SOCIAL NETWORKS

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CONNECTS WITH:
Complexity – Gender – Participation and Research

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MODULE INTRODUCTION

DESCRIPTION:

People are embedded in relationships forming patterns and structures that both constrain and enable beliefs and actions. We call these patterns social networks or human communication networks (Monge & Eisenberg, 1987; Monge & Contractor, 2003; Saint-Charles & Mongeau, 2005). At its most basic, a network is the pattern formed by a set of links uniting a set of "nodes." Both links and nodes can be of different natures: roads and cities, synapses and neurons, radio waves and routers. The qualifier "social" implies that links and nodes are related to living organisms, most often humans. Although one can study animal networks, human-animal networks or artefact-human networks, this module will focus on human networks, the networks created by the relationships between individuals or groups of individuals.

Social network analysis is both a paradigm and a method (Wellman, 1988; Borgatti & Lopez-Kidwell, *in press*). As a paradigm, social network can be considered a complex systems perspective on relationships. Nowadays, in many of our societies, the focus is upon the individual, we see numerous studies on "identities," we blame individuals for their choices, we invite them to become entrepreneurial, we promote healthy behaviours and lifestyles as if this all depended solely on the individual while, paradoxically, talking about social determinants of health.

The social network perspective proposes another lens: a focus on links, on relationships. From this perspective, identities are constructed and modified through our relationships. For example, rather then trying to "prove" that someone is a born leader (something that has been largely disproved – Fisher, 1986, Mongeau & Saint-Charles, 2005; Stogdill, 1948, 1974) or a born entrepreneur, we look at the position of this person in the social network and see how this gives him or her opportunities for leadership and entrepreneurship (Brass & Krackhardt, 1999; Burt, 2000). As a method, social network analysis (SNA) offers a wealth of mathematical, qualitative and graphing tools to analyse the patterns formed by relationships (Loblich & Pfaff-Rudiger, 2011; Wasserman & Faust, 1994). People from many disciplines, such as anthropology, biology, communication, sociology, mathematics, physics, psychology, etc, have studied social networks. Although nourished by all of these disciplines, the perspective proposed here is communicational – meaning it is most interested in the process of sense-making and self-making through relationships.

The guiding principles of ecosystem approaches to health imply "dealing" with relationships: when working with transdisciplinarity and participation, there is a need to encourage the development of relationships between people from various contexts; and when integrating gender equity and social justice, one has to understand the underlying patterns of relationships between social groups and the norms that guide them.
Using social network lenses as a heuristic, this module explores its potential to contribute to ecosystem approaches to health research and intervention.

DIRECTIONS

The first section sets the scene as to 1) the importance of relationships in the construction of self and society; and 2) the "system view limitations" when looking at social networks. The second section presents some basic concepts used in the study of social networks in non-technical language. Finally, the second section offers some ideas on how to use social network thinking as a heuristic in a research or intervention project without having to engage in the full (and cumbersome) process of social network analysis. Any combination of these modules can be taught, but module 3 - being essentially conceptual - is not really a stand-alone; it can, however, be broken down into parts quite easily.

AIMS/GOALS

- To introduce participants to "network thinking" as a heuristic for better understanding the complexity of human relationships.
- To invite participants to reflect upon the construction of personality through relationships.
- To offer participants tools to apply network thinking to their research / intervention.

GUIDING QUESTIONS

- What is a relationship?
- How do relationships both allow and constrain actions?
- How does the pattern formed by various relationships influence the constitution of the self?
- How does the pattern formed by various relationships both reflect and create underlying power structures and dynamics?
- How does an "informed knowledge" of the network linking people help specific ecohealth research or interventions?

WORKING TERMS

- Networks
- Boundary
- Links and relationships

SECTION 1 – DEFINING THE NETWORK

This first session deals with the "definition" of the network that will be observed and studied. Links can be made with systems thinking [see Module 3: Complexity]. It can be conducted as a very short session by removing parts of it and combining it with any of the other sessions in this module.

LEARNING OBJECTIVES

- Understand the role played by relationships in the development of identity.
- Develop a perspective on the opportunities and constraints created by the relationship pattern of an individual.
- Develop a sense of how the definition of nodes, relationships and boundaries affects our perception of a network.

KEY QUESTIONS

- What role do relationships play in the definition of the self, in the opportunities and constraints affecting the person?
- What are the boundaries of the network studied?
- Who are the actors in this network?
- How do they relate (or not) to one another?
- What patterns are emerging from these relationships?

DISCUSSION QUESTIONS

- What is my personal relationship trajectory? How does it affect my being here today?
- How can I develop sensitivity to others' relationship trajectories?
- Can a relationship really be defined?
- Who knows the truth about relationships: an outside observer? Those involved in the relationship? What if they don't agree?
- What equity issues affect the composition of one's social network?

KEY CONTENT

Histories of individuals are often told in terms of their deeds, sometimes contextualised by social origins or the broader social context. But what if we were to tell our history through the lenses of the network of relationships we are embedded in? We would probably discover how influenced we are and have been by these relationships.

