

## The relevance of network theory to overseas students studying in Australia

Naomi Kurata  
Monash University

I am interested in the relationship between language learners' networks and second language acquisition, and in my recent MA thesis, I employed a framework of network analysis to find out this relationship. On this occasion I would like to briefly introduce one leading network theory which seems to be useful when considering the adaptation of international students to academic life in Australia.

The concept of network has attracted a great deal of attention in a variety of academic fields, such as sociology, psychology, anthropology, mathematics and sociolinguistics. Different researchers have studied different types of networks, and they have defined the term "network" in different ways. For example, Preston (1989: 157) explains that the number and type of relations an individual has to others make up his or her network; groups of such interrelated individuals are social networks. On the other hand, other researchers consider individual networks and use the term "personal networks". In sociolinguistics where researchers are often concerned with linguistic behaviour occurring within networks use is made of such terms.

Here I will introduce Boissevain's (1974) framework for analyzing networks. He broadly divides the criteria for network analysis into two types: interactional and structural. Interactional criteria consist of six categories. On the other hand, five criteria belong to structural criteria.

### Interactional criteria

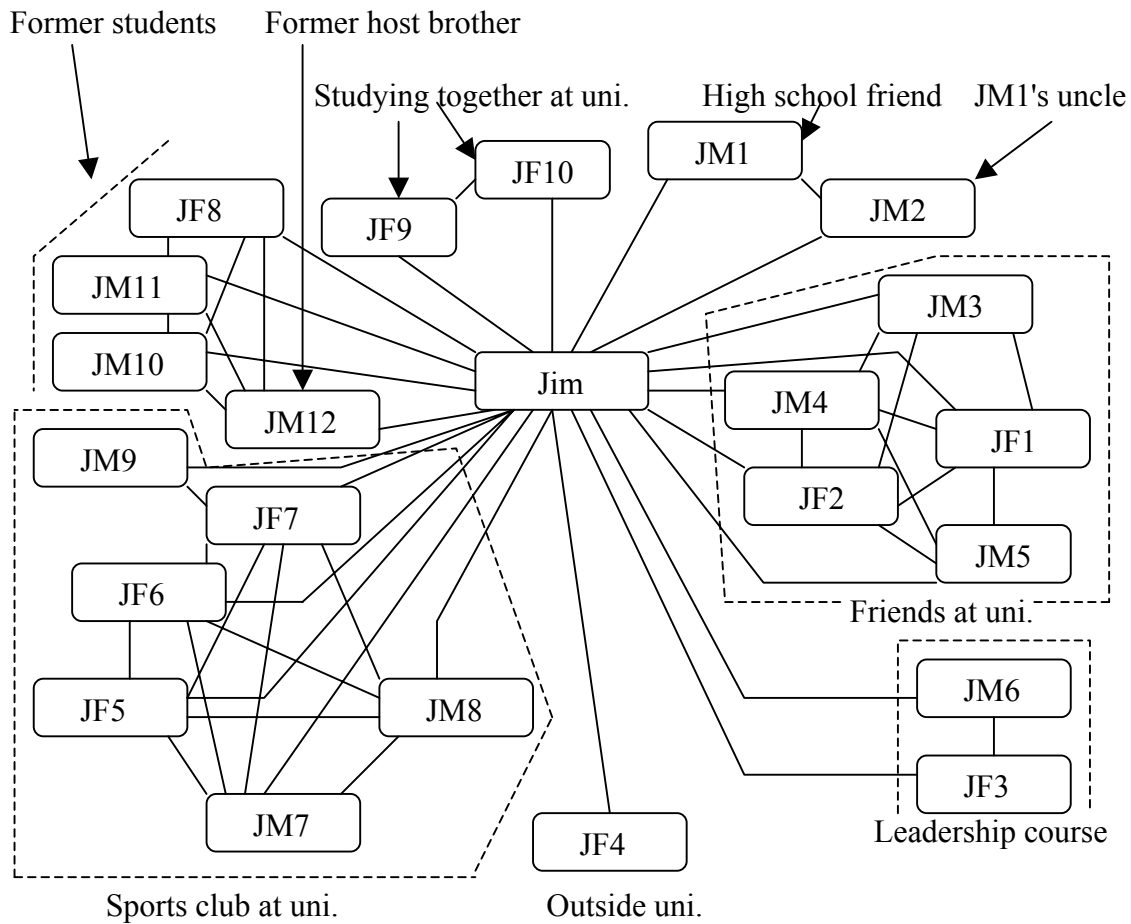
1. Multiplexity (diversity of linkages);
2. Transactional content (the elements which are exchanged between two members);
3. Directional flow (the direction in which the elements exchanged move); and,
4. Frequency and duration of interaction.

