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Chapter 8

Peer Interactions and Second Language Learning

The Contributions of Social Network Analysis in Study Abroad versus At-Home Environments

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Introduction

Social networks play a vital role in individuals' achievement, including second language acquisition (SLA). While the importance of learners' social network configuration has been recognised by many study abroad (SA) researchers, and some studies have attempted to recreate students' social networks as graphs, so far few have operationalised the interaction networks in a quantifiable manner that would allow measuring their influence on L2 progress. Unlike studies focusing on the micro level of individual participants' ego networks (e.g. Dewey et al., 2012, 2013; Zappa-Hollman & Duff, 2015; Gautier, 2019), we show how and why peer learner networks can be examined in their entirety. This approach permits two levels of analysis: individual contacts (micro level) and the whole network structure (meso level).

SA student networks may provide many opportunities for out-of-class communication in the target language (TL, L2), with intensive, contextualised input and "pushed output" (Fernández-García & Martínez-Arbelaiz, 2014), but the high degree of variation in L2 progress reported in existing studies (e.g. Kinginger, 2009; Isabelli-García et al., 2018) calls for closer investigation into the interactional behaviours favouring or inhibiting L2 development. In this chapter we demonstrate how the computational and anthropological tools of Social Network Analysis (SNA) can contribute to the understanding of the influence of peer interaction dynamics and social graph topology (structure of the network) on measurable outcomes among SA sojourners in comparison to stay-at-home students. In particular, we focus on the moderating role of the social network (mesoscopic explanatory variable)—in turn influenced by engagement with the TL culture (macroscopic explanatory variable)[1]—on L2 progress (microscopic response variable).

Networks and Learner Behaviour

Learning from a social network perspective is perceived as a social and collective outcome of conversations, shared practices, and interpersonal connections (Brown & Duguid, 1991). Learners, embedded in such networks, share and actively construct knowledge through ongoing exchanges and collaborations (Cohen & Prusak, 2001). Peer networks also remain an important source of community support (Pinquart & Sörensen, 2000; Zhu et al., 2013). Scientific interest in the relationships between learners in a group and the repercussions thereof led to the development of research methods that could recreate the make-up of the group. In the 1930s, Moreno (1934, 1937) laid the foundations of sociometry, a method of reconstructing group structure through information on different types of relationships between the members, such as amity, trust, or popularity. Later, researchers supplemented sociometric enquiry with graph theory accompanied by mathematical and statistical indices. In this way classical sociometric study evolved into computational analyses of student networks (Wasserman & Faust, 1994), allowing for example for investigations of the influence of classroom networks on learning outcomes.

Social Network Analysis

A social network is a way of representing various kinds of relationships or dependencies (depicted in the form of links/edges;[2] Jarynowski et al., 2019) between persons (actors/agents, rendered as nodes), for instance learners. Networks can be ego-centric (Lizardo, 2017), when a respondent is only asked about her/his contacts (alters), or net-centric sociograms (complete networks), which are the combination of several ego networks and thus also include alter-alter links (see Figure 8.1). In this chapter, we focus on the full network approach, because such networks of interactions of individuals over time allow for a better apprehension of processes such as SLA. We are also primarily concerned with networks consisting of the students themselves, who are the most important network members within study groups. However, other significant stakeholders such as teachers, partners, family, and friends may also need to be taken into account.

Networks are usually considered from the perspective of functional and structural social theories. In the former, networks form and evolve to play roles in society, and of greatest interest are the processes taking place through them, such as language acquisition; in the latter, networks are the outcome of social acts, and they (the networks) themselves are the most important. Social networks representing different roles combine to form multilayered structures (multilayer/multi-context networks).

