

## Mapping The Ecology Of Ideas: Social Network Analysis And The Evaluation Of Networks

An ideas paper by Rick Davies, Wednesday, 30 July 2003<sup>1</sup>

### An ecology of ideas?

Ecology is defined by The Oxford Modern English Dictionary as "the branch of biology dealing with the relationship of organisms to one another and to their physical surroundings"

An ecology of ideas could similarly be defined as the relationship of ideas to one another and to their physical surroundings. There are two types of relationships that could be considered. The first is the logical relationship between ideas, which won't be discussed here. What I will focus on instead is relationships that exists when ideas co-exist in the same environment. By environment I mean particularly in the minds of people who have ideas, in the first instance, and then within those people's organisational contexts. This is not a new idea. There is a wider body of related literature on evolutionary views of culture, and the concept of memes<sup>2</sup>.

What I am interested in exploring this brief paper is some practical ways of mapping ecologies of ideas and their implications for evaluation of networks.

### Background

A literal search for "ecology of ideas" via Google produces little that directly addresses the idea outlined above. It does appear that substantial amount of work has been done on mapping the relationships between web pages on the internet, and website more generally. But this work effectively treats those pages as free standing objects, rather than as ideas or concepts, and most notably does not examine their relationships with the contexts in which they exist.

One piece of work that seems closer in intent is that done by Valdis Krebs. A summary can be found on his website at <http://www.orgnet.com/leftright.html><sup>3</sup> and ...He has investigated the linkages between people's book buying patterns on Amazon. Books were deemed linked if they had been bought by the same person. That data is automatically made available, in aggregate form, by Amazon, every time a person searches for a particular book.

Insert example from Amazon here

In Kreb's two short papers he is interested in books as representative of different constellations of political ideas. His network diagram is reproduced in Figure 1 below. Each link between two books means that they have both been purchased by the same purchaser (one or more times). The focus of his brief analysis is on the differences in the density of the two networks connected by one book. The one of the right consists of books with right wing political views and the ones on the left had dominantly left wing political views. The left-wing group of books has low density of connections (19% of all possible connections) whereas the group on the right is

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<sup>2</sup> See Benzon, 1996, and Blackmore, 2000, respectively.

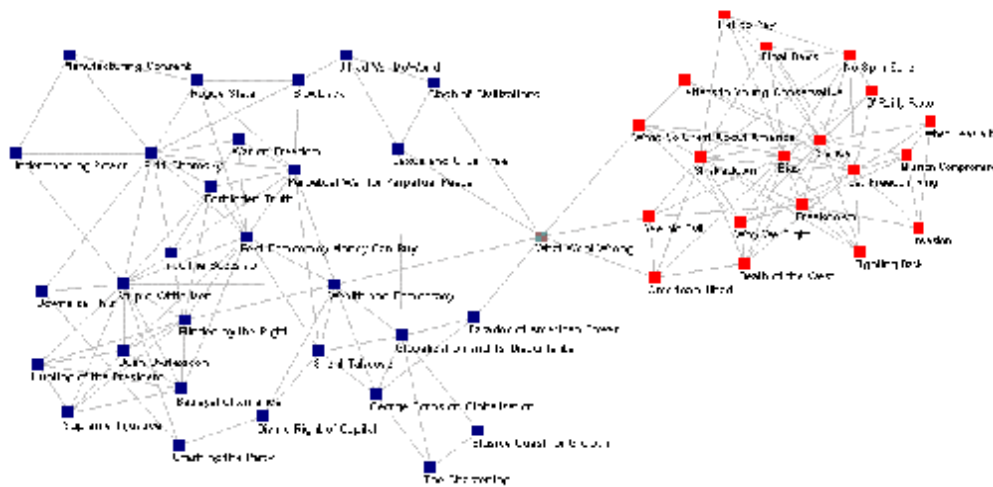
<sup>3</sup> See also the larger article at <http://www.orgnet.com/booknet.html>

much denser (39%). The two groups have very little in common, only one book was bought by people in both groups.

He concludes "It appears that echo chambers have emerged that repeat a consistent message within each cluster. Ron Burt, a leading network expert, explains that a tightly closed network "amplifies predispositions, creating a structural arthritis in which people cannot learn what they do not already know" With no direct bridges between the clusters, these divisions are unlikely to change any time soon". This is a fairly negative view, another view would be that the high density of connections within in each group, especially the right wing group, would enhance solidarity and make effective joint political action by such a group easier to undertake.

In another brief paper on "Communities of Interest on the WWW" Krebs has analysed the pattern of book purchases associated with one book, "An Anatomy of Buzz" by Emanuel Rosen. Here he identified four different communities of interest, identifiable as distinct clusters of book purchases, which he labelled "dotcom fever", "new economy", "book promotion" and "business change and strategy" He also identified one book as being "the most influential" on the basis that "not just for its many connections, but where those connections lead to -- the network measures include both direct and indirect links"

Figure 1: Kreb's "Political Patterns"



### Exploring the ecology of ideas in an NGO network

In July 2002 I undertook a survey of 71 members of the REMAPP network<sup>4</sup>, a network of people, mainly within UK NGOs, who have professional interests and responsibilities in the monitoring and evaluation of overseas aid programmes. The aim was to identify and publicise to those members what interests they had in common, and then try to facilitate exchanges of information between people with common interests.

<sup>4</sup> See <http://groups.yahoo.com/group/REMAPP/>

A list of 12 potential topics of common interest was generated in a REMAPP meeting in London, in early July. This list was then sent to all REMAPP members by email, along with a request that they examined the list then replied to me with ratings of how interested they were in each topic. The rating scale had four points: 0 = not of interest, 1 = of some interest, 2 = fairly interested, 3 = the topic I am most interested in at present. Twenty of the 71 members responded.

