psychological, which affects their adaptation to the receiving society. Same as the so called “first generation” of migrants, who feature the migratory project, the migrants of the “second and third generation” perform a horse-riding effort between two worlds (León, 2005).

Literature's build which abords the migratory processes and international mobility shows the importance of the network mechanisms for decision-making previous to the displacement and enhances the social networks plays (Bilecen et al., 2018; Boyd, 1989; Maya Jariego, 2004). The studies about migration that use relational approaches consider that the actions are interdependent with the others, through relationships and social interactions that connect each other (Bilecen & Lubbers, 2021; Dahinden 2005; Molina et al., 2015). Relationships that are generated and maintained during the migratory process are considered “transnationals”, unifying the origin societies with the receiving ones (Schiller et al., 1992; Levitt, 2002; Vertovec, 2009; Wimmer & Glick Schiller, 2002). The set of practices and relational processes of the migrants connect a diversity of cities, regions, nation-states, being denominated “transnationalization”, due to them being extended over the geographical, cultural and political limits (Basch et al., 2020).

Networks found by the migrants, especially when they arrive for the first time to the receiving society, are non-static, experimenting social and space changes (Ryan et al., 2008). Migrants share the experience to a greater or lesser degree of social banishment when it comes to political, legal, economical or territorial status, they become strangers in the eyes of those who receive them and face external borders that do not belong to space (Elias, 2012). Each one of the migrant generations face different challenges that vary according to economic, cultural, social linguistics and/or individual characteristics factors such as age of migration, social abilities, coping strategies and the existence or type of social

networks in the receiving country and how this reacts to their arrival (Ferrer et al., 2014).

The international migration due to forced mobility maintained on the rise in 2021 according to reported figures by the UN for Refugees Agency (UNHCR, 2021). Furthermore, new estimates show that the minors represent the 30 per cent of the world's population, but it is calculated that they sum up to 42 per cent of all people moved by force (UNHCR, 2020) and they seem particularly affected during the mobility crisis, especially if their mobility takes many years. The most vital stage of the youngsters, indifferent to their country or origin, sets up as a decisive stage where socialization, daily activities, scholar processes, experiences, friendships, memories and future possibilities are totally and directly linked to their insertion in the society they live in (Masot & Julián, 2013). The territorial, cultural and familiar uproot which Unaccompanied Foreign Minors face (onwards UFM) can be considered as a critical event due to the network changes and the breakup of their social relations that condition their reality, putting them in an extreme vulnerability and isolation situation (Wissink & Mazzucato, 2018). In these cases, due to the residency change, their social networks are restructured, forming new bonds, breaking others, maintaining the transnational ones or generating local bonds (Kindler, 2021). This variability and uproot make the relationships that they stablish among themselves in order to use as a handle to which they can hold onto.

### 1.1. Social Networks and Migrations

The interdependent relations network that are generated among people can lead to resources and opportunities (and also negative externalities in some cases) and constitutes the social capital (Bourdieu, 1986; Lin, 2002), which is considered as an explicative element of the constitution and development of the migratory chains (Cachia & Jariego, 2018; Williams, 2006) as well as a determinant for the adaptation to the new context (Lubbers, 2021). Inside the migration studies, the incrustation concept, popularized by Granovetter (1985), is used to denominate the dynamic processes, where

through the actors they establish relationships. Nevertheless, although the author does not focus on the migrants, his study gives knowledge to comprehend the implications that networks and social bonds in this collective can have. Particularly it postulates that there are different types of bonds and that not all of them have the same value. While strong ties make it easier for trust to flow within groups, the weaker bonds provide information and resources depending on the social location of the actors involved, being more valuable when they meet outside of the actor's own social circle because they act as bridges; the bridge bonds, would be those bonds that extend through different social circles, sewing relationships with people which they do not normally relate with (Granovetter, 1973). Burt (2005) differentiates between the closing and opening mechanisms that generate the social structures. The ones that tend to close are relationships where the people recognise themselves as similar, but they are the ones where it is tended to reach some sort of monolithic knowledge. The opening mechanism displays when there are people that are able to transit from one homogeneous group to another, carrying and bringing non-redundant information and, therefore, reaching new information.