Temporal Networks and Their Evolution

Most SLA researchers use static projections of networks. However, social networks are temporal objects and evolve in terms of both links and nodes.
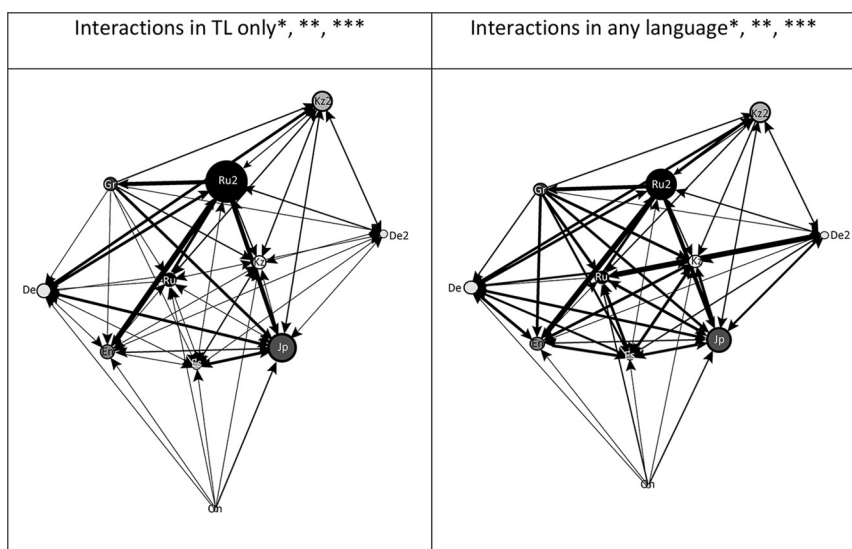
Figure 8.1 Interactions in One Class Group of Students Learning Polish in an Intensive Summer Course

Note: Link thickness (weight) reflects interaction frequency. Arrows reflect direction of interactions, whether incoming or outgoing.

It is possible to analyse students' longitudinal networks in a series of snapshots. In the case of SLA, usually each student community forms in phases (initiation, early and late stages). For example, initially any two people who know each other form a dyad. In this first phase many new links form. In the early stage the network is consolidating and triangle closure (structural balance) processes take place (if person A is connected with B and with C, it is likely that persons B and C will also form a link in the future). In the late stage, group members may join or leave, but the dynamics are much slower.

At each stage of their evolution, networks can be described by their density, which counts the fraction of observed links out of all the possible links (in a hypothetical fully connected graph, where everybody would be connected to everybody else). Well-connected groups tend to be more efficient at solving team tasks (Simon et al., 2015).

Methods and Measures

Computational SNA

Ego-network information, which for us is only the first step in recreating the connected social graph, can be collected using a number of techniques: picking contacts (alters) from a list provided, annotating contacts from memory, or drawing the contact network by placing alters on circles of intimacy. The most popular form of annotating interactions between study participants is a paper-and-pencil self-reported survey, which usually yields a *directed weighted*

network. Such a network contains information about the direction of the interaction, i.e. whether it is a one- or two-way relationship, together with the intensity (weight) of this interaction. Recent years have witnessed an increased application of Internet-based self-report surveys.
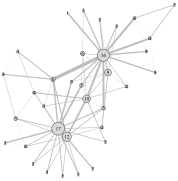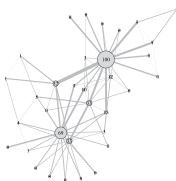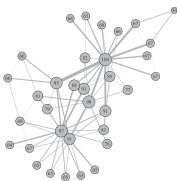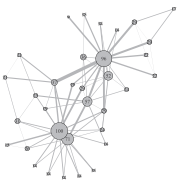
Network Properties: Centrality and Community Structure

Gauging the importance of nodes (e.g. persons) with respect to the number and weight of links to others as well as the particular structure of those linkages is possible owing to a battery of measures referred to as network centralities, which can influence actor (person) attributes such as test achievement (e.g. Grunspan et al., 2014). The most commonly applied centrality measures are (see Table 8.1):

- (Weighted, Out-/In-) Degree Centrality: The number of a node's outgoing, incoming, or overall links (with weights);
- Closeness Centrality: The node's average inverse distance to all other nodes, reflecting so-called structural centrality;
- Betweenness (Mediating/Flow) Centrality: The number of times a node lies on the shortest path between other nodes, gauging the importance of a given node in information flow;
- PageRank Centrality: A score based on a node's connections and these connections' connections. It calculates the importance of a node based on the importance of its alters. It is relatively well-known because the algorithm was used by Google to order search results.