The idea of the importance of relationships is far from new: As a net is made up of a series of ties, so everything in this world is connected by a series of ties (Buddha, c 563-483 BCE). More recently, we can think of the work of symbolic interactionists in the exploration of the importance of interactions and relationships (Blumer, 1969). And, of course, many social network studies show that attitudes, beliefs and behaviours are very much related to how and with whom people are connected (Borgatti & Lopez-Kidwell, in press).

Along the lines of connectivity is the famous "Small World Theory" which postulates that everybody is connected to everybody on our planet by a mean of 6 interpersonal connections, painting a picture that you can easily have access to anybody and to the resources they have access to. While this mean is substantiated by the results of some studies (Milgram & Travers, 1977; Watts, 2003), it is, as any mean, not representative of the differences between individuals. The length of the path between one individual to another is very much affected by homophily and equity. Homophily is the tendency of humans to form relationships with similar others, such similarity being based on a combination of socio-demographics attributes and attitudes, values and beliefs (McPherson, Smith-Lovin, & Cook, 2001) – these relationships, in turn, contribute to the construction of our attitudes, values and beliefs. So, as we all know, there are "social groups" that do not mix easily together and there are status differentiations between these groups. So, in the end, the length of the path is influenced by social differentiations.

If a network is a set of "nodes" and "links," then defining what constitutes the set, what (or who) are the nodes and what type of links we are talking about should be important (Laumann, 1983; Richards, 1985). Your first tools in doing this are the objectives of the research / action and some knowledge about the network you intend to study or understand. Whether you plan on doing a "real" social network analysis or you intend to be more observant about the relationships in your research / action (see section 3), these considerations are necessary.

Another way of talking about the "set" would be to talk about defining the boundaries of the system. Often times, what comes to mind are the more "formal" boundaries: members of a group or an organisation, inhabitants of a community, stakeholders in a watershed, and so on. This is a very logical place to start, but the questions we end up asking may change this: what is the purpose of understanding the network? Do you want to know how the information about health and environment might circulate in the community? Do you wish to find out who are the most trusted people in the community when it comes to health problems or farming issues? These two questions are easy ones: the name of the boundary – it's the community. But what if you want to know more about the social capital of the community? Then it becomes trickier. Social capital has to do with how people support one another in a group or community, but it also has to do with the ability of community members to have access to resources outside the community. So where is the boundary here? The whole world? Hum… a bit ambitious.

Once you have defined the boundaries, you need to figure out the nodes. Will they be individuals? Couples? Households? Groups? Organisations? If you select households or organisations, do you need everybody or only representatives? If you opt for representatives, who will you chose: Official representatives? Secret informants? Men? Women?

Finally, which relationships are relevant? People have various types of relationships: work related relationships, friendships, support relationships, advice and influence relationships. Moreover, most people have what is called **multiplex relationships** combining affective, cognitive and behavioural aspects. So, if we are to map the network of a bounded group, which relationships are relevant for our objectives? The question is pertinent in terms of our objectives, but it cannot be answered "from the outside." The meaning of "friendship" is very different from one culture to another (Bidart, 1997) and you cannot just ask people "who are your friends?" without having an idea of what it means to them.

All of the above means that you can't go about doing a network study without having some knowledge of the types of relationship and of their meaning for the people involved. Fortunately, this doesn't mean you have to launch a full 10-year anthropological study before doing any kind of network study (see section 3 about "how to use a network perspective without doing a network study").

Now, let's talk a little bit about "personal networks." So far, we have been talking mostly about the social network of a group, an organisation or a community (called "sociocentric networks"). But we can also map the personal network of an individual (an "egocentric network" or "ego network") and many of the concepts and measures used with sociocentric networks can be applied to ego networks. As we have seen in the introduction, our relationships have a lot to do with who we are, which values and beliefs we hold. For example, knowing the composition and structure of the ego network of various individuals or groups of individuals may help understand if people have social support (Barrera, 1986, Cohen et al., 2000; Wellman et Wortley, 1990).

ACTIVITIES

Activity1: Construction of self through relationships - Personal communication network[1]

This exercise is self-reflexive and helps seeing oneself as constructed through relationships. It invites participants to reflect upon how the relationships they have had throughout their life have influenced their way of being. All they have to do is follow the step-by-step instructions below. Copies can be made and students can be asked to complete the exercise on their own. An open discussion, of varying lengths, about what has emerged can be held soon after participants have completed the exercise.

[1] Translated from Mongeau P (1982) Les réseaux d'influence. Psychologie 151: 43-45. Adapted for CoPEH-Canada by Johanne Saint-Charles, with the author's permission.

MATERIALS

- Copies of the Past and Present Relationship Table
- Copies of Circle no.1 and Circle no. 2 diagrams

INSTRUCTIONS

STEP 1: Past relationships

In the first column of the table "Past relationships" write down the name (first name is sufficient) of up to fifteen individuals or groups with whom you have had a significant relationship.

- The relationships you identify can be with individuals but also with groups (e.g., sport groups, band of teenagers you hanged around with).
- You can select both "good" and "bad" relationships – the keyword here is "significant."
- The duration of the relationship does not matter – it could be a 20 years relationship or a 2 hours relationship as long as you think it was significant for you.
- It can also be a relationship with a pet or a fictional character.