### Structural criteria

1. Size (the total number of links in the network);
2. Density (the degree to which the members of a person's network are in touch with each other independently of him/her);
3. Degree of connection (the relations each person has with others);
4. Centrality (the degree to which a person is accessible to the persons in a particular network); and,
5. Clusters (segments of networks which have relatively high density)

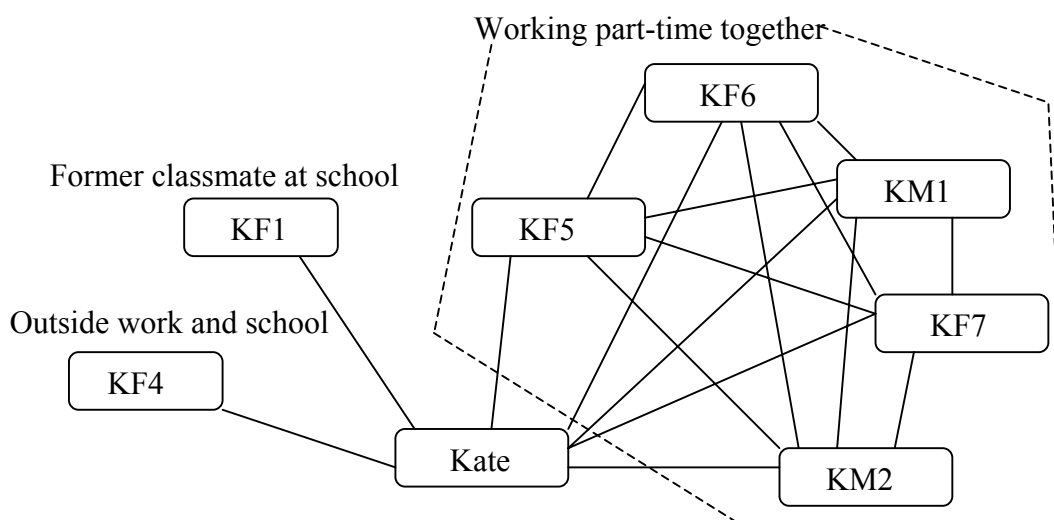
According to Boissevain, **density** is an index of the potential communication between parts of the network and also an index of the quantity and types of transactions that can be exchanged. In my previous study, I was concerned with the personal networks of Japanese language learners and compared the characteristics of four informants' networks before and after their overseas experiences in Japan. Figure 1 shows a current network of Jim (pseudonym), an upper intermediate-level student, with native speakers of Japanese in Australia.

**Figure 1: Jim's current network after his sojourn in Japan**



It appears that this network is dense because there is a significant number of linkages among Jim's Japanese network members. For example, his friends at the university know each other. Accordingly, Jim might have more group communication than one-to-one communication. The high density of Jim's network may be taken as an index of the large number of transactions that can be exchanged between Jim and his network members. On the other hand, another informant, Kate's (pseudonym) network, shows some sparse parts, where linkages exist just between Kate and two other members (cf. Figure 2). These parts might result in one-to-one communication between Kate and these two members and also indicate that a smaller number of transactions exchanged within Kate's networks. However, Kate has five Japanese co-workers in Australia, who form the high-density part of her network. Kate seems to have a large quantity of group communication with these co-workers.

**Figure 2: Kate's current network after her sojourn in Japan**



Boissevain claims that the persons who form **clusters** are more closely linked to each other than they are with other members of the network, and clusters are often recruited from different activity fields. I found that there is a tendency that the informants' networks prior to their sojourns in Japan show single clusters recruited from single activity fields, and in contrast, those after their sojourns in Japan indicate increased number of clusters recruited from diverse activity fields. For example, Jim formed only one cluster before his working holiday experience in Japan, but after this experience, he established six clusters which were recruited from six different activity fields in his network (cf. Figure 1). In other words, he appeared to establish close relationships with the members who formed clusters in a diverse range of activity fields. Also, it is clear that Jim's activity fields are not limited to the university, that is, he developed his networks outside the university.

When I consider the relevance of these structural criteria to overseas students in Australia, I could say that it would be worthwhile to investigate the relationships between overseas students and their network members, both the same nationals and Australian peers in terms of density and clusters. These criteria would be taken as an index of the amounts and types of their potential communication between students and their network members. These factors may have an influence on the success of the overseas students' academic life in Australia.

