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## Understanding the Linkages in Organisational and Human Relations: A Review of Social Network Analysis

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### Abstract

This article proposes a methodological stance, an Interpretative Phenomenological Analysis (IPA) of participants' drawings as one that is useful for research into people's experiences of seizure consciousness. Using empirical examples located in an original, larger study, this article offers a rationale for, and illustrates the analytic potential of, this combination. It also considers that elicitation interviewing techniques and methods from the field of neuro-phenomenology could take this work further in terms of deepening the analysis by reaching people's pre-reflexive conscious experiences. This theoretical and practical combination has the potential to develop this work significantly.

### Keywords

Interpretative Phenomenological Analysis (IPA), Consciousness, Art Work, Seizures, Neuro Phenomenology, Elicitation interview techniques, Pre Reflective Experiences

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## **Understanding the Linkages in Organisational and Human Relations: A Review of *Social Network Analysis***

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*The relevance of social network analysis is greatly magnified in the era of exponential proliferation of social media interactions, globalisation and interconnectedness of business management systems. Understanding relations among people, organisations and businesses is crucial in maximising output of such linkages. Hence, Social Network Analysis the latest addition in this field brings forth an annotated insight into the origin, practical experiences and applications of this technique in assessing relations among people, businesses, communities and organisations. It explains with clarity the ideas that produced social network analysis, theories that shaped its formulation, the tools of work, future applications and benefits. It is ideal and informative for beginners in social relations study and very practical for experienced researchers in systems network analysis. Keywords: Networks, Relations, Graph Theory, Sociograms, Centrality*

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### **Introduction**

Getting to know about networks analysis for me came at the time when I was engaged in one of the last legs of my doctoral research work. Coming from the background of qualitative research tradition, I was working towards getting my data analysed using qualitative data analysis software, the Atlas.ti; however I needed some theoretical background in the use of the computer based system, which is how I got this interesting article on “thematic network analysis” by an author, Attride Stirling. This was an interesting piece of work that gave me a good overview on network analysis, albeit in the context of qualitative data analysis.

We always hear about networking, but many of us could easily take the meaning loosely to signify some kind of linkage or connections. Yet it is true that when we talk of networking, there is a strong connotation of some form of “connectedness;” but when we probe further to check if we pay attention to the “quality” or “value” of this connectedness, then we might just be hitting a blank.

In the same vein, we often hear terms such as this is a “closely knit community,” “social capital” “a well-functioning organisation” etc.; these are all associated with aspect of linkages and or connections. Close knit communities, rural social capital and well-functioning organizations have people who are relating in one way or the other. Now, questions would surely be asked in a situation when people or let’s say researchers wish to know what it is that keep this or that community closely knit or why the social capital status is promoting community development and or why an organisation or business performs above expectations?

So, how can we find the meanings of these relationships, the value of the linkages, how strong or loose are the connections? This is perhaps where we see the association and purpose of social network analysis in helping to understand what there is that promote or break relationships, and also pick some lessons that can be replicated in other systems such as businesses and professional organizations.

My own data analysis as noted above showed to me that when you study a complex system, there are always some linkages involved, and that these linkages help to give meaning to the happenings or going-ons of the system; in this regard this book offers the opportunity to understand relationships from the most basic to the most complex of systems.

### **Why You Need this Book?**

My first initiation in the realm of social network analysis availed itself when I was requested by my postdoc supervisor at the University of Ottawa to help with the preparation for an intervention research workshop; in this preparation, I was to review some information resources on “methodological innovations” to be retrieved from a few Internet links; one of the links had information on social network analysis; and this was to be one of the new methods on the block to support intervention research. The understanding I got from this site volunteered a definition of social network analysis (SNA) as:

Social network analysis [SNA] is the mapping and measuring of relationships and flows between people, groups, organizations, computers, URLs, and other connected information/knowledge entities. The nodes in the network are the people and groups while the links show relationships or flows between the nodes. SNA provides both a visual and a mathematical analysis of human relationships. Management consultants use this methodology with their business clients and call it Organizational Network Analysis [ONA].

On this occasion, we are gifted once more by veteran publisher, Sage Publication Ltd. in availing this third edition of *Social Network Analysis* by Professor Scott; the implied definition of SNA is that: “...a set of methods for the analysis of social structures, methods that specifically allow for the investigation of the relational aspects of these structures” (p. 41); Dr. Scott on the same page goes on to say: “The use of these methods therefore depends on the availability of relational rather than attribute data.”

The above definitions provide us with the precise reason for using this book; it is in understanding social structures and their relations which epitomizes the dynamics of social relations and what sustain it. In the social sciences when we study communities, we look at the life experiences which are not lived in isolation, but in a “connected” community.

The presentation of this book is such that with a brief preface, it proceeds to chapter 1, where “network and relations” is the entry.