STEP 2: Present relationships

Repeat the process for "Present relationships."

- The distinction between "past" and "present" is up to you since the length of what we consider the present varies. Usually in times of intensive change we tend to consider that the last few months are "present time" while in times of stability such "present time" may represent a few years.
- You can consider a relationship to be both part of the past and part of the present.
- Since "present" is bound to be shorter than "past" you may well have fewer names for the present.

STEP 3: Keywords

Go back to your lists and write down beside each relationship one or two keywords representing what you consider to have learned with these relationships.

- We are influenced in various ways by our relationships. Brainstorm a little bit for the words to come to your mind and select the one that is most significant for this relationship. In can be things like "to assert oneself," "to appreciate food," "to laugh," "competition," "care," and so on.
- If a relationship is repeated in the past and present lists, its keywords do not have to be the same for both periods.

STEP 4: Circles

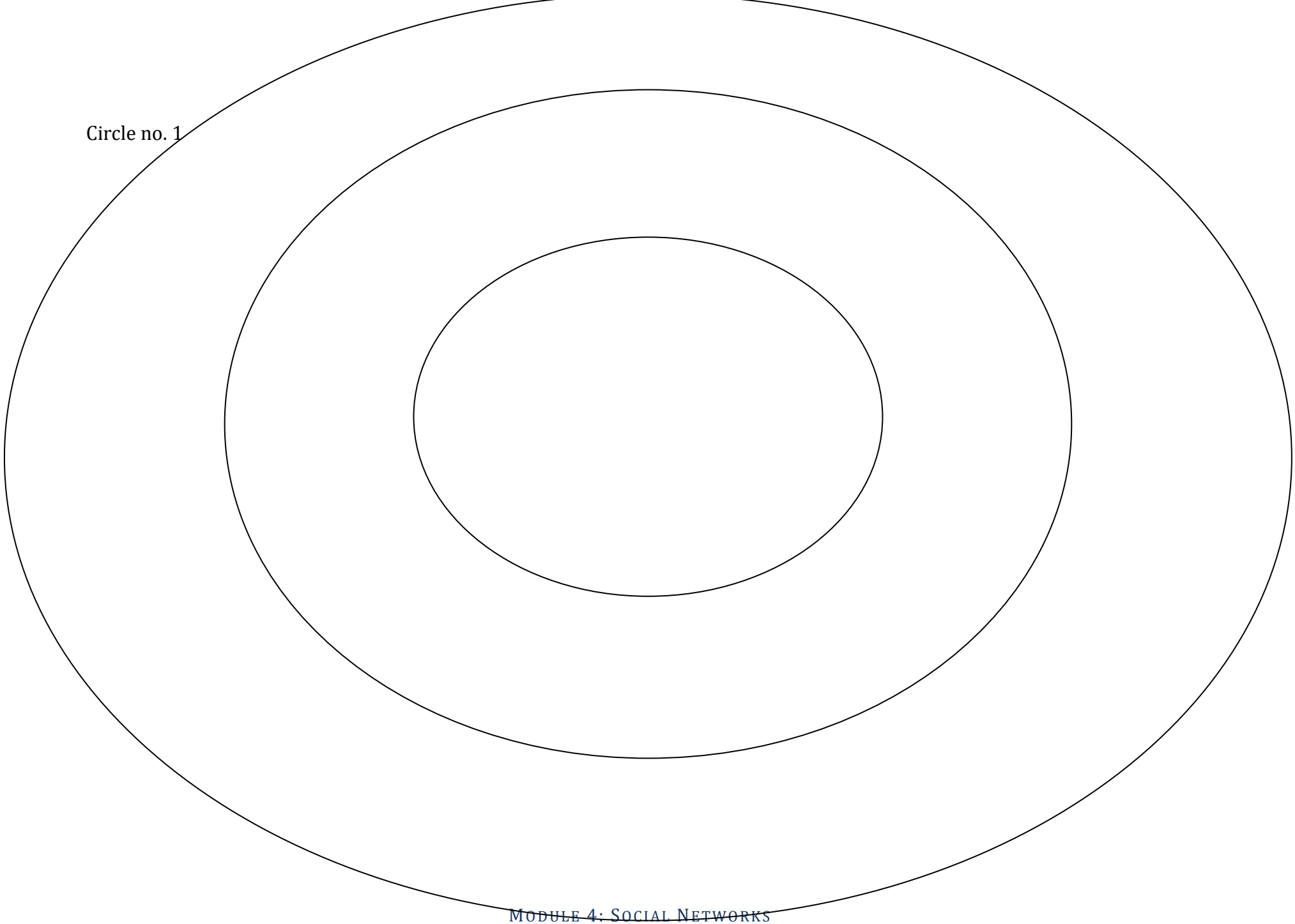
Copy the keywords for relationships of the past in the *circles no. 1,* writing the most significant in the innermost circle and the least significant in the outermost.

Repeat the operations for the present relationships in the *circles no. 2*.