**Multiplexity** is another principal criteria characterizing networks. Boissevain suggests that uniplex relations tend to become multiplex if they continue over time; multiplex relations seem to be stronger than uniplex one. He also hypothesizes that there is a greater accessibility and response between two persons with a multiplex relationship than those with a uniplex relationship, and that furthermore, those people who have multiplex relations will be more intimate than those in a uniplex relationship. The data collected in my previous study show that the social relations which most of the informants had with native speakers of Japanese before their overseas experience tended to cover a single role, that is, uniplex relations, but on the other hand, there is a significant number of social

relations that cover multiple roles in each informants' current networks. I assume that the multiplex relations which all the informants had with their Japanese network members after their sojourns in Japan resulted in greater mutual communication and more intimate and stronger ties between the informants and the members.

Boissevain refers to "**transactional content**" as the material and non-material elements which are exchanged by two persons in a particular role relation or situation. Transactional content indicates the quality of the two persons' relationships or the relative importance of their relationships. I analyzed transactional content in terms of the activity types in which the informants were involved with their network members. Tables one and two show the activity types prior to and after the informants' sojourns in Japan.

**Table 1: Activities for contact with network members in Australia prior to the informants' sojourns in Japan**

Activity types	Jim	Sam	Kate	Mary	Total
Conversation only	1 (33.3%)	0	0	N/A	1
Having lunch or dinner	1 (33.3%)	4 (100%)	3 (100%)		8
Playing sports	0	0	0		0
Going out for entertainment	0	0	0		0
Helping his/her friend with a language problem	0	0	0		0
Helping each other with language problems	0	0	0		0
Studying together	0	0	0		0
Working together	0	0	0		0
Other	1 (33.3%)	0	0		1
Total	3*	4	3		10

**Table 2: Activities for contact with network members in Australia after the informants' sojourns in Japan**

Activity types	Jim	Sam	Kate	Mary	Total
Conversation only	7 (21.2%)	7 (58.3%)	0	2 (25.0%)	16
Having lunch or dinner	4 (12.1%)	1 (8.3%)	7 (46.7%)	2 (25.0%)	14
Playing sports	7 (21.2%)	0	0	0	7
Going out for entertainment	6 (18.2%)	1 (8.3%)	3 (20.0%)	2 (25.0%)	12
Helping his/her friend with a language problem	2 (6.1%)	0	0	0	2
Helping each other with language problems	0	1 (8.3%)	0	2 (25.0%)	3
Studying together	4 (12.1%)	2 (16.7%)	0	0	6
Working together	0	0	5 (33.3%)	0	5
Other	3 (9.1%)	0	0	0	3
Total	33*	12*	15*	8*	68

\* These totals exceed the number of persons in each network since the informants had multiple activities with a number of the members of their networks.

Although the informants engaged in a limited number of activity types with native speakers of Japanese prior to their sojourns in Japan, subsequently they tended to be involved with multiple types of activities with their network members after their Japan experiences. However, as shown in Table 2, the activity type in which Sam (pseudonym) engaged with more than half of his friends was conversation only, so he appeared to maintain less personal relations with the members of his network than did the other informants. In contrast, Kate nominated multiple activities for all of the members of her network. She also seemed to have contact with her network members for the purpose of going out together or meeting for a meal, rather than just asking for academic assistance or for help with a language problem. Therefore, we could say that she established more personal relationships than Sam. I also found that the informants seemed to establish equal relationships with the network members after their in-country experience in the sense that they had mutual needs for association, such as studying together and helping each other with language problems, or they were equal in their social position, for example, working together.

I think that the interactional criteria, such as multiplexity, transactional content are important when considering the overseas students' networks in Australia. Nishizawa (2002) found that it seemed to be difficult for overseas students to develop relationships with an English speaking background student unless both of them received mutual benefit from each other. I think that mutual needs for association is an important factor for the maintenance and development of networks. Accordingly, if the activity type which an overseas student is involved with an English speaking background student is only asking

for academic assistance, it would be difficult for this relationship to be maintained and developed. Therefore, those interested in investigating the study networks of international students should examine not only what types of academic assistance they receive, but also all the activity types in which they engage with their network members. In this way, we could discover the quality of the relationships between overseas students and English-speaking background students and the quality of such relationships may have an influence on the maintenance and development of students' networks as well as be related to the success of the overseas students' academic life in Australia.

**Frequency and duration of interaction** refer to how often network members interact with each other and over what period of time. Boissevain employs the term "investment" in this context. He states that frequency of interaction can be, but not necessarily, an index of the investment of the persons in the relationship. On the other hand, duration of interaction is probably a more significant index than frequency of interaction, because it is a measure of the amount of time that people invest in each other. I could say that the more often and the longer people try to contact each other, that is, the more time they invest in their relationship, the better these relationships can be maintained and developed. I think that it would be interesting to investigate the things in which overseas students invest time and effort, from whom, and what kinds of benefits overseas students anticipate when they make an investment. These criteria, frequency and duration of interaction, combined with the concept of investment might be useful when examining the influence of social networks on overseas students' academic life.

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