The scientific community and the work put on by social networking sites commonly departs from the bonds structuring, following homophily's principle which is the tendency to associate with kindred people to our likes, thoughts and beliefs (Dunbar et al., 2015). Nevertheless, Hite (2003) showed that the relational processes of the bonds differ between them due to the necessities, interests and feelings among people giving place to variations in the network's structure and their positions inside it, which usually acts as a spring and informal protection shield versus social exclusion.

### *1.2. Implications of Social Networking Sites in Migration*

Social networking sites has brought the interest of scientists of different disciplines due to their capacity to generate social connections, new forms of organization, of participation and political and social mobilization (Fuchs, 2020). Penetration of social networks in society, the frequency of use and connectedness and interaction dynamics have turn social networking sites into a space of socialization (Wilson et al., 2012) which favours the emergence of online communities (Castillo de Mesa et al., 2021). These online connections make possible the formation of the so called digital diasporas during the migratory processes (Vázquez, 2013), which reveal community networks, nations and digital identities and construction of communities among migrant popula-

tions (Diamandaki, 2003). That is to say, migrants who participate in online communities, especially created in the destination places, with those who share the same culture and place of origin (Brinkerhoff, 2009). These online communities reflect dynamic relationships of the online reality (Dunbar et al., 2015), giving place to a cycle on which problems and opportunities are redefined (Lubbers, Molina & McCarty, 2020; van Liempt & Nijenhuis, 2020; Wessendorf & Farrer, 2021) and they act as catalysts of social capital and tolerance to diversity (Castillo de Mesa et al., 2020).

Appreciating the theoretical framework that proceeds, and in the interest of studying the relationships and the importance of networks in the migratory phenomenon, several inquiries are proposed on how Unaccompanied Foreign Minors participate in the formation of networks in the receiving society, and if the social relationships (bonds) among them generate communities, resources flows and opportunities, or even so create itineraries and mobilize movements to other places. The lack of knowledge of the native language and the lack of places for socialization conditions the potential creation of new relationships. These obstacles mean that the bonds that are created among the minors who live in the Minors' Center are very strong. These links can influence the decision-making of minors, regarding future destination places. Social networking sites provide highly spontaneous information because users are the ones who willingly provide information on their personal identity, based on their explicit contact networks and interactions.

In this study, the morphology of the relational structure of 51 Unaccompanied Foreign Minors from the methodology of social network analysis has been analysed, inquiring in the connectedness and interaction on social networking sites (specifically on Facebook) which is generated among them from having shared time in a Minors' Center. The starting point is the idea of the lack of territorial and social rooting from these UFM and therefore the lack of spaces for socialization has led to social networking sites converting into a place of prioritized socialization on which bonds have been formed which are conditioned by affinities due to origin reason, ethnicity and culture.

## 2. METHODOLOGY

### *2.1. Participants*

The sample was composed of 51 immigrant minors who lived at that moment, and during the year 2020, in the Unaccompanied Foreign Minors Centre located in

Málaga. All of them have a mobile phone, they use social networking sites and they are in contact with their family members or other minors and friends through them. Facebook was the social media app of common use for all of the minors, reason why it was chosen as context of investigation.

Greater vulnerability due to the absence of family and friendship networks is a common characteristic of these immigrant minors. Table 1 shows the places of origin of the UFM.

## 2.2. Ethical criteria

For the purpose of extracting and analysing information a neutral Facebook profile was used, this way

avoiding personal interference from both sides (Reamer, 2015). Online communication and interaction with participants observed was avoided to comply with ethical information extraction and handling criteria, according to the Institutional Review Board (Solberg, 2010). Likewise, ethical criteria regarding informed consent, confidentiality and personal data protection were met during the analysis and exposition of results.