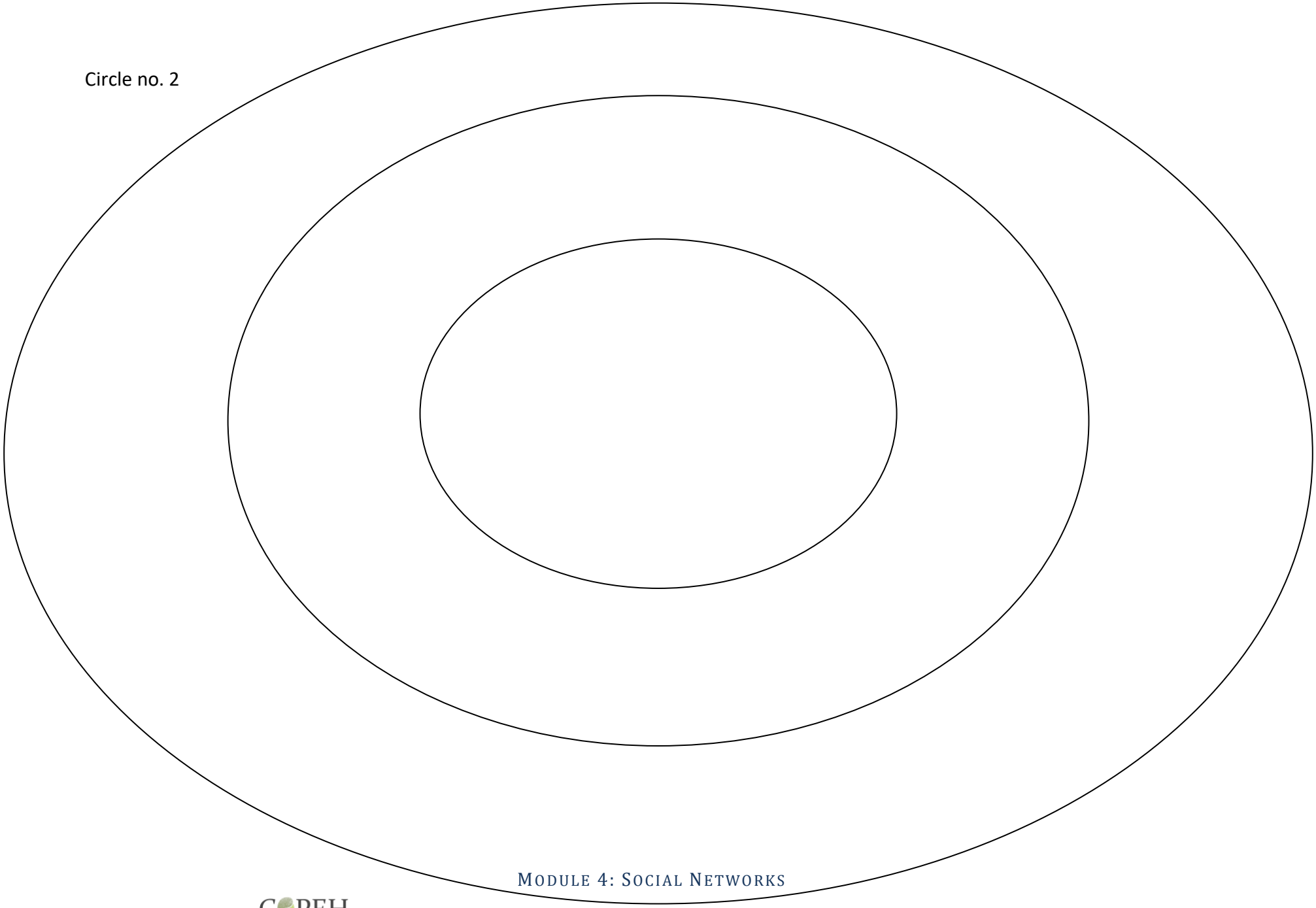
Past Relationships	Keywords
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____

Present Relationships	Keywords
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____

Circle no. 1



Circle no. 2



Activity 2: How many people do you "know"?

TOTAL TIME: 60 minutes

DIRECTIONS

From a 2-3 page list of names (taken from a phonebook, for example), ask people to list every person they know or have known with any of those names or surnames. "Knowing" here is being able to recognize this person on the street (provided she or he has not changed too much ☺) and she or he would be able to recognize you. Stop the exercise after 10-15 min. The result should be impressive for most. According to Degenne & Forsé (1994), our relationships are organised in "concentric circles" where there are close to 5000 acquaintances, 200 people in our entourage, 20 people with whom we have regular interactions and 2 or 3 confidents. These are means that do not take into account the context in which live (e.g. urban vs. rural), the social group to which we belong and the mobility possibilities we have. Have people examine their results in terms of gender, region and even name similarities (Mateos et al. 2011) for 15 minutes and discuss them (30 minutes).

SPECIFIC READING

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Wellman B, Wortley S (1990) Different Strokes from Different Folks: Community Ties and Social Support. American Journal of Sociology 96:558-88

Wellman B, Carrington PJ, Hall A (1988) Networks as Personal Communities. Social Structures: A Network Analysis (pp. 130-184). Cambridge, UK: Cambridge University Press

SECTION 2 – BASIC CONCEPTS

LEARNING OBJECTIVES

- Develop skills in "reading" networks through the use of some basic concepts in social network analysis.
- Understand the basic tendencies of human networks.
- Develop a vocabulary to speak about social networks.

