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**TRAVEL INFORMATION EXCHANGES IN A COMPUTER-MEDIATED
ENVIRONMENT: A SOCIAL NETWORK ANALYSIS OF THE *AFRICA* CATEGORY
ON THE *DEPARTURE LOUNGE* BRANCH OF THE *THORN TREE***

by

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Title: Travel information exchanges in a computer-mediated environment: a social network analysis of the *Africa* category on the *Departure Lounge* branch of the *Thorn Tree*

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This thesis reports on aspects of information exchange in an online network whose members share an interest in travel. The *Thorn Tree* resembles a real thorn tree on which travellers hang messages. Using social network analysis, the network resulting from members participating in online discussions considers the importance of structure and position in an exchange network to travel information exchanges on the *Africa* category. Different ways and frequency of participation result in communication patterns giving structure to an exchange network in which participation in a thread determines the presence of a tie between actors. Actors are placed in various relations to others; network analysis makes measurements such as levels of reciprocity, density and centrality possible.

At the heart of this study lies an inquiry into the Internet's impact on society, more so, human interaction in cyberspace where spaces, places and even communities are qualified as being "virtual". Scholars have different views in this regard. Some commentators claim that the Internet has spawned unique forms of community. The term "virtual communities" suggests new kinds of social interaction, with revolutionary consequences for local and global communication. Online communication could be a substitute for the loss of "traditional" physical communities, or even the cause of their demise. Others, however, praise the Internet for spawning communities even in the physical world. More complex theoretical

perspectives are indicative of a need to interrogate the very notions of community and contemporary social networks resultant from the many-to-many communication capabilities of computer-mediated communication (CMC). Apart from community formation on the Internet, the concept community has not been tested among travellers yet.

Networks, the ties people form and the exchanges that take place as a result of such ties relate to social capital. The notion of social capital in a computer-mediated environment needs more intense academic scrutiny. Nevertheless, for travellers and destination areas alike, information exchanges can be beneficial. However, not all information exchanges on the *Thorn Tree* or on the Internet *per se* are necessarily beneficial since verification is not always possible in a cyber environment.

Nevertheless, for travellers with a need for travel information in a sparse network characterised by weak ties, content analysis linked to a network analysis proves that weak ties are beneficial for spreading useful information. On the *Africa* category discussions are short while threads have very limited life spans. Of the total number of actors in this dataset (1 282), it was found that a few are particularly active, while many contribute a few messages to a limited number of threads and clearly do not interact regularly on the *Thorn Tree*.

Keywords

Computer-mediated social networks; Cyberstudies; Information exchanges; Internet; Leisure; Online communities; Social capital; Social network analysis; Travel information; Virtuality.

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Chapter One

Introduction

To date, far more effort has been expended on predicting the revolutionary futures of the Internet than has been put into finding out in detail how it is being used and the ways in which it is being incorporated into people's daily lives (Hein, 2000: 2).

1. Introduction

Preparation for travel is part of the journey. For most, organised travel, for purposes of both business and leisure, involves a fair amount of planning, which includes gathering reliable information from trustworthy sources regarding, *inter alia*, the destination and the journey. Travellers, especially those exploring unknown travel destinations, are constantly reliant on appropriate and trustworthy information to make informed consumer choices. Sources of information obviously vary. While word-of-mouth has historically been a preferred way to seek travel information, the provision of travel information and services has become a lucrative business in modern societies. In fact, the consumer value of travel information is considerable.

In a highly competitive market commercial travel information providers such as *Lonely Planet*, *Bradt* and *Rough Guides* use comprehensiveness, accuracy and reliability in an attempt to convince consumers to buy their products, i.e. travel information in various formats such as books, brochures, CD-Roms, videotapes, and so forth. Newspapers and magazines also contain travel sections thereby adding to the popularity of the printed media as a widely accessible medium and cheap source of travel information.

In fact, over the years, the printed media has always provided a steady stream of travel information. By most accounts, the ancient Greek writer Pausanias produced the first travel guidebook already in AD180 (Pretzler, 2004). In contemporary societies, it is not only the printed media that is a major source of travel information. Other mass media such as radio and TV also provide travel information. However, with the large-scale integration of the so-called “New Media” into mainstream society towards the second half of the twentieth century, prospective travellers can also include the Internet as a source of information. Wang and Fesenmaier state that this “new media has evolved from a technological curiosity to a place where millions of people around the world stop every day for various travel-related activities. The past decade “has witnessed significant changes to the tourism industry, owing to the adoption and diffusion of Internet applications” (2004: 1).

Sheldon (1997: 87) too recognises the Internet’s importance when she states that “consumer access to information in general, and particularly to travel information has burgeoned with the use of the Internet”. She states:

[t]he use of the Internet and World Wide Web dominate most of the developments in the area of consumer access to travel databases. There are hundreds of thousands of home pages of suppliers and associations and many electronic bulletin boards, newsgroups and chat rooms designed for the travel and tourism community. In fact, tourism and travel home pages dominate the WWW (Sheldon, 1997: 86).

One of the foremost applications is the World Wide Web (WWW), making information available in very much the same way as the printed media. However, the Internet also facilitates other avenues, such as newsgroups and electronic bulletin boards, allowing anyone connected to the Internet to contribute, discuss and participate actively or merely observe. In particular, these avenues facilitate social

interaction in ways and on a scale hitherto unknown to us. If we consider new ways, examples taken from a tourism marketing organisation called *virtualltourist.com* show that members can build their own travel pages in which they can provide their travel profiles, share their travel tips with others and create their own online travelogues. Members can also access discussion forums and chatrooms for further information sharing and communication. These examples emphasise the extent to which ordinary people have become producers of information and the extent of advocating uncensored participation. Subsequently, the digital media extends the reaches of word-of-mouth by using text-based messages in mostly an asynchronous manner on a world-wide scale that involves anybody with access to the Internet. In the case of travellers it is evident that the social ties people form in digital environments allow them to get help from “a global community of travellers who have ‘been there, done that’” (Wang and Fesenmaier, 2004: 1).

The global reach of this development is realised when one understands that the Internet is a vast network of computers without any central control that spans the globe and uses avenues such as newsgroups, electronic bulletin boards (EBB) and chatrooms to weave webs of people into social networks. Sheldon (1997: 93) recognises the importance of these avenues and states that they allow travellers to do trip planning in a less formal medium. Sheldon concludes that “travellers using these services can expect the information gleaned from them to be more subjective and ad hoc, and yet valuable in its own way” (1997: 95).

However, why do people share their travel experiences with others in computer-mediated social networks? Are these shared experiences capable of addressing the information needs of others when making consumer choices? Indeed, what needs do travellers have when connecting to online social networks if the primary aim seems to be that of obtaining travel information? Wang and Fesenmaier note that in online travel communities needs can be categorised as functional, psychological, social and hedonic (2004: 2). Addressing these needs, people are able to use their

connections (social ties) to obtain a range of benefits despite the risks involved in connecting to and engaging with others in a computer-mediated social network. Examples of risks are getting no response to a request, receiving incorrect information or perhaps being the target of criticism or a so-called “flame”. Thompsen (2003: 329-343) explores the intricacies of flames in more detail.

If one considers connecting to an electronic bulletin board as an attempt to address specific needs, what is the nature of social ties in such computer-mediated social networks? Are the social interactions patterned in any way to form predictable arrangements or structures? If so, what influence does network structure exert on actors and their accessibility to information? What can we learn from the study of such computer-mediated exchange networks? What does it for example reveal about power, dependence and trust? In leisure studies, the relation between travel information, consumer choices and leisure experiences has been investigated using a network perspective. The latter provides a theoretical framework to investigate this relationship from a structural point of view (Stokowski, 1988). Detail follows on the positioning of network analysis within a broader context of social theory.

2. Background

Lonely Planet, a company that has since its beginnings in 1973 managed to become one of the largest independent travel information publishers in the world embraced the Internet and launched its website in 1994. In 1995, the *Thorn Tree* was unveiled. Being an asynchronous electronic bulletin board, it offers a computer-mediated platform for people across the globe to form social ties and exchange travel information using text-based messages ordered as threads. Drawing on an existing clientele that is accustomed to its wide range of printed material, *Lonely Planet's* incorporation of the so-called “New Media” technologies offers a good example of a traditional company that has managed to redefine itself in the so-called Information

Age. Moreover, the many-to-many communication capabilities made possible by digital technologies such as electronic bulletin boards, enable loyal *Lonely Planet* customers, travellers and non-travellers the world over to be sources and not merely information consumers or so-called “sinks”, thereby furthering the philosophy held in high esteem at *Lonely Planet* that informed travellers are more responsible.

With popular metaphors such as “surfing the Net” or “riding along an information superhighway”, the notion of travellers using the Internet conjures images of both travel in the physical world and travel in cyberspace. The use of metaphors to describe new phenomena such as the Internet and associated digital environments is not uncommon, as is evident in this study too. The *Thorn Tree* resembles a real thorn tree on which travellers hang messages. Similarly to the physical world, on this electronic forum exchanges go beyond travel information but unlike a real thorn tree or other landmark such as a rock, the *Thorn Tree* is set in cyberspace. While transport networks like roads connect people and allow them to “go” places, the Internet is associated with access to all kinds of information without concerns about geographical limits. Indeed, Internet-based communities coincide with the process of globalisation and the mobility that space- and time altering technologies afford (Holmes, 1997: 27). Similarly, physical travel too is noted for social interactions and its consequences for globalisation (Giddens, 2001:80).

With a logical structure to it and very few constraints on members regarding their contributions, the *Thorn Tree* has become a popular platform for travellers on which to exchange travel information. All travel-related information on this electronic discussion board is not above suspicion, useful or even relevant. In the case of travel information, Stewart and Hull (1996: 9) cite a number of research findings about changes over time in travellers’ accounts of their experiences. Invariably, some accounts might be blatantly false. Yet, not everybody is dishonest (Macy and Skvoretz, 1998: 639).

Above, the use of a network perspective to elucidate on the role of network structure was mentioned. There are indeed a number of theoretical approaches to analyse social systems and exchanges that arise from connections and interactions among individuals in small and large groups. Another area of interest pertains to the role of information and specifically incomplete information in social action. The roots of these theoretical approaches are to be found in the Enlightenment precepts of rational conduct. These ideas, however, also have a strong contemporary resonance, in view of technologically supported social interaction and social networks.

3. Development of theoretical frameworks

Exchange and rational choice stand central to a discussion board like the *Thorn Tree*. A paper by Homans (1958), "Social behaviour as exchange", is in many ways seminal to recent developments in exchange and rational choice theory. He introduced the ideas of the benefits and costs of alternative courses of action and declining marginal effects, along with a conception of balance and equilibrium in exchange. Peter Blau's book *Exchange and Power in Social Life* followed shortly afterwards in 1964 and is regarded as a classic in the field. Blau focussed on the process of exchange, which, according to him, directs much of human behaviour and underlies relationships among individuals as well as among groups.

Since that, exchange theory has attracted adherents and has become one of the few areas in sociological theory which is at the same time broadly cumulative and technically well-founded. In this latter respect, the association, which is ever increasingly engineered with network analysis, is of prime importance. Indeed, there are many who now see the combination of networks and rational choice theory as the most promising avenue ahead for systematic sociological theory (Abell, 2000:

226). Meanwhile, the juxtaposition of exchange and rational choice theories finds its contemporary apotheosis in Coleman's *Foundations of Social Theory* (1990). Although systematic claims for game theory as an important theory of social interaction are relatively recent, the use of a game theoretic framework in theoretical analysis is increasingly common. The idea which is probably having the most profound impact upon sociological theory, though, is the shift from an emphasis upon one-shot games (for example a one-off prisoner's dilemma) to repeatedly iterated games. In this respect, Axelrod's *The Evolution of Cooperation* (1984) is the turning point. Coleman is regarded as the "main moving force behind the rise of rational choice theory in contemporary sociology" (Ritzer, 1996: 427). Field explains that it was within this intellectual framework of rational choice theory that he sought to place his conception of social capital (2003: 21). The concept social capital was for Coleman a means of explaining how people manage to cooperate. Coleman himself portrayed social capital quintessentially as a public good that is created by and may benefit not just those whose efforts are required to realise it, but all who are part of a structure (Coleman, 1988-9: 116).

Given the exchanges that take place across the Internet one of the core assumptions of exchange theory is relevant, namely that the benefits people obtain through social processes are dependent on the benefits that they are able to provide in exchange. This gives exchange theory its focus on the flow of benefits through social interaction.

What importance does exchange hold when related to travel information and travellers' consumer choices? Moreover, what does the network structure reveal about actors' place in a network? What does structure reveal about connectivity and how does this influence the flow of communication? How does communication flow influence the speed, extent and reaches of information exchanges? If traveller A informs traveller B of a special place with spectacular scenery or a reasonably priced

hotel in the next town this information can have benefits¹ for traveller B and potentially any other actor with whom traveller B might share this. However, the nature of the relationship between these two actors changes if traveller A is the only traveller who knows about the special place or the hotel; being the only one with something others want puts traveller A in a power position highlighting the dependence of others. Moreover, the position of traveller A in a network of others would determine who else will come to know about the special place or the hotel. For example, if traveller B is connected to traveller C but no-one else, the latter could form a bridge (or link) if traveller C's connectivity extended to another set of actors or subgroup. In such a case, traveller C will be central. However, if only traveller A and B were connected to each other but to no-one else the information would be limited to travellers A and B respectively, making them isolates.

With the above example as background, network theory, like exchange theory in general, can and indeed does consider similar aspects. Power dependence offers a good example. While exchange theory focuses on the dyadic relation between actors in explaining power dependence, network theory looks at things such as structural centrality. This brings to the fore the importance of structure and attempts to move from the dyadic approach of exchange theory toward a focus on the power of a position within a network (Ritzer, 2000: 428-429).

The basis for network analytic principles is the vision of a network of people connected through social relationships. In essence then, and this is something that also bodes well for Internet studies, the strength of the network approach to analysis is in investigating the social distribution of possibilities. The network perspective suggests that people live in worlds of potentially expansive and diverse social

¹. Here, the benefits for the owner of the hotel are not taken into consideration, or the effects of large numbers of people flocking to the special place with its beautiful scenery.

connections. The aim with network studies is to determine how multiple social relationships are arranged and ordered and what the patterns mean for important sectors in the economy such as the tourism industry. Information exchange and leisure choices are clearly related.

4. Research problem

Rice notes that networks, as a theoretical perspective, analytical construct, methodological approach and pragmatic concern have been important to a wide variety of communication research concerns (1994: 167). Employing network analysis for an investigation into travel information exchanges among people reliant on a computer-mediated environment across the Internet is the result of research for the *National Certificate in Heritage Tourism* (NCHT) that was implemented at Vista University² for a limited period from 1999 to 2001. During the research period for this certificate course (1996-1998) the Internet was an invaluable source of information. A website of note proved to be that of *Lonely Planet*, in particular the *Thorn Tree* which is an electronic discussion board. At the start of the research period for the NCHT-course in 1996, electronic discussion boards such as the *Thorn Tree* were relatively new phenomena.

While research for the NCHT-course mentioned above progressed, frequent interaction with the *Thorn Tree* revealed the following:

- Since the *Thorn Tree*'s inception in 1995, membership increased at a steady rate.

². Vista University ceased to exist in 2004 and its various campuses have been incorporated into other tertiary institutions. For example, the Mamelodi Campus has become part of the University of Pretoria.

- Some members are clearly dedicated to participating regularly in the numerous text-based asynchronous conversations.
- Messages are often varied in nature, despite the fact that the *Thorn Tree* is focused on travel information.
- Discussions are mostly short-lived and answers to most travel-related questions given within a few days.
- Many actors contribute little while a few actors are notably active.
- Threads with remarkably numerous messages that sometimes extend for a considerable time are often not travel-related but frivolous in nature.
- Not all legitimate requests for travel information are answered.
- Members are willing to share information and respond to requests in the absence of any obvious or tangible rewards.
- There is evidence to suggest that computer-mediated communication gives rise to traditional forms of interaction, i.e. face-to-face interactions.

These observations also raised a number of questions:

- Why do people choose an electronic discussion board to exchange travel-related information?
 - Why do people willingly exchange information in a computer-mediated environment where the rewards are obscure and non-material?
 - How can the trustworthiness of information be verified if there are no obvious reasons why people relate detailed accounts of their experiences to others?
 - Moving beyond information exchange, what motivates some members to make physical contact or become (online) friends, while others hardly ever share views or choose to remain onlookers or *lurkers*?
-

Findings of another empirical study (Wang and Fesenmaier, 2004) and the researcher's exposure to other computer-mediated social networks revealed certain similarities noticed initially on the *Thorn Tree*. The points below outline these similarities:

- An online discussion board offers a platform for people around the world to be active participants instead of passive information consumers.
- Physical barriers such as time and space are no longer obstacles to human interaction, which means that interest and not proximity determines participation in networks.
- The nature of exchanges in a computer-mediated environment is predominantly text-based, which necessitates adaptations since it differs from other forms of communication.

Initial attempts to gain insight into the functioning of computer-mediated social networks such as the *Thorn Tree* highlighted a broader context, namely virtual reality and cyberspace. Other associated concepts soon transpired during exploratory research, for example knowledge networks, communities of interest or practice and computer-mediated communication (CMC). Although virtual reality and cyberspace captured the imagination of the public, it attracted the attention of academics and the business world too. Towards the end of the twentieth century, connectivity to the Internet became a necessity in real life with a measurable impact on the political, economic and social fronts. Placed within a global context and a rapidly changing world, connectivity and the ability of the Internet to facilitate it on a hitherto unimaginable scale have become much-debated topics.

The research problem focuses on an analysis of the structure of the network in order to investigate and explain the patterns of communication on this asynchronous discussion board in order to comment on the extent and nature of information

exchanges. This also raises questions about social capital. Understanding the extent to which actors in a network form ties can be helpful for elucidating the different ways in which social capital delivers access to resources (Field, 2003: 67).

5. Aim of this study

This study brings together a number of main areas: First, travel information and associated consumer choices. Second, it involves the Internet as another focus point since it acts as a medium through which interaction manifests and information is spread, i.e. an electronic bulletin board. In other words, by means of electronic bulletin boards such as the *Thorn Tree*, the Internet facilitates travel information exchanges in a computer-mediated social network. Thirdly, from a methodological point of view, the notions are held that structure explains how position in a network influences actors or what that structure reveals much about communication flow. In this case, access to travel information plays a role in consumer choices but this aspect has thus far received very little attention in academic circles (Stokowski, 1988). Placed within the realm of cyberculture studies it is necessary to note, however, that network analysts pay attention to computer-mediated communication and the role of the Internet to mediate social ties and (information) exchanges across a wide front (Garton, et. al, 1999).

It is a primary aim of this study to investigate the structure of the *Africa* category of the *Departure Lounge* on the *Thorn Tree* as an example of a computer-mediated social network. Based on the results of this investigation, two secondary aims are: First, describe the characteristics of the network and the social ties. Second, comment on the role of position and the impact structure has on the flow of information through this communication network by investigating certain actors and certain threads.

One objective is to use a one-mode and a two-mode network to measure and visualise interaction among actors based on their participation in threads. Applied to the *Thorn Tree*, this objective forms the core of the main research problem underlying this study. Another objective is to contextualise social ties and determine the nature of exchanges by undertaking a content analysis of certain messages. The selection is based on the results of a network analysis.

6. Research design

The Three World Model (Mouton 2001: 138) places scientific research in perspective. The framework is based on a distinction between three worlds, namely: World 1 that is the world of everyday life and lay knowledge, World 2 that is the world of science and scientific research and World 3 that is the world of meta-science. Part of what Mouton calls World 1, the Internet and associated features such as computer-mediated social networks are recent phenomena that pose particular challenges to researchers. These networks are embedded in cyberspace that in turn is viewed as both place and space but also non-place and non-space. This dichotomous view raises complex philosophical and epistemological questions. Nevertheless, computer-mediated social networks like the *Thorn Tree* are part of World 1 in Mouton's Three World Model and offer a real world problem worthy of scientific research.

The *Thorn Tree* is in essence an open archive of text-based discussions, similar in many ways to recorded verbal conversations. In this empirical study, the electronic text-based discussions and the actors responsible for these messages constitute the primary data. Outlined in more detail in Chapter Four, the *Thorn Tree* discussion board is divided into main themes called branches. In turn, branches are sub-divided into categories. Over time, while the threads are active, text-based asynchronous discussions accumulate for each category. Since these text-based threaded

conversations are openly available on the Internet, it can be scientifically research too. Subsequently, network analysis and content analysis are appropriate to the analysis of asynchronous text-based conversations (Mouton, 2001: 165-166).

By employing network analysis, one of the limitations associated with traditional content analysis is avoided, namely sampling (Mouton, 2001: 166). In this study, the complete population active on the *Africa* category is used. Actors are included if they are posters or repliers, i.e. contributed to the discussion board. This suggests, as discussed in Chapter Three, a participatory approach to the inclusion of actors in this dataset. Information from *Lonely Planet's* website can be collected using software packages such as *wwwget*. With the collected data, network analytical calculations can be performed by using a software application such as *UCINET*. In a one-mode network, actors are placed in columns and rows, thus creating a square matrix. The use of binary code, 1 (one) indicates the presence of a link between actors. This link is indicative of participation in the same thread while 0 (zero) indicates no link, i.e. no participation in the same thread. Only actors who contribute to discussions by posting messages can be included which means that people who only view messages are excluded from the dataset and the associated matrix. The same information is used to reconstitute a matrix that allows for a two-mode network in which actors are affiliated to messages. This shifts the focus to threads.

Subsequently, calculations using standard network analytical techniques as outlined in Chapter Three and employed in Chapter Four give results that reflect on the structure of this network. Structure as mentioned at the outset of this study is used to report on the nature of social ties and to comment on the impact structure has on the nature and extent of travel information exchange in a computer-mediated social network.

7. Research methodology

Network analysis is a noted methodology to investigate networks but also social capital, a concept that has been mentioned earlier. With an emphasis on structure, this study relies on network analysis as a research methodology to explain the influence of structure on the nature of social ties in a computer-mediated social network. Quantitative measures associated with social network research are employed in order to gain insight into the structure of the exchange network on the *Africa* category and to take certain measurements. The latter include degree of connectivity, density, levels of reciprocity, centrality and clique analysis. As explained in more detail in Chapter Three, a one- and two-mode perspective of this network is used. The attribute or reason for inclusion in this dataset is participation in a thread(s), i.e. posting text-based messages. Participation in threads is achieved by posting messages on an electronic bulletin board. Ties form between those actors who participate in the same thread; actors are affiliated to threads via their messages. Direction is determined by the type of action, i.e. posted a message that originated a thread, or posting messages that are replies. Relying on accepted social network practices, a matrix is drawn showing who participated in which discussions, i.e. outlining affiliation. Using the data derived from this matrix, the network can be visualised relying on the graph theoretic principles associated with network analysis. In the case of a one-mode network, actors are related to other actors in a square matrix. In a two-mode network, actors are affiliated to threads.

Statistical findings derived from employing quantitative techniques are used, amongst others, to identify members with the highest participation scores, members who contributed in more than one discussion, messages that received no responses, messages that received the most responses (longest threads) and the survival rate of threads. Limited content analysis is also employed in order to contextualise ties between actors, i.e. consider what is being said. Chapter Three outlines the

methodological aspects in more detail while the results are analysed in Chapter Four.

By relating objectives to the research methodology, it is obvious that in order to determine the nature and extent of connectivity between actors on the *Thorn Tree*, a one-mode network is used. Graphic tools that are bundled with *UCINET* make it possible to visualise the ego-networks of specific actors. By employing a two-mode network on the same dataset, threads are affiliated to those actors who are responsible for the messages that constitute the thread. This gives an alternate view on social ties among actors based on messages in similar threads. Moreover, with a content analysis of some of the messages of notable actors, reflection is possible about travel information as a form of social capital.

Finally, by scrutinising the measurements obtained from a network analysis of the dataset, reflection is possible on the extent to which a focus on structure can provide definitive answers about travel information exchange on a computer-mediated discussion board.

8. This study: outline, limitations and structure

8.1 Outline

With the particular aims and objectives in mind the focus of this study can be summarised as follows:

- The Internet is a medium facilitating the exchange of information using various avenues such as the World Wide Web (WWW), newsgroups, electronic bulletin boards and chatrooms.
-

- Certain avenues such as electronic bulletin boards give rise to computer-mediated social networks and facilitate the exchange of information in an asynchronous manner using text-based messages.
- Networks are characterised by differentiated communication which means that their structure can be used to reveal the nature of social ties among actors.
- Social ties are assets of social capital while travel information and other exchanges are examples of resources.

8.2 Exclusions

This study is limited to the *Thorn Tree*. Moreover, only a particular category of a specific branch is used as a dataset for purposes of analysis. Furthermore, only actors who participated in discussions (threads) can be included and not those people who only view messages. Although this study concerns computer-mediated communication and information exchange among people with a shared interest in travel, other limitations are noted, for example:

- This study is limited to network analysis. With reference to social theory, it does not explain in detail nor incorporate related theories such as rational choice theory or exchange theory.
 - A network perspective reveals aspects related to the structure of the network in which actors participate. In this study, ties are indicative of participation in threads and do not reveal anything about the actors or the content of messages. This study does not comment on the attributes of actors such as age, gender, income levels, or other biographical information.
 - It is accepted practice in network studies to incorporate qualitative measures in order to gain a better understanding for the presence or absence of ties
-

among actors. In this case, a content analysis of messages reveals something about the nature of text-based conversations in this asynchronous discussion board. However, in this study content analysis is limited to those messages that are associated with specific actors identified as examples of receivers, transmitters or sources respectively.

- Only a limited number of actors are identified and discussed and not all actors contained in this dataset. Those actors who are incorporated in this study are actors who are chosen for reasons given in Chapter Four.
 - Similarly, in the case where a two-mode network is used this study limits itself to prominent actors based on reasons for selection outlined in Chapter Four and the common threads among them.
 - Clearly, this study explores a limited number of network analytical measures and features and has no intention to explore theoretical and/or methodological debates about network analysis.
 - Although this study investigates information sharing in an online social network, it does not incorporate or explore philosophical aspects of unlimited information sharing across the world via an open medium such as the Internet.
 - This study focuses on information exchange across the Internet and does not consider any related fields associated with the Internet, such as E-commerce.
 - While this study considers travel information exchange as a resource, this example of social capital is not investigated further in terms of its effects on destination areas or the benefits travellers derive from such shared information.
 - While this study uses the *Thorn Tree* as a case study, it does not consider other similar discussion boards such as those hosted by *Rough Guides* or other avenues, for example travel-related newsgroups or synchronous channels such as chatrooms.
 - No efforts to trace actors in the physical world or attempts to conduct qualitative research through interviews or questionnaires were undertaken.
-

- The extent to which actors who are included in this dataset acted on information gleaned from the *Thorn Tree* is excluded from this study.
- This study refers to travel since members of this online discussion board share an interest in travel. However, it does not explore any theoretical or philosophical aspects of leisure studies. However, travel and tourism is considered a field of particular prominence in leisure studies.

8.3 Structure

Concluding this chapter, the layout of this thesis is outlined. An introduction to this study is given in Chapter One, while background information places the research problem, research design and methodology into perspective.

Chapter Two contains a literature overview. In this regard, emphasis is placed on concepts in the developing meta-field referred to as Internet studies. Reference is also made to scholarly works about travel information, specifically works that follow a network approach. Since information is considered a form of social capital, reference is made to works that reflect on this developing concept. Lastly, travel information exchange in digital domains is contextualised against the background of social capital.

In Chapter Three epistemological concerns and methodological aspects of social network analysis and the study of communities are outlined. Specific methodological aspects relevant to this study are discussed, including a detailed discussion of matters such as population, sampling and data collection, measurement, validity and reliability, errors and data editing.

In Chapter Four the results of a social network analysis of the *Africa* category are discussed. Results are interpreted using general descriptive statistical methods but

more specifically network analysis techniques. Regarding measurable social capital among travellers, the extent of exchanges with reference to ideas expressed by exchange theorists is assessed. Consideration is given to the influence of the network structure of this particular category and what it reveals about information flow and the role of particular actors. The Internet as a source of travel information and its capabilities to fulfil such needs, but also as a means to form social networks among people, are reviewed.

Concluding remarks are outlined in Chapter Five. Under “Summary”, a reflection is given on the lessons learnt from this research. As part of recommendations, under the sub-heading “Policy and Practice”, recommendations are done with regards to the travel and tourism industry. Suggestions for further research are outlined in the sub-section “Further research”. In the section “Discussion”, a reflection of the methodological aspects is outlined. In the sub-section “Scientific reflection” conclusions are reached with regard to the contribution this study has made by employing a network approach to the study of a computer-mediated network with a shared interest in travel.

Chapter Two

Literature Review and Theoretical Framework

In an extreme view, the world can be seen as only connections, nothing else. We think of a dictionary as the repository of meaning, but it defines words only in terms of other words. I liked the idea that a piece of information is really defined only by what it's related to and how it's related. There really is little else to meaning. Structure is everything (Berners-Lee, 2000: 14).

It takes little time or structure to create community on-line, and therefore, the effort to maintain structure and community is not highly valued (Jones, 1999: xxii).

1. Introduction

The transdisciplinary nature of this study follows from the different areas of academic inquiry underpinning the research question. Outlined in Chapter One, the research question centres around travel information exchange among members of the *Thorn Tree*, a computer-mediated social network reliant on the Internet for exchanging text messages in an asynchronous manner. Network analysis provides both the base for a theoretical framework and the tools to investigate the structure of this network in order to ascertain what the nature and extent of information flow is.

The literature study covers the following areas. First, the Internet with reference to cyberculture and computer-mediated communication considers the medium of communication and the context in which exchanges take place, namely cyberspace. Second, the focus falls upon social ties among people resulting in a network. Thirdly, travel information exchange as a form of social capital considers the main reason why people are part of this particular network and the focus of the exchanges, i.e.

travel information. Lastly, network analysis of structures provides the tools and theoretical base for investigation and interpretation. This is discussed in Chapter Three and not included as part of the literature survey.

Based on the outline above, the key areas relevant to this study emphasise travel information exchanges across a computer-mediated social network. The latter are phenomena within cyberspace made possible by advanced information technologies (AIT). Associated concepts include: virtuality, cyberspace, cybercommunity, cyberculture, Internet, and computer-mediated communication (CMC). Travel information exchange involves leisure studies. Seen as a form of social capital among travellers, travel information is beneficial to making consumer decisions, amongst others. From a consumer behavioural point of view, gathering information is the first phase of the consumer decision-making process. Sources of information include a wide array, including other people. Relevant concepts in this regard include levels of connectivity and patterns of communication that suggest structure. From a social network perspective, a difference in levels of interaction results in differential levels of connectivity while exposure to information depends on an actor's position within a network.

In this literature survey the three key areas outlined above also provided the framework for literature searches and a review of major scholarly works. It is subsequently notable that Stokowski's (1988) work is seminal to the study of structure, travel information and leisure choices. While Field's (2003) work on social capital provides insight into this fast-developing area, Silver's (2000) assessment of the developing meta-field referred to as Internet studies provides insight and references to other works related to the Internet and computer-mediated communication amongst others.