With the exception of Betweenness, links can be weighted and directed. Very often, most of the nodes can form a coherent subgraph (the giant component),

Table 8.1 Most Commonly Used Centrality Measures Exemplified on Data from a Karate Club Network (After: Zachary, 1977: Node sizes and values correspond to the given centrality)

Degree	Betweenness	Closeness	PageRank
Out: number of links to alters In: number of links from alters All: sum of out+in	Number of times the node lies on the shortest path between other nodes	Inverse distance of the node to all others	Number of links to the node weighted by attraction and centrality of linkers

or fall into separate components, in which the nodes are connected to one another. The most central nodes lie in the core and the least central ones on the periphery of the network. Apart from centrality metrics, nodes can also be assigned different roles and positions (Ferligoj et al., 2014). A Hub is (one of) the most central node(s), a Star has many incoming links, a Bridge is a node linking various communities, a Broker has high betweenness, while Leaves are peripheral (connected to the rest of the network only by single links).

Persons/nodes may be grouped in different ways. A dyad is a pair of nodes connected only with each other; a triangle (2-triangle … *n*-triangle) is a situation where two nodes A and B share the same friend C (and so on), a clique or cluster is a group of nodes where everybody is connected with everybody else, and a community (Fortunato, 2010) is a subset of the network such that links among member nodes occur more often than links with the rest of the network.

Qualitative (Mixed-Methods) SNA

As part of the general debate concerning the value of mixed-methods research, the potential of combining qualitative and quantitative methods has also been advocated in network research (Crossley, 2010; Edwards, 2010). Network structure, which is the main concern in quantitative SNA, provides limited information on the dynamics and variability of network ties, or on how these ties are conceptualised by the research participants. Therefore, the study presented in this chapter employs a mixed methodology.

The most common qualitative methods in SNA include *ethnography* and *in-depth interviews*. The former was used for instance by Bott (1957) to study family networks, and the latter by Heath and colleagues (2009) to investigate whether decisions about (non)participation in higher education may be influenced by networks of family and friends. Qualitative SNA also developed more specific network-related tools, such as *participatory mapping*, where the participant is asked to draw the ego-network directly (Emmel, 2008), and *walking interviews*, in which the participant walks the researcher around their neighbourhood, offering insight into the spatiality of their network (Emmel & Clark, 2009). Anthropological perspectives also make use of *focus groups* as well as different types of *observation*.

Social Networks and L2 Acquisition in the Context of Study Abroad

Social network influence seems particularly consequential in the context of SLA, especially in SA. Immersion in the target culture is thought to provide favourable conditions for advancing L2 development, as it increases opportunities for interaction and hopefully L2 use with both L1 speakers and other TL users (J. A. Coleman, 2015; McManus, 2019), leading to enhanced oral proficiency (Freed et al., 2004; Isabelli-García, 2006) and fostering the acquisition of sociolinguistic and sociocultural knowledge (Freed, 1995).

Research has provided insight into the types of social networks learners engage in while abroad and, consequently, the types of input available to them (Dewey et al., 2012; McManus et al., 2014; Gautier & Chevrot, 2015; Dewey, 2017; McManus, 2019), as well as the relationship between social networks and L2 acquisition (Baker-Smemoe et al., 2014; Mitchell et al., 2017). Fraser (2002) and Whitworth (2006) indicated that learners who participate in various social activities during SA such as football teams, internships, music bands, etc. demonstrate further progress in L2 than those limiting their interactions to instructional settings. Dewey and colleagues (2012, 2013) indicated that SA participants who are involved in a wider variety of social activities through L2 have better-developed social networks and become more proficient. Baker-Smemoe and colleagues (2014) similarly found greater language development among learners who are members of many different social groups and have closer relationships with expert users of TL. The development of more extensive social networks (and subsequently greater progress in L2) in turn seems to be observed among learners with higher motivation (Isabelli-García, 2006, 2010).[3]