KEY QUESTIONS

- What specific patterns appear in the network under study?
- Are any of these patterns typical?
- How can these patterns be related to other aspects of the network (cohesion, social capital, equity, power relationships, information diffusion, etc.)?

KEY CONTENT

The whole idea of mapping the social network of a group or a community is to elicit the patterns formed by the relationships and to try to understand how these patterns are related to some aspects of the community. For example, this could be its resilience (Mertens et al. 2008), its potential for the diffusion and appropriation of scientific research results (Saint-Charles et al. 2012), its social capital (Krishna & Uphoff, 1999; Krishna, 2002), the successful completion of its goal (Pagliccia et al., 2010), natural resource management (Bodin and Crona, 2009), etc. Throughout the years, researchers have identified quite a few concepts and measures that help to "read" a network. Here we will present some of the basic ones which will help people to understand data from social network analysis.

"Normal biases" in human networks

A social network is never random: if you try to generate a series of random networks with the same number of links and nodes, your social network will always be skewed towards certain configurations. This is because there are human tendencies at play. Here we present 3 of these.

Triangle closure: when person « A » has a strong relationship with both persons « B » and « C » then there will probably be, at least, a weak relationship between B and C.

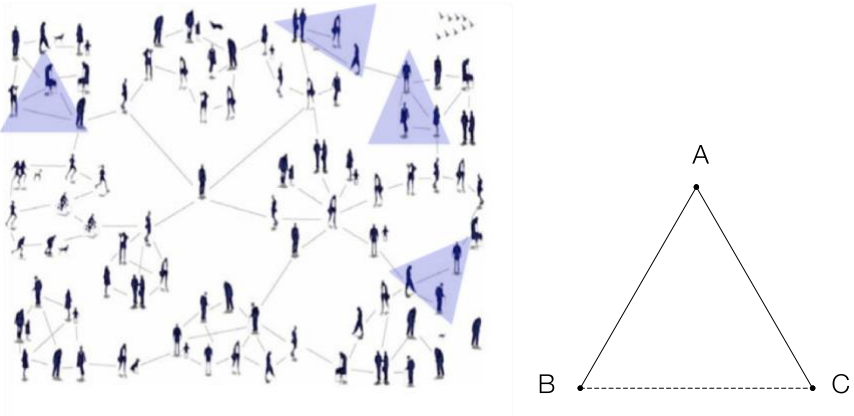

Figure 1: Triangle closure

Homophily: People have a tendency to associate with people who resemble them. These people are said to share a homophily link. This bias refers to the "degree" of similarity of the individuals who interact (Rogers, 2003). Homophily is not a new concept (Lazarsfeld and Merton, 1954). Aristotle said people "love those who are like themselves" and Plato claimed, "similarity begets friendship" (McPherson et al., 2001). The first studies of this phenomenon, conducted in the beginning of the 20th century, showed that people in homophile networks resemble each other in terms of sociodemographic and psychological characteristics. Sex, age, ethnicity, membership to the same group, values/attitudes/beliefs are all attributes which people could share (McPherson et al., 2001; Rogers, 2003). The relative "difference" of two people will translate into a "distance" in the network (McPherson et al., 2001).

Reciprocity: the probability that a link will be reciprocal. If a link from "a" to "b" exists then the probability that a link from "b" to "a" exists is significantly greater than chance (Fararo & Skvoretz, 1984).

Figure 2: Reciprocity

Groupings

As we have seen, people tend to gather themselves along the lines of homophily, reciprocity and relational proximity (triangle closure). Such tendencies form "pockets of density" in a network and it is not unusual to find in a group, an organisation or a community "areas" where there are noticeably more relationships between a group of people then between these people and the rest of the network. With certain types of relationships (advice relationships, for example), we may even see that the network is not connected – that there are "components" meaning that

there is no relational path between certain people (at least for the studied relationships). A good example of this would be the tendency of people in an interdisciplinary research network to seek advice primarily from people from their own research discipline, despite existing connections with people from other disciplines.

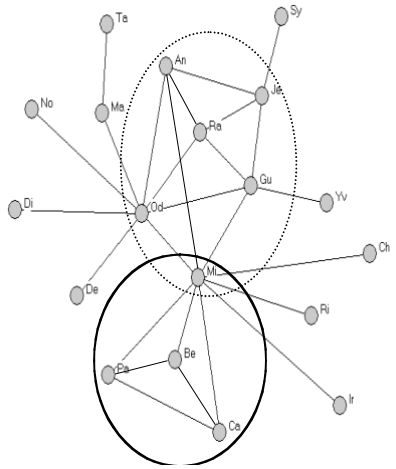

Figure 3: Pockets of density

Scholars of social networks have created a wealth of measures to capture these groupings: cliques, clans, components, core and so on (Scott, 2000; Wasserman and Faust, 1994). But a simpler way to look at these components without having to go through all of the measures is to measure the density of the network and of its various components and to compare the measure thus obtained. Density is the number of existing relationships divided by the number of possible relationships based on the number of nodes in the network.