The literature overview in this chapter describes aspects related to the study of the Internet and computer-mediated communication among people with an interest in

travel information. This chapter follows a particular layout. First, background is given about the Internet, while key concepts and an overview of trends in the study of the Internet are outlined in subsequent sub-sections. In a following sub-section social network analysis is brought into relation with the study of the Internet. This paves the way for a discussion about social capital, since networks and the Internet are known for exchanges, predominantly information. Seen as a form of capital, travel information is brought into relation with social capital in a subsequent sub-section. In the final sub-section, the Internet as medium to exchange travel information as a form of social capital among travellers in a network using computer-mediated communication is investigated. Network analysis as a tool and theoretical framework for the study of travel information exchanges in a computer-mediated environment is not covered as part of the literature survey but is discussed in Chapter Three where methodological aspects are outlined.

2. Context: the Internet as medium

2.1 Physical aspects: the Internet and WWW

Fully functional by the 1970s, the Internet is a network of networks without any central control that uses a set of standardised protocols for the transmission of electronic information. The standardised protocol is TCP/IP with a common addressing scheme that every computer on the Internet (or a network) understands (Giese M, 2003: 143-145).

The WWW began in March 1989. It uses Hypertext Transfer Protocol (HTTP) across the Internet. Internet Protocol (IP) addresses are translated into domain names. The addressing scheme can potentially address any available document on any machine connected to the Internet. This resembles one of the most significant differences

between actual space and digital domains, or so-called cyberspace: in the former, an object is at an address; in the latter, it is located with an address (Chesher, 1997: 85).

Delivered across the Internet, the WWW or Web as it is also known, is a public forum that provides electronic content in various (combined) formats (sound, graphics, video, text and other multimedia) according to the rules of Hypertext Markup Language (HTML). Webpages can also contain links to files in other formats such as Word documents, or files in Portable Data Format (PDF), amongst others.

One of the outstanding features of webpages is that they can contain hyperlinks that point to other webpages or files within the same domain or other domains, thereby creating an interlinked electronic source of information that has no beginning or end; a web of interconnected pages in the true sense of the word. Mitra and Cohen state that WWW text “has made these links appear natural and has made moving from one text to another very simple”. For web-text, the intertextuality is not implicit or hidden. Rather, it is “explicit and unambiguous”. Moreover, it is non-linear (1999: 182-186).

No permission is necessary from website owners to point hyperlinks to their sites – this plays along with one of the basic characteristics of the web, namely that no-one controls it. This does not negate ownership of content once published.

Understandably, copyright and intellectual property rights concerning web content offer numerous difficulties from a legal point of view due to questions arising from jurisdiction and law enforcement across international borders, amongst many other reasons.

Nevertheless, the universality of digital language and the pure networking logic of this communication system create the technological conditions for horizontal, global communication with seemingly limitless scalability. Resultantly, the growth of the

Internet and WWW has been phenomenal. For Rasmussen, one answer for the explosive success of the Internet indicates some sort of compatibility between the development of the Internet and the transformation of the societies in which it operates (2003: 444).

Jones (1999: xxiii) states that the architecture of this network technology is such that it appears borderless. Moreover, it is very difficult to censor or control it. Anyone with the necessary hardware, software and connectivity via an Internet Service Provider (ISP) can publish content to the Web or link their own web server to the Internet (Gauntlett, 2000:12; Castells, 1996: 352). Free access is a reality since the connection point is not significant in terms of entrance (Jones, 1999: xxiii). Freely available software applications called browsers are used to read web content while plug-in applications such as media players handle audio-visual formats. On 13 October 1994, Netscape's Mosaic browser was made available free of charge on a company website. According to the Pew Internet & American Life Project (2004),

if there was a moment that could be considered the dawn of the popular internet, that was it. That day, thousands of people downloaded the browser and began to experience the World Wide Web, itself a little more than three years old, in a completely new way. Browsers were to the Web what paper was to ink.

Other popular browsers include Internet Explorer and Opera, amongst others. In order to "surf the Net" or "cruise the information superhighway" as it is also referred to, users access domains (via translatable IP addresses) which are entered as a web address or Uniform Resource Locator (URL) in the browser's address bar. Notably, the URL of a document is both its name and its address (Chesher, 1997: 83-85).

2.2 Communication medium and a means to form social networks

Notions such as the post-industrial society, the information society, and the network society illustrate the increased focus of information and communication in technologically driven modern-day societies. Clearly, at the heart of the Internet and associated features lies communication, characterised not only by making information available in the public domain via webpages similar to the printed media, radio and television, but also offering means for exchanges that allow people to interact as they would do in real life. Although computer-mediated communication is predominantly text-based, the text also provides information within a social context, thereby creating a constantly expanding archive of socially-contextualised information (Burnett, Dickey, Kazmer and Chudoba, 2003).

One of the most outstanding characteristics of computer-mediated communication across the Internet is that distance and time as factors in this electronic form of many-to-many communication have ceased to be the barriers they once were. In a few years since the early Nineties, the Internet has become a medium as widespread in the public mind as television and radio before it. In fact, Willson (1997: 146) remarks that the Internet is depicted as being more interactive, accessible and democratising than these previous information technologies. This is reiterated by Holmes (1997: 32-34) who compares broadcasting media such as the TV with the high levels of reciprocity and interactivity possible on the Internet.

With this ever-increasing focus on communication as mentioned by Rasmussen (2003: 445), the popularity of applications such as Internet Relay Chat (IRC), ICQ, electronic bulletin boards, newsgroups and email can be explained in terms of its many-to-many communication capabilities that can and indeed have given rise to so-called online communities. However, Etzioni (1999: 241) points out in a comparative analysis of face-to-face and computer-mediated communities that different ways of defining “community” is at the base of different conclusions about the capabilities of

computer-based communication (CMC) to provide for the formation and functioning of such communities. Since the 1980s, digital technologies have been linked to the breakdown of traditional community and, through this connection, to the destruction of urban form. Holmes (1997: 28) remarks that one of the views of community in the age of computer networks is developed through a reliance on depicting geographic or compositional community. Computerisation thereby reduces the place-centred functions of cities by limiting accidental contact among strangers. Since the 1990s, however, a shift in viewpoint has been taking place, which has meant that these technologies are now considered to revive community life. Ostwald remarks that it

did not matter whether the arguments were for or against the virtual technologies, it seemed that no case could be made without referring to both the social consequences of the technologies and their impact on the public space of the city (1997: 126).

Wellman reiterates this and states that computer-mediated communication has intensified privatised, exclusive relationships by turning people away from face-to-face relationships in public.

Yet, it is the highly privatized watching of television screens that is the modal leisure activity in the Western World. Hence, computer-mediated communication may actually be enhancing community because computer networks support public ... exchanges (1997: 193).

The ability to enhance community is also linked to the ever-increasing number of users from all spheres of life; growth has been phenomenal (Kiesler, 1997: ix). An increase in the number of applications and uses is also noted. A report about the

future trends of the Internet undertaken by Pew Internet & American Life Project (2004: 3) states that:

On a typical day at the end of 2004, some 70 million American adults logged onto the internet to use email, get news, access government information, check out health and medical information, participate in auctions, book travel reservations, research their genealogy, gamble, seek out romantic partners and engage in countless other activities. That represents a 37% increase from the 52 million adults who were online on an average day in 2000 when the Pew Internet & American Life Project began its study of online life.

As more people use the Internet expectations will change too. In the following diagram, Sheldon explores the manner in which people searching for travel information put the Internet to use. Clearly, they expect results, i.e. find the travel-related information they are looking for. In this diagram, reference is made to uniform resource locator (URL) or a website's address designated with the prefix "http://". Reference was made to this at the outset of this chapter. The prominence of so-called search engines is also obvious. These search engines use specific technologies to compile directories which make searches more effective and easier. Not noted in this diagram are programmes that scan search engine directories such as *Copernic Agent*.

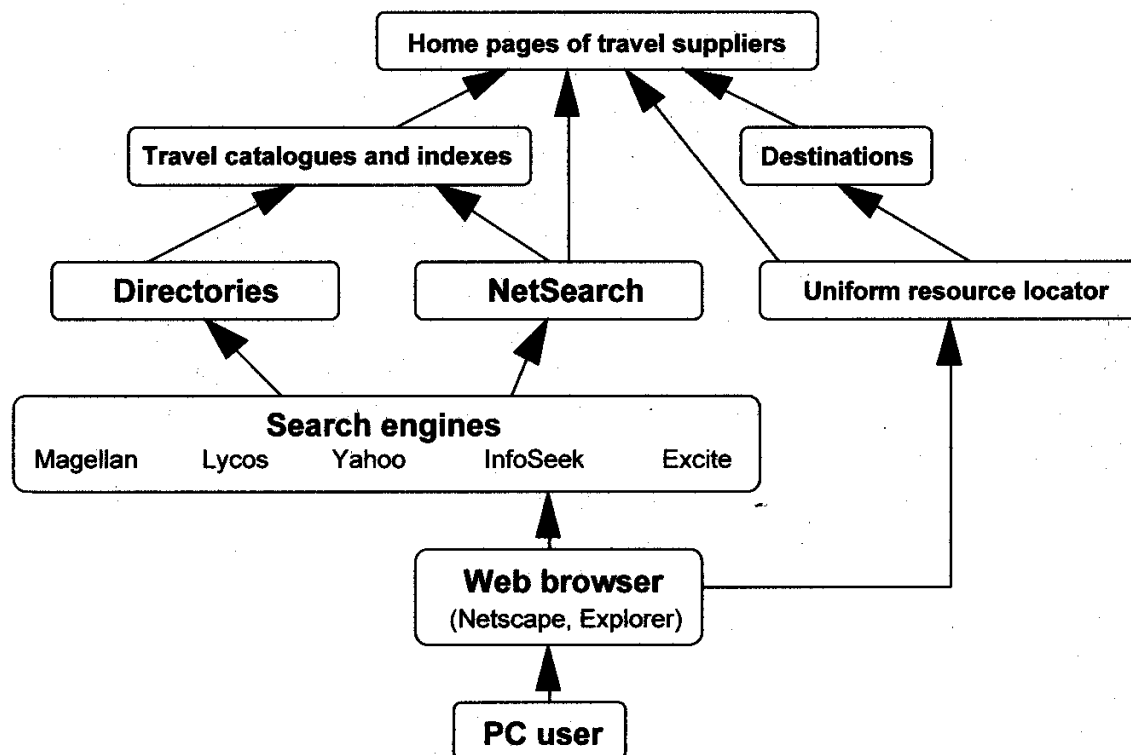


Figure 1 Pathways to travel information on the web (Source: Sheldon, 1997: 91)

Figure 1 emphasises one of the main ways in which people interact with the Internet, i.e. search for information on the WWW. However, social interaction is not excluded and is representative of the myriad of ways in which people have come to view the Internet and use what it has to offer, i.e. email, newsgroups, electronic bulletin boards and the WWW.

2.3 Scholarly interest

From the point of medium of communication, i.e. computer-mediated communication with its many-to-many capabilities, the Internet is still evolving and with an increase in the number of empirical studies, an understanding of it too. For some, perhaps, it

is easy to dismiss Internet research with the question: Who cares? On the other hand, Jones (1999: ix) claims that the Internet's "very ubiquitousness has ingrained in us its importance", which might make intense scholarly studies seem unnecessary.

Stolterman, Ågren and Croon (ca 2002) however, remark that the Internet is a development which will take time to understand and to include in our everyday conception of what it means to live in a society and in a world. Like others, Stolterman et al (ca. 2002) note that cyberspace attracts a lot of researchers from almost every academic field. From an investigation of the literature, it seems as if this so-called "new media" raises interesting questions to everybody and also places old questions in a new perspective. From various fields of study, questions about the Internet abound: What is it? How does it affect us? What effects does it have on society? How is communication across the Internet different from other forms of communication? Perhaps more importantly, what does the Internet and its popularity reveal about society in general? Do cyberspace and virtual reality mirror real life? However, in addition to these issues it is the role of the Internet as a means to form social ties and for people to become part of expansive networks that draw particular attention among scholars interested in social capital, social networks and the social impact of the Internet.

As was the case with mass media such as radio and TV preceding it, the Internet commands public attention and understanding. Described by many as "new media", Aarseth (2003: 415-417) refers to this new technology not as "new media", but convincingly argues for the use of the concept "digital media". Indeed, what will be new about it in two decades from now? Understandably, existing models, methods and theories are drawn from communication research, media studies, anthropology, sociology, literary criticism, cultural studies, psychology and political economy, amongst others (Jones, 1999: xi).

If the manner in which the Internet has become intertwined with mainstream society is taken into account – at least in industrialised societies – it would be a mistake to try and study it apart from the so-called “off-line” world (Jones, 1999: xii). This correlates well with a related statement by Aarseth, namely that the

newness of digital media ... cannot be answered in a singular way, except perhaps by a simple tautology: the digital media are different and new because they are computerised, mediated by a computer/processor/chip. But mediated in what way? (2003: 418)

It is suggested that the Internet mirrors real life. In an analysis of future trends, a report by Pew Internet & America Online Project (2004: 4) claims that people bring to the Internet the activities, interests and behaviours that preoccupied them before the Web existed. Still, the Internet has also enabled new kinds of activities that “no one ever dreamed of doing before — certainly not in the way people are doing them now.” In Figure 2 the Internet is centrally placed while outlining the various activities and avenues or mediated interactions. This example refers to the tourism industry. On the diagram, newsgroups, electronic bulletin boards (EBB) and chatrooms are examples of avenues that exist for the exchange of travel information. Notably, the *Thorn Tree* falls into this category.

2.3.1 Studying the Internet: key concepts

The emergence and subsequent exponential growth of the Internet and associated technologies like the WWW, email and others since the 1970s have opened a new arena for social interactions in contemporary societies (Jones, 1999: xi). Considering the ontological dimension (Mouton and Marais, 1996: 11) and the responsibility of

the social sciences to study the products of human ingenuity such as the Internet, these technological developments were bound to impact on academia.

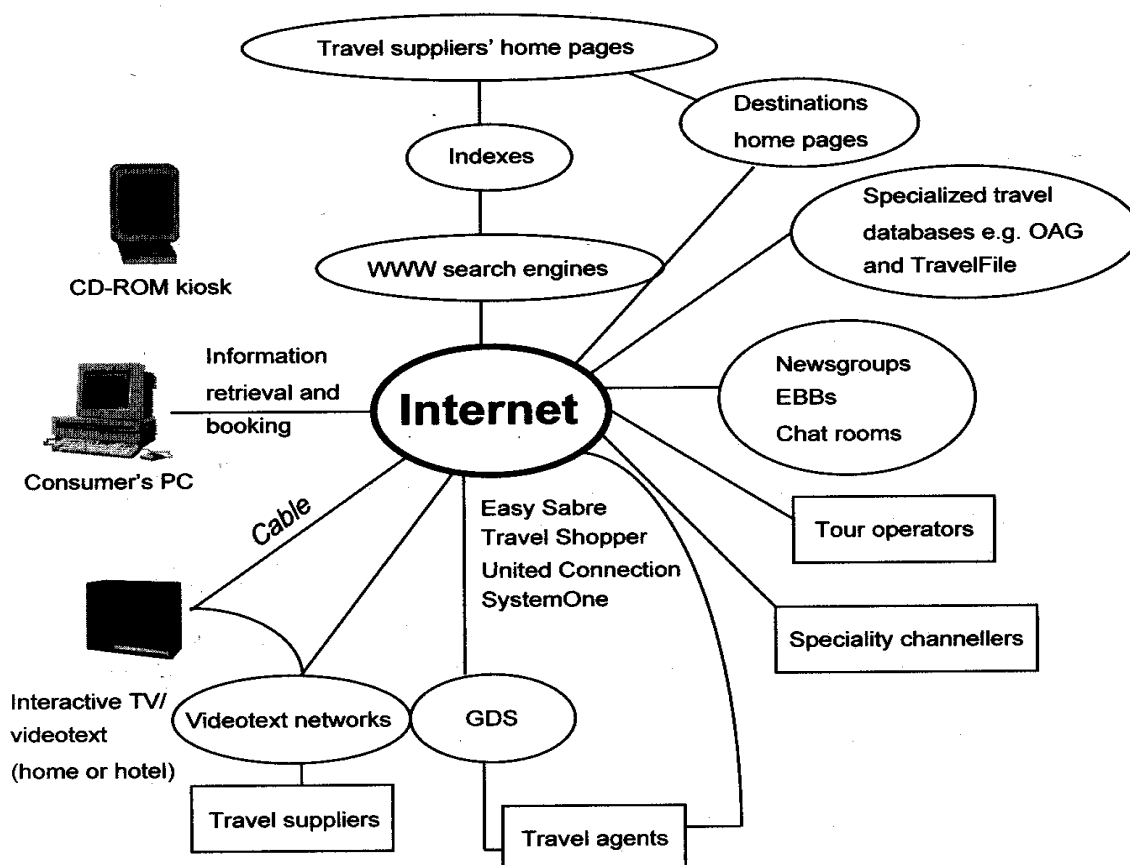


Figure 2 Model of electronic travel distribution channels (Source: Sheldon, 1997: 105)

Rasmussen, for example, points out that as

the ARPANET and other network experiments unfolded in the 1960s and 1970s, the computer as medium inspired the transition of computer science toward information science...(2003: 442).

Rasmussen furthermore remarks that the Internet may help to catalyse not only the development of computer and information science, but sociology and social theory as well. In fact, the Internet may even act as a design or “as an inspiration for the understanding of what society is” (2003: 443-444). The Internet has indeed brought about numerous changes across many sectors of society, for example education, advertising and marketing, commerce, entertainment, health care, travel and tourism, and so forth.

Moreover, it has given rise to phenomena described and made understandable with new metaphors and concepts (Schultze and Orlikowski, 2001: 46-48). “Space” has from the start been used as metaphor for these newly created digital domains. According to Chesher (1997) the spatial metaphor helped make computers and Internet-related concepts more tangible. However, this metaphor and concepts such as “virtual” are not without their problems. Talamo and Ligorio (2001: 109) state that “when we think about cyberspace our minds immediately approach something that is not supposed to be physical at all, far from the real world and everyday life”. The question arises whether these extended communication technologies and agencies can be viewed as instruments serving pre-given bodies and communities. Or, are these technologies instead contexts which bring about new ways of being, new chains of values and as Holmes (1997: 29) remarks, “new sensibilities about time and the events of culture”. A concept that is irrevocably linked to these so-called new sensibilities is cyberspace. However, “cyberspace”, for example, is misleading because digital domains are not spatial at all. Networks do not reproduce space, but actually eliminate it (Chesher, 1997: 83). Nevertheless, the idea that computers create new spaces has subtly set the terms of debates around computer technologies.

Similarly, Miller as cited by Silver (2000: 26) outlines another metaphor, namely the “net-as-frontier”. This aptly encapsulates the idea of no control, a place for the tough

similar to the American Wild West during the 18th and 19th centuries. The term conjures images of lawlessness, but also prospect of great wealth.

Yet, despite the use of these metaphors and other concepts, computer domains are hard to imagine. The new practices are qualitatively different to analogue predecessors precisely because computers are not spatial. In the case of computer-mediated communication, no equivalent existed before the computer. Technologies constitute new fields of possible action in which different logics and dynamics emerge (Chesher, 1997: 79). Ways to investigate these technologies and their impact in order to reach empirical findings are evolving. Silver (2000: 19) remarks that

[w]hile still an emerging field of scholarship, the study of cyberculture flourished throughout the last half of the 1990s, as witnessed in the countless monographs and anthologies published by both academic and popular presses, and the growing number of papers and panels presented at scholarly conferences across the disciplines and around the world. Significantly, the field of study has developed, formed, reformed and transformed, adding new topics and theories when needed, testing new methods when applicable.

As computers took over our lives, two words became embedded into our vocabulary: “cyberspace” and “virtual”. The science fiction writer, Gibson, originally coined the term “cyberspace” in *Neuromancer*. The second concept “carries the prestige and load of a philosophical tradition dating back to the Middle Ages” (Ryan, 1999: 78). Ryan correctly remarks that “cyberspace” and “virtual” have come to be used almost interchangeably, especially if “virtual” is appended to “reality”. In the popular mind, computers offer the means to transport people into cyberspace and cyberspace is virtual reality.

Unlike Ryan who distinguishes Virtual Reality (VR, the technology) from virtual realities (creations of imaginations) and from the philosophical concept virtuality, Heim states that

contemporary culture increasingly depends on information systems, so that we find virtual reality in the weak sense popping up everywhere, while virtual reality in the strong sense stand behind the scenes as a paradigm or special model for many things (1998: 3).

While Heim's understanding of the concept Virtual Reality (VR) concerns computer-based technologies that create 3D worlds necessitating the use of sophisticated equipment such as simulators, body suits, gloves and so forth, other authors explore this and related concepts on a different level. Ryan (1999), for example, explores the "intellectual climate that favoured the emergence of the WWW-based forms of textuality". Furthermore, she tries to prevent the association of Virtual Reality and cyberspace from being taken for granted. Like others, she is at pains to gain a better understanding of "the significance of the concept of virtuality for theories of textuality" (Ryan, 1999: 78).

Aarseth, commenting on the use of the word "new" that is so often used when referring to these and other associated technologies (i.e. "new media"), states that words such as "interactivity", "hypertext", and "virtuality" are imbued with great promise but with their "full potential somehow still unrealised" (2003: 416).

Part of the problem, it would seem, is the fact that the concept "cyberspace" has become entangled with "virtual reality" in various forms of discourse, such as literature, technological speculation and mass media. Ryan (1999: 78) traces this entanglement back to the first conference on cyberspace that was held in 1990 at the University of Texas at Austin. Of the cited examples, Novak's definition is the

most elaborate. Taken apart, it also highlights the nature of this territory. Novak (1991: 225) draws attention to the spatialized visualisation of information and co-presence. (VR developers refer to this as telepresence). While pathways are provided by present and future communication networks as suggested by Sheldon and outlined in Chapter One, it also leads to the interaction of multiple users with input and output from and to the full human sensorium. In a way, it simulates real and virtual realities by providing a full range of intelligent products and environments in real space. Remote data collection and control take place through telepresence, which enables total integration and intercommunication.

The debate among scholars about what constitutes cyberspace and virtuality centres on how to view it. Should we view it as a separate reality that can enhance and even save us from our own real world realities? This is clear when considering what Benedikt (1991: 1-3) considers “cyberspace” to be:

- A separate reality – a parallel universe, created and sustained by computers and communication lines and “gigantic” archive – an incubator of knowledge.
 - An ever expanding territory, whose frontiers are continually pushed back by the forward momentum of the inquiring mind. In other words, a place of circulation, trading, speculation, and relentless activity. This corresponds with it being a common market of knowledge where knowledge falls into the public domain, and intellectual property dissolves into an unrestricted exchange of ideas. As such, it offers a solution to the degradation of the real world characterised by pollution of all kinds.
 - An extension of our need for fiction, joining so many consciousnesses and subconsciousnesses, culturally sanctioned and forbidden activities in the pursuit of another reality: dreams, drug-induced hallucinations, myth, ritual and the arts. As such, it is a “new art medium: the tablet becomes a page becomes a screen becomes a world, a virtual world”.
-

At what point did the concepts “cyberspace” and “virtual reality” become blurred, i.e. Gibson’s original concept “cyberspace” gained a virtual reality and a networking component? At first, VR entailing body suits, gloves and helmets drew considerable attention. However, these computer generated three-dimensional presentations had a limited impact, often restricted to work-related simulations such as flight simulators. The Internet, on the other hand, affects the lives of ordinary people to a far greater extent. For this reason, the media has linked the concept “cyberspace” very closely with the Internet to the extent of it becoming a “nickname” for the Internet (Ryan, 1999: 85). As the Internet became the primary referent of cyberspace, the term maintained the connotations inherited from the VR connection. Through these connotations, Ryan claims “the label ‘cyberspace’ has shaped the public’s perception of the Internet experience, favouring the global assimilation of the network to a virtual reality” (1999: 85). According to her, the sense of the virtual nature of the “reality” made accessible by the Internet is intensified by the wide use of the label of “virtual” technologies to refer to the products of the software industry. This use is due to the importance of the concept of virtuality in computer architecture. The term “virtual” has subsequently been extended from the technical vocabulary of computer science to the technology developed by this science, and from the technology to any of its uses (Ryan, 1999: 87).

Poster’s views concur with that of Ryan in that the term “virtual reality” quickly spread beyond “computer generated immersive environments (the helmet-glove-computer assemblage) to include

first certain communications facilities on the Internet, such as bulletin boards, MUDs, MOOs, Internet Relay Chat -- and then to the Internet more broadly – including e-mail, databases, newsgroups, and so forth – also known as ‘cyberspace’ (1999: 43-44).

While Ryan (1999: 89-100) explores the term “virtual” to consider its “two faces”, i.e. virtual as fake and virtual as potential, Poster (1999: 44) remarks that in some discussions of virtual reality, the term refers not simply to electronically mediated communication but to all reality. In some instances, it so destabilises the “real” that it too is understood as “virtual”.

It is necessary to guard against such “discursive maneuvers” which emphasises Ryan’s observations that there is no reason to regard the Internet as a virtual reality system. However, here it is necessary to consider the possibility that “the Internet exists for the exchange of information and this exchange can be a way of doing business of the real world” (Ryan, 1999: 85) or engaging in social interactions of all kinds. For Talamo et al (2001: 109), given this range, each activity relies on different cognitive, social and communication strategies depending upon the interaction between the electronic environment features, its context of use, the general aims and the users’ identity. In the same way as financial brokers use the Internet to check stock market prices so too do travellers access the Internet in search of information. In neither case does this involve a change of identity, nor a flight into some “other reality”. Ryan (1999: 85) quite aptly poses the question:

Do we flee into some other reality when we use on-line services to check the stock market, buy or sell products, find out the amount of new snow at our favourite ski resort, browse the catalogue of some remote library, or retrieve text we need for research purposes?

This point of view does not negate the possibility that the Internet does indeed offer opportunities for social interaction in ways and on a scale hitherto unknown to humankind. Despite the possibility that identities can be fake and information false which affect the nature and characteristics of social relationships in these digital environments, people keep on using such systems. Of course, in a computer-

mediated environment where conversations are largely text-based, the normal communicative cues such as voice intonation, eye-movement and gestures are absent. Does this make the human interaction less real?

The question remains: Does “virtual” as a concept underpin and explain unequivocally what it intends to describe? It has already been suggested in Chapter One that using the term “virtual” might be problematic. In this study, based on the findings of Aarseth, preference is given to the term “digital” or “computer-mediated” instead of “virtual”. With reference to Heim’s explanation and distinction between the strong and weak meanings of the term virtual reality, the strong meaning of “virtual” is indeed self-contradictory, namely “a reality that is what isn’t” (Aarseth, 2003: 430). It is when one ponders what cannot be “virtualized”, that conceptual problems surrounding the concept “virtual” and all the other phrases that are often derived from it surface. Aarseth (2003: 430-431) points out that as much as there cannot be a “virtual friendship”, “virtual communities” too is problematic. Clearly, the concept “virtual” implies that some of the traditional properties are no longer a part of what the entity it qualified prior to it becoming “virtual” implied. Instead, that property is only virtual which means that it looks, sounds or feels “as if” it was real but is not, reiterating Aarseth’s remark outlined above.

For Stolterman et al (ca 2002) a virtual community is first of all a social entity. It is a number of people who relate to one another by the use of a specific technology. In a traditional society communities are seen as something evoked by geographic closeness (village, neighbourhood, town, etc.) or organisational belonging (schools, churches, sports, hobbies, etc.). Authors who subscribe to this understanding of virtual community include Schuler; Rheingold, Smith and Kollock, Jones and Lapachet (Stolterman et al, ca 2002).

The concept "virtual" implies that some of the traditional properties of a community are no longer a part of the "real" world. Instead these properties are only virtual, which means that it seems "as if" it were real but is not (Benedict, 1991).

With reference to Rheingold and the manner in which he advocates the benefits of "virtual communities", Aarseth states:

It seems to me that to use the term 'virtual community' privileges the physical (distance and medium) above the spiritual and therefore belittles the communities one tries to promote. An online community...is just as valuable to its members as any other type of community, and therefore there can be nothing virtual about it (2003: 431).

Aarseth suspects that the word "virtual" is used in this context simply because it is a fashionable synonym for "computerised" and not because the activities in the online communities are only virtually social. In any case, the social capital among members who are part of these "virtual communities" is certainly real. This is reiterated by Stolterman et al (ca2002) who state that virtual communities may be virtual in some sense but they are not something outside our traditional societies. These so-called virtual communities are true parts of society and as such also part of the ongoing change and evolution of society.

While emphasising the Internet as a social network and taking note of the difficulties when assigning "virtual" to the concept "community", it is necessary to consider with a greater amount of detail the definitions assigned to the concept "virtual community". Mindful of Stolterman et al (ca 2002), Riding and Gefen (2004) state that virtual communities have been characterised as follows: First, as people with shared interests or goals for whom electronic communication is a primary form of

interaction. Second, some scholars view virtual communities as groups of people who meet regularly to discuss a subject of interest to all members. Thirdly, some claim virtual communities to be groups of people brought together by shared interests or a geographic bond.

As mentioned above, traditionally, the word "community" is likened to a geographic area such as a neighborhood (Wellman, 1997), albeit in this case the "virtual" part of the term "virtual community" indicates "without a physical place as a home". The term "virtual" itself means that the primary interaction is electronic or enabled by technology. This type of computer-mediated communication (CMC) allows people to locate and talk to others with similar interests, thereby forming and sustaining virtual communities (Hiltz, 1984) and creating "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold, 2000: 5).

Ridings et al. (2002, p. 273) offer a comprehensive definition of the term "virtual community" that embraces the attributes discussed above: "groups of people with common interests and practices that communicate regularly and for some duration in an organized way over the Internet through a common location or mechanism."

2.3.2 Trends in the study of the Internet

It is possible to divide present research on cyberculture and virtual communities into some quite distinct categories based on the perspective and purpose used in the studies. The purpose with a categorisation of this research is a way to form an overview of the work done so far, which might be of help to anyone who want to enter the field. Categories can be built on many variables: i.e. a design perspective,

the explorer perspective, the “cultural studies perspective”, the activist perspective and the academic perspective (Stolterman et al, ca 2002).

However, after a review of major scholarly works from the last ten years, Silver (2000: 19-30) identifies three stages or generations in literature about cyberculture. Evident of human beings' desire to question, investigate, describe and ultimately understand phenomena, (Mouton and Marais, 1996: 8), these phases are:

- Phase 1: Popular cyberculture is the first stage and is marked by its journalistic origins and characterized by its descriptive nature, limited dualism and use of the internet-as-frontier metaphor.
- Phase 2: Cyberculture studies represent the second stage. It focuses largely on virtual communities and online identities, and benefits from the influx of academic scholars.
- Phase 3: The last stage is what Silver calls critical cyberculture studies. It represents and expands the notion of cyberculture to include four areas of study, namely online interactions, digital discourses, access and denial to the Internet, and interface design of cyberspace. In this phase the intersections and interdependencies between any and all four the aforementioned domains are investigated.

With reference to important empirical studies, the summary below highlights aspects of the three stages mentioned above. The categorisation outlined below in three distinct items makes it possible to locate this study in terms of the empirical landscape and other relevant scholarly developments concerning the study of the Internet.

First, popular cyberculture investigates cyberspace, the Internet and the “Information Superhighway”. Stolterman et al (ca 2002) state in this regard that these texts are

often in a language related to postmodernistic philosophy and contemporary ideas in cultural studies. The basic perspective of these authors seems to be a fascination by the new medium – especially by the relation between the real and the virtual, between body and mind and by the escape from the physical into a new virtual world where identity and personality are challenged by the possibility to leave the body. The purpose with these works is to give a cultural interpretation of a new part of society. It is done by writing and sometimes by conducting experiments where cultural events take place in cyberspace or in virtual communities.