There were two parts to the fairly basic analysis that was undertaken. One was the development of a spreadsheet showing ratings in a people x topic matrix. Associated with this were separate tables for each topic showing which people had given the highest to lowest ratings for that topic. The second part involved the development of network diagrams using UCINET<sup>5</sup> social network analysis software. Two diagrams were developed. One showed who was most closely linked to whom (by both rating the same topics as being of high interest. This gave network members a quick overview of who they might find it most useful to make contact with to talk about topics of interest to them. The second network diagram was more abstract, it showed which topics were linked to each other (by both being of high interest to the same people). In the case of both diagrams the survey data was converted from an affiliation matrix (people x topic) into a square matrix (people x people or topic by topic) using UCINET. This data was then converted into a graphic image of a network, using NetDraw, a sub-package within UCINET. The second network diagram is shown below in Figure 2 (next page). Thick lines show strong relationships, where the linked ideas were both rated of high interest by three respondents, medium lines show them present in two respondents and thin lines in one respondent<sup>6</sup>.

The central idea in this complex of topics was *Organisational Learning and Knowledge Management*. This topic scored highly on commonly two network measures of centrality:

- Degree centrality: It has connections to every other topic surveyed, in like some others which are only connected a few
- Closeness: It has the shortest total number of links to all other topics, compared to all other topics

The most marginal topics were clearly *Assessing / evaluating country-level programmes* and *M&E of development awareness*. Since the former was one of the author's own highly rated interest this was not good news!

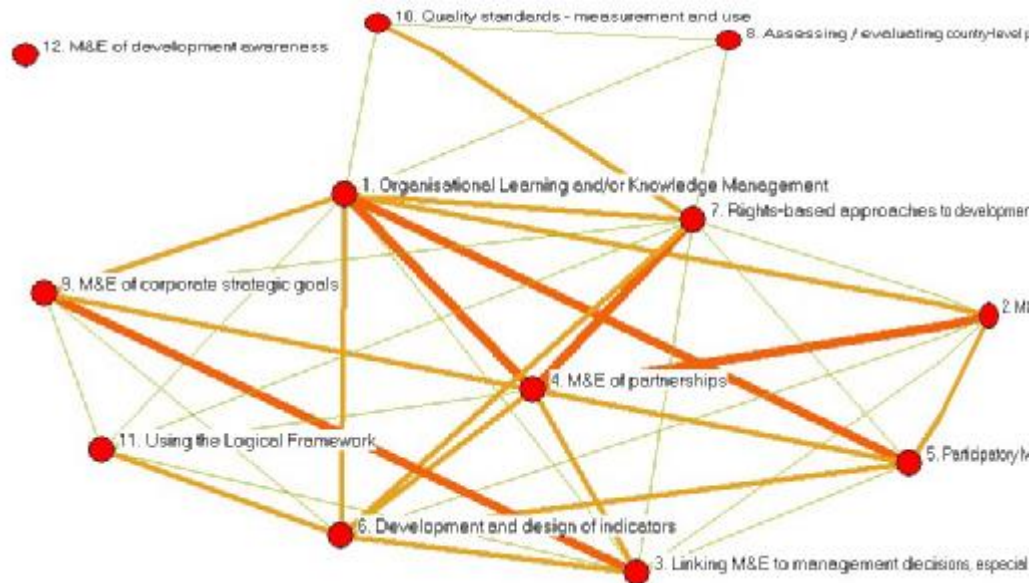
Both the spreadsheets and the network diagrams were circulated to the participating REMAPP members, for their information. The question now is whether either has made any difference to member's views as to who they will get in contact with in the future. I hope to follow this up.

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<sup>5</sup> [http://www.analytictech.com/ucinet\\_5\\_description.htm](http://www.analytictech.com/ucinet_5_description.htm)

<sup>6</sup> If the interest rating threshold used in this analysis had been lower (i.e. 2) then the thickest lines would represent a large number of people judging two ideas (or more) to be important)

Figure 1: The REMAPP topic network



### Possible implications for the evaluation of networks

“Topics of interest” are a type of priority. Organisational and programme objectives are also statements of priorities. It is conceivable that the members of a network of organisations could:

- (a) generate a menu of possibly relevant objectives (for the network as a whole, or simply for themselves)
- (b) rate the relative importance of those objectives, as seen from their own standpoint.

This information could then be used to generate the same types of analysis as described above, with REMAPP. Both spreadsheets and network diagrams.

There a number of types of analysis that could be made of this information. Firstly, what effect does sharing this whole-network view back to the participants have? Do the participants report anything about the findings that are surprising to them? And then, do the findings make any qualitative or qualitative difference to how participants subsequently interact?

Secondly, are there any features of the network of connections that are correlated with or predictive of other events of concern. For example, the scale of effective collaboration in order to achieve those objectives, or even success in actually achieving those objectives. Do participants who are strongly connected by common goals report more progress on either of these measures than other more isolated participants? Are objectives that are more isolated from other objectives (in the network of ideas) making less progress than objectives that are more closely interlinked?

More sophisticated hypotheses could be developed by making use of some of the more refined measures of centrality in social network analysis, such a “betweenness” and “closeness”

Behind this set of conjectures is a view that in networks, compared to hierarchical organisations, agreed objectives are not a starting point, but a potential but by no means inevitable development along the way. Assessing the relationships between objectives, and intervening to effect those relationships, can be seen as an important development management tool, along with those concerned with actual implementation of plans to achieve specific objectives.

## Some references

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