## 2.3. Netnography

Interaction on social networking sites was carried out through netnography, which is defined as a set of methods to register and interpret digital environments and which tries to adapt traditional ethnography notions

**Table 1.** Place of origin of the Unaccompanied Foreign Minors.

Morocco (35)				
Agoudin, Nikhrtane Tinghir (2) East Morocco	Castillejos Fnideq (1) Next to Ceuta's border	Issaguen (1) Town in the region of Rif Rural Zone	Ouarzazate (1) South Morocco, entrance door to the Sahara Desert	Fez (1) Capital
Al Haouafate (2) Rural commune in the province of Sidi Kacem of the region of Rabat.	Douar Riehr (2) Near Tangier Rural zone	Ksar el Kebir (5) North Morocco, near Larache	Oued Laou (1) North Morocco, near Tetouan	
Bahara Guled Ayad (1) East Morocco	El kelaa des Sraghna (1) Capital of the region Marrakech	Larache (2) South Tangier	Souk El Larbaa (1) City in the province of Kénitra	
Bouhamsi commune Zaaroura near Larache (1)	Hay Ayad Beni Mellal (1) Commune of the capital Beni Mellal	Laouamra (2) Rural commune in the province of Larache	Tánger (2) Capital, North Morocco, nearest to the Strait of Gibraltar.	
Casablanca (2) West Morocco.	Hay El Idari (1) North Morocco, near Castillejos	Outat el Haj (2) City of the province of Boulemane	Tetouan (3) North Morocco, near Tangier and Ceuta.	
Argelia (2) Tiaref (1) Argel (1)				
Subsahara (14)				
Burkina Faso (1)		Kankan (1) Guinea		
Dalaba (1) Region of Mamou/Guinea		Keita in Bamako (1) Mali		
Guinea Conakry (1)		Mali (2)		
Guinea Bissau (1)		Nigeria (1)		
Guinea Ecuatorial (1)		N'zerekore (1) City of Guinea		
Ivoirienne (1) Ivory Coast		Yopougon (2) Ivory Coast		

to the new technological environments of mediation (Hine, 2005; Kozinets, 2015). The principles of netnography are based on the continuous immersion of netnographers in a place of communicative interaction (Hine, 2005). In order to carry out the observation, instead of observing from the corner of a street as Whyte (1943) did in this masterpiece *The Street Corner Society*, an ad hoc profile was created to observe and analyse on Facebook.

Observing interactions that appeared in the timeline (posts, likes, comments) of every personal profile on Facebook allowed us to verify the identity of UFM and register the shared information about the subjects in matter. For the registration of the interactions, screenshots and notes were taken which they were then analysed subsequently.

Being immersed in this online context gave meanings to interactions. A first test on the interpretations of symbols and patterns of interactions was carried out during this stage. From the three types of interactions analysed we obtained a classification divided in conceptual categories which helped organize and differentiate the content shared by the UFM. These interpretations were shared with researchers and were iteratively discussed for the classification of the posts (images, text, audio-visual content) which was sorted by each and everyone of the investigators and also collated. Also, the social educator of de Unaccompanied Foreign Minors Centre helped us validate and interpret the networks and comprehend its meaning with data sometimes complementary in the construction of their stories and relationships. Interpretations and interactions' meanings were not always agreed on, however, as the analysis continued, some consistency was found in the interaction patterns of each subject. Perceptions and intangibles were observed in these patterns, which were noted down and which shaped the identity of each professional and his/her role in the core of the implicit communities detected, as well as in the online structure analyzed.