Furthermore, something Silver (2000) also notes, these studies are seldom based on real empirical work or on traditional theoretical academic writings. The texts are often demanding to the reader and are also often found together with more artistic interpretations of Cyberspace. The background of these authors may be found in many different fields. It is not a coherent group in the sense that they have the same background or practice, instead a common interest in certain philosophical and psychological ideas combined with a close relation to artistic experiences bring them together.

In concurrence with Stolterman et al (ca 2002), Silver (2000) too notes that works during the so-called popular cyberculture studies phase are generally descriptive with the aim to introduce non-technical readers to a technical pre-WWW version of cyberspace. A dualism is noticeable. First, the Internet was blamed for deteriorating literacy, political and economic alienation and second, new frontier of civilisation; foster democratic participation; bring down big business; end social and economic inequalities. In particular, journalists who used the Internet and early adapters mainly wrote essays, columns and books. Many pieces appear in the technology section of newspapers and magazines such as *Time*, business sections; lifestyle supplements, new media/cyberspace sections of mainstream magazines. Some writers focus on negative and apocalyptic views, for example Birkerts (1994); Sale (1995) and Stoll

(1995); Writers focussing on positive aspects: *technofuturists*: Rossetto, Kelly, Barlow, Kapur (1990); Rheingold; Whittle (1997).

A second phase, called cyberculture studies, focuses on virtual communities and online identities. Rheingold is a principal author of this phase writing about the WELL™. This is the first pillar of cyberculture studies, namely online communities. Turkle (1995) offers the second pillar, namely online identities. Growing popularity and increased user-friendly interfaces (e.g. Mozilla and Netscape), the WWW helped to foster a less technical interface usable to mainstream society. During this phase, there is also an increase in academic attention and academic institutions embracing this technology.

Corresponding with what Stolterman et al (ca 2002) call the academic perspective, in what Silver (2000) calls popular cyberculture studies, new scholars from ever-widening disciplines bring about new methodologies and theories. Solterman et al (ca 2002) remark that the body of research undertaken by researchers mainly originate from the social sciences such as sociology, psychology, anthropology and communication studies. The investigations include: virtual communities as social networks; sociological traditions of interactionism and collective action dilemma theory, anthropology formulating a sub-field called cyborg anthropology; ethnographic studies; linguists; feminist studies; textual analysis. Works and scholars include: *The Village Voice* (Dibbell, 1993); Stone (1991); Rheingold (1993); Turkle (1995); Bruckman (1992).

An aspect not mentioned by Silver (2000) but outlined by Stolterman et al (ca 2002) about works that originate among scholars, is a difference between studies aimed at knowledge that might be used in the future design of cyberspace and of virtual communities, and studies with the goal to explain and critically examine the development of society.

Cited by Silver (2000: 24) are authors with particular approaches, such as ethnography. Scholars include Baym (1995 and 1997), Correll (1995); McLaughlin et al (1997), Collins-Jarvis (1993). In the field of linguistics are authors such as Danet et al (1997) and Herring (1996). Concerning feminist theory, are authors such as Cherny and Weise (1996); Consalvo (1997); Dietrich (1997); Eben and Kramarae (1993); Hall (1996). Work by community activists and scholars exploring the intersection of real and virtual communities in the form of community networks include: Cisler (1993); Cohill and Kavanaugh (1997); Schmitz (1997); Schuler (1994 and 1996); Silver (1996, 1999).

The third phase, critical cyberculture studies, is difficult to distinguish and map. Scholarly works in this phase are more critical and go beyond investigating virtual communities and online identities; overall, it seeks explanations that are more complex. The so-called academic perspective mentioned by Stolterman et al (ca 2002) could also be added to this phase based on Silver's categorisation of scholarly works about cyberculture and virtual communities.

While the three phases listed and described above summarise the findings of Silver with regard to developments in the study of the Internet and cyberculture, the subsections below describe each in more detail by considering the empirical contributions by some of the more notable authors.

2.3.2.1 Phase 1: Popular cyberculture

This phase is characterised by the collection of essays, columns and books written for the most part by journalists and what Silver calls, "early adapters". Initially, stories appeared in newspapers and magazines. Occasional columns soon developed into feature articles, or technology supplements. Apart from cover articles in magazines such as *Time* and *Newsweek*, so-called how-to books aimed at introducing the public to the Internet.

By being descriptive, early writings aimed at educating the reading public about these new technologies. After all, the Internet and Web are rather technical, and accordingly, much of the work included lengthy descriptions, explanations and applications.

As noted above, this early stage in the development of cyberculture studies is characterised by a certain dualism: on the one hand, these technologies were blamed for deteriorating literacy, political and economic alienation and social fragmentation. Others, on the other hand, considered cyberspace as a new frontier with innumerable opportunities. Understandably, this notion also became a metaphor that stuck, namely the Internet as frontier. As such, with a colonial past and visions of pioneers settling on virgin land, a writer like Whittle as cited by Silver (2000: 21) poetically contemplated the future of the Internet:

The pioneers, settlers and squatters of the virgin territories of cyberspace have divided some of that land into plots of social order and plowed it into furrows of discipline – for the simple reason that ... natural resources can only be found in the mind and have great value if shared.

2.3.2.2 Phase 2: Cyberculture studies

Considering the newness of the Internet and its impact, Internet studies would seem to be an acceptable term under which many scholars could huddle. Understandably, scholars are drawn from various fields, and certainly older research streams, such as hyper/cybertext theory, human-computer interaction, computer-supported cooperative work, and computers and composition. Lately, tracing the development of what could be called a meta-field of study, under the label Internet studies are

included studies of cyberculture, digital culture, information society or new media. Silver is noted for his work in tracing the history of so-called Internet studies and states that:

The meta-field's development and directions, coupled with attention towards the affiliations that its members do and do not make, constitute an important and interesting site of intellectual, academic and political work (2004: 55).

Following the initial phase in which people were introduced to a new phenomenon such as the Internet with all its jargon and technicalities, a significant portion of cyberculture scholarship during the second phase is characterised by its descriptive nature, binary dualism and frontier metaphors. Some of the journalists who made important explorations into and observations about cyberspace gained membership into this second generation of cyberculture scholarship. As such, this is an important point in the history of the development of the meta-field of study. Stone's definition of cyberspace also characterises the approaches and foci of second-generation scholars; cyberspace is "incontrovertibly social spaces" in which people still meet face-to-face, but under new definitions of both "meet" and "face". Subsequently, this suggests that cyberspace offers users very real opportunities for collective communities and individual identities. These two aspects are also the two pillars, according to Silver, upon which second generation cyberculture studies rest (2000: 22).

Rheingold, categorised as a second-generation writer based on his virtual communities ideas, is well-known for his research about virtual communities of which his first work appeared in 1993, entitled *The Virtual Community: Homesteading on the Electronic Frontier*. Reprinted in 2000 with a number of

revisions and additions, he is known for his enthusiasm about virtual communities but also for the way in which he intertwines real life and virtual life:

Not only do I inhabit my virtual communities; to the degree that I carry around their conversations in my head and begin to mix it up with them in real life, my virtual communities also inhabit my life. I've been colonized; my sense of family at the most fundamental level has been virtualized (2000: xxv).

According to him, computer-mediated communication has the potential to change lives on three different, “but strongly interinfluential levels.” These are:

- As individual human beings, we have perceptions, thoughts and personalities (already shaped by other communications technologies) that are affected by the ways we use the medium and the ways it uses us.
- On the level of person-to-person interaction where relationships, friendships, and communities happen, the many-to-many capabilities of computer-mediated communication challenge us to consider whether it is possible to build some kind of community together.
- Possible change in our lives can occur on the political level since politics is always a combination of communications and physical power, and the role of communications media among the citizenry is particularly important in the politics of democratic societies. The political significance of computer-mediated communication lies in its capacity to challenge the existing political hierarchy's monopoly on powerful communications media. (Rheingold, 2000: xxix).

In the revised edition, Rheingold acknowledges that considerable changes have taken place since the first edition of *The Virtual Community*. Furthermore, he

emphasises that “we must ask the right questions today about what kind of people, what kind of societies might merge from cyberspaces tomorrow” (2000: 323). *The Virtual Community* is largely about the WELL™, an online community. Numerous examples and anecdotes are taken from interactions -- both online and in real life -- among its members. However, certain statements made by Rheingold raise questions about the critical nature of his views and the basis of his research. Statements include “[t]he first time I saw the Web, I wanted to create communities there”, while an acknowledgement such as the one below raises serious questions about intent:

Although I seek to apply standards of objective truth-seeking to my investigations of online social phenomena, I have come to understand that much of my participation in this new medium has been driven by my own personal longings for that participation. Lusting after tools that don't quite exist yet but that are clearly possible has motivated much of the effort that created the Web as we know it today (2000: 334).

Rheingold's lack of considering “community” itself lies at the heart of criticism directed towards his work and that of some of the earlier scholars investigating online communities. In his study of the Internet and its social impact, Slevin remarks that debates about online communities are “often carried on with little reference to the context in which the Internet is used, or that such contexts are somewhat cancelled out” (2000: ix).

Like Rheingold, Turkle's approach to cyberspace is also enthusiastic. Where Rheingold focusses on virtual communities, Turkle explores identities. This she does by investigating ethnographically a number of virtual environments, including Multi-user Dungeons (MUDs). According to Silver (2000: 23), she finds that some users repress an otherwise less-than-functional “real” or offline life; others explore multiple

identities. In conjunction with this, Bruckman uses the concept “identity workshop” to refer to users’ freedom to experiment with different genders, sexualities and personalities.

By the mid-1990s, cyberculture studies were well under way. Because of the enthusiasm found in the work of Rheingold and Turkle, cyberculture was often articulated as a site of empowerment, an online space reserved for construction, creativity and community. During the time that Rheingold and Turkle contribute to cyberculture studies, developments such as the launch of Netscape’s web browser in 1995 led to what could be called a great Internet rush. Subsequently, academic interest could rely on the financial backing of the business community and was supported by various institutions, including government agencies.

As could be expected, new scholars brought new methods and theories. Silver lists some, including sociologists that employ a network approach. Others are: interactionism and collective action dilemma theory. Within anthropology, scholars began formulating a new sub-field, namely cyborg anthropology. This field is devoted to exploring the intersections between individuals, society and networked computers. From ethnography, researchers followed Turkle and began to study what users do within diverse online environments. Linguists too, began to study the writing styles, netiquettes and textual codes used within online environments. Women’s studies too, employ textual analysis and feminist theory to locate, construct and deconstruct gender within cyberspace. Community networks too became the focus of study for a collection of community activists and some scholars, like Cisler, Cohill and Kavanaugh, Schitz, Schuler and Silver (Silver, 2000: 24).

2.3.2.3 Phase 3: Critical cyberculture studies

With an increase in academic interest, by the second half of the 1990s many academic and popular presses published large numbers of monographs, edited volumes and anthologies devoted to the growing field of so-called cyberculture. Reflecting this growth, recent scholars take a broader view of what constitutes cyberculture. In this phase, studies start to explore more than just virtual communities and online identities as was initially done by scholars such as Rheingold and Turkle.

Characteristics of emerging fields of study are difficult to map and categorise. The biggest difference between this and previous phases is instead of approaching cyberspace as an entity to describe, contemporary scholars view it as a place to contextualise and thereby seek to offer more complex empirical findings. Four dominant areas of focus have emerged, which form the foundation for empirical studies regarding cyberculture. These are:

- Explores the social, cultural and economic interactions.
- Unfolds and examines the stories we tell about the interactions mentioned above.
- Analyses a range of social, cultural, political and economic considerations that encourage, make possible and/or thwart individual and group access to such interactions.
- Assesses the deliberate, accidental and alternative technological decision- and design-processes; when implemented, forms an interface between the network and its users.

Each of the four focus areas mentioned above is briefly discussed below under separate headings.

2.3.2.3.1 Contextualising online interactions

Although scholarly works have started to go beyond the study of virtual communities and online identities, it is the contextualisation of these that is making a difference in our understanding of cyberculture. While Stolterman et al (ca 2002) refers to “many pictures of how we can understand cyberspace and virtual communities”, Jones is taking the lead in what Silver calls the social construction of online reality. While some play along the lines of considering their topic as a “brave new world”, Jones contextualises cyberspace within the more traditional paradigms of communication and community studies. This is extended by Carey’s work on the electronic sublime, Beniger’s notions of pseudo-communities and Harvey’s theories of postmodern geographies. Silver (2000: 25) remarks that Jones continued with this necessary process of contextualisation by “problematizing some of the key definitions and directions of cyberculture studies.” In this, he draws on the work of Anderson, Sennet and Carey, thus enabling him to historically locate popular rhetoric “heralding the net’s potential to transcend time and space”. Jones, for example, questions Rheingold’s unproblematised view of virtual communities, which bodes well with other authors who take a critical stance towards cyberculture and the community. In a final remark about Jones’ contribution to the critical study of cyberculture, he notes that the “internet is another in a line of modern technologies that undermine traditional notions of civil society that require unity and shun multiplicity while giving impressions that they in fact re-create such a society (Jones, 1997: 25).

Like other authors who also go beyond merely recanting the findings of Rheingold and Turkle to make critical explorations and discoveries of their own, McLaughlin et al (1995) attempt to establish general, online codes of conduct by collecting all messages posted to five newsgroups within a three-week period and analysing them from normative discourse. From this, they deduce seven categories of reproachable behaviour. Silver (2000: 25) notes that these authors also trace the intricate parameters and factors that help to support the relative success or failure of online

communities. Others, like Kollock and Smith, MacKinnon and Phillips focus on the parameters and punishments that serve to establish acceptable and unacceptable behaviour within online environments.

Baym too attempts to contextualise online interactions by using ethnographic methods to better understand the nature of virtual communities. Baym suggests that online communities emerge out of a complex intersection between five factors: external contexts, temporal structures, system infrastructure, group purposes and participant characteristics (Silver, 2000: 26).

2.3.2.3.2 Discoursing cyberspace

Cyberspace is not only a site for communication and community, but also a generator of discourse, a very real and very imagined place. Silver remarks that as many of these third generation cyberculture studies' scholars have noted, two "disturbing discourses of cyberspace have emerged: the net as frontier and cyberspace as boystown" (2000: 26).

2.3.2.3.3 Online access and barriers

Not everyone has access to the Internet. There is increasing evidence of online marginality where issues of race, ethnicity and sexuality need attention. The National Telecommunications and Information Administration (NITA) examines what it calls the "digital divide". This so-called digital divide refers to a growing gap between information haves and have-nots and the factors contributing to this. Difference in accessibility has been noted involving race, gender, class and level of education (Dance, 2003: 171-182).

Impacting on social capital and the flow of information, barriers are not confined to race or gender, but Bailey as cited by Silver (2000: 27) notes that shared customs, netiquette and acronyms work together to exclude newcomers in a kind of “newbie snobbery”. Interestingly enough, traditionally marginalized cultural groups have started to use the Internet as a means for communication, community and empowerment. Some authors have started to explore marginalized cultural groups’ attempts to establish self-defined, self-determined virtual spaces. Silver refers to the work of Mitra, Shaw, Correll and Camp. While Mitra investigates the Usenet newsgroup *soc.culture.Indian*, Shaw and Correll investigate gay and lesbian online communities. Camp researches female users and the ways in which they use the Internet for their own benefits.

2.3.2.3.4 Digital design

Literary scholars consider the ways in which the digital design of online spaces informs the types of interactions made possible. The hypertext scholars such as Bolter and Landow compare the new media to contemporary critical theory and consider ways in which hypertext reconfigures the text, writer and reader.

Another aspect investigated too concerns human-computer interaction (HCI). For works with this focus, the interface is a critical site for interaction, explaining the importance given to design studies and semiotics. Authors worth mentioning include Kollok, Baecker and Kim. Research institutes like the Graphics, Visualisation and Usability Centre at the Georgia Institute of Technology, the Human-Computer Interaction Lab and the Knowledge Media Design Institute are developing models for discussing and assessing online interfaces (Silver, 2000: 29). Another interesting development worth mentioning concerning design is the relatively new field called participatory design. In this, the users play an important role in the design of

systems. Pioneered in Scandinavia by Schuler and Namioka it is also starting to influence developments elsewhere, for example the United States.

The above sub-section considers the contributions of notable scholars.

Categorisation is based on three phases identified by Silver (2000). Notably, one of the most confusing aspects of doing research about the Web, as with other forms of mass media, is that it can be understood at many levels. This is evident when considering the myriad topics and approaches to cyberculture studies outlined above. Clearly, as noted by Wakeford (2000: 31), there is no standard technique, in communication studies or in allied social disciplines, for studying the Web. While Chandler has devised a framework for the analysis of homepages, this kind of semiotic methodological strategy does not deploy the networked features of web documents. Increasingly, attention is given to projects that enable the visualisation of parts of networks either by tracking users or the text they contribute to a discussion (Wakeford, 2000: 36). In the case of this study which uses social network analysis as a research technique, the section below describes and positions it in terms of the empirical landscape.

3. *The Internet as social network*

Since the mid 1990s the growth in Internet use has led authors in a wide range of fields to study the economic, social and cultural impacts of this so-called “new media” technology. Examples of works include Jones et al (1997), Kitchen (1998), Shaw (1997) and Smith and Kollock (1999) apart from other authors mentioned in the sub-section above.

While many questions remain unanswered, leaving room for more critical scholarship to investigate the long-term influence of the Internet and cyberculture on

society, specific methodologies carry with them the promise of new empirical findings. The Internet, being a network of computers without any central control spanning the globe, has not only revived an interest in network theory but also research techniques and methodologies such as network analysis. Since online communities are also social networks in which particular exchanges take place, network analysis is a useful technique that could shed light on matters pertaining to social capital too.

Scholars and researchers apply network analysis as an acceptable social sciences research method to reach conclusions that are epistemologically sound, while offering an alternative view from those undertaking non-network studies such as ethnographic studies, textual analysis or quantitative studies, amongst others. From a sociological point of view, exchange theory, rational choice theory and network theory are related. With contributions such as Castells (1996) exploring aspects of the networked society, it is understandable that recently exchange theorists have been devoting more attention to networks of social relationships, which in turn connect them with network theory itself (Ritzer, 2000: 407). Not losing sight, however, of broader developments of what is termed postmodern social theory the contribution of a structural approach in network analytical terms cannot be dismissed as unimportant (Ritzer, 2000: 583; 587). Notably, one of the most recent contributions to modern social theory is the trilogy authored by Castells with the overarching title, *The Information Age: Economy, Society and Culture* (Castells, 1996).

By viewing and studying computer-mediated social networks and online communities as social networks, the question arises: What can be revealed that is different if compared to other approaches or foci in the study of the Internet and cyberculture? Based on network theory in sociology (Ritzer, 2000: 429-432), the answer lies largely in the fact that social network analysis focuses on patterns or relations between and among actors. (Actors can be people, organisations, states,

nations and so forth.) Network analysts seek to describe networks of relations as fully as possible, “tease out the prominent patterns in such networks, trace the flow of information (and other resources) through them, and discover what effects these relations and networks have” (Garton, Haythornthwaite and Wellman, 1999: 76). As a sociological theory, network theory is relatively new and undeveloped according to Ritzer (2000: 430) although Knipscheer (1990: i) states:

In comparison to the hesitating and cautious introduction of the social network metaphor to the social sciences in the fifties the notion of social network has soared in popularity and strength through the seventies and the eighties...Its scientific status is now well established.

Nevertheless, taking into consideration the unprecedented spread of computer-mediated communication as a means to connect people, Garton et al (1999: 77-78) draw a comparison with other approaches to the study of computer-mediated communication and point out that much research concentrates on “how the technical attributes of different communication media might affect what can be conveyed via each medium”. Characteristics include the richness of cues that a medium conveys, the visibility and anonymity of participants and the timing of exchanges. Although studies of group communication are closer to the social network approach because they recognise that the use of computer-mediated communication (CMC) is subject to group and organisational influences, it leads analysis away from some of the “most powerful social implications of CMC in computer networks”, namely the potential to support interaction in unbounded, sparsely knit social networks (Garton et al, 1999: 77).

Methodological aspects about social network analysis are outlined in Chapter Three. However, it is necessary at this point to name a few of the important features of this

approach to understand its usefulness to the study of the Internet and online communities. These features include some of the following factors:

- Social network analysts look beyond the specific attributes of individuals to consider relations and exchanges among social actors.
- Analysts ask about exchanges that create and sustain work in social relations.
- The types of resources can be many and varied, tangible or intangible. In a computer-mediated communication context, the resources are those that can be communicated, e.g. sharing information, discussing work, giving emotional support or providing companionship (Garton et al, 1999: 78).

Garton et al (1999: 86) use the concept computer supported social networks to refer to online groups (or communities). However, from a social network perspective, considering computer assisted social networks, recognition is given to the possibility that members of a network can (and indeed do) use more than one medium to sustain social relations and ties (Garton et al, 1999: 88). This bodes well with the real world uses of the Internet, for example, real world travellers who exchange information about their real world experiences in a digital domain and in all probability relate what they have learnt while browsing websites to other real world travellers in face-to-face interactions.

Since social network analysis can study whole networks, as opposed to ego-centred networks, this research technique opens up interesting questions for CMC research. These include questions about:

- the multiplexity of computer supported social networks.
 - overlap of membership in specialised computer supported social networks.
-

- how co-membership affects the resources flowing into and out of specialised computer supported social networks.
- how computer supported social networks link people within organisations and in society in general.

Network characteristics can be related to a social network reliant on computer-mediated communication. The description below summarises the implications of six characteristics of social networks for a better understanding of social relationships and social organisation, i.e. focus on structure. These are density, boundedness, range, exclusivity, social control and tie strength.

Network density describes the proportion of all possible ties between network members that actually exist, ranging from 0.00 to 1.00. A very densely knit network (density = 1.00 or so) would have a connector line between all nodes. There is no standard definition of the point at which a network becomes densely knit, but researchers generally consider a density of at least 0.67 (two thirds of possible ties actually exist) as an indication of denseness.

Sparsely-knit networks are on the other end of the continuum where few ties connect network members, signifying harder work to maintain relationships (depending on the type of network under question), or lack of communication. Computer-mediated communication networks can be dense, closely-knit, or sparse, unbounded networks. Dense groups are supported when all participants in a computer-mediated conference for example read and respond to all communications and so are directly connected to each other online. Examples include: Focussed task groups, role-playing MUDs, and some newsgroups resembling village-like structures when they capture their participants' attention.

Considering aspects related to social capital, motivators for providing assistance on a computer network are practically founded on norms of generalised reciprocity and group citizenship. People who have a strong attachment to the online group will be more likely to participate and assist others, even total strangers (Wellman, 1997: 187).

Boundedness refers to the proportion of network members' ties that stay within the boundaries of the social network. All networks are defined within a population. Examples of populations include the workplace and a neighbourhood in an urban area.

Networks can be bounded groups or permeable ramifying networks in which people can reach out widely to connect with others. In tightly bounded networks (almost) all of the relationships remain within the population. Those that cross the population's boundaries are relationships that are maintained by a few gatekeepers. Tightly bounded groups have important implications for the flow of information, disease and social resources.

Members of loosely bounded (unbounded) networks have many ties with people who are not members of a particular network. Because many ties go outside the network, it is likely that the network will be sparsely-knit. Local and wide area networks can support dense bounded groups through computerised conferencing and distribution lists. Many computer networks, including the Internet, support unbounded social networks because features such as email, newsgroups and online bulletin boards make it easy and inexpensive to maintain connections with other people using the same system no matter where they might be geographically located. This is a feature of the space-time aspect of communication in the era of globalisation (Giddens, 2001: 98-99).

The lower social presence of computer-mediated communication, as compared to face-to-face interactions often means that total strangers are willing to assist (e.g. giving information) than would otherwise have been the case. Analogously, online requests for assistance are read by people alone at their screens.

The Internet is an extreme example of an unbounded network. Its population boundary approaches infinity and is so in flux that it cannot be analysed at any one time. Although it is inherently impossible to map all Internet relationships, ego-centred analyses can trace the nature of the connections of a sample of Internet users. Another way to study the Internet and other unbounded networks is to trace flows of resources (Wellman, 1997: 190).

The range of a network describes how large and diverse is the population within its boundaries. With larger size comes the population basis for more heterogeneity in the social characteristics of network members and more complexity in the structural patterning of ties in networks. Dense, bounded networks almost always have a small range because a large network becomes unbounded relatively quickly. As the number of network members increases the population basis for more diversity increases. Dense, tight networks with a small range are good for conserving existing resources; sparse, unbounded networks with a large range are good for obtaining additional resources.

Computer networks of all kinds, moreover those linked to the Internet, increase the range of social networks, facilitating more and a wider range of relationships. Communication can take place with many others across different time zones, while distance and geographical dispersal are not limiting factors in computer-mediated communication.

Despite the relative lack of social presence, online communication fosters relationships with people who have more diverse social characteristics than might

normally be encountered in person. Shared interests, more than anything else, become the basis for network membership. The structuring of communication from the onset onset by differences, such as social status, is obviated in the case of online communication (Wellman, 1997: 191-192).

The control that members have over access to each other can vary between little control/high access in dense bounded groups, to high control/low access in sparse, unbounded networks. In addition to variation in discretion over contact with network members, there can also be variation in the circumstances under which people can be interrupted or others can access. Dense, bounded groups tend to be in situations where there is relatively little choice of network members, and little control over their interactions. Sparse, unbounded networks afford people more discretion in the persons, places, and times of their interactions. Such networks frequently have more physical barriers that impede access and interaction. Computer networks support either dense, bounded groups or sparse, unbounded social networks.

Depending on the way in which a system is designed or managed, users can more often than not control access to them. This is true in the case of systems like ICQ and IRC. In the case of email, filters can be applied. Users of Internet-based electronic discussion boards have the choice whether to reply to messages. In this case, all members can read all messages, just as when a group talks in a café or an open office. The difference is that in real life, many social rules govern participation, thus governing levels of exclusivity. In an electronic environment, groups of people can communicate more casually (Wellman, 1997: 193).

With regard to social control, the main concern is: How do external sources create, constrain and manage a person's contacts and exchanges? In dense, bounded networks, controls for managing normative social behaviour are usually enforced by group pressure, managers and community influentials to ensure that participants work together for clearly defined collective goals. In sparse, unbounded networks,

there is less control because of their weak interconnectivity. The greater fragmentation of these networks means that people can avoid portions of the network where they are unwanted. The Internet is a sparse, unbounded network and as a result, people who are unhappy with one interaction can manoeuvre between different digital domains, forums and so forth.

The possibility of multiple persona or online identities means even greater flexibility. By belonging to multiple social networks, no one network has exclusive control over its members. The strength of relationships is a multidimensional construct encompassing the usually correlated variables of a relationship's social closeness, voluntariness, "multiplexity", and to a lesser extent, frequency of contact (Wellman, 1997: 195).

Strong ties tend to provide more social support than weak ties. They also provide a wider variety of social resources. Importantly, weak ties are not useless and often allow for connecting people who are dissimilar. Subsequently, weak ties tend to link people to other social worlds, providing new sources of information and other resources (Granovetter, 1973).

In dense, bounded groups, relationships tend somewhat paradoxically, to be both involuntary and socially close. In sparse, unbounded networks, relationships are more likely to be entered into voluntarily since participants have come together on the basis of a common interest or mutual advantage. Most friendship relationships are like this, also, some types of work relationships. Despite the more limited social presence of computer-mediated communication, online relationships are often strong with frequent supportive and companionable contact.

The ease and placelessness of electronic communication facilitates frequent and long-term contact, without the loss of the tie that often accompanies geographical mobility. Although computer-supported social networks sustain broadly multiplex

relationships, they are particularly suited for fostering specialised relationships. Through the Internet with its global reach, people can belong to any number of specialised groups based on interest without moving from the comfort of their homes. Contact made initially on the Internet can be sustained and expanded to later include other media, such as telephone and fax. The possibility of face-to-face interactions is not excluded. Perhaps the limited social presence and asynchronicity of computer-mediated communication only slows the development of strong ties, with online interaction eventually developing to be sociable and intimate as in personal ties (Wellman, 1997: 198).

The sub-section above plots the implications of characteristics of social networks for understanding social relationships and social organisation in an online environment. This section also considers the contribution social network analysis makes to the study of online networks. This analysis paves the way for the sub-sections below that consider social capital and empirical findings with regard to travel information exchange respectively. Social capital is relevant to the study of the Internet but also to leisure studies. In the case of travel and tourism as a component of leisure studies, the growing emphasis and importance of social capital are signified in a roundtable discussion scheduled later for 17 May 2005 in Nanaimo, British Columbia before the opening of the Canadian Congress on Leisure Research. Notably, researchers have also been invited to submit articles for a special issue of *Journal of Leisure Research* to be published in the fourth quarter of 2005 with a focus on social capital.

4. Social capital

The great explosion of research on social capital following Putnam (1993) has produced an impressive body of results confirming the importance of social capital in many different domains (Glaeser, 2001). Although initially used as a metaphor to

describe social ties, social capital is closely associated with networks. While the manner in which people communicate and form bonds often takes the form of face-to-face communications, relations can nowadays also be forged across the Internet. Whether in real life or set within cyberspace, relations are a resource. The initial metaphor of capital implies that connections can be profitable. As such, relations and the spinoffs are at the heart of social capital and like any other form of capital, people can invest in it and expect returns on it (Field, 2003: 12). The idea of social capital goes back to Hobbes who in 1651 claimed “to have friends is power” (Degenne and Forsé, 1999: 115). Not everybody knows powerful or influential people and in the face of all kinds of other realities, inequalities transcend social classes, racial groups, age groups and so forth. Numerous examples are available to outline the statements Weber for example makes with regard to such social inequalities.

In order to draw on the social capital of others, social ties connect people and bind them into networks. Field remarks (2003: 1) that people in such networks tend to share common values with other members. The Internet has, as noted earlier in this chapter, given rise to networks drawing people from across the globe. In the case of the Internet, such networks are based on interest and other commonalities and are no longer determined by time and location as used to be the case before the Internet. This point has been noted in an earlier section in this chapter. A question raised earlier with regard to the development of the Internet on social capital can partially be answered: the number of members can be very numerous while networks are mostly sparse.

Field (2003: 101) remarks that online interactions have expanded at a remarkable rate in recent years – as has been noted in the section above dealing with the Internet and associated concepts. Given the sheer surge in the number of people using online communications and the rapid spread of uses to which it may be put, it would be surprising if it had no impact on people’s social capital. As suggested at

the outset of this study, travellers surely make use of the social capital gained from participation in online discussion forums like the *Thorn Tree*. Likewise, other interest groups form around sport, hobbies and careers, i.e. swimming, historical re-enactments, the medical profession, aviation, nutrition and health, and so forth.

Although none of the scholars who investigate the Internet and undertake cyberculture studies concentrate on social capital or even use the concept, it is necessary to note that Degenne and Forsé (1999) mention social capital in their study of social networks. More importantly, only one of the three most important theorists regarding social capital pay attention to the Internet. Putnam, who can plausibly claim much of the credit for popularising what had previously been a rather obscure terminology, accepts that the Internet removes many of the barriers to communication and thus facilitates new networks. However, he remains somewhat sceptical about its influence.