For ease of reading and appreciating this work, Professor Scott, provides an additional annotations, references and explanations in form of notes from pages 173-184; these notes are very useful in deepening the reader’s understanding of the issues in all chapters. Secondly, at the end of the first chapter, he goes on to give an overview of the book with one key message to the reader thus: “This is a guide book or handbook to social network analysis, and not a text to be read through at one sitting....The newcomer to social network analysis is advised to read chapters 2 and 3 and then skim through the remainder of the book, coming back to points of difficulty later” (p. 9).

That said, the gist of this first chapter from the author’s aim is to introduce the reader to the point when the idea of social network analysis came about in the 1930s to the 1970s, (p. 1); that is, in a non-technical form from the structural concerns of the great anthropologist Radcliffe-Brown. From this initial ideas, other social anthropologists picked up and continued with the interest in the field which also has bearing on recent growth sparked partly by increasing emphasis on the importance of “networking” in practical guides and partly by the proliferation of “social networking” websites such as Facebook and Twitter....

Here, we are also introduced to the kinds of data for which social network analysis is most appropriate, such as kinship patterns, community structure, interlocking directorships etc. with the principal types of data being “relational” and “attribute” data (p. 3).

Professor Scott also introduces analysis of network data with computer packages such as UNICET and PAJEK found in the following sites: <http://www.analytictech.com> for UNICET, but cost \$150 or \$40 for students; the site by analytic technologies is a simple one that offers information to order the software and training opportunities; while PAJEK which is actually free, is found on the site: <http://www.vlado.mat.uni-li.si/vlado/vlado.htm>; on checking, I found the site has moved to: <http://vlado.fmf.uni-lj.si/pub/networks/pajek/>; it is also a simple site with all the information for downloading PAJEK, and other rich and interesting shots for learning like the history, manual, papers/presentations, applications, slides of workshops as well as some research articles; it is great to see. An additional programme, the SIENA (allows analysis of network change over time) derived from innovation, is found in the INSNA site: <http://www.insna.org>; INSNA stands for International Networks of Social Network Analysis; it is the professional association of researchers interested in Social Network Analysis; through one of the courses offered on the site, the SIENA programme can be obtained. Finally in chapter 1, aspects of network data interpretation is looked at in which a number of theories are advanced to bring more insights.

As recommended by Professor Scott, the next chapter 2 on the development of social network analysis is indeed of great importance for all calibre of readers; to understand the actual progress in SNA, one has to take time to absorb and digest what is in this section. I found it a great and stimulating story and history to read, which sharpened my interest in SNA. He notes that a clear lineage for the mainstream of SNA could be constructed from this complex history; you will find here how three main traditions crossed paths and helped to produce in the 1960s and 1970s what is now the contemporary SNA; they are: the sociometric analysts, who worked on small groups and produced many technical advances using the methods of graph theory; the researchers of the 1930s, who explored patterns of interpersonal relations and the formation of “cliques;” and finally the social anthropologists, who built on both these strands to investigate the structure of community relations in tribal and village communities, (p. 11); figure 2.1 (p. 12), shows with sharp clarity the lineage of social network analysis; it is worth checking up!

Hence, from above and starting on pages 13 to 39, you will get to know about the sociometric analysis and graph theory; interpersonal configurations and cliques; formal model of structure; the Harvard breakthrough and the entry of the social physicists. All these combined to offer a rich mix of history on the development of SNA.

For any researcher who goes to the “field” to collect data, again as advised by Dr. Scott, this next chapter 3 on analysing relational data is of high value; you need to know what kind of data you will collect and how they can be analysed to make meaning and interpretation easy to understand and comprehend. He notes that in this regard, many of the usual field procedures are similar such as gaining field access, designing questionnaires, drawing samples, dealing with non-response etc.; however he cautions that a number of specific problems do arise when research concerns relational data. And this is where Professor Scott will take you through an interesting repertoire of field methods on relational data; you will get to know how relational data are collected; selection and sampling of relational data; preparation of relational data, and finally organising relational data. This section (pp. 41-62) is the one that makes or breaks your grasp of the SNA process; one needs to take time here as well.

Using the analogy of let’s say the busiest airport in the world, Atlanta, Georgia (93.5 million passengers annually) when a pilot captain wishes to beat the flight plan to the letter, this book is arranged in such a way that chapters 1-3 is the take-off point which looks at

the struggle of the flight crew from the runway to reaching the highest cruise altitude; the glide/cruise altitude here is the chapters from 4-7 where one sits and relaxes, perhaps loosens a tie, removes a pair of shoe and just enjoy the ride with the air hostesses on hand to serve you your favourite tonic. Then finally of course, the alert comes handy in chapters 8 and 9 where the “landing” procedures are in advanced stages; thus the plane lands at the intended destination and passengers alight from the plane and once more plan their next itineraries i.e. connecting flights in various directions or just be happy to have arrived in one’s destination. In the context of this book, I would say that “next itineraries” would be the journey to generation of new ideas in the domain of SNA and other new research endeavours in the same field.