A starting hypothesis in resource management is that a higher network density leads to greater communication and trust between actors and, hence, a better outcome in co-management of resources (Bodin and Crona, 2009). High density has also been shown to increase knowledge flow but only up to a certain point. When the network contains too many ties a homogenization of knowledge can occur which can be counter productive for resource management (Bodin and Crona, 2009).

From an individual point of view, the density of one's personal network (often called "ego network") can be a source of social and emotional support but it can also act as a prison (Saint-Charles et al., 2008).

These various groupings eventually form larger structures, some of which are typically found in social networks. Here we will present two of these: the core-periphery structure and the small-world structure.

Core-periphery structure: The core periphery structure is very frequent (Borgatti and Everett, 1999) and is to be expected in many groups and communities. For example, in natural resource management, core-periphery structures can facilitate co-management through 1) creating a centre where diverse ecological knowledge from the periphery can be concentrated (in the core) and 2) creating a hub (the core) of information dissemination to the periphery. The fact that there are not competing subgroups, but rather one coherent group, can also reduce issues related to "us-vs.-them" (Bodin and Crona, 2009). Communities of practice also often develop "core-periphery" structures, a development aided by the fact that most communities of practice emerge from the coming together of a small group of devoted and passionate people (Saint-Charles and Thoër, in press).

Risks exist though. Core-periphery structures have the potential to succumb to power issues between the core and the periphery and these social networks can also be very sensitive to the removal of key individuals, reducing their resiliency (Bodin and Crona, 2009; Mertens et al., 2008). A study evaluating intersectoral action on health determinants in Cuba, which has a decentralized health care system, found that three sectors – health, education and the People's Power Assembly – accounted for most of the observed links in the network (Pagliccia et al., 2010). The authors point out that to improve the interconnectedness of the network (network density) policy makers should strive for more intersectoral balance. The concentration of links to these three sectors creates a situation where the system is at risk of seeing these sectors control information and resources.

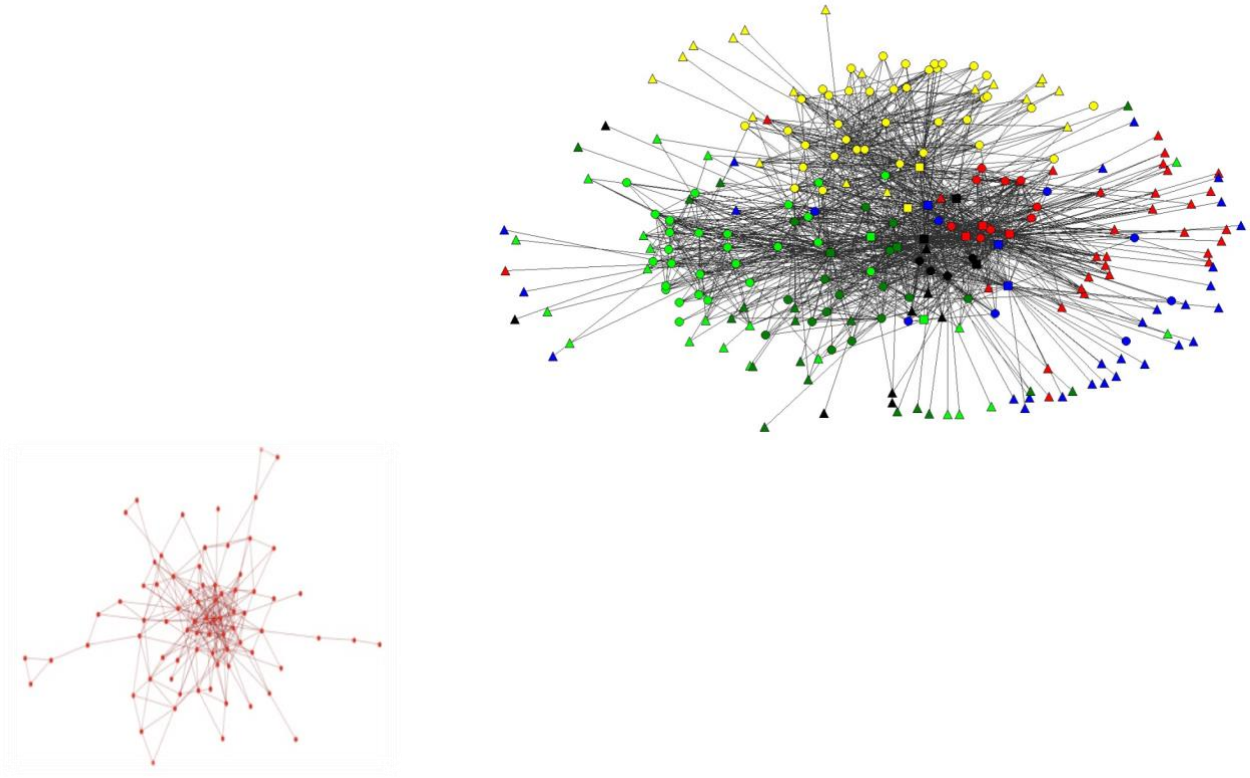

Figure 4: Core-periphery structure

Small World: We have already talked about the limitations of the "Small World Theory" in terms of equity (or the lack of). That doesn't mean that the theory doesn't hold, only that we need to nuance its interpretation. Behind the theory, is a pattern frequently found in human networks (and other types of networks as well, see: Watts, 2003). Small World Networks have high local clustering and low path-length. Figure 5 illustrates clearly that there are small densely connected groups themselves connected by a few "transversal" lines creating short-cuts between the groups. The small groups are generally connected by strong ties, which tend to fragment the network into non-connected small groups, while intergroup connections tend to be made by weak ties (Granovetter, 1973, 1983; Hansen, 1999; White & Houseman, 2003).