First, there is according to Putnam, an increasing digital divide between those who are connected and those who lack the skills and equipment to become part of cyberspace. Second, because online communication is casual and lacks the instant feedback of face-to-face encounters, it discourages reciprocity and facilitates cheating. Third, Putnam argues that people who go online tend to mix only with small groups of others who share the same interests and views as themselves and they are intolerant of anyone who thinks otherwise. Finally, the Internet offers abundant opportunities for private and passive entertainment. Putnam, as cited by Field (2003: 102) also warns that the ideals of online citizenship face serious challenges.

Fukuyama, as cited by Field (2003) is one of the most celebrated prophets of postmodernity who believes that the Internet erodes established relationships. Castells also believes that digital technologies have helped demolish the rigid identities of industrial modernism, based on class and nations, so that we now live in

a network society where all kinds of contacts and values can be built into our sense of who we are. Castells' (1996) views regarding computer-mediated communication are therefore notable:

- Computer-mediated communication is not a general medium of communication and will not be so in the near future.
- Despite attempts at simplifying the use of interactive communication, computer-mediated communication will remain the domain of an educated segment of the population of the most advanced countries.
- Computer-mediated communication will be critical in shaping future culture, and increasingly the elites who have shaped its format will be structurally advantaged in the emerging society.
- Computer-mediated communication opens avenues for lower-status workers and women to express themselves, offering chances to reverse traditional power games in the communication process.
- The convergence of experience in the same medium blurs somewhat the institutional separation of domains of activity and confuses codes of behaviour.
- Computer-mediated communication fosters the creation and phenomenal growth of virtual communities. Such communities consist of predominantly two populations: a tiny minority of “electronic villagers” and a transient crowd for whom their casual incursions into various networks is tantamount to exploring several existences under the mode of the ephemeral.

In the last point above, Castells aligns his description of virtual communities with Rheingold's argument, namely that a virtual community is “a self-defined electronic network of interactive communication organised around a shared interest or purpose, although sometimes communication becomes the goal in itself” (Castells, 1996: 362). In this study, the social capital relevant to and produced by travellers

point at the relationship between social capital and online connectivity. The findings of Pew Internet & American Life Project are important. In a report outlining future trends for 2005 it is stated:

The internet is more than a bonding agent; it is also a bridging agent for creating and sustaining community. Some 84% of internet users, or close to 100 million people, belong to groups that have an online presence. More than half have joined those groups since getting internet access; those who were group members before getting access say their use of the internet has bound them closer to the group. Members of online groups also say the internet increases the chances that they will interact with people outside their social class, racial group or generational cohort (2004: 64).

This does not exclude the possibility that communication takes place for the sake of communication or merely because of the thrill of being connected. Yet, as Field remarks (2003: 102), evidence and extensive research regarding the relationship between social capital and online connectivity are hard to come by. There are, however, a number of studies that examine both Putnam's hypothesis and those of Castells and Fukuyama. Field (2003: 102) cites Wellman who is of the opinion that:

[T]hey seem to suggest that those who develop connections through the Internet are neither devious individualists nor the shock troops of hypermodernity. Most survey-based evidence shows that those who are most active online tend to be people who already have plenty of face-to-face connections and they complement rather than replace these interactions in cyberspace.

Given the importance of social capital in the social sciences, but moreover with regard to the impact of the Internet, it is necessary to give particular attention to this concept. Against the background of what has been noted above, the section below explores the main components of social capital. It is divided into sub-sections, namely background information to the development of the concept, certain complexities and further developments and social capital in a post-modern world. The last sub-section considers travel information exchange within a digital domain as an example of social capital and the manner in which the Internet facilitates this.

4.1 Developing a new concept

Social capital has been widely discussed across the social sciences in recent years. Field (2003: 3) notes an increase in the number of journal articles listing social capital as a key word. As mentioned above, Putnam is largely responsible for popularising the concept and as Field puts it, “rescuing it from the abstraction of social and economic theory” (2003: 4).

Putnam draws on well-established notions of associations, relations and interactions as treated by various scholars. Notable are scholars such as de Tocqueville, Durkheim, Tönnies and Marx. It is not strange that a preoccupation with the quality of relationships and their association with shared values pervaded classical sociological theory. After all, sociology as a discipline emerged as an attempt to explain the origins and nature of social order. Classical writers such as those noted above were concerned with understanding how humans created stable social structures and patterns of behaviour in a world where urbanisation, industrialisation and scientific rationality had eroded the traditional bases of order (Field, 2003: 6-7). It is Durkheim in particular who has been interested in the way that people’s social ties serve as the thread from which a wider society weaves itself together.

Field draws attention to the fact that in general, however, classical social theory was not particularly concerned with the areas that are denoted by the concept of social capital. Nevertheless, the idea of social ties as contributing to the wider functioning of the community was well established long before the present debate surrounding social capital. Although interaction might be treated as an element in social order or as part of a wider social structure, the questions addressed by the classical theorists are “rather different from those tackled by today’s social capital researchers”. It might be possible to fit theories of social capital into a broadly Marxist, Durkheimian or Weberian perspective on social order, although the concept brings a new focus and introduces new questions. Field (2003: 7) mentions the links between the micro-level of individual experiences and everyday activity and the meso-level of institutions, associations and community as new foci. Attention is also drawn to the implications of defining connections as a form of capital.

Social contacts are not easily reduced to a simple set of common denominators, and much of the debate has taken place outside the discipline of economics, among social thinkers, political scientists, educationalists and historians. Four theorists, according to Field (2003: 13), have made seminal contributions: Bourdieu, Putnam, Coleman and Fukuyama. Below, brief notes explore the views of each.

Social capital is an elusive concept, as reflected in the fact that its definition differs across studies. According to Durlauf (2002), Portes has developed a strong critique of the social capital literature because of this definitional ambiguity. Although each of the prominent scholars such as Putnam, Coleman and Bourdieu offers definitions, Schuller (2001) notes that the definition of social capital is itself problematic. As outlined in this sub-section, it owes its prominence mainly to the work of Putnam in political science (1993, 1996), Coleman in educational sociology (1988), and Fukuyama in economic history and sociology (1996), as well as to the active patronage of the World Bank. Also, as mentioned earlier, its origins go back well beyond these contemporary scholars, however, clear lines of descent have been

traced back to classic authors such as Adam Smith and Montesquieu. For the majority of writers, social capital is defined in terms of networks, norms, and trust and the way these allow agents and institutions to be more effective in achieving common objectives.

Bourdieu is known for reflexive sociology (Ritzer, 2000: 627). Apart from this, working on Algerian tribes in the 1960s, Field claims that Bourdieu came slowly to the concept of social capital. He described the dynamic development of structured sets of values and ways of thinking as forming “the habitus”. This provided a bridge between subjective agency and objective position. Emphasising cultural symbols as marks of distinction, he gave force to his views by using the metaphor of “cultural capital”. This means that Bourdieu’s early writing on social capital was part of a wider analysis of the diverse foundations of social order. After some refinements, Field (2003: 15) notes that Bourdieu later defined social capital as:

the sum of resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintances and recognition.

Coleman’s impact on the development of the concept of social capital has been far-reaching; notably too, his influence has been wider than that of Bourdieu. Influenced by Becker’s work on human capital, Coleman used the framework of rational choice theory (Ritzer, 2000: 432-433). This is important to note, since rational choice theory shares with classical economics the belief that all behaviour results from individuals pursuing their own interests. Social interaction is thus seen as a form of exchange. From rational choice theory Coleman developed a broad view of society as an aggregation of social systems of individual behaviour. An interest in social capital emerged from attempts to explain relationships between social inequalities and academic achievements at schools. After a major survey of educational achievement

and opportunity among six ethnic groups, Coleman concluded that communities were a source of social capital that could offset some of the impact of social and economic disadvantage within the family. Field (2003: 23) cites Baron et al who claims that Coleman introduced social capital as a post hoc concept, which he had developed partly in order to explain findings that appeared to fit badly into the existing theoretical model. Social capital, according to Coleman, is a useful resource available to an actor through social relationships. It comprises a variety of entities that all consist of some aspect of social structures and they facilitate certain actions of actors within the structure (Field, 2003: 23).

The most extensive definition of social capital is offered as part of a broader attempt at outlining a general theory of rational choice sociology. In this, social capital is defined as

the set of resources that inhere in family relations and in community social organisation and that are useful for the cognitive or social development of a child or young person. The resources differ for different persons and can constitute an important advantage for children and adolescents in the development of their human capital (Field, 2003: 25).

Putnam, more than any of the other theorists mentioned before, stands out as the most widely recognised proponent of social capital. Unlike Coleman and Bourdieu whose work has stayed more or less within the boundaries of sociological theory, Putnam's contribution reaches a far wider public. Furthermore, unlike the two above-mentioned theorists, Putnam's ideas about social capital are based in political science. His first contribution came towards the end of a study of regional government in Italy in 1993, but he defined the term only after presenting a detailed

discussion of his evidence of relative institutional performance and levels of civic engagement:

Social capital here refers to features of social organisation, such as trusts, norms and networks, that can improve the efficiency of society by facilitating coordinated actions (Field, 2004: 31).

This definition is not much different from one offered later in the 1990s. In 1996, he stated that with social capital he means features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives. The only difference here is changing “society” to “participants” as the beneficiaries of social capital. Notably then, Putnam argues that the core idea of social theory is that social networks have value. Moreover, social contacts affect the productivity of individuals and groups.

An element noted by Putnam that is of particular interest to online communities set within digital domains is trust. Trustworthiness in a digital domain is more difficult to ascertain due to the absence of many of the usual cues present in human interaction. Trustworthiness goes hand in hand with reciprocity as an essential element of the norms that arise from social networks (Field, 2003: 32).

At this point, it is necessary to note how these definitions and other definitions mix a number of disparate ideas. One such combination is the mixing of functional and causal conceptions of social capital. When social capital is defined as a set of norms or values that facilitate cooperation and efficiency, this is a functional notion. In contrast, when it is argued that the cooperative behaviour of others leads to expectations under which cooperation is individually rational, this is a causal notion. It seems self evident that causal definitions of social capital are necessary for successful empirical analysis, so the extent to which studies are careful about this

distinction is important. Standard social capital definitions also mix very different notions of individual motivation. The roles of altruism and fairness in motivating individual decisions are not always recognised. Yet, other analyses accept the standard model of preferences.

4.2 Complexities and main issues

Without a question, the twentieth century has been widely described as one of ever-increasing change. Scholars have focussed on the impact of constant change on human interaction and subsequently on social capital. Field (2003: 92) cites Schuller et al who claims that social capital also matches the spirit of an uncertain or so-called “questioning age”. However, in the Information Age characterised by computer-mediated communication, Castells for example does not consider it to be a general medium of communication in the near future since it is limited mainly to an educated segment of the population of the most advanced countries. This view could soon be offset, as an increase in bandwidth and a decrease in cost make permanent fast connections a reality for many – at least in America and parts of Europe. However, information technology, in particular, and scientific advance in general have brought enormous growth in humanity’s capacity for control over its destiny. The views of sociologists regarding what has come to be called the postmodern world cannot be ignored, for example Giddens.

For Giddens (1990), the reflexive project of the self is an inescapable fate involving a continuous refashioning of social life. Weber, although writing at the turn of the last century, contrasts premodern society’s reliance on direct interpersonal connections as a source of social solidarity and order with modernity’s distinctive reliance on impersonal regulation and bureaucratic organisations. As Field notes, (2003: 93) Weber might have underestimated the extent to which formal ties survived modernity and enabled people to do things despite the numerous rules and elaborate

hierarchies that surrounded people's lives at the time. Organised routine, however, has been replaced by "disorganised capitalism" or "postmodernity". Understandably, against the background of these and other developments such as the expansion of the Internet, it is relevant to question the role of social capital in a so-called postmodern world.

Outlined in Chapter Four of this study, a network analysis of a computer-mediated social network visualise the extent of connectivity among people who forge social ties within a digital domain. In this instance, the so-called new technologies are agents within the postmodern world which influence social capital by allowing people to develop new types of connections alongside their existing networks. In this regard, travellers who exchange information and socialise using an electronic discussion board is in many ways similar to travellers sitting in an airport terminal and interacting; the exchanges are real. Hampton and Wellman (2003) ask: What is the Internet doing to local community? According to these two authors, analysts have debated whether the Internet is weakening community by leading people away from meaningful in-person contact; transforming community by creating new forms of community online, or enhancing community by adding new means of connecting with existing relationships.

While new technologies influence socialisation and impact on groups, another aspect that transpires considering the wide-ranging impact of the Internet and its global reach is globalisation. Giddens (2001: 51) states that the term is used to refer to those processes which are intensifying world-wide social relations and interdependence. It is a social phenomenon with vast implications. While there are different dimensions of globalisation, a factor of note that contributes to this process is global communication. While the telephone, radio and television play their respective roles in facilitating mass communication, the Internet has been heralded as the fastest-growing communication tool ever developed (Giddens, 2001: 53).

4.2.1 Reciprocity and trust

According to Schuller (2001) social capital focuses on networks: the relationships within and between them, and the norms which govern these relationships. Although this does not necessarily entail a specific value position on the part of those who use it as an analytic device, it has strong normative connotations, implying that trusting relationships are good for social cohesion and for economic success. However, strong ties can also be dysfunctional, excluding information and reducing the capacity for innovation. There can be negative normative associations as well as positive ones – so that some networks embody the “dark side” of social capital, to the detriment of the wider society and even of its own members.

This focus on relationships underpins the relevance of social capital to the issue of social cohesion. The more positive normative approaches stress the social benefits, sometimes in a simplistic fashion. Social capital is both a consequence of and a producer of social cohesion, though not necessarily in the static sense that this might appear to imply. Putnam in particular argues that at the level of community, enterprise or nation, the quality of life (even of the more affluent) will be higher if membership of the community brings with it active participation. This should encourage us to build social capital directly. Where there is a dark side, this should alert us to the way networks can act against social cohesion.

Analytically, therefore, social capital has a close relationship to the debate on social cohesion. It has been noted earlier that being connected is considered a resource in itself in as far as socialising with others is a rewarding experience in its own right. It is a known fact, however, that people also make use of their connections to obtain other benefits. Field notes in this regard that there is enough evidence in recent research about social capital to suggest that strong positive links exist between social capital and educational attainment, economic success, health and freedom from crime. Field rightfully remarks that social capital alone cannot be responsible

for such positive spinoffs and that much more needs to be known about the variety of ways in which social ties work to engender such significant effects as those outlined above (2003: 62).

There is enough evidence to suggest that in order for people to cooperate, they need to have some previous knowledge of one another, they need to trust one another, and expect that if they cooperate then they will not be exploited or defrauded but can expect to benefit similarly in return. Above, Giddens is mentioned as a notable author regarding views on the postmodern world. Giddens also expresses particular views regarding the importance of trust in modern societies that are dominated by abstract systems and great time-space distanciation. Giddens defines trust as:

confidence in the reliability of a person or systems, regarding a given set of outcomes and events, where that confidence expresses a faith in the probity or love of another, or is the correctness of abstract principles (technical knowledge) (1990: 34).

The need for trust is related to this distanciation. According to Giddens (1990: 19), there is little need to trust someone who is constantly in view and whose activities can be directly monitored. However, with an increase in distanciation, people no longer have full information about social phenomena.

4.2.2 Different forms: bonding and bridging

Considering trust within the context of social capital, it reveals certain complexities in the concept. As Field remarks regarding initial uses of the term, it has “inevitably been rather perfunctory and even sloganistic in nature” (2003: 65). Coleman for

example has tended to represent close and direct interpersonal ties while Putnam tends to express particular positive views about community. Bourdieu on the other hand consider connections as a buttress of privilege.

However, Putnam is the one particular author of the three most important ones working on social capital that has gone the furthest in embracing a differentiated approach to social capital. Putnam too distinguishes between bonding and bridging as forms of social capital. The meanings are explored below:

- Bonding: Exclusive social capital is based around family, close friends and other near kin. It is inward-looking and binds people from a similar sociological niche. It tends to reinforce exclusive identities and homogenous groups. This is good enough for getting by.
- Bridging: Inclusive social capital links people to more distant acquaintances who move in different circles from their own. It tends to generate broader identities and wider reciprocity rather than reinforcing a narrow grouping. This is crucial for getting ahead.

Linking capital is crucial to leverage resources, ideas and information from contacts outside one's own social milieu. While Field mentions the impact this can have on community development policies and other anti-poverty strategies, linking capital can surely influence social capital formation on a much smaller level such as tourists exchanging information about a spectacular site or the best means of transport or backpackers contemplating whether to travel together to the next resort.

As explained in more detail in Chapter Three and integrated into Chapter Four, bridging and bonding capital relates closely to the strength of ties as applied in social network terms. Granovetter (1973) was the first scholar to investigate the influence of weak ties in social analytical terms as applied to jobseekers. Working along these

lines, Lin considers the influence of strong and weak ties in terms of social capital. For Lin as mentioned by Field (2003: 66), strong ties are those which follow the principle of “homophily” binding people with others similar to themselves. Weak ties bring people together from different social and cultural backgrounds. Moreover, Lin also contrasts the kinds of resources and purposes which different types of social capital deliver.

As outlined in more detail in Chapter Four, weak ties may be better at serving instrumental goals as they can provide access to new types of resources but rely less on strongly shared values.

4.3 Travel information as a resource

Literature covering travel and travel information exchange include those studies that reflect on travel information exchange within a network lending impetus to a structural approach to the leisure studies. Relevant studies in this regard are limited. This concurs with Murphy’s (2001: 66) findings about information exchange among backpackers that further investigation is needed to understand how information is passed on to and received by others once they return home. Moreover, the majority of works in this area have been concluded before the popularisation of the Internet and integration of the WWW into everyday society. Pew Internet & American Life Project found in 2002 that 11% of American Internet users went online to make holiday travel plans and reservations. It is subsequently noteworthy that the importance of understanding the role of the Internet as a channel for travel information exchange is not researched with greater vigour.

There are however a number of relevant studies considering travel information exchanges. Frew (2000) explores the research corpus emerging through the application and interaction of information and communications technologies (ICT)

with tourism. Pyo and Chang (2002) consider knowledge discovery in databases a useful tool for destination management. According to them, destination knowledge management requires a multidisciplinary approach and an understanding of tourism.

Breiter and Feng (2004) examine the relationships between tourists' purchase decision involvement and their information search behaviours. The behaviours include their information preferences as measured by perceived value of different types of information contents, and their use of the Internet as an information channel. They present the relationships in a proposed conceptual framework of the tourist information search process and test it through two hypotheses using a survey sample. According to them findings reveal that tourist information preferences significantly differed from one level of purchase decision involvement to another in seven out of thirteen instances. These authors also found that there are significant differences in using the Internet as a destination information channel from one level of purchase decision involvement to another.

It is however, the study of Wang and Fesenmaier (2004) that contributes most to the understanding of online travel communities. In their study, they achieve this by extending and empirically testing a conceptual framework of online travel community member needs. The relationships between member needs and their level of participation in an online travel community are examined and in addition the effects of duration of membership on levels of participation and the role of demographic differences in terms of member needs and participation are explored. Given the importance as empirical study, reference to their findings is included in Chapter Four, while similarities in their conclusions with the conclusions reached in this study are outlined in Chapter Five. Together with Stokowski's work (1988) on structure and travel information exchange, this represents the most important empirical work relevant to this study.

However, employing a structural approach in network analytical terms to travel information is limited as mentioned below. The development of this approach is outlined below. While cyberculture studies and studies about the Internet enquire into the social significance of the social interaction in computer-mediated environments, the social network perspective is also extended to leisure studies. In this regard, questions revolve around the social significance of leisure and recreation. The social groups model, first put forward in 1962 by the Outdoor Recreation Resources Review Commission (ORRRC), suggests that people visit recreation places primarily with others, rather than alone and that the others usually constitute a recognisable social group.

Stokowski (1990: 251-252) outlines the contributions of Burch who proposes that personal communities are the basis for recreation involvement. Evidently, the nature of the intimate social circles which surround the individual may be the determinant of variation in leisure behaviour. The personal communities hypothesis suggests that different people select different recreation activities and styles throughout life on the basis of the influence of family, friends and workmates. Based on this, socialisation into recreation occurs because of personal influence, communication and involvement with primary group members and significant others. Reasons Stokowski (1990: 252) gives why the social groups model has fallen short of expectations in the study of leisure include:

- In operation, social groups studies sometimes disintegrate into mere taxonomies of groups.
 - The associated socialization processes and interaction features within and between groups remain incompletely analysed.
 - In structural terms, the groups model is an over-simplified explanation of recreation behaviour.
 - The narrow focus of studying social groups on site ignores the broader community implications of Burch's personal communities theory.
-

Resultantly, Stokowski (1988) offers an alternative paradigm, namely social network analysis but points out that a few sociologists have employed some limited measures of leisure and recreation behaviours in their social network analyses. She cites the works of Bott (1955) and Fisher (1982). Similarly, few leisure and recreation investigators have applied network analytic techniques in their work. She cites four, including her own work, namely:

- Allen (1980) studied the network ties among several hundred children who attended environmental education programs at nature camps.
- Eckstein (1983) surveyed visitor groups at several Michigan campgrounds and resorts to determine how tourists obtained information about travel destinations.
- Cobb (1988) examined network structures of influence and referral among business leaders in four Michigan resort communities.
- Stokowski (1988) analysed and compared the community networks of sociability with the recreation of networks of a sample of residents in a rural Washington state town.

Brought into the realm of cyberculture studies and this study in particular, a network perspective enables a greater understanding of information exchanges among travellers and how computer-mediated social networks facilitate such exchanges. Moreover, social capital rests upon the notion of networks and social ties – both concepts being relevant to online discussion groups such as the one investigated by this study.

As suggested earlier in this chapter, social capital is a sociological construct that is increasingly gaining currency within a variety of social scientific fields, including leisure studies. However, as noted by Glaeser (2001) we are only at the beginning of research on this topic, and social scientists have already made a strong case that

social capital is extraordinarily important in many domains. In this study, social capital is explored within the context of travel information exchanges.

Like other forms of capital, social capital rests upon the notion that an investment in social relations will result in a return that will benefit the individual. Unlike other forms of capital, however, its maintenance and reproduction manifests themselves through the social interactions of members and their continued investment in social relationships. By drawing on the social capital made possible by relationships, individuals can further their own goals through their social ties. Subsequently, certain aims can be achieved that cannot be realised by unconnected individuals. As suggested by this study, sharing travel information could be beneficial in all kinds of ways to the travelling fraternity but also to hosts.

Hemingway (2005) is of the opinion that the initial burst of enthusiasm over social capital is now being tempered by increasing criticism. There are, however, some exceptions but these are not reflected in discussions of leisure and social capital. Instead, these remain dominated by Putnam's early formulation of social capital as a combination of social networks, cultural norms, and generalized trust, grounded in historically persistent social structures and patterns of associational activity. Hemingway (2005) remarks that after undergoing what might be called a "psychological turn" followed by a "cultural turn," it is unsurprising that leisure research emphasizes norms and trust over social structure as social capital's constituent elements of social capital while almost entirely ignoring its historical dimensions.

Hemingway (2005) furthermore notes that few leisure researchers have noted that Putnam shifted his ground in later accounts, now finding social capital's sources in social structures rather than cultural norms and redefining trust as an outcome, not a source of social capital. These shifts mirror central themes in recent debates: Is social capital conceptually coherent? Can it be satisfactorily operationalised for

empirical research? Are its sources structural or cultural? Is it a functional artefact or the product of intentional activity by discrete social agents?

Addressing these questions Hemingway (2005) is of the opinion that researchers will be unable to clarify leisure's relationships to social capital and how these affect community development. For the moment, social capital's primary value in leisure research is heuristic rather than substantive. Social capital illustrates the field's need for explicitly conceptual and theoretical analysis, redirects attention to the significance of social structures, and raises questions about the purposes of leisure research, including its relationship to social policy and action. Ultimately, it challenges the field to engage in truly transdisciplinary inquiry, as an excursion into the relationships among leisure, social capital, a resource model of citizenship, and civic competence is intended to illustrate.

In concurrence with Glaeser (2001), it must be pointed out however, that the weakness regarding research in social capital is not in either the theory or the empirical work on the effects of social capital. Instead, the real weakness is the lack of both theory and empirical work focussing on the causes of social capital. If scholars are going to change the level of social capital, they must have a coherent model of the formation of social capital and a body of empirical work that they trust about the formation of norms and networks. Clearly, this is not to suggest that Putnam and others such as Coleman have not done important work in this area, but rather that such work is subordinate to research documenting social capital's effects.

5. Conclusion

An overview of important empirical studies relevant to the various aspects of this study has been outlined above. Attention has been given to the Internet and cyberculture studies, while those scholarly contributions exploring a network approach have also been demarcated, but more specifically a network approach to a greater understanding of leisure choices in as far as it manifest in travel and tourism. Stokowski (1988) points out that leisure choices depend on information and that sources of information such as family and friends can play a pivotal role in leisure choices. Although the Internet with its many-to-many capabilities via computer-mediated communication plays an important role in connecting people, its place within the tourism industry is also highlighted.

Gauntlett (2000: 3) claims that much has been written about communities on the Internet since Rheingold first published *The Virtual Community* in 1993. However, not long before that, Castells (1996) remarked that computer-mediated communication was at the time too recent and has been “too narrowly experienced to have been the object of rigorous, reliable research.” He states that

[m]ost of the often-cited evidence is anecdotal and some of the most accurate sources come in fact from journalists' reports. Furthermore, changes in technology are so fast and the diffusion of CMC is so rapid that most of the available research from the 1980s is hardly applicable to social trends in the 1990s, precisely the historic moment when the new communication culture is taking shape (1996: 358).

Castells (1996) does outline some views on computer-mediated communication, based on a “non-exhausted review of social sciences literature on CMC”. In these

views, he suggests some tentative lines of interpretation that consider the relationship between communication and society in as far as it employs computer-based interactive technology. He claims:

[i]t is methodologically useful to discuss the social implications of new communication processes within the constraints of reported evidence (1996: 358).

Costigan (1999: xxii) claims that community as a construct is “perhaps the most interesting aspect of the Internet”. Community online is fluid -- perhaps because persona and identity are different, perhaps because structure and time are different, perhaps because the channels are different. Unlike offline, online communities are often constructed and destroyed not because they have challenges with structure, as Carey suggests, but because the connection is not time sensitive. Messages are not necessarily sent in real time and can often remain on listservs or in digests for months or years. If one believes that the community exists as long as people are reading and participating with and through these messages, then the community may come and go as people discover the messages.

Community relationships formed online allow access and intimacy not transferred to other situations. Online messages can be sent at any time and to anyone and can be responded to when time is available. This level of access does not transfer to face-to-face situations where different social, personal, and community rules exist (Jones, 1999: xxii).

Mitra and Cohen (1999: 192) ask about analysing the WWW, where to begin, given the large volume of WWW texts and that these texts are intertextually connected to each other. Although the use of metaphors and concepts are used to ease our understanding of the Internet, when the focus shifts to the Internet as fostering

community, a necessary question has often been left unanswered: When is a community a community? Is it perhaps when people communicate and there is discussion and exchanges of all sorts? Considering the use of “virtual” as a concept to distinguish the digital domains from the real world, problems soon arise. Certain things cannot be virtualised, such as friendship despite the possibility that it might only be based in cyberspace. While cognisance is taken of Holmes (1997) and views about how technologies influence community, in this study, the concept “virtual community” is considered misleading if not impossible.

This view is substantiated on the findings of Erickson and Fernback as cited by Ridings and Gefen (2004) who state that although the connection to others through the Internet is key to a virtual community, the notion of a community is not applicable to all sites of on-line discourse. Some discussion groups and chat rooms, for example, are just places for people to meet without any sense of permanence or consistency among the members. For example, chat rooms exist that cater to single people looking to meet other single people, each room having a different mix of people each day, none returning on a regular basis. Such chat rooms, because they lack a regular basis of participation by their patrons, do not qualify as a virtual community.

Frequency of participation is another factor that influenced the decision to apply the concept virtual community in this study or not. Typically, members become attached to their communities and visit them often, sometimes becoming so dependent upon the community that they can be described as addicted (Hiltz, 1984). Although the literature does not specify what particular visit frequency makes a member an active one, a virtual community is generally understood to consist of persistently interacting members (Smith, 1999). Likewise, Figallo (1998) suggests that virtual communities are those where members feel part of a larger social group, sense an interwoven web of relationships with other members, have ongoing exchanges with other members of commonly valued things (such as information about a common hobby),

and have lasting relationships with others. However, without any conclusiveness about the concept virtual community, in this study preference is given to “computer-mediated social community” or “computer-mediated social network”.

Apart from exploring theoretical aspects surrounding the Internet, cyberculture and computer-mediated communities, the concept of social capital is covered too. While social capital is closely associated with networks, it also employs network analysis as a research technique to investigate social capital. Moreover, the exchange of travel information studied from a network perspective considers such information exchanges as a form of social capital present among travellers.

Chapter Three

Research Methodology

The natural contexts of new media may limit how faithfully traditional research designs and methods may be applied... the nature of new media themselves may create limitations, as well as new opportunities (Rice and Rogers, 1984).

1. Introduction

As outlined in Chapter One, it is a primary aim of this study to investigate the structure of the *Africa* category of the *Departure Lounge* on the *Thorn Tree*. In this social network, ties exist between actors because of their differentiated participation in discussion threads, manifesting in patterns. This suggests that a structural approach could throw light on certain aspects such as the nature of social ties. A CD-Rom at the back of this thesis contains the messages that are included in this dataset. It also contains other information relevant to the computer methods followed in this study, such as programming relevant to acquiring data.

In this chapter, methodological aspects are outlined. An explanation of the choice of methodology, namely social network analysis is given. The sub-section below explains the reason for choosing network analysis, but also places network research as applied to cyberculture into perspective. However, by incorporating certain standard statistical tools, it is possible to reveal a number of aspects regarding the data. This is used, *inter alia*, to verify the consistency of the data. Entitled “descriptive statistical analysis” it considers measurements such as duration

of threads, number of replies, ratio of replies versus views, message length and survival analysis amongst others.

Identifying and describing concepts related to the methodology of social network analysis used in this study are also covered in this chapter. Like Internet studies, network analysis is characterised by its own concepts and terms; likewise, with regard to the case study, terms to refer to its structural properties such as branches and categories are specific to the *Thorn Tree*; a sub-section below outlines these and other relevant concepts.

Notably, only messages on the *Africa* category of a branch called the *Departure Lounge* are used for analysis and not all messages on all branches of the whole *Thorn Tree*. This raises questions such as how a decision was reached with regard to the population, boundary specification and sampling. In addition, what measurements associated with network analysis were considered for analysis purposes? These and other methodological questions are attended to in a sub-section that deals with issues of measurement. A separate section deals with the methods used in this study, for example how network analysis techniques were applied and which calculations were done to obtain specific measurements.

2. Studying online communities: choosing a methodology

2.1 Background

While Jones (1999: xiii) states that Internet research is not easy, he also emphasises that the Internet should not be seen in isolation from the “off-line” world that has created it. Indeed, as mentioned in Chapter Two, the online world mirrors

what happens in the real world. Wakeford claims that one of the most confusing aspects of doing research about the Web, as with any other media form, is that it can be understood at many levels. Wakeford furthermore points out that web pages are a number of things simultaneously: computer code, cultural representations, material objects for consumption and the fruits of skilled labour. Studying the Internet requires clarity with regard to the ways in which it can be done. Wakeford also notes that there currently is no standard technique for studying the Web. The Internet, cyberculture and other distinct features can be included here. This holds true for communication studies and allied social science disciplines (2000: 31).