Thus, existing studies indicate that social networks may play an important role in promoting L2 use and L2 gains. However, despite the interest among SLA and SA scholars, these studies focus mainly on communication with host families and other members of the local culture, and do not operationalise the contacts in a way that would allow for a reconstruction of the connected, directed social graph and subsequent computational analyses of the impact of its structure and interaction dynamics on language development. While the social network measures hitherto applied in published studies do sometimes allow visualising the ego networks of the participants, they again do not attempt to recreate the connected social graph, so that the ego networks obtained are necessarily undirected, and tend to only look at L2 interactants. Zappa-Hollman and Duff (2015) offered an elegant visualisation of the individual network of practice of a Mexican student in Canada, but the relationships were neither quantified nor broken down into individual interactions. Sabawi and Yıldız's (2015) sample (*n* = 11) was too modest to allow statistically significant conclusions, and only looked at each student's contacts without reconstructing the graph of relations or applying a computational network analysis. Recently, Gautier (2019) adopted a longitudinal approach with three data collection points in a study of language learners in France, using measures such as density and centrality as well as cluster analysis, but again looking at undirected and unweighted graphs. More in-depth investigation combining quantitative and qualitative research methods is needed to fully explain the nature of social network influence on L2 progress during SA (Dewey et al., 2012; Isabelli-García et al., 2018; Borràs & Llanes, 2019). In the following sections we illustrate how an SNA approach can contribute to the understanding of the influence of peer out-of-class interaction dynamics and social network topology (structure) on measurable outcomes among SA sojourners in comparison to stay-at-home students.

An Illustrative Study

In what follows, we illustrate the potential of the above-discussed methodology of computational (quantitative) and anthropological (qualitative) SNA in investigating the moderating role of the social network in L2 progress. The selected findings reported in this chapter constitute part of a broader research project carried out among students observed in two contexts: SA and at-home (AH) (see Paradowski et al., 2021). For an overview of the project see Table 8.2. The former group consisted of 332 learners of Polish as L2 during two different (2017 and 2019) 4-week-long intensive summer courses taught in Warsaw, Poland. The courses offered 15 class-hours per week, plus 45 hours per week of extracurricular activities (e.g. film screenings, translation workshops, lectures, or board games). The participants were grouped in classes according to TL entry level, from A0 to C1. The AH cohort consisted of 40 first-year students of an Applied Linguistics undergraduate programme at a large public university in

Table 8.2 Study Sample and Measures

	SA Context	*At-Home Context*
Population	332 international students following an intensive 4-week summer course in Polish; two different years 13 teachers of Polish	23 first-year undergraduate Applied Linguistics students majoring in Japanese (JA); 17 first-year undergraduate Applied Linguistics students majoring in Swedish (SV); 2 teachers of Swedish
Sociometric Characteristics	53% female Mean age: 27 Main L1s: German 15.4%, Chinese 10.2%, Russian 8.4%, English 6.6%, Georgian 3.9% Motivation: studying in Poland 31%, interests 18.1%, family reasons 13%, work 11.7%	80% female Mean age: JA majors: 20;8; SV majors: 20;2 L1s: Polish 92% (other: Ukrainian, French, Russian, Czech, English) Motivation: interests 42%, available study minor 17%, TL culture 15%
Quantitative Measures	332 questionnaires identifying individual ego-networks and measuring the influence of personality and group factors on language attainment 193 pre- and posttests of students' TL competence	40 questionnaires identifying individual ego-networks and measuring the influence of personality and group factors on language attainment (including 23 in a longitudinal format) TL competence throughout and at academic year end
Qualitative Measures	9 interviews with course participants 13 interviews with course teachers	7 interviews with course participants Focus group interview 2 interviews with course teachers

Poland. The programme includes a first foreign language (English, French, Spanish, German, or Russian) and a second foreign language (English, French, Spanish, German, Russian, Swedish, Japanese, or Polish Sign Language). The groups chosen for the study were learning Japanese (23 students) and Swedish (17 students) as FL2 with ten 45-minute classes per week. At the moment of conducting the research, after one year of classes, the participants' TL level had increased roughly from A0 to B1.