Nodal characteristics

As we have seen earlier, who we are is strongly influenced by the relationships we hold. These relationships are not only influential in themselves (for example being influenced by the opinion of loved ones), but they are also embedded in a structure that can facilitate or hinder our actions. Social network analysts have developed concepts and measures to better understand the role of the structural position of a node (Borgatti and Lopez-Kidwell, *in press*; Erickson, 1988). Here we will explore three concepts of "centrality." These three concepts have been chosen because they are easily observable without having to do a comprehensive social network analysis.

When Moreno (1934) created "sociometry," one of the ancestors of quantitative social network analysis, "popularity" was among the first concepts to be explored. "Popularity" (now more often called *prestige*) was the number of nominations received by an individual. In social network analysis this concept was expanded to include both received and sent nominations and was formalised as *degree centrality*. *Indegree centrality* is the part of degree centrality expressing popularity.

Degree centrality is easy to grasp as a concept and easy to measure as well. It is also easy to observe. There are other ways of being central which are equally important for the understanding of the network. In a seminal article in 1979, Freeman uncovered "three distinct intuitive conceptions of centrality" (Freeman, 1979 : 215): degree centrality, betweeness centrality, closeness centrality. Subsequent studies have supported these "intuitions" and demonstrated their importance. It is far beyond the scope of this module to review all of these studies, but an exploration of these three basic notions should contribute to the development of a "network lens."

Aside from the "popularity idea," which is self-explanatory, **degree centrality**, as measured by the number of links of a node, expresses the "communication activity" of an individual. **Betweeness centrality**, is the number of times an individual is on a path between two others who are themselves not directly connected. It has to do with the control of communication in the network. When these links connect two subgroups, rather than two individuals, they are referred to as "bridging ties." Finally, **closeness centrality** measures the mean distance of a node to all other

nodes in the network and has to do with the independence or efficiency of a node. Individuals who occupy a central position in a social network often have substantial influence. In natural resource management, "bridging ties" between subgroups allow the central individuals to have access to the specialized ecological knowledge of each group (Bodin and Crona, 2009). They can then facilitate the transfer of tacit knowledge between groups, if they are willing, that is.

Let us note in conclusion that these three measures have all been shown to be related to influence and to the diffusion of ideas or practices (Bodin and Crona, 2009; Brass, 1992; Ibarra and Andrews, 1993; Valente, 2010).

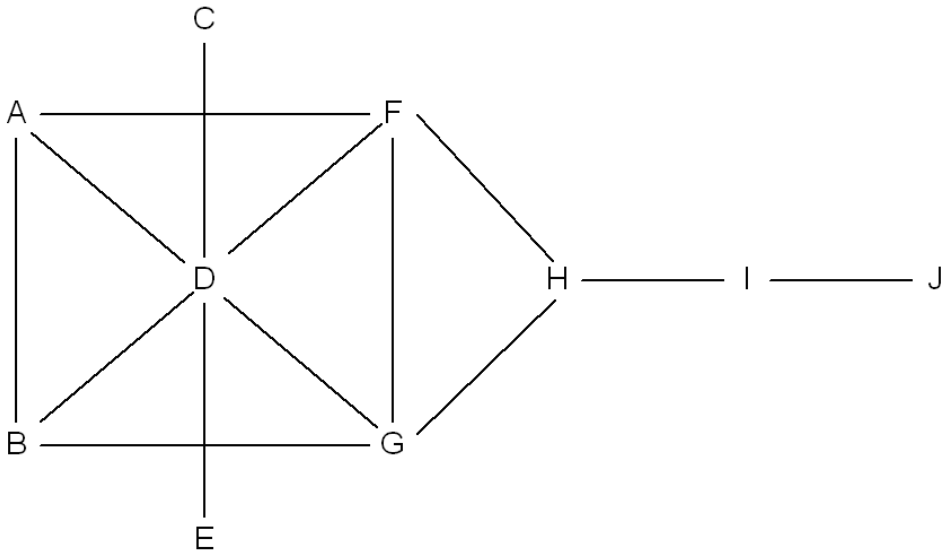

Figure 6: Centralities – In this kite structure, "D" has the highest degree centrality, while F and G are ex-aequo in terms of closeness and H is the most intermediate (source: Krackhardt, 1990: 351).

ACTIVITIES

Activity 1: Construction of the group's social network

TOTAL TIME: 45-90 minutes

DESCRIPTION: This exercise is a group activity and helps to see oneself and others as constructed through relationships. This activity can follow a session on social networks to help grasp the concepts, but it is also a nice activity to build a feeling of community. If you are going through the exercise for this purpose it might be helpful to briefly demonstrate a few of the social network concepts before embarking. It can be a nice activity to end a course or workshop on as it gives a feeling of something that is growing.