The question whether we care to study cyberculture could very well be dismissed (Jones, 1999: ix). Yet, as a medium of communication that intersects in new and remarkable ways with everyday life, understanding the Internet and its effects can only be achieved through thorough research. In the words of Wakeford,

we cannot presume in advance that the cultural significance of the Web can be read off its current popularity. The relationship between the Web and the rest of the social world cannot be presumed, but must be investigated (2000: 31).

The question remains how to go about studying the Internet and its related social impact. Wakeford claims that in the absence of any clear standard technique, studying the WWW and Internet culture has become a case of

plundering existing research for emerging methodological ideas which have been developed in the course of diverse research projects, and weighing up whether they can be used or adapted for our own study (2000: 31).

Jones questions whether the changes in methods used to study the Internet's convergence and influence on modern life are enough. In accordance with Wakeford who calls for new methods, Jones too states:

...applying existing theories and methods to the study of Internet-related phenomena is not a satisfactory way to build our knowledge of the Internet as social medium (1999: x).

This approach excludes methods that have been traditionally used to study other media and social phenomena and are now being used to study the Internet also. When considering which methodological frameworks scholars have at their disposal to study the WWW and cyberculture, cognisance has to be taken of the fact that what is considered a legitimate methodology is itself in flux.

Questions of research design, sample or participant selection, choice of website or Internet-related phenomena to study, methods of data collection and analysis, ethical practice and the use of theoretical frameworks are just as relevant in the study of the Internet and cyberculture and "cannot be sidestepped however 'virtual' the data collection" (Wakeford, 2000: 33). However, from a methodological point of view, what is different about the study of the Internet? The answer lies largely in the ease with which data about Internet users can be captured, the manner in which researchers can become part of their object of study, and the speed and (seemingly) accuracy with which large amounts of statistical data can be produced. Yet, these possibilities also bring about their own sets of methodological problems if handled without the necessary scholarly vigour.

Ongoing research and continued academic interest have brought about a refinement of existing research techniques, such as ethnography, anthropology and textual analysis amongst others. On a technical level and considering the manner in which the Internet operates, a revival in network analysis and a renewed interest in this research technique for the study of physical computer networks have implications for the study of information flow and connectivity among members of computer-mediated social networks too.

Computer-mediated social networks can be studied from a number of vantage points, involving different methodologies. This depends largely on the nature of the inquiry, the goal of the research and the study field involved, amongst an array of other influencing factors. Examples are drawn from communication studies, sociology, anthropology and psychology. However, Wellman points out that online communities are foremost social networks, which emphasises the relevance and applicability of using network analysis (1997: 179; Friedkin, 1982; Garton et al, 1999). Studying social networks involves network theory and network analysis. Applied to a specific field, namely leisure choices and travel information exchange, Stokowski (1988) uses a structural approach to explain the importance of connectivity and place in a network. In this study, travel information exchange takes place in an electronic environment across the Internet. The following sub-section outlines the premises of this study and the choice of methodology.

2.2 Premises of this study and the choice of method

With the analytical tools available through network analysis, this study investigates a number of premises about the *Africa* category:

- Messages attract unequal numbers of replies resulting in clear patterns of communication flow. Using graphs, the structure and pattern become visible.
 - Like human interaction in the physical world, some members (called actors in network terms) are more active than others. Using an asymmetric matrix, network analytical calculations reveal information about the dynamics of the network, such as the size of the network, levels of connectivity (degree), density, centrality and direction of ties.
 - This premise is tested that in a large network such as this, moreover a computer-mediated network, ties are weak but it does not implicate inefficiency in communication flow.
 - Threads differ markedly in the number of messages (replies) they contain. The threads with the least and the most responses are calculated respectively in order to obtain the mean, average and mode. The premise is held that this could be indicative of the levels of information exchange among actors and the extent to which individual actors are willing to exchange information.
 - With the aid of an asymmetrical matrix, the direction of communication flow between actors can be ascertained. Against the background of social relations, willingness to reply and not only post requests considers the extent to which members are "sources" (that is, they have a tendency to send more than to receive), "sinks" (that is, they have a tendency to receive more than send) or "transmitters" that both send and receive, but to different others.
 - The lifespan of a thread (survival analysis) can be calculated and tests the premise that "conversation dies" once information requests have been fulfilled. This tests the premise that *Thorn Tree* members on the *Africa* category treat this electronic discussion board in a similar fashion as real world travellers do. They exchange information and move on.
-

2.3 What is social network analysis?

According to Emirbayer and Goodwin (1994: 1413), network analysis proceeds from certain basic theoretical presuppositions and premises that are acceptable to most, if not all, of its practitioners. It holds to a set of implicit assumptions about fundamental issues in sociological analyses. Examples they refer to include relationships between an individual and society, the relationship between “micro” and “macro” and the structuring of social action by objective and “supra-individual” patterns of social relationships. The point of departure for network analysis is what they call the “anticategorical imperative”. This imperative rejects all attempts to explain human behaviour or social processes solely in terms of the categorical attributes of actors, whether individuals or collectives. This is supportive of the notion that network analysis rejects explanations of social behaviour as the result of individuals’ common possession of attributes and norms – instead, it is resultant from their involvement in structured relations.

Social network analysis is indeed a distinct research perspective within the social and behavioural sciences because it is based on an assumption of the importance of relationships among interacting units. Furthermore, the social network perspective encompasses theories, models and applications that are expressed in terms of relational concepts or processes. Relations defined by linkages among units are a fundamental component of network theories (Garton et al, 1999: 78).

Growing interest in the network perspective, together with the increased use of network analysis have resulted in a consensus about the central principles underlying the network perspective. These principles distinguish social network analysis from other research approaches. In addition to the use of relational concepts, the following are important. First, actors and their actions are viewed as

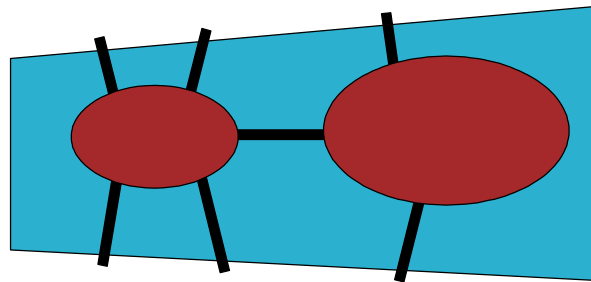
interdependent rather than independent, autonomous units. Second, relational ties (linkages) between actors are channels for transfer or "flow". Thirdly, network models focussing on individuals view the network structural environment as providing opportunities for or constraints on individual action. Lastly, network models conceptualise structure (social, economic, political) as lasting patterns of relations among actors (Wasserman and Faust, 1994: 4). Actors can be almost anything, including organisations, people and so forth.

Of critical importance for the development of methods for social network analysis is the fact that the unit of analysis in network analysis is not the individual but an entity consisting of a collection of actors and the linkages among them. The methods of network analysis provide explicit formal statements and measures of social structural properties that might otherwise be defined only in metaphorical terms. Phrases such as webs of relationships, closely knit networks of relations, social role, social position, group, clique, popularity, isolation, prestige, prominence and so on are given mathematical definitions (Wasserman and Faust, 1994: 17). Network methods focus on dyads (two actors and their ties), triads (three actors and their ties) or larger systems (subgroups of individuals or entire networks). At the simplest level, a tie is nothing more than an instance of a social relation between actors. Ties are sources of social capital. Depending on the research focus, ties can be indicative of relationships and roles, cognitive/perceptual and affective aspects, types of interactions, and types of affiliation.

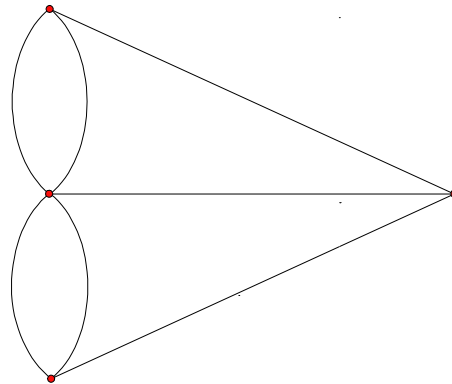
Network analysis is known for its use of graphs and matrices. While graph theory and matrix operations have served as the foundations of many concepts in the analysis of social networks (Wasserman and Faust, 1994: 92), graphs have proved useful to present information, since they graphically display nodes and the links between them. However, in a large dataset when there are many actors and/or

many kinds of relations, graphs can become too visually complicated, inhibiting interpretation.

Scholars consider the first paper to appear on graph theory to be that of the Swiss mathematician Leonhard Euler and appeared in 1736. In this paper he solved the problem of the Königsberg bridges. Königsberg, now called Kaliningrad, is situated on the banks of the river Pregel (Pregolya) and on two islands in the river. The land masses are connected by seven bridges and the people at the time discussed whether a round trip would be possible that crossed each bridge without crossing any bridge twice. A rough sketch of Königsberg is shown in the following figure.



Euler reduced the problem to its essentials by representing each land mass by a dot and each bridge by a line that connected the dots. The diagram that Euler drew is shown in the following figure.



The diagram drawn by Euler is a generalisation and therefore applicable to similar problems with relationships that could be drawn in this manner. A point and line diagram of this nature consists of primary concepts and relationship between the primary concepts.

The primary concepts are first that there is some non-empty, finite collection of points, P . Second, there is a collection of lines, L . The relationships between the primary concepts are: First, every line of L meets two and only two points of P . Second, between every pair of distinct points of P there is at least one path consisting of one or more lines.

With these humble beginnings, graph theory grew to a vast, respected and interesting topic in mathematics. The mathematical theory and presentation of concepts associated with Graph Theory is somewhat daunting and has, perhaps, retarded its acceptance and use in other fields. A typical impression of graph theory may be obtained by viewing the electronic copy of the book *Graph Theory* by Reinhard Diestel that is contained on the CD-Rom inserted at the back of this thesis.

In an assessment of the visualisation of networks, Freeman claims that for most reviewers, visualisation plays an important part in the development of almost every field of science. He furthermore holds the view that this is certainly true of social network analysis where, from the beginning, visual images (particularly those grounded in graph theory) have been central to its success. Although network analysis has produced a number of computer tools to aid in the analysis of data (Freeman, 1988), it has been slower to develop computer tools designed to produce visual images. However, the most widely used tools are *Netdraw* and *Krackplot* that work in conjunction with *UCINET* (Garton et al, 1999: 96).

Although graphical representations are possible and indeed handled by the software application mentioned above, it is necessary to represent information in the form of a matrix. Representing data in this way eases the application of mathematical and computer-based statistical tools to summarise and find patterns. In the most common type of matrix, the number of rows and columns are both equal to the number of actors. The elements represent the ties between the actors. Binary notation simplifies and increases the usefulness of matrix data. A one (1) signifies the presence of a tie; if there is none, a zero (0) is entered. Other options to denote more information about the nature of ties are possible, namely relational qualifications. Two properties are important for understanding relation measurement and for categorising appropriate methods, i.e. directional relations and dichotomous relations.

In directional relations there is an origin and a destination for the tie, i.e. from one actor to the other in the pair. Often, direction is indicated with an arrow.

Undirectional relations do not indicate the direction of a tie. Dichotomous relations are coded as either present or absent for each pair of actors; indicated in binary form, 1=present, 0=absent. Valued relations, on the other hand, can take on a

range of values, i.e. strength, intensity, or frequency of the tie between each pair of actors (Wasserman and Faust, 1994: 44).

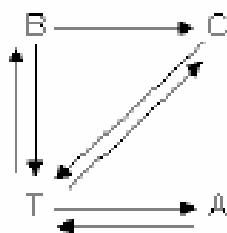
A simple matrix consists of a rectangular arrangement of a set of elements, although matrices that are more complicated can display more than two dimensions. The number of rows of elements and columns of elements describe the size of the rectangle. A "3 by 6" matrix has three rows and six columns; an "i by j" matrix has i rows and j columns. Elements of a matrix are identified by their "addresses". Element 1,1 is the entry in the first row and first column; element 13,2 is in the 13th row and the 2nd element of that row. Matrices are often represented as arrays of elements surrounded by vertical lines at their left and right, or square brackets at the left and right.

Like most other social network research outputs, this study dispenses with the mathematical convention of naming the matrix. Instead, it simply shows the data as an array of rows and columns. In some cases, matrices have labels. The labels are not part of the matrix, but are included for clarity of presentation.

The matrix below for example, is a 4 by 4 matrix, with additional labels. This kind of matrix is a starting point for almost all network analyses and is called an "adjacency matrix" because it represents who is next to or adjacent to whom in the social space mapped by the measured relations (Hanneman, ca1999: 19).

	Bob	Carol	Ted	Alice
Bob	—	1	0	0
Carol	1	—	1	0
Ted	1	1	—	1
Alice	0	0	1	—

By convention, in a directed graph, the sender of a tie is the row and the target of the tie is the column. The directed graph of friendship choices in this example among Bob and his friends looks like this:



From the matrix outlining the links between Bob and his friends, a host of characteristics, detailing the nature of their relations and the network itself can be deduced using relevant network statistical calculations. These and other relevant aspects are outlined in the sections below.

3. Methodological concepts

3.1 Network analysis: concepts and the area of study

In this section, reference is made to concepts that are closely associated with social network analysis and computer-mediated communication (CMC). These broad categories are associated with the key concepts outlined in Chapter Two that also form the boundaries of the literature review relevant to the main areas covered by this study. It is subsequently necessary to outline a number of key concepts and definitions.

An electronic bulletin board is usually dedicated to a specific topic, to which all messages sent by users are accessible to be read. Threaded discussion groups (also called computer conferencing) store text-based comments on a central server. Comments or messages are organised by topics, which is known as threads. Participants can access the discussion group and read comments and post responses. Depending on the management of the electronic bulletin board, messages can stay visible and active until such time that a discussion thread is closed or messages removed. In some cases, threads are kept for very long periods.

Asynchronous communication refers to discussions occurring independently of time or location. Using computer-mediated communication, participants send messages to a central location (discussion forum on an electronic bulletin board) where they are archived for later retrieval by other participants. An example of asynchronous communication is email. Live chat rooms and real time forms such as face-to-face communication are examples of synchronous communication.

As described in Chapter Two, “cyberspace” is a common term used to describe the digital environment that the Internet creates with all the different services it provides. Understandably, particular attention is given in cyberculture studies to theoretical and philosophical considerations regarding this term and its relevance to an understanding of Internet culture.

As mentioned in Chapter Two, the concept “virtual community” refers to a meeting place for people on the Internet. As a digital domain, it facilitates interaction and collaboration among people who share common interests and needs. Online communities can be open to all or restricted to members only. A community like the *WELL*TM is an example of a digital community that requires subscription fees in order to gain access. Digital domains may or may not offer moderator tools that can be enforced by means of terms of use, thereby restricting users and the type of exchanges. Moderators have the right to block certain users, remove or censor messages.

As explained in Chapter Two the concept “virtual reality” is sometimes used interchangeably with cyberspace. It refers to the immersion of one or more individuals in a digital or so-called virtual environment, with the aim of achieving the illusion that they are in a place, time or situation different from their actual real-world location and/or time. Virtual Reality or VR can also refer to 3D computer-generated worlds that necessitate special hardware.

3.2 Concepts and the case study

Related to the *Thorn Tree*, the following concepts are applicable. First, branches and categories: The asynchronous message board is divided into distinct sections

or branches, i.e. *Departure Lounge*, *The Lobby*, *News Stand*, and *Tree House*. These branches are subdivided into categories: countries in the case of the *Departure Lounge*. Second, message threads, i.e. Posts, Replies: The postings made by users of the *Thorn Tree*. Original postings are posts, while subsequent answers to the original post are replies. Posts and their replies are grouped together as threads. Threads can be viewed as a series of linked, related (electronic text) messages.

3.3 Social network properties and the research technique

When drawing conclusions from data sets resulting from statistical experiments, facts concerning the population are postulated. In social network analysis the population is the sample thereby making inferences a moot point. Therefore, the standard extrapolation of the research to a larger population is not undertaken. In its place, the associations between actors and their affiliations become the focus of interest.

Social network analysis is concerned with understanding the linkages among social entities and the implications of these linkages (Garton et al, 1999: 78; Wasserman and Faust, 1994: 17). Concepts and terminology additional to statistical terminology are required to understand and interpret the interactions that take place. Some of these terms and their definitions are described below. The terms are intentionally ordered such that later entries depend upon earlier ones. Note that not all terms may be used in this study. However, they may be required to understand subsequent terms.

3.3.1 Actors, ties and nodes

An actor is a discrete individual, corporate or collective social unit. The term actor does not imply that these entities necessarily have volition or the ability to “act”. With regard to a relational tie, actors are linked to one another by social (relational) ties. The defining feature of a relational tie is that it establishes a linkage between pairs of actors (Marsden, 1990: 437). A dyad is a relational tie between two actors. A triad consists of the (potential) relational ties between three actors. A subgroup is any subset of actors and all the relational ties between them. The term “subgraph” is the graph theoretic terminology used for a subgroup. A group on the other hand is the collection of all actors on which relational ties are to be measured. The term “graph” is the graph theoretic terminology used for a group. The collection of ties of a specific kind among members of a group is called an elation.

A social network consists of a finite set or sets of actors and the relation or relations defined on them. A social network is a set of nodes (or actors) connected to each other. Nodes can be anything and the connection can be any attribute. Actor, node and connection network data are defined by actors and by relations (or nodes and ties). Many ties are directional. A relation is directional if the ties are oriented from one actor to another. A directed graph is often referred to as a digraph (Hanneman, ca1999: 23).

3.3.2 Subgraph and cliques

A clique in a graph is a maximal complete subgraph of three or more nodes. A clique consists of a subset of nodes, all of which are adjacent to each other, and there are no other nodes that are also adjacent to all of the members of the clique.

A clique is a collection of actors all of whom “choose” each other, and there is no other actor in the group who also “chooses” and is “chosen” by all of the members of the clique. Cliques in a graph may overlap.

Structural variables measure ties of a specific kind between pairs of actors, for example, business transactions between corporations. Composition variables are measurements of actor attributes. Composition variables are also called actor variables. Composition variables are the standard variables used in social and behavioural sciences and are defined at the level of individual actors (gender, race, ethnicity, geographic location).

The ties between all members in a clique are maximal and complete in both the common use as well as the mathematical use of the words. In graph theory, cliques consist of the maximal subsets of points in which each point is in a direct and reciprocal relation with all others. Note that the directions of the ties between actors in a clique are usually ignored and that any member of the clique may be placed in any position. The remaining five 5-member cliques have the same relationship shown in Figure 3 each is connected to the remaining four members.

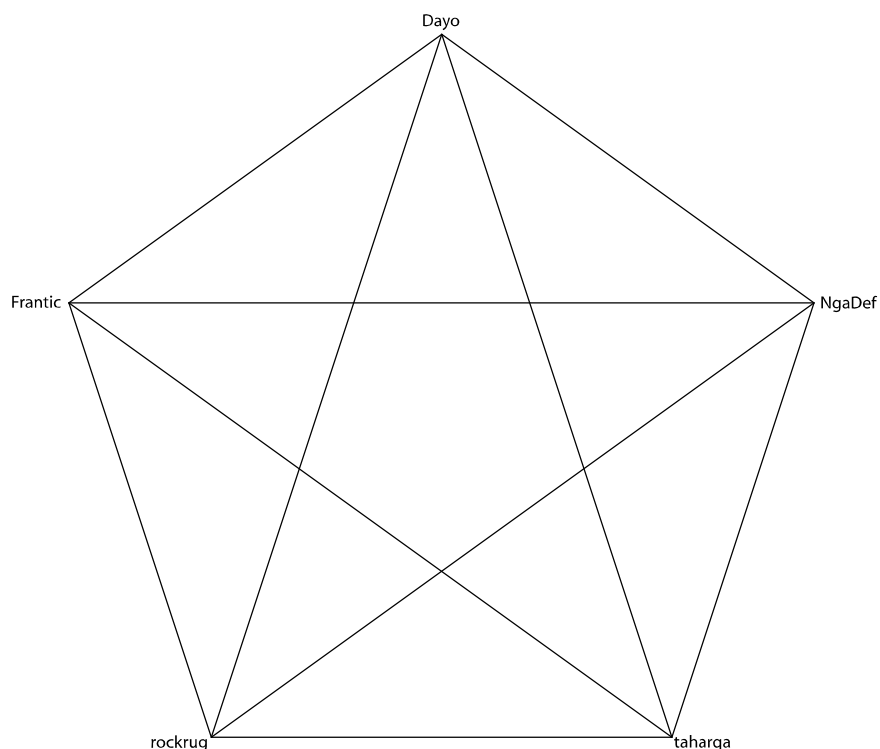


Figure 3 The adjacencies between five actors in a 5-member clique

A 4-member clique is represented in Figure 4. Note that in this case each member is connected to the other three members of a clique. Like the 5-member clique, any member of a 4-member clique may be placed on any vertex. The relationships between the actors are the same as those in any clique: they are maximal and complete. The map of a 3-member clique is simply a triangle. With the visualization of the relationships between the members of a clique, it is apparent that cliques are defined to contain at least three nodes (members). This is intentional in order to exclude mutual dyads as cliques.

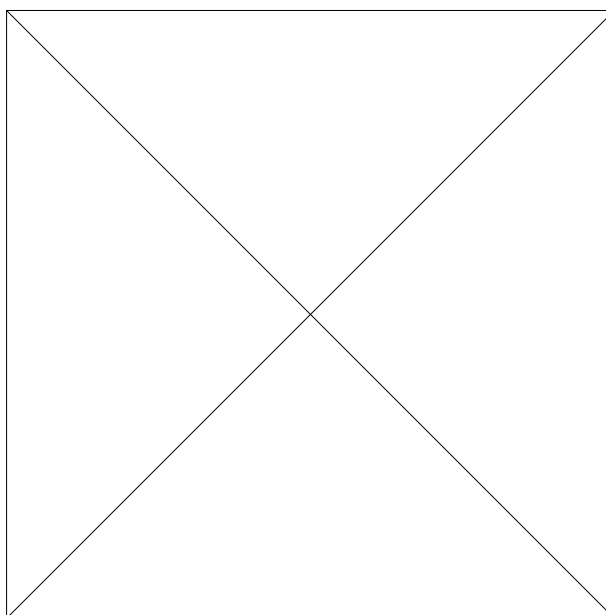


Figure 4 The adjacencies between four actors in a 4-member clique

A clique is a very strict definition of a cohesive subgroup because all ties between actors must exist and all actors are the same distance away from each other: one geodesic distance. These actors “communicate” directly with one another. There are no “friends of friends” in a clique. A clique is a special case of an n -clique, where n represents the maximum geodesic distances allowed between actors. In graph theory, a 1-clique is simply termed a *clique* and this terminology is used throughout this study. A 2-clique would allow a maximum geodesic distance of 2 that corresponds with the “friend of a friend” concept. Formally, an n -clique is a subgraph with node set N_s , such that

$$d(i,j) = n \quad n_i, n_j \in N_s.$$

This equation may be read as follows with the appropriate portions of the equation embedded in the description between square brackets: The geodesic distance

between node i and node j is less than or equal to n [$d(i,j) = n$], for all n_i and n_j [n_i, n_j] that are elements of the subgraph $N_s [\hat{I} N_s]$, where N is the graph of actors (nodes) in the set $\{n_1, n_2, \dots, n_g\}$. In addition, there are no additional nodes that are also distance n or less from all nodes in the subgraph.

Simply stated, 2-cliques are subgraphs in which all members need not be adjacent (a friend of a friend may be included) however, each member is reachable through at most one intermediary. Because n -cliques are defined for geodesic paths that can include any nodes in the graph, two problems occur: the subgraph that makes up an n -clique may have a diameter greater than n ; and, the n -clique may be disconnected. These problems occur because n -cliques are not as cohesive as cliques and therefore are not appropriate when researching cohesive subgroups.

Note that 2-cliques are generally larger and more numerous than cliques. All n -cliques, excluding 1-cliques, are considered weak cliques. In the case when messages are posted on a bulletin board, n -cliques are inappropriate. Both posters and repliers connect to one another through a thread and not via an intermediary unless one considers the thread as the intermediary. It is possible that an actor might receive the contents of a message through an intermediary but this action is not recorded by the bulletin board system and therefore cannot be analysed. In addition, the physical geographic distance separating many actors obviates an intermediary.

3.3.3 Mode

Mode refers to a distinct set of entities on which the structural variables are measured. In a one-mode network, structural variables measure a single set of

actors (friendships among residents) and are therefore termed one-mode networks. On the other hand, a network data set containing two sets of actors is termed a two-mode network. A special type of two-mode network that consists of one set of actors and one set of events is termed an affiliation network (Hanneman, ca1999). Relevant to one-mode networks, an ego is a focal actor and an alter is a non-focal actor. An ego-centred network consists of an ego and a set of alters who have relational ties to ego and among themselves. An ego-centred network is often termed a local network.

3.3.4 Graphs and visualisation

Graph theory is used in social network analysis for various reasons: it provides a concise and precise vocabulary used to label and denote social structure properties; it provides mathematical operations and ideas with which many quantities can be quantified and measured; and, it provides the ability to prove theorems about graphs and hence about representations of social structure (Hanneman, ca1999: 21-23; Garton et al, 1999: 96).

As noted earlier in a preceding sub-section, graphs of large networks often become meaningless. Matrices offer a solution since they also allow for complex statistical calculations. A matrix is nothing more than a rectangular arrangement of a set of elements. Rectangles have sizes that are described by the number of rows of elements and columns of elements that they contain. Connectivity between actors is indicated in binary form where a 1 symbolises a connection and a 0 indicates the absence of any connection (Hanneman, ca1999: 26-29).

Graphs and sociograms are the visual display of a network. The sociogram is the primary matrix used in social network analysis. It is based on graph theory and often involves complex mathematical calculations and sophisticated software. One reason for using mathematical and graphical techniques in social network analysis is to represent the descriptions of networks compactly and systematically. This also enables us to use computers to store and manipulate the information quickly and more accurately than we can by hand. There are a number of variations on the theme of sociograms, but they all share the common feature of using a labelled circle for each actor in the population being investigated; a line between pairs of actors represents the observation that a tie exists between the two (Hanneman, ca1999: 35).

3.3.5 Walks, trails and geodesic distance

A walk is a sequence of nodes and lines, starting and ending nodes, in which each node is incident with the lines following and preceding it in sequence. A trail is a walk in which all of the lines are distinct though some node(s) may be included more than once. A path is a walk in which all nodes and all lines are distinct. (Note that every path is a trail and every trail is a walk.) Walks and paths are used to calculate the distance between two nodes. A closed walk is a walk that begins and ends at the same node. A tour is a closed walk in which each line in the graph is used at least once. A cycle is a closed walk of at least three nodes in which all lines are distinct and all nodes, except the beginning and ending node, are distinct. Paths, tours and cycles are used to define geodesic distance, diameter and eccentricity (Hanneman, ca1999: 47-48).

The shortest path between two nodes is referred to as a geodesic. There may be more than one geodesic between two nodes. The geodesic distance is defined as the length of a geodesic between nodes (the shortest path). For both directed and undirected data, the geodesic distance is the number of relations in the shortest possible walk from one actor to another. For each actor, we could calculate the mean and standard deviation of their geodesic distances to describe their closeness to all other actors. For each actor, that actor's largest geodesic distance is called the eccentricity — a measure of how far an actor is from the furthest other. The distance between two nodes is the length of any shortest path between them. If no such path exists between two nodes, they are unreachable and the distance is considered infinite (Hanneman, ca1999: 50).

The eccentricity or association number of a node is the largest geodesic distance between that node and any other node. Eccentricity summarises how far a node is from the node most distant from it in the graph. Several measures of centrality (centre and centroid) are based on the eccentricity of the nodes.

The diameter of a connected graph is the length of the largest geodesic between any pair of nodes. This is equivalent to the largest nodal eccentricity. The diameter of a graph quantifies how far apart the furthest two nodes in the graph are. For example, consider the transmission of a message. If messages always take the shortest route (geodesic) then we are guaranteed that a message can travel from any actor to any other actor over a path no greater than the diameter of the graph. Also note that the diameter of a subgraph is the length of the largest geodesic within the subgraph (Hanneman, ca1999: 50-53).

Usually the size of a network is indexed simply by counting the number of nodes. In any network there are $(k * (k-1))$ unique ordered pairs of actors (that is AB is different from BA, and leaving aside self-ties), where k is the number of actors.

3.3.6 Degree (indegree and outdegree), centrality and closeness

In a graph the degree of a node is the number of nodes adjacent to it. This is also equivalent to the number of lines incident with that node. In a digraph a node can be either adjacent to or adjacent from another node depending upon the direction of the line or arc. Therefore, indegree and outdegree are treated separately. The indegree of a node consists of the number of nodes adjacent to other nodes. This means that this node is a receiver of information. The number of indegrees may be considered measures of receptivity or popularity. Outdegree (out degree) of a node consists of the adjacent from this node. This means that this node is a source of information. The number of outdegrees may be considered measures of expansiveness (Hanneman, ca1999: 61).

In undirected data, actors differ from one another only in how many connections they have. With directed data, however, it can be important to distinguish centrality based on indegree from centrality based on outdegree. If an actor receives many ties, they are often said to be prominent, or to have high prestige. That is, many other actors seek to direct ties to them, and this may indicate their importance. Actors who have an unusually high outdegree are actors who are able to exchange with many others, or make many others aware of their views. Actors who display high outdegree centrality are often said to be influential actors.

An isolate node has an indegree and an outdegree of zero. An isolate is not connected to any other node. A transmitter node only exists in a digraph and has an indegree of zero and an outdegree greater than zero. A receiver node only exists in a digraph and has an indegree greater than zero and an outdegree of zero. A carrier or ordinary node only exists in a digraph and has an indegree greater than zero and outdegree greater than zero. The neighbourhood of an actor consists of all connections to that actor (ego) regardless of their direction of connection. In other words, the neighbourhood consists of all actors in the adjacency matrix who have a "1" in the same row or column as the ego (Hanneman, ca1999: 63).

Fully saturated networks (i.e. one where all logically possible ties are actually present) are empirically rare, particularly where there are more than a few actors in the population. It is useful to look at how close a network is to realizing this potential, i.e. to examine the density of ties, which is defined as the proportion of all ties that could be present to those that actually are present.

Prominent actors are those that are extensively involved in relationships with others and this involvement makes them more visible to the other. The indegree and outdegree of a prominent actor is of no concern. What is important is simply that the actor is involved. A central actor is a prominent actor, that is, an actor with many ties.

Concerning actor prestige, in a digraph a prestigious actor is one who is the object of extensive ties thus focussing solely on the actor as a recipient. In the case of group centrality and group prestige, group-level measures are used to compare different networks easily.

Actor closeness centrality is a function of the geodesic distances the actor has with the other actors. As the geodesic distances increase in length the centrality of the actor involved decreases. This type of centrality depends not only on direct ties but also on indirect ties especially when two actors are not adjacent.

The term closeness is used to mean actor closeness centrality. The measure of prestige among actors is the indegree of each actor. The idea is that actors who are prestigious tend to receive many nominations or choices. A relative indegree is the proportion of actors that choose a specific actor: the larger the index, the more prestigious is the actor.

Reciprocity is a measure of the answer to a simple question: “How strong is the tendency for one actor to ‘choose’ another if the second actor chooses the first?” Reciprocity, trust and trustworthiness are also concerns in the study of social capital, as discussed in Chapter Two.