Quantitative data was obtained via questionnaires distributed at the end of the course (for SA participants), or at the end of the academic year (for AH participants). The questionnaire was designed to measure the influence of individual and group factors on language outcomes and included items concerning communication in different (out-of-class) contexts and languages as well as psychosocial variables. The participants were also asked to fill in a proprietary ego-network questionnaire, where they declared the direction, intensity, and language(s) of communication with every other group member. Participants' entry and final grades and tests[4] were utilised to measure L2 progress. The data were coded into an SPSS spreadsheet. Statistical (multiple and single regressions, correlations, multidimensional scaling, etc.) and network analyses were conducted in R and the `igraph` package.

The main method of qualitative enquiry employed was semi-structured interviews. These were conducted with both SA (nine individual interviews) and AH students (seven individual interviews, four focus group participants). The SA interviewees were all from the 2019 cohort, from varied national backgrounds; their TL levels ranged from A1 to C1. At their request, seven interviews took place in English and two in Polish. The AH interviewees were all majors in Swedish, and were interviewed in L1 Polish. The participants were asked, among others, to what extent they had used TL and interacted with their classmates in out-of-class contexts, how they assessed the level of intra-group integration, and how they conceptualised their own TL progress. Additionally, the focus group interview scrutinised the interaction dynamics between the participants, as well as their perception of the influence of peer networks on language learning.

To compensate for the lack of an observation component (present e.g. in Paradowski et al., 2012), in both contexts interviews were also carried out with the teachers who had witnessed the formation of the participant networks and their subsequent dynamics both in and out of class. Overall, 15 teachers were interviewed, including two AH teachers of Swedish, and 13 SA teachers. The teachers were asked about the character of student interactions (especially in the context of naturally occurring communication), the structure of the networks formed throughout the course (with potential cliques and communities), and TL progress made both on the individual and group levels. They also provided information on voluntary TL use by the students during class breaks and social activities.

The qualitative data obtained from the students and teachers were transcribed and analysed using the R package `RQDA`. The interviews were subjected to a thematic analysis. After an identification and coding of data relevant to the

research questions, codes referring to the same phenomenon were grouped together into categories (themes). Interrater checks were conducted to ensure reliability of the coding. The common themes identified in the student interviews were: TL use, influence of interactions with classmates on TL progress, atmosphere among classmates, language progress, motivation, TL learning methods, and TL learning problems. There were also themes unique to only one of the cohorts, such as the influence of immersion on TL progress in the SA group. Altogether, 14 themes were developed. In the teacher interviews, 54 codes were grouped under 10 themes, including individual progress, group progress, working with the group, influence of interactions between classmates on TL progress, individual engagement in lessons, TL use, group integration, and differences between intensive summer courses and school-year courses.

Results

Network Properties and TL Progress

Here we provide only a summary account of the quantitative analyses; more details are available in Paradowski et al. (2021). This analysis revealed significant nontrivial relations between structural network properties and subjective and objective progress in the L2 in the SA scenario. Firstly, we found a statistically significant positive correlation between TL progress and Weighted Out-Degree Centrality (number of an individual's outgoing interactions) in the Polish-language (TL) communication network [0.2], corroborating the importance of L2 production, and a negative correlation with Betweenness Centrality (popularity or control) in total communication [−0.1]. Interestingly, high Weighted In-Degree Centrality was associated with slower progress in Polish (suggestive of the detrimental influence of in-group popularity; J. S. Coleman, 1961). The influence of the network was strongest in the domains of pronunciation and lexis, where the simplest measure of Weighted Out-Degree Centrality in the TL positively correlated with progress, while Betweenness in total (all-language) communication was significantly anticorrelated. Combined with the detrimental impact on SLA of a high In-Degree, this suggests that for language acquisition, the topology of the network matters more than properties that are more important for processes such as information flow (cf. the social diffusion of linguistic innovation; Paradowski & Jonak, 2012).