#### 2.4 Community detection

Once the position held by users in the online structure was analysed, a method consisting in breaking down by communities the analysed structure through the modularity algorithm was used in order to detect communities in the network (Girvan & Newman, 2002). This method allows to identify dense conglomerates of relations in wide social networks (Girvan & Newman, 2002). The modularity algorithm begins by considering all nodes in isolation and then determines if bonds are within a community or, on the other hand, between a community and the rest of the network. It follows a

cumulative strategy. Subsequently, communities are built based on the higher increase of modularity. Once the maximum modularity possible between pairs is reached, the process is stopped. This method is empirically viable thanks to its optimisation of dividing communities. The modularity algorithm adjusts according to the centrality of degree, that is, the possibility of the existence of a bond between two nodes, which is proportional to online connectedness.

#### 2.5 Social network analysis

The characteristics of the observed online social structure were also analysed. Different relational properties were measured through the social network analysis. The centrality of degree was firstly observed, which is conceived as the number of actors to which another actor is directly linked (Brandes, 2001). The degree centrality analysed in an online context is linked to the concept of connectedness, defined as computer assisted communication – currently also performed by smartphones – that involves the development of personal bonds (without common geographical constraints) and connecting with wider groups and communities of interest (Wellman et al., 2001). In this case, input and output degrees were observed, according to the number of interventions performed by users (timeline publications, comments and “likes”). The degree of users' betweenness was also analysed as a relational feature. This feature determines the number of intermediaries needed to connect all users (Brandes, 2001). It determines which actor is amidst geodesic paths and, therefore, indicates the shortest way that any actor needs to follow in order to reach any other actor within the network. This allows to determine which users are able to control information according to the position they hold within the network. These methods have been developed by using the Gephi software (Bastian et al., 2009), in its version 0.9.2.

### 3. RESULTS

#### 3.1 Presence and contents

The process of the netnographical analysis has been carried out thanks to the knowledge of the Unaccompanied Foreign Minors (see table 1) and the observation of the culture and symbology in the social networking site Facebook. The analysis focuses on the search of behaviour patterns when it comes to connectedness and interaction.

In the connectedness network (figure 1), the pink nodes correspond to the Unaccompanied Foreign

Minors that come from the Sub-Saharan Africa. In this community it can be observed that node “7” slightly stands out comparing to the others and it matches the boy that was in the centre for the most time. The blue colour represents the Unaccompanied Foreign Minors that have left the centre; it is relevant because none of them belong to the centre nowadays, but they are still in contact and frequently interacting with some of the UFM that are still living in the residential centre as we can see in figure 1 for example node “13”, “27” with node “3”. Node “3” particularly stands out over the other green nodes but also over the network structures’ total. All these nodes correspond to the UFM that have arrived from the north zones of Morocco, except nodes “10” and “1” that have arrived from Algeria. In the yellow community we find that the nodes that represent the UFM specially come from Tetouan and cities closer to the south of Morocco, where it particularly stands out node “45”. Simultaneously we find other nodes well positioned and close by “2”, “5”, “35”, “26” and “3” that consume narcotics, and they appear with a nickname on Facebook called “Los Matadores”. In the network’s structure we find a key node “27” that breaks with the previous marked pattern of communities by nationality or origin; node “27” comes from Nigeria and currently lives in Barcelona maintaining relationships with his partners. Subsequently there have been a few of the UFM that have moved to Barcelona like “15”, “41” and “42”. As it has been seen, the nodes with the most centrality have a more influential role over the structure and the nodes that form it. Such position can represent a hierarchical situation in which the center actors are more powerful and influential than the more peripheral actors.

3.2. Relational network properties and community detection

The results of the analyzed relational properties defined the morphology of the network.