3.4 Software applications

Virtually all analyses performed in this study are performed by the commercially available computer program *UCINET* by Borgatte, Freeman and Everett. *UCINET* bundles additional software tools that are useful for additional analysis or presentation of the social networks: *Mag3D Visualization*, *Netdraw* and *Pajek*. It contains a number of standard multivariate analysis tools and routines such as multi-dimensional scaling (MDS), correspondence analysis and hierarchical clustering. The software application performs matrix symmetrization, row and column selection and other transformations. Features specific to network analysis are as follows:

- Connectivity functions include geodesic distances, node accessibility and path studies. Built-in algorithms give path lengths, link strengths and costs of links.
- Centrality functions include degree, closeness, betweenness, centrality and power-scoring on matrix-specific vectors.
- Subgroup search functions include maximal and n -cliques, n -clans, lambda sets, factions, k -plex, k -cores and identify graph components and calculate densities for each.
- Role and position analysis functions include searches for regular, structural, automorphic and other equivalence searches.

Note that the full capability of *UCINET* is not required for the analyses performed in this study. Only those features of *UCINET* that are applicable to this study are used.

3.5 Descriptive statistical methods: concepts and this study

Formulas and equations have been intentionally left out of this study as they may be found in any good reference covering the material described in this section. It is to be noted that the theoretical detail of statistics does not form part of this study. However, the use of these techniques is sufficient to draw conclusions or describe the findings and arguments put forth in Chapter Four. This also applies to additional explanations not mentioned in Chapter Three to clarify or indicate a point that may or may not be obvious to the reader.

The following terms are referred to in this study either directly or indirectly. With the exception of those terms relating to survival analysis (see “3.5.12 Survival analysis”) all terms are standard statistical terminology and are provided to facilitate the reader with limited exposure to statistical analysis. The order of the terms has been explicitly selected since terms lower in the list are generally dependent upon previous definitions.

3.5.1 Population, census

While a population is the entire group of objects about which information is required, a sample is part of or a subset of the population used to gain information about the whole. A census is a sample consisting of the entire population. Furthermore, a unit is any individual member of the population. A variable is a characteristic of a unit that is to be measured for those units in the sample.

3.5.2 Measurements

A measurement of a property has a nominal scale if the measurement tells only what class a unit falls in with respect to the property. Gender and race are examples of measurements on a nominal scale. The measurement has an ordinal scale if it also tells when one unit has more of the property than does another unit. Sizes of small, medium, large and extra large are examples of measurements on an ordinal scale. The measurement has an interval scale if the numbers tell us that one unit differs by a certain amount of the property from another unit. Temperatures in degrees Celsius are measurements on an interval scale. The measurement has a ratio scale if in addition the requirements of an interval scale the measurements

indicate that one unit has so many times as much of the property as does another unit. Length and mass are measured on a ratio scale.

3.5.3 Mean

The mean of a set of n numbers is the arithmetic average; it is the sum of the observations divided by the number of observations, n . The mean is a measure of the centre of a data set. The mean makes sense only when used with the interval/ratio data because it requires addition of the measurements. In practice, means are frequently computed for ordinal variables as well.

3.5.4 Median

The median is the typical value; it is the midpoint of the observations when they are arranged in increasing order. The median is the 50th percentile. The median is a measure of the centre of a data set. The median makes sense only for interval/ratio and ordinal variables.

3.5.5 Mode

The mode is the most frequent value; it is any value having the highest frequency among the observations. The mode is a measure of the centre of a data set. The mode is the only measure that makes sense with nominal variables.

3.5.6 Proportion

A proportion is defined as a part (fraction) of a whole. A percentage is obtained by multiplying a proportion by 100. The n^{th} percentile of a set of numbers is a value such that n percent of the numbers fall below it and the rest fall above it. The lower quartile is the 25th percentile. The upper quartile is the 75th percentile.

3.5.7 Minimum and maximum

The minimum number is the smallest value in a set of numbers. The maximum number is the largest value in a set of numbers. The five-number summary of a set of numbers consists of the minimum value, the lower quartile, the median, the upper quartile and the maximum value. The five-number summary is a method to measure the centre and spread of a set of numbers.

3.5.8 Deviation

The deviation is the arithmetic difference between two values. The variance is the mean of the squares of the deviations of the observations from their mean. The standard deviation is the positive square root of the variance. The three-number summary of a set of numbers consists of their mean, standard deviation (or variance) and total number of elements in that data set. The three-number summary is a method to measure the centre and spread of a set of numbers.

3.5.9 Charts, histograms and other graphic illustrations

A chart or graphic is any illustration or drawn design. A bar chart is a graphic representation of data usually in the form of solid vertical or horizontal bars. A bar chart is usually used to illustrate and compare several nominal variables.

Histograms look like bar graphs but they differ in several respects: the bars are always vertical; the base scale is always marked off in equal units; the widths of each bar are identical and represent the same range; the height of each bar is proportional to the whole. (If counts are used for the heights of the bars, this chart is often called a frequency chart or frequency distribution.) Line graphs show the behaviour of a variable over time. Time is marked on the horizontal axis and the variable being plotted is marked on the vertical axis. The horizontal axis is commonly referred to as the x-axis and the vertical axis as the y-axis.

Scatterplots are used to analyse the cause and effect relationship between two variables where two sets of data are plotted on the horizontal and vertical axes, respectively. Each observation is represented by a single point with the horizontal coordinate equal to the value of the first variable and vertical coordinate equal to the value of the second variable. If the scatterplot shows regression then the explanatory variable is always plotted on the horizontal axis and the response variable is always plotted on the vertical axis. Scatterplot graphs bivariate data when both variables are measured in an interval/ratio or ordinal scale. The horizontal axis is commonly referred to as the x-axis and the vertical axis as the y-axis.

A regression line is a straight line that describes how a response variable (vertical axis) changes as an explanatory variable (horizontal axis) changes. Regression is

often used to predict the value of a response variable for a given explanatory value. Regression, unlike correlation, requires an explanatory variable and a response variable. The horizontal axis is commonly referred to as the x-axis and the vertical axis as the y-axis. The least-squares regression line is the line that makes the sum of the squares of the vertical distances of the data points from the line as small as possible. The horizontal axis is commonly referred to as the x-axis and the vertical axis as the y-axis.

3.5.10 Correlation

Correlation is a measurement of association between two variables and is referred to as r or R . The correlation measures the strength and direction of the linear relationship between two quantitative variables. Correlation only makes sense when both variables have an interval/ratio scale but is sometimes used with ordinal scales as well.

The square of the correlation (r^2) is the fraction of the variation in the values of response variable that is explained by the least-squares regression of the response variable on the explanatory variable. The value, r^2 , is a measure of how successful the regression is in explaining the response. (If $r^2 = 0.75$, this means that 75% of the variation in the response variable is accounted for by the linear relationship between the two variables and the remaining 25% is caused by another unknown source.)

3.5.11 Censored observations

Censored observations contain only partial information and they may or may not have survived the period of study. Those surviving the total time of the study or

those who became disengaged (“lost”) during the study represent censored observations: information on their status is not available. Survival means that the event of interest (termination) has not occurred.

3.5.12 Survival analysis

The Kaplan-Meier Product-Limit Method estimates the survival function directly from the continuous survival or failure times of the observed units. This estimate of the survival function is known as the product-limit estimator. The advantage of the Kaplan-Meier Product-Limit method over the life table method for analysing survival and failure time data is that the resulting estimates do not depend on the grouping of the data into a certain number of time intervals. The Kaplan-Meier Product-Limit method is often used to estimate the probability of survival over a given time period.

Perhaps the technique of survival analysis must be further explained as this technique is not universally understood or used by many researchers. In effect, survival analysis tries to estimate the length of time a unit “survives”, “endures” or lasts. The variable to be studied is the time delay until the occurrence of an event (death, disease, treatment outcome). This time delay corresponds to survival duration (the difference between the beginning study date and the event date). Survival analysis techniques were primarily developed in the medical and biological sciences but they are also widely used in the social and economic sciences as well as in engineering. Social scientists study the survival of marriages, high school dropout rates (time to drop-out) and turnover in organizations; economists study the survival of new businesses or the survival times of products; and, quality control engineers study the survival of parts under stress (failure time analysis).

What distinguishes survival analysis from most other statistical methods is the presence of “censoring” for incomplete observations. For example, in a study of survival following two different treatment regimens, analysis of the trial typically occurs well before all the patients have died. For those still alive at the time of analysis, the true survival time is known only to be greater than the time observed to date. Such an observation is said to be “censored”. There are two other sorts of incomplete observation: the “lost to follow-up” (patient missing during the study duration) or the appearance of an event other than the event being studied. These observations are also considered censored.

In this study the duration of threads is investigated in order to estimate its longevity. Some threads were active when the study began, some were active when the study ended and some threads were determined to be incomplete owing to various factors. Survival analysis enabled a precise estimation of the duration of a thread that informs the researcher in selecting data in order to draw a conclusion.

The so-called hazard function contributes to findings about the survival of threads. The overall shape of a typical hazard function is often referred to as the “bathtub curve” and is used to describe the probability of failure of components in a product. At the beginning of the life cycle component failure is usually high and is often referred to as “infant mortality failures”. This period is followed by a relatively “quiet” period of random failures when the failure rate (termination rate of threads) is relatively low and constant. Then after some time of operation the failure rate (termination rate of threads) begins to increase until all components or devices have failed or terminated. In this study, a so-called bathtub curve is superimposed over the results of the hazard function in order to illustrate this point. The bathtub curve is not a result of a mathematical calculation and may not be the best fit. It is rather an illustrative exercise to elucidate its expected shape.

4. This study: issues of measurement

In this section, issues that pertain to the population, boundary and sampling are discussed. In Chapter One it is stated that the *Africa* category of the *Departure Lounge* is taken as a case study of travel information exchange in a computer-mediated social network. In this discussion forum, nature and frequency of participation differ among actors because actors make different types of contributions (described by action) to different threads and post unequal numbers of messages. If messages are taken as the reason for a tie between actors, a structure transpires. By investigating the structure of this network it is possible to describe the nature of the social ties and to comment on the impact this structure has on the flow of resources (information and other exchanges) through the network. In network analysis research, like any other social sciences research, it is necessary to specify the population, demarcate the boundaries and where necessary, work with a sample. In the sub-sections below, these issues are clarified.

4.1 Boundary specification

The selection of one category of all the categories that are available on the *Thorn Tree* deserves attention since it affects the boundary specification. The selection of the *Thorn Tree* as case study deserves attention as much as the selection of one of the categories amongst all others on a specific branch. With reference to the study of Wang and Fesenmaier (2004), *Lonely Planet* is only mentioned as an example of a company website that uses the community building features of the Internet to facilitate information sharing among travellers. This leaves room for scholarly research about the *Thorn Tree*. Moreover, the *Thorn Tree* is exemplary of

computer-mediated communication and with a focus on the role of the Internet in facilitating computer-mediated information dissemination; *Lonely Planet's* website offers a usable example representative of others. On a technical level, the manner in which the *Thorn Tree* is managed together with the data that is retrievable for analysis purposes made it a successful contender as a case study of an electronic bulletin board with a shared interest in travel.

Three reasons are foremost in selecting the *Africa* category. First, this study was undertaken on African soil. Second, the researcher is knowledgeable about the tourism industry in South Africa. Lastly a personal trip to Morocco at the outset of this study gave the researcher first-hand experience, especially regarding the need for travel information. More importantly, it gave the opportunity to compare travel information on the *Thorn Tree* about Morocco with some of the limited personal experiences while travelling in Morocco.

Some investigators have stipulated inclusions of rules in terms of two or more of the three definitional foci outlined in the above. They state that:

...[w]hile this may lead to theoretically elegant definitions of membership, it also has a major weakness, in that it reduces the number of problematic features to be explained given knowledge of network structure (Lauman et al, 1989: 69).

In this study, the focus falls upon the participative approach since the participation in a thread determines whether someone is included in the dataset or not. People who merely read a thread and don't respond in any way are not recorded. (The number of times a message has been viewed is displayed on the *Thorn Tree*

webpage, however, the viewer remains unidentified and cannot be used in this study).

Lauman et al (1989: 70) produced an eightfold typology of boundary specification strategies using the distinction between nominalist and realist views and cross-tabulating that on the ontological status of social phenomena. It is summarised in Table 1 in the Annexure. If the meta-theoretical perspective to this study is assumed to be a realist approach, it would mean that Strategy V on the typology of boundary specification for delimiting actors within this network is appropriate. This complies with the nature of the data and the focus of this study.

Strategy V entails a realist and participative approach (Lauman et.al, 1989: 72). An actor's inclusion in a network is defined in terms of participation or interest in one or more events, activities or concerns. This is the primary alternative to Strategy I from the realist perspective. Strategy I deals with tightly bound groups, where the inclusion rule for actors refers to socially defined and recognised group memberships. Can the *Thorn Tree* be defined as a “tightly bound” group? Seemingly not, since membership is unrestricted, although necessary for posting and/or replying to threads. Ties appear to be weak while the network as such is sparse. A participatory approach is therefore more appropriate since membership is open to anyone anywhere with no excluding criteria other than general terms of use. After all, inclusion in the dataset depends on participation in a thread, as outlined above. Moreover, participation levels suggest that large numbers of members are inactive because they contribute infrequently to discussions. This is outlined in more detail in Chapter Four.

4.2 Sampling

Statistical studies may be classified in three categories: producing data, organising and analysing data and drawing conclusions from data. When producing data the researcher determines the type of sampling required and designs the experiment accordingly. In this study, and as is usual with most studies involving social network analysis, the population is used and a census is taken.

Although a census is a sample consisting of the entire population, in fact, it is an attempt to sample the entire population. In any census there are units of the population that are not obtained for one reason or another. The missing units must be estimated and the reasons for their absence identified in order to form a judgment of their effect on the result. This is covered in the sub-section dealing with data integrity and eliminating errors.

Reminiscent of sampling in more traditional social research, for the purposes of this study, measurement is limited to the *Africa* category. However, in network analysis sampling is not undertaken since it will culminate in errors.

4.3 Reliability and validity

Mouton and Marais (1996: 79) state that the core consideration of validity “concerning the process of data collection is that of reliability”. In essence, this means that the application of a valid measuring instrument to different groups under different sets of circumstances should lead to the same observations. This concurs with Reinhard (1994: 240) who states that “validity is the consistency of a measure with a criterion”.

However, a further statement (Reinhard, 1994: 240) is important for any research, namely that it:

is possible to have a reliable test without having a valid one...but you cannot have a valid measure without it first being reliable. Thus, validity presumes reliability.

According to Garton et al (1999: 92), gathering data electronically replaces issues of accuracy and reliability with issues of data management, interpretation and privacy. Indeed, as is the case with this study, electronic monitoring can routinely collect information on whole networks. By closely following the accepted practices of this research technique, care was taken to ensure reliability. For example, by employing basic statistical calculations on the acquired data, errors that arose during the data capturing process were eliminated, thereby increasing the level of data integrity and reliability in the study of this whole network. It is important to note that two standard software packages available as Open Software from the Free Software Foundation were used to capture the data: *wwwoffle* and *wget*. This is discussed in more detail in sub-section “5.1 Acquiring data”.

The type of data and the manner in which data capturing was handled meant that some of the factors that are referred to as “nuisance variables” could be avoided. Considering what Mouton et al (1996: 81-82) refer to as “researcher effects”, it is necessary to note that at no point prior, during or even after the research period for this study was it made known to members of the *Thorn Tree* that the nature and extent of information exchange resulting from their participation in a computer-mediated social network were being studied.

A factor that relates closely to reliability concerns the biographical information of *Thorn Tree* members. When a member applies, an online form requests biographical information. The validity of the analysis relies on the detail people reveal in their profiles when they register and whether profiles are visible or not. Relying on this to compile a comprehensive profile of members proved problematic since members might either be supplying real/truthful information or not, might not have completed all fields, or might either be serious or joking, which means that data becomes questionable. This means that almost no means exist to compare stated identities with real ones. Subsequently, any attempt to work with biographical information in order to assist with the interpretation and analysis of network data was discarded.

Another factor influenced the completeness of the dataset, namely the way in which *Lonely Planet* manages the *Thorn Tree*. This involves the amount of time a particular thread stays active and therefore visible on the *Thorn Tree* or the possibility that messages from a thread can be censored and thus deleted. This is outlined in a thread from the *All About the Thorn Tree* category on *The Lobby* branch. On 19 March 2004 at 11:56, *mauriziogiuliano* posted a message with the subject “deletions from TT”:

Dear Roman,

I wonder, do posts on TT get deleted sometimes and how ? Maybe you delete them when the question has been answered fully, and / or when the question is no longer relevant ? Or when something else is wrong ?

I see for example some deletions...

On the "all about LP" branch, I had put a thread on the Falklands guidebook. I received a reply (from you I think), and then the thread disappeared, so maybe you deleted it because it had been replied ? I had also put a thread about "new suggested guidebooks" and it was deleted too, maybe because so many other threads cover the same thing ? On the Africa branch, my Somalia thread was deleted, maybe due to lack of replies.

Any policy ideas would be appreciated. In any case, I think it would be good to tell the thread's author when these get deleted.

In a reply, *Lan* posted a message at 12:28 on the same day:

Most of the branches have an automatic expiry set, if there's no posts in a thread it'll usually vanish after two weeks - some are longer, some I think are shorter. Although they could notify someone it might get tedious for some - I've posted more than 10000 times, I certainly don't want a notification each time a message expires ;-)

In an effort to assist even more, *dlutzy* posted the following at 18:56:

If you click "Subscribe to this thread" you'll get a copy of any/all replies sent to your email account. So you can keep the information forever if you wish.

The following reply by *mauriziogiuliano* at 19:01 reveals much about the uses of the *Thorn Tree*:

Dear Dlutzy, thanks. Yes true, but the point off TT is to inform others and not just myself. So I put information on there, and if no-one replkies [sic] within a couple of weeks it will be deleted ? Could I send a weekly message to keep it alive ?

I am not really clear. There is even the old TT. So I thought thr point was to keep messages and replies for ever. Wrong ?

The following message posted by *hunwagner* at 21:42 heeds a relevant warning:

Wrong - if they kept all messages forever, the TT would grow enormous, full of outdated info. Some particularly good or popular threads are made "kept" though, and these never expire. You will find such kept threads at the last page of each forum. You can try keeping your post alive by sending weekly replies to yourself, bit I guess that will just bore people...

Revealing something about the management of the *Thorn Tree*, *montyman* reminds everyone of moderators' roles:

some moderators behave like Major Major in catch 22 deleting whole lines and obscure words sometimes whole threads and also they use nom de plumes like washington Irvine to hide their crimes. Often they

leave a thread devoid of meaning which is a form of Trolling in itself. They are very dangerous and when they do it they may not be the actual moderator you think did it. They will then go into hiding until they feel it is safe to venture out cut up another threadless victim obsequious to their own ideology

Since moderators remove some threads, it means that the sociogram of the *Africa* category reflects those messages that were available at the time data capturing was done. If this is regarded as a shortfall, no method exists to overcome it. It is impossible to reinstate all the threads made to any category since the inception of the *Thorn Tree* or determine a specific period during which no threads are deleted. Since the data was obtained from *Lonely Planet's* website in an automated fashion, none of the usual factors associated with participants played a role in the reliability of the data, i.e. memory decay, the omnipresent syndrome, interview saturation, role selection, response patterns or the necessity to motivate participants to participate.

Regarding the content of messages and discussions, no manipulation took place by the researcher, such as participating in online discussions, or creating aliases in an attempt to steer conversations in a particular direction.

5. This study: methods

This section describes the sequential steps that were taken in order to obtain the data and prepare it for analysis.

5.1 Acquiring data

In the previous section, it was outlined that the population consists of all the actors that contributed to discussion threads on the *Africa* category of the *Departure Lounge* branch of the *Thorn Tree*. Reasons were given for this boundary specification. It was also stated that in network analysis no sampling of the population is taken.

Mentioned by Rice (1994: 174), an intriguing aspect of studying computer-mediated communication systems such as the *Thorn Tree* is that they can be more or less unobtrusive components of research design. It is also true for this study, since data was collected without anyone being aware of it. The acquisition of the preliminary data was obtained on 27 December 2003. This attempt to obtain and view the raw data available from *Lonely Planet* indicated several potential problems: the amount of data available from the *Africa* category was large and the on-site retention of the data was approximately one month.

The size of the data indicated that automated techniques would be required to capture the data. In order to minimize the loss of data, the duration of its acquisition would have to be as short as possible. The timeframe within which data are retained on *Lonely Planet*, however, is sufficient for analysis. Two standard software packages available as Open Software from the Free Software Foundation were used to capture the data: *wwwoffle* and *wget*. The manual pages and text dumps for these two software packages may be found on the accompanying CD-Rom. The package *wwwoffle* is an off-line Web (http) reader and *wget* is a package that downloads Web (http) pages.

The package *wwwoffle* was required to read the Web pages from *Lonely Planet* because of the dynamic nature of the site. When *wget* was used it reconnected to the previously downloaded but changed pages and commenced downloading them again in order to keep them up-to-date. This repetition coupled with a dialup connection only allowed about ten pages to be downloaded before *wget* would start at the first screen again. The advantage to using *wget* was that there were no missing data, however, the disadvantage was that only about 100 threads covering less than one week were available for analysis. Therefore, it was decided to use *wwwoffle* to page through each screen manually and to accept the loss of some messages. The advantage of using this method is that more messages as well as longer threads would be available for analysis.

5.1.1 *wwwoffle*

The package *wwwoffle* was used in proxy mode to acquire the individual pages from *Lonely Planet* and to store them on the local computer. Owing to the lack of speed from a dialup modem and the fact that this was intentionally a manual process, the duration of capture was approximately 10 hours. During this period of capture messages were added to the current list and messages were discarded from the end of the list. The number of threads with potential errors encountered and the methods used to account for this loss are discussed in the sub-section entitled "Preparing data for analysis". The date of capture of the *Africa* category was 5 June 2004.

5.1.2 wget

Once the entire *Africa* category was downloaded with *wwwoffle* the local copy of the site appeared static. At this stage *wget* was used to reconstruct the screens for analysis. In addition to the date of capture, eight separate days were spent trying to configure *wget* to capture the *Africa* branch without continuously repeating from the first screen. These screens have also been included in the analysis. The advantage of including these data mean that missed messages would be recovered and included in the analysis. The disadvantage of including these data means that duplicates would have to be identified and removed.

5.2 Preparing data for analysis

The result of using *wwwoffle* and *wget* produced two generic files: *categories* and *messagepost*. The *categories* files contain the high level structure of threads: title, message, poster, date, time, number of replies and number of views. The *messages* file contains the original message plus the replies: replier, title, message, date and time. Occasionally, several message files are used to contain the replies.

The name of each Web page saved by *wget* contains additional information following the file name. In fact, the filename is the name of the dynamic page created by *Lonely Planet* (*messages.cfm* or *category.cfm*) but each may be distinguished by the GET section of the screen that is now part of the filename. (The GET section of a Web address is only one of three methods used with Web pages to send and receive information. The other two methods are POST and so-called cookies. Understanding how these techniques are used is not critical to this study).

The information attached to the *categories* file is its category ID (called *catid* and is 9 for the *Africa* category) and start page number (STARTPAGE). Neither the category IDs nor the start page numbers are used in the analysis but the category ID was essential in obtaining the correct information from *Lonely Planet*. The information attached to the *messages* file, however, is used in the analysis for the purpose of checking the internal integrity of the information. There are up to eight fields attached to each *messages* file of which only the thread ID and message ID are important. The other fields were not used in analysing the messages: post action (always “reply”), category ID (9 for *Africa* category), start page, parent ID, “from” and a “showall” field. The “showall” field appears only once. The “from” field is used to sequence the reply screens and ranges from 1 to 63 in the final data set.

The “from” field contains the number associated with each screen that contains messages. In this case, the maximum screen page is 63. When using *wget* the maximum screen numbers downloaded was seven (9 May 2004) before repeated screens began appearing. Therefore, allowing the loss of some data, as described in the subsection entitled *Acquiring data*, enabled the analysis of nine times more screens and enlarges the period of observation from less than a week to about six weeks.

5.3 Extracting the data

As emphasised by Garton et al (1999: 92), using electronic means to study networks (such as computer-mediated social networks) often revolves around the ingenuity of researchers and programmers in their study design. Undertaken by *Forthwith Computers*, a simple program (*lonely.c*) was written in the C-programming language to capture the relevant information from the downloaded web screens. A

copy of the programme is provided on the accompanying CD-Rom. The programming technique used to acquire the information is commonly called “screen-scraping” by programmers and is a method used to acquire data from an active (live) screen. However, in this case, the screens were not active as they had been downloaded by *wwwoffle* and processed into screen image files by *wget*.

The information obtained in this fashion was stored in two tab delimited text files, namely *categoryfile* and *messagefile*. Each file has a header section that is identical and its content is derived from the filename and GET section of the file.

5.4 Internal data integrity checks

Preliminary data integrity checks consist of matching the filename with the name of the original file that was produced, thus ensuring that the category ID always refers to the *Africa* category (9). Both files contain the correct information and are therefore valid files. In addition, the message filename refers to the thread ID and the message ID. These were checked against one another and verified correct.

Since the information contained in the filename corresponded with the information taken from the screen, both files were imported into two tables in a database for further validation. Some editing of special characters was required to ensure that the data loaded correctly but other than these few changes no additional content was changed.

The *category* and *message* tables in the database consisted of 1 520 and 7 254 entries (rows), respectively. The data retrieved on 27 December 2003 was

intentionally included in the dataset to ensure that any changes occurring on *Lonely Planet* would be incorporated correctly. After it was verified that all data had imported properly, a SQL statement deleted the old data acquired on 27 December 2003. The remaining entries consist of the data that would be further validated, corrected and analysed. The remaining rows in the *category* and *message* tables were 1 500 and 6 547, respectively. Most of the following validations were written in SQL, PHP or in a combination of the two languages.

Owing to the fact that threads and messages downloaded both at the beginning and the ending of the data may contain discrepancies, two specific checks were performed: isolate threads in *category* that are not in *message* and vice-versa. The following threads were discarded because there is no possible method to link them to valid messages. First, 286 threads were in *category* but not in *message*, while eleven threads were in *message* but not in *category*. The significance of this lies in the process of data-capturing and the manner in which the *Lonely Planet* servers store data. It surely pointed at the necessity to check data for integrity and other errors.

Duplicate posts that were introduced (intentionally) were then removed. No exact duplicates were detected in the table *category*, however, 1 791 duplicates were detected in *message* and subsequently removed. The remaining valid entries totalling 4 756 were placed in a database; it forms the basis for analysis.

Three threads were found containing a total of 29 messages with corrupted titles. The corrupted titles were caused by a small software error in the C program and appeared only when more than one page of replies were received. As only the titles were corrupted these entries were corrected and a few duplicate messages and three threads were removed.

The results at this stage show 1 282 actors (poster and repliers) contributing toward 1 027 individual threads. There are no duplicate posters for any thread and each thread has exactly one poster. There are no duplicate titles or duplicate content for any thread. Further internal integrity checks were then possible by looking at the contents of the data and interpreting the results.

5.5 Estimating uncertainty of data

Each thread on the *Lonely Planet* site contains an indication of the number of replies as well as the number of views that thread received. The number of threads recorded and the number of threads reported by *Lonely Planet* indicate the precision of the data. In total, there were 4 756 unique messages in 1 027 threads. The recording mechanism captured 46 more messages than reported by *Lonely Planet*. In addition 332 messages were missed. The difference (281) indicates that the data have an inherent uncertainty owing to incompleteness of approximately 6%. The uncertainty is not unusual nor is it excessive. As the analysis consists primarily of ratios and the amount of data is relatively large, the inherent uncertainty of results should be negligible.

6. This study: calculations and measurements

6.1 Descriptive statistical calculations and this dataset

Table 2 lists the number of threads and the number of replies each thread contains. Using descriptive statistical calculations, the median, average and mode of responses could be calculated.

Calculating ratios, considering the total number of threads (1 027) and the number of threads that received no replies (165), a ratio of 0.161 is derived at. This means, as outlined in more detail in Chapter Four, that 16% of all messages in this dataset remain unanswered.

For the purposes of determining the length of time that a thread remains active, the Kaplan-Meier Product-Limit is used to do a survival analysis. Findings are outlined in more detail in Chapter Four. Here it is necessary to state that the captured data include the date and time of messages, thus enabling the calculation of the duration of threads. The hazard function is another method to describe the duration of threads.

Based on the raw data containing the number of messages, the number of replies and the number of views, a ratio can be calculated with regard to replies versus views. A scatterplot, as explained earlier in this chapter, is used. The exact linear equation of the linear least squares (LLS) line relating the number of replies to the number of views is not relevant for this analysis. It is, however, relevant that the number of replies is positively associated with the number of views in order to gain information about the correlation between views and replies. As noted earlier in this chapter, only actors that post messages are contained in this dataset. Actors who merely view messages cannot be captured. Subsequently, the only data that reflects upon viewers is contained in a scatterplot where the number of views is correlated with the number of replies. Based on the findings of this scatterplot, the ratio of replies to views is calculated (refer to Figure 8 in Chapter Four).

A histogram was used to visualise the general length of messages. The length of messages points at actor behaviour in as far as it is vaguely indicative of the amount of information contained in a message. In a verbal conversation, the length

of a message correlated to the duration of a conversation. It is not, however, indicative of the content or the value of the content, since three words can sometimes mean more than three paragraphs if placed within context.

6.2 Network analysis, methods and this dataset

In order to study the connections between posters and repliers, social network analysis techniques are employed on a dataset that contains the binary code reflecting the ties between actors based on the messages they contributed to different threads. There are those actors who initiate threads and those who reply to messages. In those instances where an actor who initiates a thread also participates in the ensuing conversation by posting more messages, such messages are excluded from analysis. Nevertheless, in this study the data is asymmetric which means that it is possible to distinguish between ties being sent and ties being received. Later, the importance of this transpires since it enables a view of directional ties, i.e. sources or sinks.

The size of a network is often a very important factor to consider since size is critical for the structure of social relations because of the limited resources and capacities that each actor has for building and maintaining ties. As a group gets bigger, the proportion of all of the ties that could (logically) be present -- density -- will fall, and the more likely it is that differentiated and partitioned groups will emerge. Usually the size of a network is indexed simply by counting the number of nodes. In any network there are $(k * k-1)$ unique ordered pairs of actors (that is AB is different from BA, and leaving aside self-ties), where k is the number of actors. It follows from this that the range of logically possible social structures increases exponentially with size (Hanneman, ca1999: 41-42).

In a one-mode network such as this one, as explained earlier, the names of actors in the rows are repeated in the columns¹. In this study, some of the information derived from network analysis is verifiable with findings from the descriptive statistical calculations, i.e. the number of actors, messages and threads. Focussing first on the network as a whole, the number of actors, the number of connections that are possible, and the number of connections that are actually present are determined using *UCINET*. Although fully saturated networks (i.e. one where all logically possible ties are actually present) are empirically rare, it is useful to determine the density of ties, which is defined as the proportion of all ties that could be present and that actually are. Through this measurement, it is possible to determine whether a network is dense or sparse. It furthermore follows on the strength of ties, i.e. weak ties or strong ties. The implications of these measurements for characterising the flow of information through an exchange network such as the *Africa* category are outlined in Chapter Four.