In the *At-Home* cohort of learners of Japanese and Swedish, there were no statistically significant relations between network centralities and TL progress.

The Structure of the Learner Networks

While quantitative SNA showed the importance of the topology of the learner networks for language progress during SA, the qualitative component yielded information on how this structure emerged. In the SA context, the main criteria that influenced network formation among the students were nationality and/or

sharing a lingua franca. Both the interviewed students and their teachers identified smaller clusters which formed within the class groups, with the exception of one class described as exceptionally well-integrated as a whole. The members of this group socialised intensively after hours, also attracting students from other classes. The students and teachers explained the exceptional activeness of this group with the following factors: (i) low number of students ($n = 7$), (ii) linguistic experience and strong motivation, (iii) after-class socialisation from the very beginning of the course, and (iv) each student coming from a different country (Kazakhstan, Mexico, Ukraine, Iraq, Lithuania, France, and Saudi Arabia: see Extract [1]):

> [1] But I just have to say that it is an exceptional group, exceptionally well-integrated. Maybe because it wasn't numerous, but culturally diverse, they are really well-integrated and I think it also influenced their progress. However, there were two or maybe even three people who have more linguistic experience; one person said they were an interpreter, the other I think had studied linguistics. So it also influences the speed of language learning. [F, teacher, translated from Polish[5]]

In the remaining SA course groups, the subgroups were formed on the basis of homophily, which was either nationality-based: "I guess it's natural that you stick to your home country" [M, 25] or language-based: "We made our own little German-speaking corner" [F, 26]. These findings illustrate the homophily hypothesis postulating that individuals strive for the least possible effort required for communication and therefore tend to interact with people of similar characteristics (Lazarsfeld & Merton, 1954; McPherson et al., 2001).

Interestingly, this kind of language segregation could be observed not only in the SA, but also the AH contexts. While the members of the AH group assessed their level of intra-group integration favourably, especially in comparison with other language groups in their study programme, drawing on the combination of both quantitative and qualitative data we detected the formation of three subgroups within their group. These formations are shown in Figure 8.2. The top right cluster (darker squares) and top left cluster (lighter rectangles) were picked out by the interview participants; the bottom (dark circles) cluster, potentially Russian-speaking, was detected from the ego-questionnaire data, but found no reflection in the interviews and focus group, suggesting it may have been "invisible" to the participants in the qualitative research.