On that lighter note, chapters 4-7 (pages 64-138) indeed offers the opportunity to learn the finer concepts of SNA; Dr. Scott gives fine narratives on the concepts of lines, neighbourhoods and densities in chapter 4; indeed you will learn in detail about sociograms and graph theory; ego-centric, socio-centric as well as absolute densities and finally community structure and density. The next concepts in chapter 5 are centrality, peripherality and centralization; you will be treated to local and global centrality; centralization and graph centres, and bank centrality in corporate networks. In chapter 6, we find concepts of components, cores and cliques; one will learn links between components, cycles and knots; contour of components; cliques and their intersections as well as components and citation circles. And finally in this “cruise” section of chapter 7 we get the concepts of positions, sets and clusters; here are seen the structural equivalence of points; clusters: combining and dividing points; block modelling with CONCOR tool of analysis; towards regular structural equivalence and corporate interlocks and participations.

In all these 4 chapters, 4-7, I found that Dr. Scott, made the best effort to make the reader understand the application of the formulas, graphs and computer software to explain how they fit well in the process of applying SNA; additionally, in all chapters using the superscript of numbers, one can refer to the notes at the end of the book for further reference.

In the “landing” phase or section, we have chapters 8 and 9; in chapter 8 (p. 138) on network dynamics and change over time, Scott reminds us of the static approaches to social network analysis discussed up to this point, in which change in network structure could be considered only through cross-sectional data; however models have now been developed that allow properly longitudinal studies to be undertaken. He presents the processual models and their approach to longitudinal investigation; he also relates them to recent work on complexity and “small-world” issues raised in the new social physics as well as consider the statistical approaches to significance testing.

Finally as the plane glide to a stop on the runway, chapter 9 brings the excitement of arriving in one’s destination; in dimensions and displays, Dr. Scott, brings us to this new chapter with the earliest aspirations of those involved in social network analysis i.e. to produce pictorial representations of networks they studied. He emphasised that: “The drawing of sociograms has remained a crucial means for the development and illustration of social network concepts, and network diagrams have been used extensively throughout this book for just that purpose” (p. 147). Here also you will see concepts of distance, space and metrics; principal components and factors; non-metric methods; advances in network visualisation as well as elites, communities and influence.

As Dr. Scott wishes you a good read, he notes (p. 10): “Most chapters conclude with a consideration of application of the measures discussed in particular empirical studies. The investigations that are reviewed cover such areas as kinship, community structure, corporate interlocks and elite power. And the aim of these illustrations from leading researchers is to give a glimpse of the potential offered by social network analysis.”

In view of the above, at £ 26.99 for the Paperback and £ 75.00 Hardcover, this 216 page book is a practical piece of work and affordable as a much needed reference for both novice and experienced researchers that are aligned in the field researching social relations and looking to using techniques such as those explained in this book. Having gone through this work, I wish to echo the author's own intention of making the book interesting to peruse for readers of all calibres; he said: "My aim in the book has been to simplify the techniques of social network analysis in order to make it accessible to those with limited mathematical background. I hope however, that there is enough in it to satisfy both the newcomer and the more advanced researcher in need of information on current techniques" (p. x). Ultimately, persons involved in training programs and providing technical assistance in development interventions would greatly benefit from this rich narrative.

Finally in conclusion, I can confidently say I have learnt a lot and deepened by understanding of social network analysis, above all its applications in our highly interconnected world made all the more intricate with the many social media in use within our midst; I certainly will apply some of the techniques in future research undertakings.

While overall the book is a fantastic read, Dr. Scott, may have made one omission by not giving especially to the novices the precise definition of social network analysis; perhaps he assumed that we all have some ideas already of what SNA is, but it would still be crucial considering he has been in the field for quite a bit.

In this regard, I would like to share with you some of my personal thoughts as I glided through this book:

To understand this book better with its mathematical and technical backbone, one needs to grasp from the start the content of pages 5-7 on analysis of network data.

This book gives you the mechanics to appreciate how real life scenarios can be assessed and understood; in essence it is a training manual.

Social Network Analysis (SNA) is a research domain whose time has come; it is also a work in progress as elaborately elucidated by Professor Scott; and opportunities for further research and applications are enormous, such that researchers with leanings towards SNA, should endeavour to read this book to gain momentum in their field of interest.

Scott, in this book outlined several methods for approaching SNA with their strengths and weakness; yet SNA has great opportunities for research considering the limitations of some of the methods involved.

In SNA, the meanings or definitions of the relations are crucial in understanding how networks are formed and sustained; hence the use of SNA can help to maximise social and organizational relations by intimate deciphering of what forces are at play and their influences.

In sum, this book is worth having in libraries of training institutions and for researchers with interest on SNA and their real life applications. To me, this is a work for the current generation of researcher willing to take SNA to the next level.

### Reference

Scott, J. (2013). *Social network analysis*. London, UK. Sage Publications Ltd.

### Author Note

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