The number and kinds of ties that actors have are a basis for similarity or dissimilarity to other actors and hence to possible differentiation and stratification. The number and kinds of ties that actors have are keys to determining how much their embeddedness in the network constrains their behaviour, and the range of opportunities, influence, and power that they have. These characteristics are underpinned by measurements using *UCINET* with reference to network size, degree (indegree and outdegree), centrality and reachability. Considering degree and specifically indegree and outdegree depends on whether information is looked at row-wise or column wise. In the case of the former, the outdegree or out-ties are calculated, or the extent to which actors are senders to others. In the case of the latter, the indegree or in-ties are measured which reveals the extent to which actors

¹. This matrix (raw data) is contained in the CD-Rom inserted at the back of this thesis.

are receivers (Hanneman, ca1999: 43). Findings in this regard are outlined in Chapter Four. Exploring the neighbourhoods of actors (Table 11 and Table 12 in the Annexure), calculations derived from a one-mode network using *UCINET* allow for an ego-analysis of actors. From this follows that reciprocity and transitivity can be measured (Hanneman, ca1999: 45).

Clique analysis is calculated by *UCINET* and is used to determine which actors are more closely and intensely tied to one another. As outlined earlier in this chapter a clique is some number of actors who have all possible ties present among themselves. With reference to Table 13, findings are outlined in Chapter Four. These findings are based on the raw data, contained in Table 7 namely 1 282 actors, 1 027 threads and 6 547 messages. Algorithms to calculate cliques are contained within *UCINET*. One of the most common interests of structural analysts is in the "sub-structures" that may be present in a network. Dyads, triads, and ego-centered circles can all be thought of as substructures. Networks are also built up or developed out of the combining of dyads and triads into larger, but still closely connected structures. Many of the approaches to understanding the structure of a network emphasize how dense connections are compounded and extended to develop larger "cliques" or sub-groupings. This view of social structure focusses attention on how solidarity and connection of large social structures can be built up out of small and tight components: a sort of "bottom up" approach. Network analysts have developed a number of useful definitions and algorithms that identify how larger structures are compounded from smaller ones: cliques, *n*-cliques, *n*-clans, and *k*-plexes all look at networks this way. In this study, only cliques are identified using *UCINET*'s ability to calculate this (Hanneman, ca1999: 77-80).

By using measurements from a two-mode network perspective, the results are focussed on events. In this case study, events point at messages or participation in

particular threads. In network analytical terms, this is referred to as an affiliation network, where actors are affiliated to events. Once again, *UCINET* was used to do calculations regarding specific threads. The selection of threads chosen for a two-mode perspective is based on the three threads with the highest number of replies and the actors notable as sources, sinks, and transmitters, i.e. *Dayo*, *dysfunctional*, *NgaDef*, *JayDawg* and *Micksailor*.

With reference to findings based on a one-mode network where the focus is upon actors, and relating it to findings based on a two-mode network common threads between four notable actors could be identified.

7. Final remarks and conclusion

In this chapter the methodological aspects related to network analysis have been outlined. Since results from descriptive statistical calculations are also relevant to this study for reasons outlined above, brief explanations and explanations of concepts were included.

Organising and analysing data produces many benefits of which the most important is perhaps the validity and consistency of the data with respect to further detailed analysis. Numerous techniques are used in this process. They include measurements of the centre and spread of various variables and the shape of the distribution these variables assume. Numerous graphical techniques normally present visual representations of patterns and trends in the data set to the researcher for further investigation and interpretation. In addition, numerous ratios, tables and calculated values are required for the researcher to appreciate the

information contained in the data sets. Often these somewhat mechanical techniques offer an opportunity for further investigation or explanation.

For example, if a data set contained a time element as a variable (arrival of messages) and no data appeared within a certain interval (midnight to 01:00) this would have to be investigated and explained. This time gap may have resulted in incorrect coding by the researcher, a problem with the source supplying the data or a systematic feature of the system (maintenance of the server sourcing the information).

The population for this study is limited to the *Africa* category, taken as a whole network. As such, no scientifically researched conclusions could be drawn regarding the level of connectivity, participation and reciprocity across the whole *Thorn Tree* or beyond, i.e. in real life. However, as outlined in Chapter Four, using results from calculations based on a one-mode and two-mode network, the structure of the network resulting from differentiated contributions to electronic discussions can be investigated. Moreover, the effects of structure on information exchange can be explained. Notably absent from this chapter, however, is an explanation of content analysis. Although used to a lesser extent, extracts from messages are included in Chapter Four to elucidate on the nature of exchanges, i.e. the significance of the message (Garton et al, 1999: 93).

The replicability of this study to include other categories in other branches of the *Thorn Tree* suggests a follow-up investigation to measure the extent of activity across all categories on the *Thorn Tree*. As such, replicability in network terms points to a high rate of validity and reliability concerning the research design.

Chapter Four

An Analysis of the *Africa* Category

Disclaimer: The Thorn Tree is provided 'as is'. Lonely Planet does not verify or endorse any information on the Thorn Tree, and we are not responsible for any loss or inconvenience suffered in connection with use of the Thorn Tree or its content.

Be very careful before relying on anything said on the Thorn Tree. Exercise common sense, make your own inquiries and get expert advice (11 April 2004, "Lonely Planet Online", <http://www.lonelyplanet.com>).

1. Introduction

In Chapter One the primary aim of this study is outlined, namely to investigate the structure of a computer-mediated social network found on the *Africa* category where actors share travel-related information. It is one of a number of categories to be found on the *Departure Lounge* on the *Thorn Tree*. This serves as an example of a real-world application of the many-to-many communication capabilities of the Internet, i.e. information exchange among people with an interest in travel for purposes of leisure. Also noted in Chapter One, based on the results of this investigation, two secondary aims are to describe the nature of the social ties and to comment on the impact actor position and network structure have on the flow of information through this particular network.

In Chapter Two, literature about the Internet and computer-mediated communication indicates that various avenues exist for communication to take place across the Internet. All these avenues, such as newsgroups and electronic bulletin boards are characterised by their many-to-many communication capabilities but more

importantly by the fostering of social ties in cyberspace. While this, together with network analysis forms the backbone of the conceptual framework of this study, the *Thorn Tree* is taken as an example of an exchange network in which social ties are assets used primarily for the exchange of travel and travel-related information.

As such, the *Thorn Tree* can be placed against the broader background of an increase in travel for purposes of leisure and business in the twentieth century. However, it is also significant in terms of a world that is increasingly driven by information. For *Lonely Planet* the essence of having gone online in 1994 with the launch of their website is captured below:

One of the most exciting things for us in the new media team is being part of a community of Lonely Planet on-line users. Some of the most popular areas of the site are Postcards, where you can swing on the traveller's grapevine, and the Thorn Tree, where travellers talk plans, pals and possibilities. We're always looking at ways to stoke the warm glow, so flood us with your feedback and your suggestions.

(21 June 2001, "Lonely Planet Online", Available at:
<http://www.lonelyplanet.com/faq/faq.htm>)

In Chapter One, reference is made of the various sources of travel and product information. In their study of functional and aesthetic information needs, Vogt, Fesenmaier and MacKay state that other studies have found that personal experience and information from family members and friends are the most popular information sources used in vacation decision-making (1993: 135). With reference to findings outlined in Chapter Two, this concurs with Stokowski's (1988) study about

the influence connectivity in a network has on accessibility to sources of travel information and the subsequent influence on leisure choices.

By investigating the messages on the *Thorn Tree*, below follows a typical message that was posted on 17 May 2004 by a poster with the screen name 987654321 to illustrate the manner in which people use the Internet to facilitate information searches. This serves as an example of people who seek out groups to accomplish certain goals in this case, seeking information. Schaefer and Lamm point out, social networks “may empower people by making available vast resources (1998: 133-134) as exemplified by 987654321 whose message states the travel plans of a couple in their mid-fifties and outlines their particular needs with regard to a holiday in Mauritius. This poster is hopeful and probably trusts that others will adhere to this request for information. Clearly, this trust also extends to trust in the medium.

We are a couple in our mid 50's and wish to go to Mauritius in February/March of 2005. We don't really like large sofisicated resorts (not into Spa, massages, eetc) but like to have a hotel (with a/con and private bath) on a beautiful beach where we can go snorkelling. Can anyone suggest a good hotel that would fit this bill but not too expensive or perhaps a package would be better - we are actually travelling from Spain but obviously would have to go via somehwere ie. France, London etc. Also which is the best part of the island for beach and snorekelling?

Any suggestions - I know that we are early thinking about this but I like to get things going so that we have something to look forward to - still hard workers and retirement a long way off!!

On 20 May 2004 at 00:41, *Xin_Chao* replied with a long list of recommendations, which clearly shows this poster's willingness to share information. Considering a question raised in Chapter One regarding the nature of social ties, in this example *Xin_Chao* extends an invitation for off-board contact using *Thorn Tree's* private message system similar to email. Is this characteristic of computer-mediated communication, namely people using the Internet to forge closer ties? Here one can only speculate about the possibilities of closer ties that might even culminate in face-to-face meetings, or so-called "piss-ups". Moreover, is the information less reliable since "faceless" individuals provide it? In a digital domain group dynamics are obviously different if compared to groups that function in traditional ways such as those found in the physical world, which leads to another question: Does the medium make the means of interaction and/or the message any less reliable?

I would recommend flying Air Mauritius/Air France from CDG (France), the food is better than BA and it's closer to you so your flight time would be reduced.

As for the choice of hotels, that's a tricky one, Sometimes a package can work out cheaper, have a look at www.partirpascher.com if your French is anygood, you can get a good deal with them (the best prices I have ever found for here from Europe). An alternative would be to rent a Campement, a small self catering bungalow. If you need some more help or have any questions, or you would like some websites or telephone numbers of campements, send me a private message, I'll be glad to help out!

Although it is impossible to comment on the nature of social ties in a computer-mediated environment like the *Thorn Tree* based on one example such as the one outlined above, the messages above signify the Internet's ability for people to expand their social networks by seeking and sending electronic messages to other (unfamiliar) individuals using specific avenues such as electronic bulletin boards. With the *Thorn Tree*, *Lonely Planet* created a digital domain in which people from around the world can exchange travel information and interact. This clearly has implications for the social capital available to travellers. Against the background of increased globalisation and the role of the Internet in facilitating communication across national borders among people of different ages, genders and different backgrounds, this digital medium is clearly surpassing that which travel in the physical world can achieve; the Internet has changed the world into a so-called "global village". The question that arises if one considers the scale on which electronic communication can facilitate social interaction is: If it can create ties among people in different communities or even countries then is there a new interactive world known as "cyberspace"? (Schafer and Lamm, 1998: 613). The concepts cyberspace and virtual reality are explored in Chapter Two.

In the subsequent sections, an analysis of the social ties evident among actors who exchange information on the *Africa* category follows. As outlined in the research problem outlined in Chapter One, structure is used to reveal aspects of the nature of social ties in this exchange network. However, as outlined in Chapter Three, this study uses descriptive statistical measures too as a means to verify data shed some light on the dataset not possible by solely employing network analytical measures. The first section in this Chapter uses non-network statistical measures to reveal a number of aspects, i.e. number of replies per original post, survival analysis, duration of threads, replies versus views, ratio of replies versus views, and length of messages.

The second section in this chapter focuses on network analytical measures. The first sub-section deals with measurements derived from a one-mode network for posters-repliers. In this sub-section reference is made to specific actors. The second sub-section deals with measurements derived from a two-mode network where one mode consists of actors (members) and the second mode of messages, thereby creating an affiliation network, i.e. actors affiliated to messages. Resultantly, messages related to those actors selected for reasons outlined in the relevant sub-section are included for content analysis.

Tables and other supporting information are included in the Annexure. Graphs and other graphical presentations are, however, included in the text to increase readability. At the back of the thesis a CD-Rom is included, which contains the messages and other supporting information in electronic format. Lastly, in those instances where messages are quoted, it is done without alterations.

2. A descriptive analysis

2.1 Number of replies

In Chapter Three it is stated that threads differ markedly in the number of messages they contain. Similarly, the electronic bulletin board is characterised by differential contributions from actors. With reference to the methods used in this study (Chapter Three), Figure 5 indicates the number of replies per thread. For example, 165 threads received no replies, 176 threads received 1 reply, 170 threads received 2 replies, 150 received 3 replies, 94 received 4 replies, and so forth. Only one thread had 43 replies, which represents the highest number of replies in this dataset. Twenty to 21, 23 to 29, and 31 to 42 threads had no replies at all.

The graphical representation of these responses is shown in Figure 5 below.

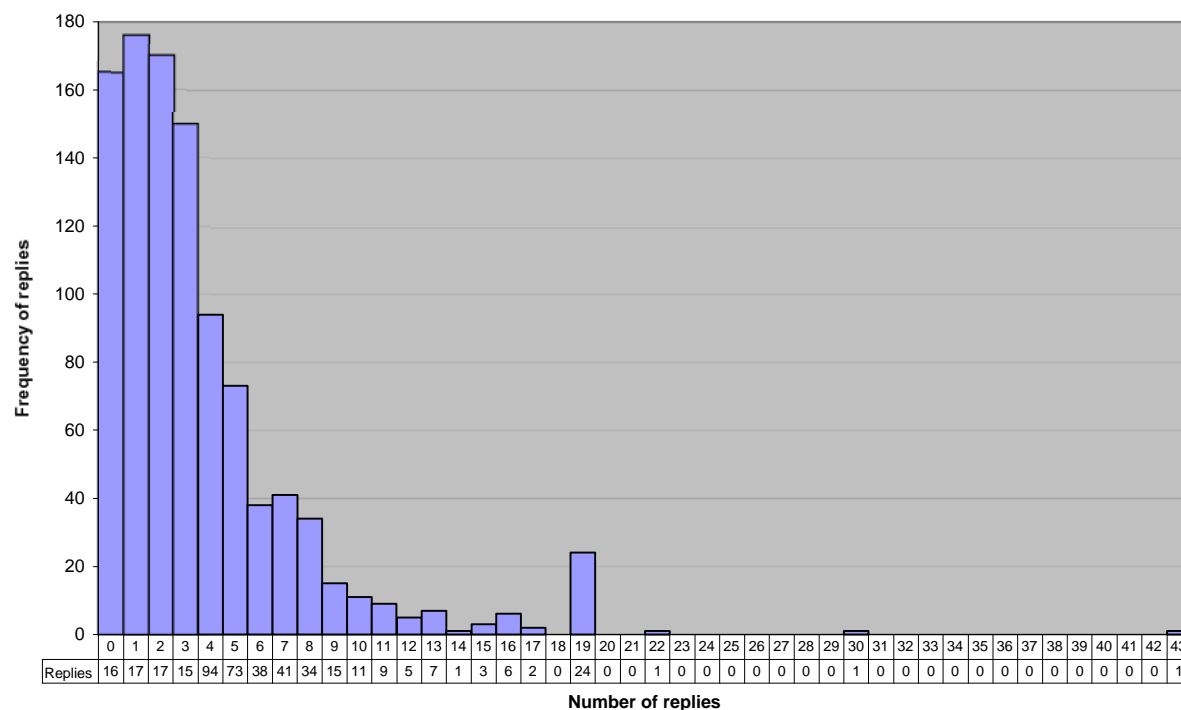


Figure 5 Frequency of replies per thread

As can be determined the median response is 3, the average response is 3.63 and the mode response is 1. For an asymmetrical distribution the median is the best measure of centrality. However, two points are noteworthy: First, a mode of 1 and second, an unexpected peak at 19 (24 threads received 19 replies). Of the 1 027 threads in this dataset, 165 received no reply, as outlined in Table 4. As explained in Chapter Three, the ratio of replies to the total number of threads is 0.161. This implies that approximately 16% of threads remain unanswered or that approximately one message in six does not receive a reply. With reference to structure, as outlined in sub-section “3.1.2 No replies and unconnected actors”, those actors who initiated threads with no replies are listed. Unconnected actors in network terms are isolates.

Using descriptive statistical analysis, if one considers the threads and the number of replies the overall shape of the frequency distribution suggests that most messages receive few replies and few messages receive many replies. This is an important point since it characterises exchanges and interaction on the *Thorn Tree*. The shape and centrality of the frequency distribution appear to indicate that short threads are the norm on the *Africa* category. This means that discussions are not long and drawn out. Later, this point is raised again where the survival analysis of threads is discussed.

In a sub-section below, the thread with the most replies, namely 43, is analysed. By using results from the two-mode network, it became apparent that the message thread with 22 replies has the same poster, namely *NgaDef*. The following post is *NgaDef*'s first post on the *Thorn Tree*. It was posted on 26 April 2004 at 04:49 with the subject "African taxis: love them or loathe them?"

*What's your favourite African taxi story? What was terrible at the time?
But makes you look back with a smile now?
I was in the back of this taxi in Accra once &.....)
thanks to UsvaAver*

NgaDef's second thread drew the highest number of replies in this dataset, namely 43. It was posted on 6 June 2004 at 2:11 with the subject "More accolades [sic] Africa Branch!"

*My second ever LP TT Thread of the day!! African taxi stories I feel so
humble :)*

The 24 threads with nineteen replies, representing an unexpected peak, are listed in Table 3. This list uses the subject lines of each of the 24 threads, which is indicative of the content of those threads that drew a considerable amount of replies. By considering the topics under discussion in each of these threads, it is possible to determine the nature of information exchanges since it signifies the type of topics in which people are interested. The varied nature of discussions is clear but there is no apparent reason why these particular threads all received nineteen replies. It is also unimportant to try and find a possible reason since it is merely a statistical fact.

2.2 Duration of threads

In Chapter Three, one of the premises states that the lifespan of threads is indicative of the duration of electronic conversations and the duration of interaction among actors, which characterises social interaction on the *Thorn Tree*. In order to determine the duration of a thread, survival and failure analysis techniques were performed on the data. With reference to Table 5, the survival percentiles using the Kaplan-Meier Product-Limit are outlined in Figure 6.

The results estimate that 25% of all threads terminate within 2¼ hours, 50% of all threads terminate within 20½ hours and 75% of all threads terminate within 56½ hours. These results, combined with the frequency of replies seem to indicate that the *Africa* category is clinical in its overall approach: queries are submitted and replies are promptly offered. There also appears to be very few prolonged discussions. This observation corresponds with the fact that few members know each other and that few members are frequently active on the *Africa* category.

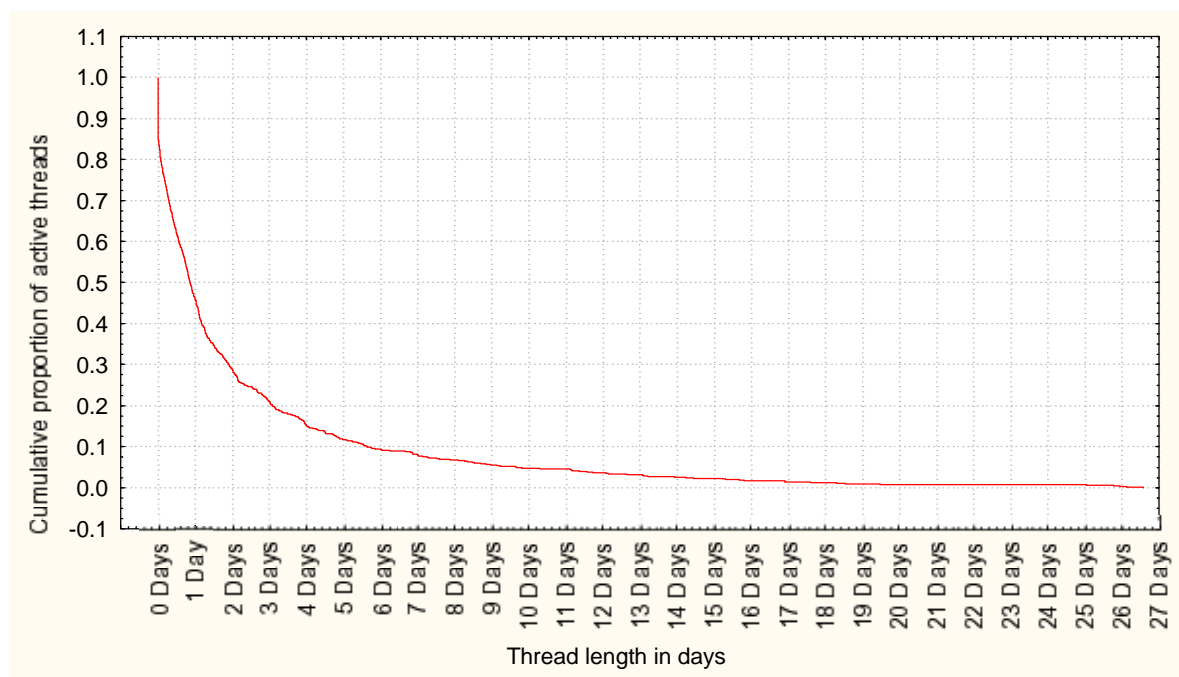


Figure 6 Survival function of thread duration

Figure 6 outlines the graph of the survival function with respect to thread duration. The steep slope at the very start of the plot reflects the 16% of threads that terminate without receiving any replies. In addition, 50% of the threads terminate within one day. This is the survival time at which the cumulative survival function is equal to 0.5. Note that the 50th percentile (median) for the cumulative survival function is usually not the same as the point in time up to which 50% of the sample survived. This would only be the case if there were no censored observations before this time.

Another method of describing the reliability of the length of the threads is with the hazard function as outlined in Figure 7. The hazard function is described in more detail in Chapter Three. The plot indicates that the probability of any thread terminating during any particular interval is relatively constant (below approximately

0.0002) after the second day. At the start of the plot the probability of a thread terminating is high but then decreases for subsequent intervals. This relates to the number of threads that received no replies. At approximately 25 days the probability of a surviving thread terminating again rises, this time dramatically. This corresponds with the nature of discussions which is reiterated by the fact that this network is sparse and that few extensive discussions take place on the *Africa* category of the *Thorn Tree*. This does not exclude the possibility that conversations are conducted via email or other means.

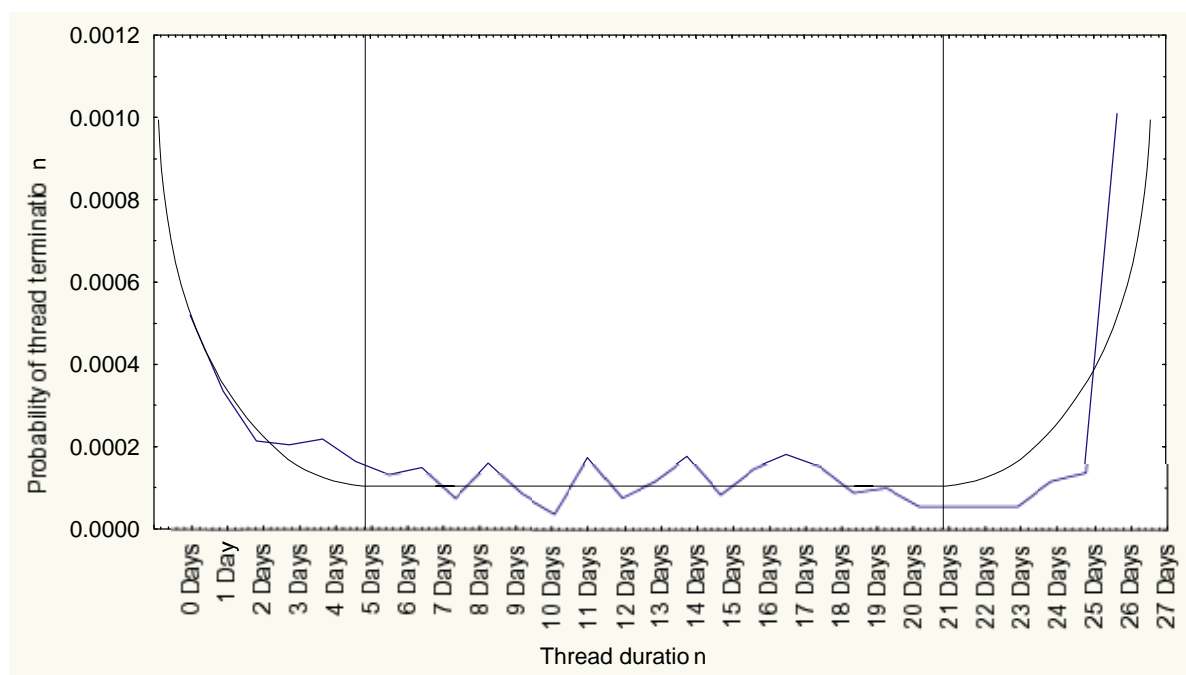


Figure 7 Least squares estimates of Hazard Function

Regarding the hazard function, the analogy holds in the case of the *Africa* category as well. In the case of the *Africa* category, it was shown that about 16% of threads receive no replies; the CD-Rom contains a list of these messages. With reference to

Figure 7, where the so-called bath-tub curve is superimposed over the data for the duration of threads of time, the hazard function illustrates the survival rate of threads more clearly.

2.3 Replies versus views

In Chapter Three, one of the premises is that there is a correlation between the number of views and the number of replies. A scatterplot of the number of replies versus the number of views for a thread is shown in Figure 8.

By considering the number of views and calculating the correlation between views and number of replies it is found that the more times a thread is viewed, the more replies it receives. However, the correlation is not strong. R^2 indicates that about half (53%) of the variation of the replies is accounted for by a linear relationship of the number of views a thread receives. This means that there are other factors besides the number of views that prompt a reply, e.g. actors and/or topics.

The graph shows horizontal lines of data that are especially noticeable at the lower values. This is to be expected because all values are whole numbers. In fact, the compression of the x-axis causes the vertical lines to disappear from the graph as each point blends in with its neighbouring points. The graph was constructed from the values recorded by *Lonely Planet* as the replies and views.

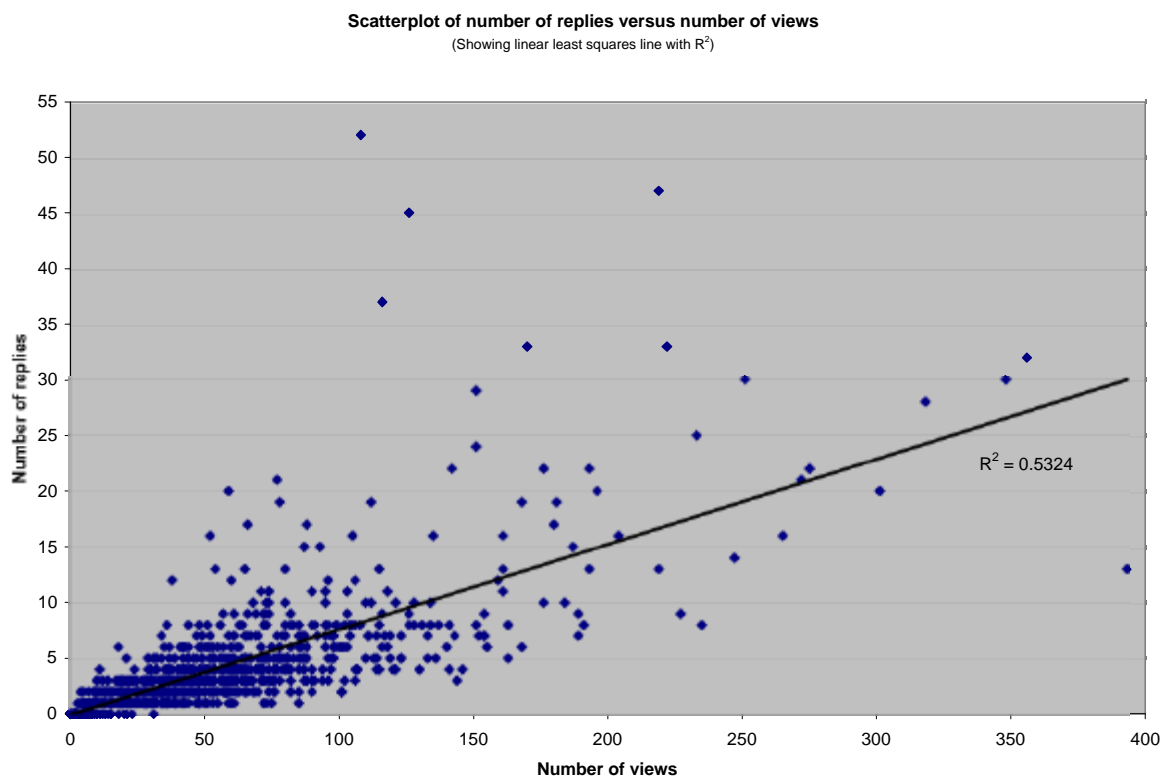


Figure 8 A Scatter-plot: number of replies vs number of views

2.4 Ratio of replies to views

The proportion of replies to the number of views is very low. The most common occurrence appears to be that one in twenty views receives a reply (0.05 is the average of 0.0 and 0.1 in the histogram). This result corresponds well with other summaries provided thus far in the sub-sections above.

Refer to Figure 9 which is a histogram outlining the ratio of replies to views in percentages. From this it is clear that 12.4% of the posted messages receive no replies despite having been viewed. This corresponds to approximately one in eight messages that does not receive a response despite having been viewed. In the

above sub-section it was determined that approximately one in six messages receives no replies. The difference between these two findings indicates the number of messages that receive no replies and are not viewed by the members of the branch either.

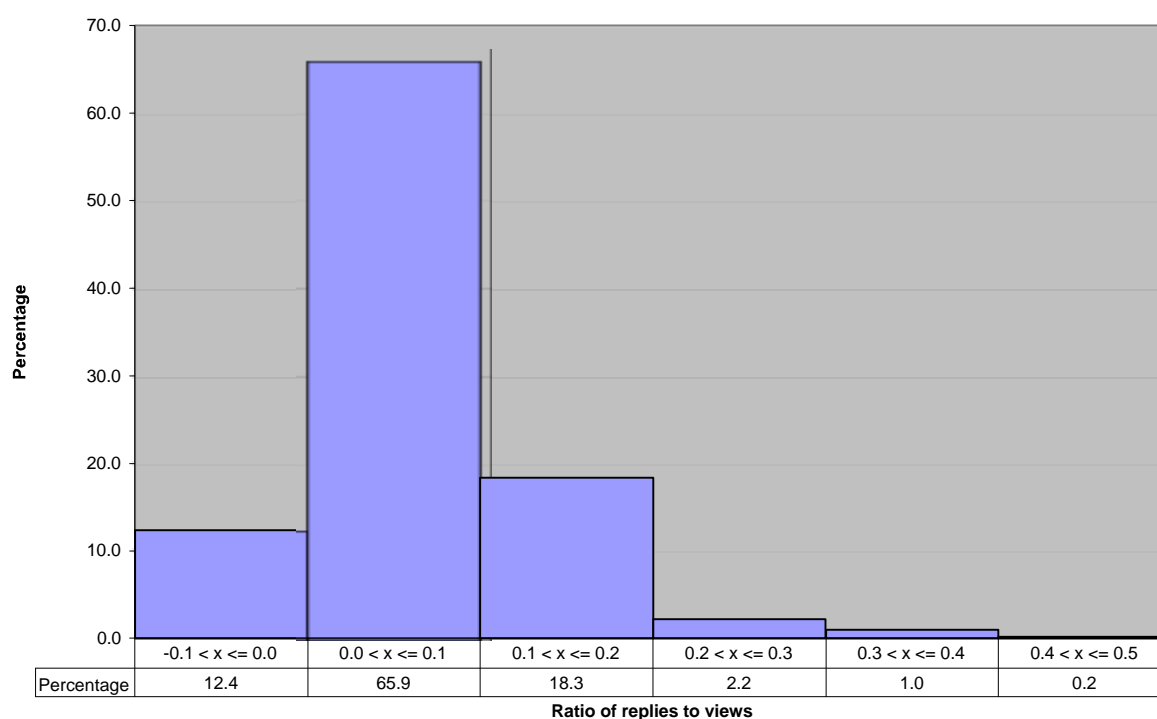


Figure 9 Histogram of the ratio of replies to views (%)

2.5 Message length

In Chapter Three, the premise is stated that the average length of messages on the *Africa* category characterises electronic contributions in this computer-mediated domain. Does it mirror or at least resemble interactions between travellers in the physical world? In Table 6 the length of messages in characters is outlined. All

fractional numbers have been rounded to the nearest whole number. Excluding the 13 messages that have 4000 or more characters, the histogram of the distribution of the remaining message is shown in Figure 10.