This bottom cluster consisted of two Polish and two Ukrainian students. Students belonging to the other clusters as well as the teachers characterised this clique as gathering the most withdrawn, quiet, and shyest students, not a cohesive group of friends. One member of this cluster stated that she did not socialise with the (Swedish majors) group at all, but that she had recently developed a closer relationship with one peer because they participated in an out-of-class event together.
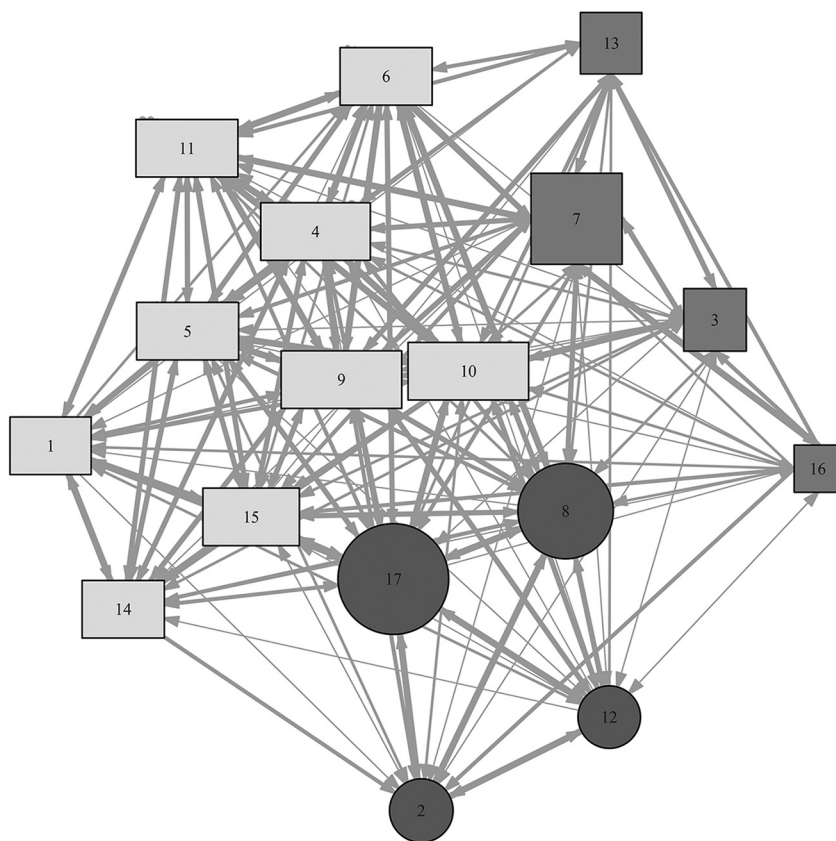
Figure 8.2 Clusters Identified among AH Students

Homophily can also be observed in the other two clusters (top left and top right), but here it is based not on nationality or L1, but on participation in other courses. The interviewees—students and teachers alike—claimed that the students who knew each other from the FL1 track spent time together during breaks and both in and outside Swedish classes, see [2]:

> [2] There were such 4-student cliques. But it also depended on language B [track]; I had the impression that people who studied together and were in this group, they stuck together … There is a big group with German [track], and [another] with Spanish [track]. [F, teacher, translated from Polish]

However, it is important to point out that five out of the nine members of the largest cluster who were interviewed did not identify themselves as belonging to this larger group; instead, they mentioned two or three students

with whom their relationship was particularly strong. This points to the complementary nature of quantitative and qualitative SNA, as the former provides information on the whole network, while the latter enables a closer examination of the strongest links.

The TL-Speaking Network Layer

As shown by the quantitative analysis, for the SA students the strongest influence of the network (number of students' social ties) was observed in progress in pronunciation and lexis. However, we could expect even more extensive language gains had the network of TL communication been stronger among the participants than was revealed by SNA (compare for example the networks shown in Figure 8.1). The interview data helped us understand why the TL (Polish)-speaking network was not as strongly developed as, for instance, the English-speaking one. Firstly, three out of the seven participants interviewed in the SA course pointed out that the students often sought contact with their conationals, with other classmates speaking their L1, or with people who fluently spoke another shared language, as in the case of a Turkish student living in Germany:

> [3] It just didn't occur to me … to be speaking Polish with Germans. I've been living in Germany for 4 years and … I just wouldn't come up with speaking Polish. And for them it's also weird, they all speak German to each other anyways, because they're Germans. [F, 26]

Nationality was also identified by the teachers as the main criterion dividing the classes into subgroups. Even if cross-cultural network connections were made within groups, this mainly happened thanks to English serving as a lingua franca. Another reason for avoiding TL use with peers was the students' conviction that their (own) level was too low to meet the ultimate goal of informal conversation, which after all is not practising the TL, but rather socialising, getting to know one another, or exchanging complex thoughts and feelings:

> [4] For me it's really hard to be in a setting where I'm not fluent in a language and still try to speak it, to socialise with people. It just doesn't happen. For me that's not socialisation, it's not fun, you know? … Because I don't wanna think about talking. I just wanna focus on content. [F, 26]