The size of the nodes (UFM) represents up to which level do they connect with one another (see figure 1). On Table 2 it can be checked that the boys have a centrality of average grade of 0,69 on Facebook. This value, which can range on an escalated form between 0 and 1, being greater the level of the network’s imbrication when it

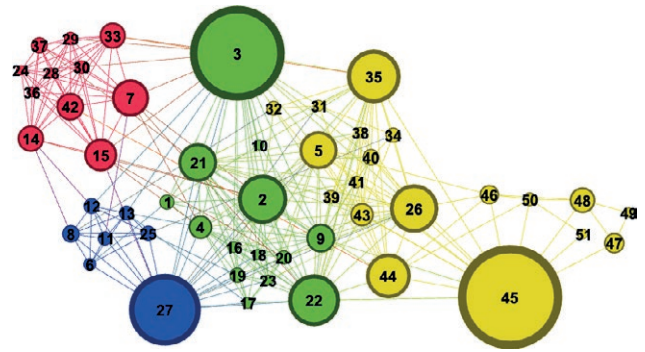


Figure 1. Connectedness network of the Unaccompanied Foreign Minors.

gets near 1, reflected an optimal level. This indicates that the total number of links in the network in comparison with the actors is of high density, and therefore the network’s structure is highly imbricated at a social and structural level. When it comes to the cohesion analysis, it has been evident which are the distances at which the Unaccompanied Foreign Minors have been with each other. The average distance between any pair of nodes has been 3,19. Given that the average distance according to Edunov et al., (2016) is 3,5 we can say that the connectedness network is found very cohesive.

The interactions’ network has been subsequently analysed through the shared, “posts”, “likes”, and “comments” on Facebook of the Unaccompanied Foreign Minors. The times they interact with one another have been measured. It has been represented in a weighted way, as to say, as to more times that there has been interaction between the UFM, larger the size of the bond that unites them. In figure 2, according to the larger size of the nodes, it can be observed which are the nodes that send out more posts, likes and comments. The ones that have a higher level are the nodes that appear with larger size. Also, conformity’s network around the one-click interaction is reflected. The quantity is represented by the larger size of the nodes and the bond’s strength represents the frequency. The arrow indicates the directionality of the interaction. Node “21” stands out within the green community, node “3” within the yellow community and “7” within the blue coloured community. The pink community nodes barely show a presence within the interaction.

Table 2. Networks’ measures. Connectedness on Facebook.

Degree centrality	Average Path length	Clustering coefficient
3,6	2,50	0,37

Table 3. Interactions’ network of the Unaccompanied Foreign Minors.

Degree centrality	Average Path length	Clustering coefficient
3,6	2,50	0,37

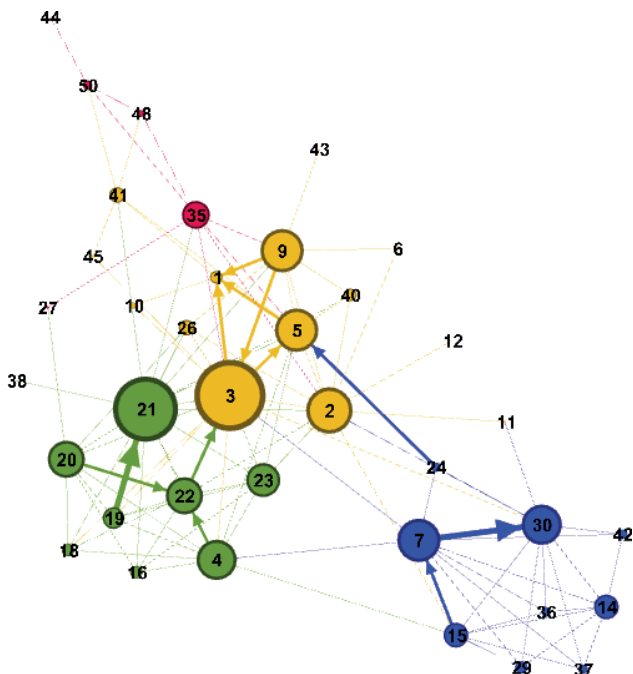


Figure 2. Interaction's network of the Unaccompanied Foreign Minors according to degree centrality and modularity.