MATERIALS: several large pieces of paper, tape, a large empty wall, markers, a chair.

BEFORE THE ACTIVITY: tape together as many pieces of paper as will fill your wall. Tape the gigantic paper to the wall. Have markers and a chair on hand.

STEP1: Constructing the group's social network prior to the course (*45 minutes*)
Ask everyone in the group to think of the people who they knew working in one way or another with the ecosystem approaches to health before arriving at the course. Then ask the participants to come up one by one and write their name and the name of those other people on the paper with a line connecting themselves to these people. If someone has already been written on the paper they are not written a second time but rather the line is made to the original instance of this person. After everyone has taken their turn have people step back and contemplate the structure of the network. Ask people to comment on what they see. You can end the activity here or move onto step two.

STEP 2: Constructing the group's social network after the course (*30 minutes*)
Now ask someone to come up and draw lines between everyone who participated in the workshop or course (only if a line didn't already exist). Now look at the image. What has changed? Which structures have emerged? What impact might this have on the functioning of the community?

Activity 2: Changing the focus of one's project

TOTAL TIME: 60-90 minutes

STEP 1: Analysis of one's own project (*20 minutes*)
Invite participants to define boundaries, relationships and actors in their own project. Have them mentally explain why they made these choices.

STEP 2: Small group discussion (*40 minutes*)
Then, having participants working in small groups of 4-5 people, propose that one of them present his / her choices while the others strive to find other boundaries, actors or relationships they think would be relevant for his / her project. Invite people to refine the arguments supporting their choice (including resource limitations). You can end the activity here or move on to step 3.

STEP 3: Visualizing the network (*30 minutes*)
Individually, have the participants draw the network that has emerged from steps 1 and 2. Once all the links are on paper, have them identify the structures described in this module and think about what consequences these structures have on the issue being studied.

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SECTION 3 – HOW TO USE A NETWORK PERSPECTIVE WITHOUT DOING A NETWORK STUDY

This short section is intended to highlight some ways one can integrate a social network perspective into one's work without having to learn the all the tricks of the trade.

LEARNING OBJECTIVES

- Explore "tricks and techniques" to make use of a "network perspective."
- Reflect upon the idea that social network analysis is primarily a social science not a mathematical science.

KEY QUESTIONS

- How clear is my "internal picture" of the social network I am concerned with?
- Who would be the most critical informants in helping me to better understand the social network I am concerned with?
- How can I include some aspects of a social network perspective in my current project?

Observation

What if Uncle Jim and Aunt Alice were not the enemies you thought them to be but rather secret lovers? It is not uncommon to "discover" such surprising connections between people we thought we knew well (Casciaro et al, 1999). This points out that it is not easy to have a perfectly clear picture of a social network by observation alone.

This is not pointed out simply to discourage you from using your observational skills to better understand a social network. Rather, it is to invite you to refine those skills. For example:

- In a meeting, note who is sitting next to whom (and the corollary: far from whom), in front of whom, in diagonal with whom.
    - Sitting places, especially when they become "habitual" are an expression of the network.
- In a discussion, note the patterns of interaction: who talks after whom? Who never does?
- Note also who is "building upon" the discourse of someone else to construct his or her own. Who is making a synthesis of what was said? In such synthesis, are anybody's ideas left out?
- From these observations, draw a portrait of the network: how does this portrait reflect your impression about the relationships between these people? Are there seeming contradictions? If so, explore them; try to understand what they mean.

Informants

When doing ecohealth research or conducting an intervention, we are often outsiders and having informants tell us about the network might be a good idea. But, how to choose a "good" informant? There is no perfect recipe here, but you might want to remember that, among other things, positive affectivity and central position in the network have been shown to positively influence the accurate perceptions of other's relationships in a network (Casciaro et al, 1999; Krackhardt, 1990). Care should be taken here though: the very positive, very central individual in a community is also well placed not to see discontent or not to be aware of factions.

Group Diagnostic

Inspired by the activity "Construction of the group's social network" proposed in Section 2 of this module, you could devise an activity for the group you are working with to have them draw a picture of their network. Be mindful of sensitivities – don't ask people to say publicly who they like or dislike – rather choose a more "public" relationship. Have people talk about the emerging picture they are creating.

- The AMESH methodology (Waltner-Toews et al., 2003) although addressing a much larger realm than social networks also offers interesting insights on this. [See Complexity Module]
- Finally, Clark (2006) proposes a way to use a social network analysis program (*UCINet*) for the simplified mapping of social networks.

Adding a network question to a questionnaire

If your research or intervention involves using a questionnaire, you may find it interesting to add one network question to it. For example:

- You may ask people who they go for advice or whom they believe to be knowledgeable on the topic x in their group or community. This would give you an idea of trusted individuals in the community. Knowing whether or not there is consensus is in itself valuable information.
- You may have a more general question on whether people feel they have social support and what type of support they have.
- Related to these two questions could be a question about access to resources – either information resources or support resources. You could ask who in the community is most connected to sources of information (internet access, libraries, government data, well connected individuals, etc.) or support outside the community (family members working abroad, links to government programmes, etc.).

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