Moreover, since 47% of the students in the SA course were on either A1 or A2 CEFR levels, lack of speaking practice could have been caused by high anxiety (Paradowski et al., 2015). The only interviewee who used the TL to a large extent in all contexts was a student in the highest-level (C1) group. He was also one of only two participants who requested that the interview be conducted in the TL. Other participants were theoretically

aware of the importance of practising speaking skills, but did not walk the walk during the course:

> [5] I think [speaking in the TL is] actually necessary to do, because if you don't speak with others, you don't get to really use what you learnt and you don't learn to have new things and if you only learn with yourself you have very compromised understanding of how the language works … So I think that's absolutely necessary to talk to other people to learn the language … I mostly speak with people I ever travelled with here, and they mostly speak German and I speak with my roommates … And the people in my class, we also mostly use English when we talk, because it's just the universal thing that everybody already speaks. So if something is to clarify [*sic*], so then we're just there, because it's easier. [F, 18]

This is an exemplary instance of a value-action gap (or belief-behaviour gap), which leads to a discrepancy between the declared beliefs and the actual practices of individuals (Godin et al., 2005).

Finally, we note briefly some differences between the functions of social networks for AH and SA groups. The AH students emphasised multiple functions of their peer student network, seeing its role in terms of friendship, and mutual support and learning in different contexts: during classes, via virtual communication, in informal meetings, etc. The SA students referred more consistently to their peer learner network as a platform to communicate and practise the TL (even though most did not turn their declarations into practice). Both cohorts failed to use the TL for similar reasons.

Conclusions

Cumulative evidence has shown that SA in the TL-speaking culture does not always lead to substantial language learning. Peer interactions in the narrow sense of communication as well as in a wider sense of social capital can boost TL acquisition. However, competing processes may confound the beneficial influence of the network. Dewey et al. (2013, p. 87) assert that while meaningful social interactions are significant, "there is not yet a definitive answer regarding what factors influence social interaction most, how best to prepare learners for these interactions, or how to foster interaction during residence abroad" and emphasise the need for additional research in this area; a necessity reiterated in a state-of-the-art review on language learning in SA contexts (Isabelli-García et al., 2018). Justly so: while the extant studies have signalled the importance of social interactions for L2 development and sometimes hypothesised trends, they have formulated no concrete hypotheses on the exact patterns and dynamics of the interactions and their influence on language learning outcomes.[6]

More approaches to SLA are needed that will be able rigorously to operationalise and map students' social embeddedness from the perspectives of both themselves and their alters (both other students, as in this study, but also significant other contacts), and explain the observed relationships in a coherent model. The methodology of computational SNA (measuring the impact of centrality metrics on L2 improvement) and anthropological SNA (describing the group dynamics) outlined in this chapter has the potential to bridge this gap and explore more deeply and systematically the relationships between social interaction dynamics and L2 development.

Acknowledgements

Notes

1 The examples provided in this chapter come from a larger project (PEERLANG: How Peer Interaction Mediates Second and Third Language Acquisition from a Social Network Perspective).
2 Links/edges can be directed, i.e. indicate whether the relationship between individuals is a one- or two-way (in/out vs in+out) connection. In undirected networks the links do not have a direction and it is assumed that all relationships are reciprocal.
3 Researchers in social networks in SA/SLA do however acknowledge that frequency of L2 interaction and progress in proficiency might be influenced by variables other than network membership, such as initial language proficiency, length of time abroad, or amount of time spent using the target language (Dewey et al., 2014).
4 The protocol used obtained IRB clearance.
5 Interviews with all the SA and AH teachers and the AH students were conducted in Polish and subsequently translated. Among the SA students, two participants asked for the debriefing to be carried out in Polish; the other seven interviews were carried out in English. For all interviews, verbatim transcription was used.
6 But see Paradowski et al. (2012).

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