The average degree centrality in the interactions reached an optimal level of 3,6. This measure draws the most imbricated zones with a more intense tone. These nodes are the ones in the middle of the paths, being able to carry and bring information from one node to another. The interaction's networks have shown which minors haven been more active, sharing more posts and what conformity and affinity levels are there between the nodes according to the interaction's frequency.

#### 4. DISCUSSION

The tension due to the deculturalization of the Unaccompanied Foreign Minors and the difficulty in the construction of their identity, as well as contradictions between the family culture of origin and the cultural ways of the receiving country, suppose a source of acculturative stress (Bhugra, 2004; Collazos et al., 2008). In this epistemological context, social networking sites play a crucial role for the adaptation to the new context during the migratory processes, reducing the costs of mobility (Maya Jariego, 2004).

The advent of technology of information, the massive use of the internet, and all services and applications' digital architecture make possible connectedness and interaction, allows the migrants to maintain the transna-

tional bonds or (re)build networks within the limitations and opportunities of a determined space (Glick Schiller & Çağlar, 2016). Like previously shown, the Unaccompanied Foreign Minors have found the digital platform Facebook, a socialization space where they find themselves connected with each other and they interact, forging relational links which result in communities in the online space.

The detection of communities allowed finding connectedness and interaction patterns according to similarities like culture, language and, especially place of origin, which has been represented in the pink community, formed by Sub-Saharan minors, and in the green and yellow communities, composed by north and south Moroccans, respectively. The formation of these communities seems to confirm the idea of the digital diasporas, where the migrant people recreate identities and share their culture (Alonso & Oiarzabal, 2010). In this sense, the Unaccompanied Foreign Minors find in Facebook a habitable space, where bonds can be maintained and generated in terms of communication and periodicity, surpassing the geographical limits.

The obtained measures reveal that the online interaction's structures analysed (likes and comments) of the Unaccompanied Foreign Minors are found imbricated, getting close to the average distance of 3,5 in Facebook (Edunov et al., 2016). Through the netnographical analysis it has been observed that the interaction and activity in the network depends on the characteristics of the content as well as structural properties of the UFM's network, being those that generate the most interaction around likes and comments versus the least interaction nodes that find themselves in a peripheral position show. The online interaction's structure presents a major predominance of weak nodes, which eases up the flow of non-redundant information between the UFM. Adding to this, strong bonds appear between the nodes with higher leadership. These major leadership nodes are those who have been in the Minors' Centre more time, and they are the ones that condition the others decision's making to stablish vital itineraries, influencing on settling in the same destinies. This unbalanced distribution of strong and weak bonds notes they are ephemeral relationships created around groups of equals that have met in the Minors' Centre not too long ago. These relationships, even though being ephemeral, can exercise a supportive function before the lack of social rooting and offline socialization spaces. Although at the same time they can provoke a closing mechanism within the minors with similar cultural identities. Although, the degree of superposition between the offline and online networks has been verified in the study. The type of rela-

tionships that are established in offline spaces reproduce and reflects affinity patterns within the UFM in the virtual space (Gillani et al., 2018). For example, minors that come from Morocco connect with each other around contents related to Ramadan.

The study's results contribute a higher comprehension about the relational processes between the UFM. The personal networks of the UFM reflect a degree of relational exclusion due to the absence of ties between them and support networks in their host society. In this sense, the role of the social networking sites consolidates as an alternative space of socialization where bonds arise, links and also through shared experiences. The size, composition and structure of the UFM's network, as observed during the study, is key in obtaining benefits through the interchanges in the network (information, emotional support, material, etc) or in detriment, limits its support possibilities, or the exclusion is reproduced.

Vulnerability of the UFM must be understood within contexts of social inequality. For this reason, social networking sites play a paramount role in the creation of strategic networks. They help palliate some of the forms of social disadvantage, offer opportunities in participation and formation of communitarian ties, and facilitate the integration in the host society.

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