From this can be deduced that messages are generally short and to the point. It is notable that the *Thorn Tree* discussion board, like others found on the Internet, does not allow embedded objects such as graphics. One of the shortest messages consists of a so-called emoticon, in this case a so-called “smiley face” consisting of the punctuation marks “;-)” posted by *kingdoomy* on 6 May 2004 at 08:07 with the subject “More accolades [sic] African Branch”. *Pizza_Wheel* posted “no” on 27 May 2004 at 00:54 as a reply in a thread with the title “Nigeria”.

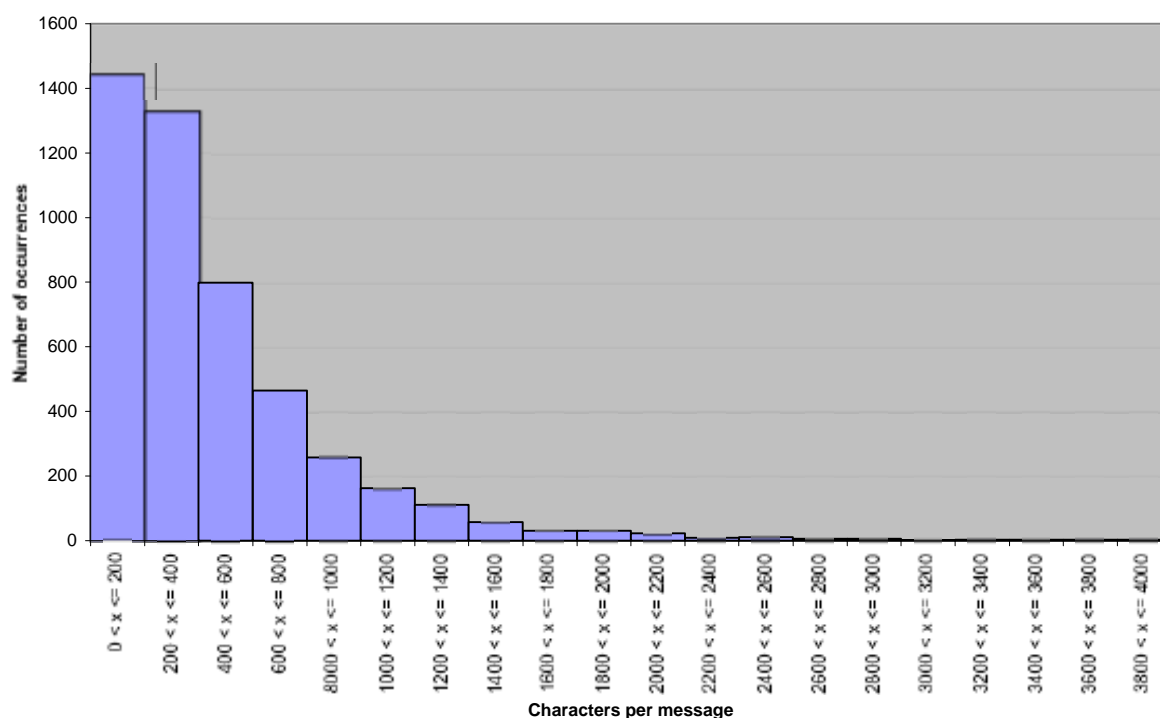


Figure 10 Histogram of message length (characters)

The length of the messages, being generally short concurs well with other findings based on descriptive analysis and network analysis respectively, i.e. the short survival rate of threads and the replies to views ratio. These three findings subsequently assist in characterising the nature of this online discussion board as discussed in Chapter Five.

However, in the absence of conclusive evidence about the length of discussions among travellers in the physical world, the extent to which interactions on this electronic discussion forum mirrors interactions among travellers in the physical world cannot be determined.

2.6 Summary of the descriptive analysis

The following observations have been made concerning the descriptive analysis of the data:

- The uncertainty of the data is approximately 6% and consists mainly of messages that were missed during the downloading procedure. However, the amount of data is sufficient to allow relative calculation (ratios) to be performed and their values used as estimates. Therefore, this uncertainty has little or no effect on the analysis.
 - The number and frequency distribution of replies appears typical of that expected by message boards, bulletin boards and web servers. In addition, the median and mode of the replies indicates that the members of this branch of the online community are interested in obtaining and providing information to queries as very few messages receive numerous replies.
-

- The distribution of the time of messages, both threads and replies, occur during a typical cycle observed by most message boards, bulletin boards and web servers.
 - The duration of threads supports and corroborates the finding that the members of this branch of the online community are interested in obtaining and providing information because 50% of all threads terminate in less than one day with 75% terminating in just over 2 days. The threads were also determined to have about the same probability of terminating between approximately 5 and 21 days. Threads outside this interval have a higher probability of terminating.
 - When comparing replies against views it is tempting to state that the more views a thread gets, the more likely that thread is to receive replies. Although this is true, it is also true that only about half (53%) of the reasons for replying may be attributed to viewing alone. Factors other than viewing a message contribute toward replies. This point is again taken up in a subsequent sub-section.
 - The proportion of replies received to the number of views of a message is very low. Only 12.4% of the posted messages receive no replies despite having been viewed. This corresponds to approximately one in eight messages that does not receive a response despite having been viewed. In the sub-section above it was determined that approximately one in six messages receive no replies. The difference seen between these two findings indicates that the number of messages that receive no replies are not viewed by the members of the branch. It appears that the members are either not attracted to the contents of the thread or do not want to read a thread initiated by a specific actor. This has implications for the flow of information through this network and social capital, since some actors might withhold information or even start a so-called flame or online attack. It certainly influences the levels of connectivity of actors based on their affiliation to threads.
-

3. A network perspective on the Africa category

3.1 One-mode analysis of poster-replier

The values used in the one-mode analysis of the data are outlined in Table 7. It is worth repeating here, since it is constantly referred to. First, there are 1 282 actors, 630 posters, 2 782 threads and 761 repliers. No participation is calculated as 72. This number is obtained by considering the differences between the total number of actors (1 282) and the number of posters or repliers. This is indicative of the number of actors who did not initiate or reply to a thread. Approximately 50% of all actors initiated at least one thread, 60% of all actors replied to at least one thread but only 5.6% neither posted nor replied to any message. The actors that are not accounted for may be part of the same group that were reported as uncertain and subsequently removed from the study or they may be viewers only or a combination of the two. The significance of this is that more people who can actually be counted and taken into account for this network analysis benefit from the exchanges of travel information on the *Thorn Tree*, but since they do not post any messages, they are excluded from the dataset. This is supported by the information displayed alongside each message on *Lonely Planet's* website that states the number of views.

3.1.1 Univariate statistics

The univariate statistics produced by *UCINET* and *eVal* for this dataset are displayed in Table 7 in the Annexure. The values used for calculations shown in this paragraph are taken from *eVal*. The mean, often referred to as group density, is 0.0017 and may be more accurately calculated by dividing the "Sum" by the "Observations". The sum represents the total number of connections between actors while the observations indicate the size of the network excluding self-ties. If each

actor communicated with all other actors, the sum would be 1 642 242. However, in this dataset only 2 728 communication ties (threads) exist.

The standard deviation measures the amount of variation that exists between the elements. In this case the standard deviation is much larger than the mean indicating that there is a great deal of difference between the actors. The coefficient of variation (standard deviation divided by the mean) is 24.2. The mean, standard deviation and coefficient of variation indicate that the actors have very weak ties. The Euclidean norm is a measure of the extent of the observations and is the square root of the number of observations in this example.

The data used for the one-mode analysis is asymmetrical indicating a distinction between poster and replier. The density (mean) of each row and column indicates the manner in which each actor is embedded in the overall density. Refer to Table 9 (embeddedness of posters) and Table 10 (embeddedness of repliers) respectively in which the overall embeddedness of posters and repliers are outlined. The maximum number of possible ties is 1 281 ($n-1$) because self-ties are not computed. Therefore, the mean may be calculated with more accuracy, if required, by dividing the Sum by 1 281.

The top 25 posters account for approximately 19% of the total threads (postings), 4% of all posters and 2% of all actors. The coefficient of variation for each of the 25 posters ranges from 4.3 (*JayDawg*) to 9.9 (*kamon*) indicating weak ties to the rest of the actors. In the case of repliers, the top 25 repliers account for approximately 27% of the total threads (postings), 3% of all repliers and 2% of all actors. The coefficient of variation for each of the 25 posters ranges from 3.9 (*dysfunctional*) to 8.6 (*londonviking*) indicating weak ties to the rest of the actors. Note that only three actors (*Dayo*, *NgaDef* and *Pizza_Wheel*) appear in the top 25 posters and repliers.

With the exception of these three actors, actors are predominantly posters or repliers and not both.

Findings of this sub-section support the results outlined in the preceding sub-section: actors do not maintain regular or prolonged communication channels with one another which helps to explain the size of their neighbourhoods too. It is necessary to refer to Table 11 and Table 12 respectively.

3.1.2 No replies and unconnected actors

With reference to findings in the first section at the start of this chapter, 16% of threads did not receive any replies (Table 4). With reference to the CD-Rom inserted at the back of this thesis, by investigating these threads and comparing them to other threads in this dataset that did receive answers, it is largely unclear why certain messages draw no replies despite their obvious legitimacy, i.e. travel-related questions or remarks. Below is an example of an unanswered thread that can be considered a legitimate request for travel information. On 6 May 2004 at 00:41 *sheltered* posted a message with the subject “accommodation in Conakry”.

I will be arriving by plane into Conakry in about a week's time. Does anyone have any recommendations for places to stay? I will need to catch a bush taxi to Freetown the next morning, so the place will have to be fairly central/close to the station. And, does anyone know what time the bush taxis set out in the morning?

This message does not differ much from another thread that also received no reply. On 22 May 2004 at 12:54 *Zacher* posted a message with the subject “Addis Ababa: Hotel”.

Hallo ! Can somebody recommend a good (three star ?) hotel in Addis Ababa. I want to spend around 25 - 40 USD for a single. Location unimportant. Thanks

If one considers the actor as an influential factor to explain why certain messages receive no replies, then the conversation between *sheltered* and *supercede* is worth considering. On 3 June 2004 *supercede* posted a message at 18:23 with the title “The lowdown on traveling to West Africa!!! Help needed”.

Hey everyone,

Just like to thank those who have helped me plan trips in the past (Kenya, Tanzania, Zanzibar), now I am headed to West Africa. Now I need some Visa information for countries in West Africa.

I bought a ticket to Accra, Ghana for late October. I bought a one-way ticket and hope to travel up the coast going through Burkina Faso, Mali, Senegal, Mauritania, Morocco and then probably fly home from Spain/Portugal...I heard the Mauritanian Visa can be a real pain if going Senegal-Mauritania as opposed to going Morocco- Mauritania? ...I guess I have time for these countries. I really want to see Tombouctou [Mali] and parts of the Sahara in Mauritania and Morocco, everything else is bonus.. I am a male from Boston, Massachusetts area with an American passport if that is pertinent information. I've

been to Africa twice and obtain useful information from this site.

Thanks again...

Adam

On the next day at 12:52 *sheltered* replied as follows:

I've just come back from Sierra Leone, and I transited through Guinea, so I can give you a little info, for what it's worth. And by the way, whilst I was in SL, listening to the BBC World Service's Africa programming, it sounded like Cote D'Ivoire was a tinderbox just about to go up.

Anyway, I was in Conakry for a couple of days, and then went overland to Sierra Leone, and then back again a couple of weeks later by regional flight courtesy of West Coast Airlines. If you do decide to stay in Conakry, then do go to the Mission Catholique, near the Marche du Niger. The cheap rooms aren't often available, and you may have to take a double room for 45 000 GF (about \$20) per night, but it is worth every last cent, as it is an oasis of friendliness and care in what is after all a pretty dodgy city...Also, I had things stolen from my baggage -- after it had been checked in at the official Air France check-in counter.

The above message is *sheltered's* only other message in this dataset. It clearly references Conakry, the destination to which *sheltered* travelled and requested information in a message posted on 6 May 2004 at 00:41 but received none despite being viewed five times. It is possible that *sheltered* got private emails sent to a *Lonely Planet* email box although this cannot be verified. What is noteworthy,

however, is *sheltered's* willingness to share travel experiences with *supercede* after the trip to Conakry.

With reference to the CD-Rom inserted at the back of this thesis, all the threads that received no replies are available for scrutiny. What transpires from this information is the absence of any apparent reasons for threads not receiving any replies. In some cases, like *Kim1055*, all three threads received no replies. This actor also did not participate in any other threads either. An aspect that needs to be taken into account is that threads that were started close to the end of the period covered by the dataset exclude messages that might have followed thereafter.

The highest number of messages by the same actor that received no replies is five; the two actors are: *griesi* and *ponsore*. *Griesi* requested information about South Africa and Namibia, while *ponsore* requested information about Lusaka. While *griesi's* messages varied, *ponsore* clearly tried in vain to get answers from other *Thorn Tree* members despite repeating the same request with slight variations. Two messages are in fact the same, namely the one posted on 22 May 2004 at 8:28 and the one posted on 26 May 2004 at 12:59. They both read as follows:

hello everybody

*do you know if it is possible for Italians to get a visa on arrival at
Lusaka airport?*

thanks

On 1 June 2004 at 14:16 *ponsore* made a last attempt to get information from other *Thorn Tree* members by changing the subject to "zambia". This time, the actor also

included a name. Yet, this message too failed to draw any responses from fellow *Thorn Tree* members.

hi everybody! Who can suggest a clean cheap place to stay - and gather information to travel around - in Lusaka

A number of possibilities arise why *ponsore* did not receive any replies. First, it is possible that few *Thorn Tree* members know Lusaka well and perhaps do not have extensive knowledge about cheap hotels there. Second, some actors might have answers to requests, but do not share this information. It would be incorrect to claim that an unwillingness to share is the obvious reason in this particular case. The case of *sheltered* and *supercede* above suggests the contrary. Thirdly, however, not being connected to the Internet and accessing the *Thorn Tree* irregularly need to be considered as contributing factors why legitimate travel requests do not receive answers or why actors who contribute answers to some messages do not do the same with others. In a digital domain such as this, together with the fact that this is a large network, a lot of information is available which means that actors might overlook some messages.

If however, *ponsore's* request for information about travelling to Lusaka is juxtaposed with *NgaDef's* second thread that drew 43 replies, the nature of exchanges becomes clearer. *NgaDef's* thread was posted on 6 June 2004 at 2:11 with the subject "More accolades [sic] Africa Branch!":

My second ever LP TT Thread of the day!! African taxi stories I feel so humble :)

Without contextualising this thread against *NgaDef's* other contributions and the on-going conversation between this actor and others, the high number of replies would be inexplicable. *NgaDef's* contributions to the *Africa* category differ from those of *ponsore* or any of the other actors that did not receive replies to their threads. It was stated earlier in this sub-section that the actor alone cannot explain why threads do not receive replies. While some actors are clearly more active than others, it is rather the context of all their contributions over time that explains why a simple message like that of *NgaDef* drew 43 replies while obviously not very relevant to other travellers. In many respects, the nature of interactions and exchanges on the *Thorn Tree* are similar to what happens in the physical world. In a face-to-face situation such as a bar in a backpacker's lodge where some will talk and others listen, not all questions are answered; clearly, not all verbal iterations are reciprocated.

3.1.3 Reciprocity, transitivity and centrality

While the previous sub-section outlined the threads that received no replies and used network analytical measurements to gain more insight into the actors who are responsible for these threads, this section considers aspects that are indicative of connectedness. As outlined in Chapter Three, reciprocity in social network analytical terms is the dyadic relationship between actors. Two actors (A and B) have a reciprocal relationship if B replies to a post from A and A replies to a post from B such as the conversation between *supercede* and *sheltered*.

Table 11 lists the top 25 actors in decreasing order of the size of their neighbourhoods. In Chapter Three where reference is made to the specifics of network analysis, the concept "neighbourhood" is described as the sum of all the in-ties and out-ties. The neighbourhood size for each actor is the number of actors to whom they are adjacent. In this particular table, closeness is also calculated.

Visible in Table 11, for most of these top 25 actors, the closeness measure is 0.000012913. In network terms, this means that none of the actors are close to each other, reiterating other findings made thus far that all point to a sparse network. In network terms, closeness also relates to betweenness, which is often brought into relation with the influence an actor exerts. In network terms, this is described by the concept power. In the case of the *Africa* category no single actor stands out as exerting particular influence on the rest of this computer mediated social network. This concurs well with other findings outlined in this chapter.

Table 12 lists the top 25 actors in decreasing order according to the per cent of reciprocated ties. Notably, actors have no self-ties, therefore the minimum value for “None” is 0 with the corresponding maximum value of “Neigh” as 1 281 ($n-1$). In fact, “None” plus “Neigh” always equals 1281 in this dataset.

Actors in the *Africa* category, like in other Internet-based social networks, may be classified as “sources”, “sinks” or “transmitters” using social network analysis terminology as outlined in Chapter Two and Three respectively. Sources predominantly post, sinks predominantly reply and transmitters tend to post and reply more or less equally. In Table 12 it is clear that an example of a transmitter is *Dayo*, an example of a sink is *dysfunctional* and *JayDawg* is a source. Suggestive of implications for a view on social capital, perusing the remaining entries in Table 11 and Table 12 respectively clearly show the distinction between the three classes of actors, i.e. “sources”, “sinks” or “transmitters”. Table 12 is sorted in reverse order of neighbourhood size in order to determine those who played a reciprocating role. With implications for social capital, Table 12 shows the lack of reciprocity: only 23 actors engaged at one time or another in a reciprocal reply. This raises questions about social capital but also highlights the nature of communication and interaction on the *Africa* category. Few actors are often active or know each other well, while the majority of actors are seldom active with limited knowledge about others.

It is notable that if the dataset is sorted by the total number of ties (“Total”) the same actors appear although in a slightly different order. There are 48 reciprocated ties and 5 516 neighbourhood members (including duplicates) providing a reciprocity percentage of 0.87%. Notably, *DanFromPerth* has the highest reciprocity percentage (25% with a neighbourhood of 4) having participated in five threads. *NgaDef* has nearly as high a percentage (24% with a neighbourhood of 46) but participated in 57 threads. It can be deduced from this that *NgaDef*’s reciprocity percentage compares well with that of *DanFromPerth* although the actual number of messages differs vastly. In order to appreciate the differences between the two actors all the information must be viewed and not just the ratios.

3.1.4 Clique analysis

In Chapter Three, a clique in network analytical terms is described as a subset of a network in which the actors are more closely and intensely tied to one another than they are to other members of the network” may be visualized by considering a map of the actors involved in a clique. The map of the network between the five actors (*Dayo*, *Frantic*, *NgaDef*, *rockrug* and *taharqa*) that make up one of the 5-member cliques is shown in Figure 3, Chapter Three.

In the case of this dataset with its 1 282 actors, 1 027 threads and 6 547 messages the analysis indicates that there are 301 3-member cliques, 45 4-member cliques and six 5-member cliques. Table 13 indicates the 5-member cliques. The six 5-member cliques in this dataset consist of the following actors. Clique numbers have been arbitrarily assigned for the sake of reference. Each clique consists of five members (actors) who are ordered alphabetically. It should be noted that the CD-Rom included with this thesis outlines the cliques analysed here.

	Member 1	Member 2	Member 3	Member 4	Member 5
Clique 1	Dayo	Frantic	NgaDef	rockrug	taharqa
Clique 2	Cosmopolitan	Dayo	Katiebell	NgaDef	taharqa
Clique 3	Dayo	Katiebell	NgaDef	rockrug	taharqa
Clique 4	Dayo	Lschweiger	MonkeyGeorge	NgaDef	Pizza_Wheel
Clique 5	Clottedcream	Dayo	MonkeyGeorge	NgaDef	stefo
Clique 6	JayDawg	LizaD	NgaDef	snailhead	taharqa

Each actor that appears more than once is shown in a specific colour not only for easier identification but also to indicate the frequency of appearance of that actor. Those actors appearing once have a white background. The following table reorders the cliques and members to emphasize the frequency of appearance of each actor in various cliques. There are 15 unique actors appearing in the six 5-member cliques. The original numbering of each clique remains the same as above. As may be seen, only cliques 2 and 3 have been interchanged.

	Member 1	Member 2	Member 3	Member 4	Member 5
Clique 1	NgaDef	Dayo	taharqa	rockrug	Frantic
Clique 3	NgaDef	Dayo	taharqa	rockrug	Katiebell
Clique 2	NgaDef	Dayo	taharqa	Cosmopolitan	Katiebell
Clique 4	NgaDef	Dayo	Pizza_Wheel	MonkeyGeorg	Lschweiger
Clique 5	NgaDef	Dayo	stefo	MonkeyGeorg	Clottedcream
Clique 6	NgaDef	JayDawg	taharqa	snailhead	LizaD

It is interesting to visualize the overlap of cliques as shown in Figure 11. In order to determine the members of a clique choose a clique and note the actors who fall within the ellipse of the colour associated with that clique.

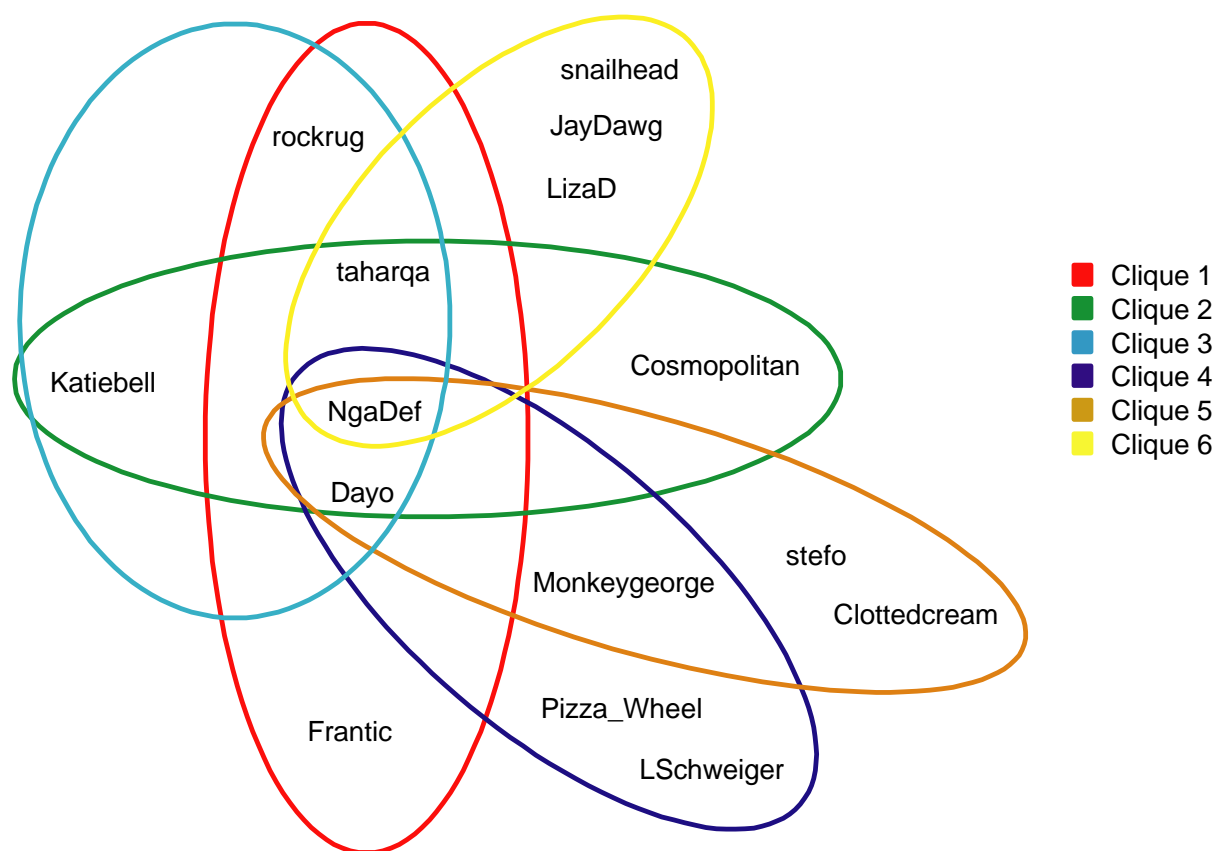


Figure 11 Overlap of cliques on the *Africa* category

Cliques are defined for 1-mode analyses (actor-actor) and not 2-mode analyses (actor-threads). However, it is interesting to note the threads shared by each clique. The threads displayed are shared by at least two members of a clique. Therefore, these threads may be considered inner threads, as they do not span clique boundaries. Threads that span clique boundaries may be considered linking threads and are discussed below.

There are 57 distinct inner threads in which the six cliques participate. As might be expected, an overlap between threads exists. There are 11 threads in which all six 5-member cliques participated and follow in alphabetical order:

- ABTT Airborne Piss-Up
- African taxis: love them or loathe them?
- Free beer competition
- Frivolous Things.
- If I don't ask, I'll never know
- It's called what?
- London AB Pissup: 31 May 2004
- More accolades Africa Branch!
- Need a laugh
- What do you miss about Africa?
- Your favorite cities in Africa

The following list shows the occurrence of inner threads that are shared among and associated with the six 5-member cliques. It is interesting to note that although linking threads were not included, there are many threads that are shared by several cliques.

Thread occurrence in

	1 clique	2 cliques	3 cliques	4 cliques	5 cliques	6 cliques	Total
Clique 1	5	0	10	1	6	11	33
Clique 2	2	5	11	2	6	11	37
Clique 3	0	5	11	2	6	11	35
Clique 4	7	5	0	2	6	11	31
Clique 5	0	5	0	1	6	11	23
Clique 6	3	0	1	0	0	11	15

To assist with interpretation of the values in the table consider the column labelled “6 cliques”. All cliques have the value 11, which means that 11 inner threads appear six times and that all six cliques participated in those threads. The column labelled “5 cliques” indicates that six inner threads appear 5 times in all cliques, except clique 6,

participated in those threads. In a similar manner, the column labelled “1 cliques” indicates that clique 1 has five inner threads that appear only once; clique 2 has two inner threads that appear only once; clique 4 has seven inner threads that occur only once; and, clique 6 has three inner threads that occur only once. Cliques 3 and 5 have no single inner threads. The inner threads that appear only once do not span other cliques but rather remain “within” one clique. Inner threads that appear more than once span the number of cliques as indicated by the number of times they appear.

The sum shown in the column labelled “Total”, indicates the total number of inner threads associated with a specific clique. While Table 15 in the Annexure lists each clique with its associated inner threads, Table 14 lists the linking threads for cliques 1 to 6.

Threads that span cliques may be considered a measure of clique overlap and, possibly, interests shared by various cliques. Cliques 1 to 6 have 41 shared threads, cliques 1-5 has 14, cliques 1, 2, 3 and 6 have 4, cliques 4 and 5 have 4, cliques 2, 3, 4 and 6 have 1. Cliques 2, 3 and 5, cliques 2, 3 and 6 and cliques 4, 5 and 6 all have 1 shared thread.

Figure 12 allows the visualization of the overlap of the six cliques. In this map all messages associated with various cliques are stacked or packed on top of one another.

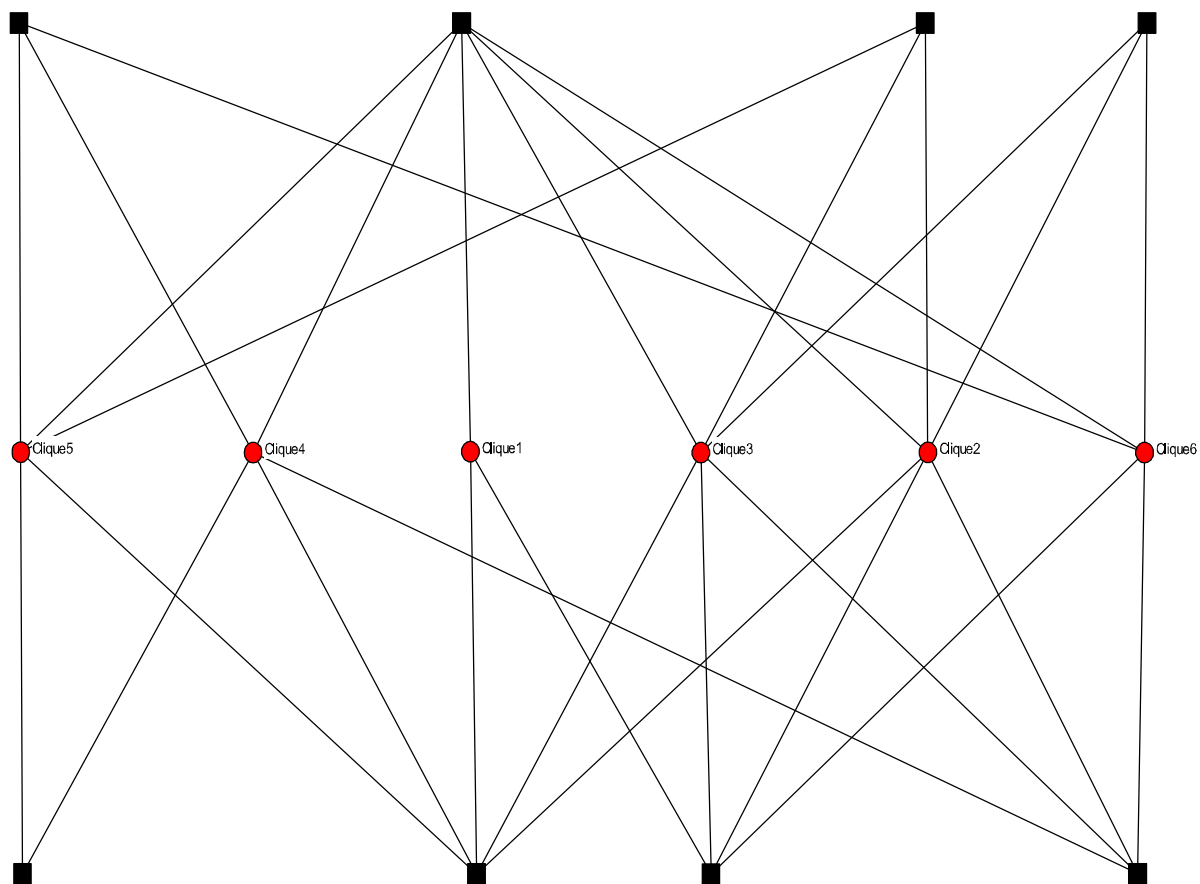
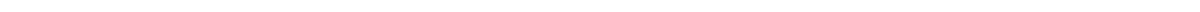


Figure 12 Map showing overlap of 6 cliques

Figure 13 unpacks the threads outlined in Figure 12 by showing the threads associated with each clique.



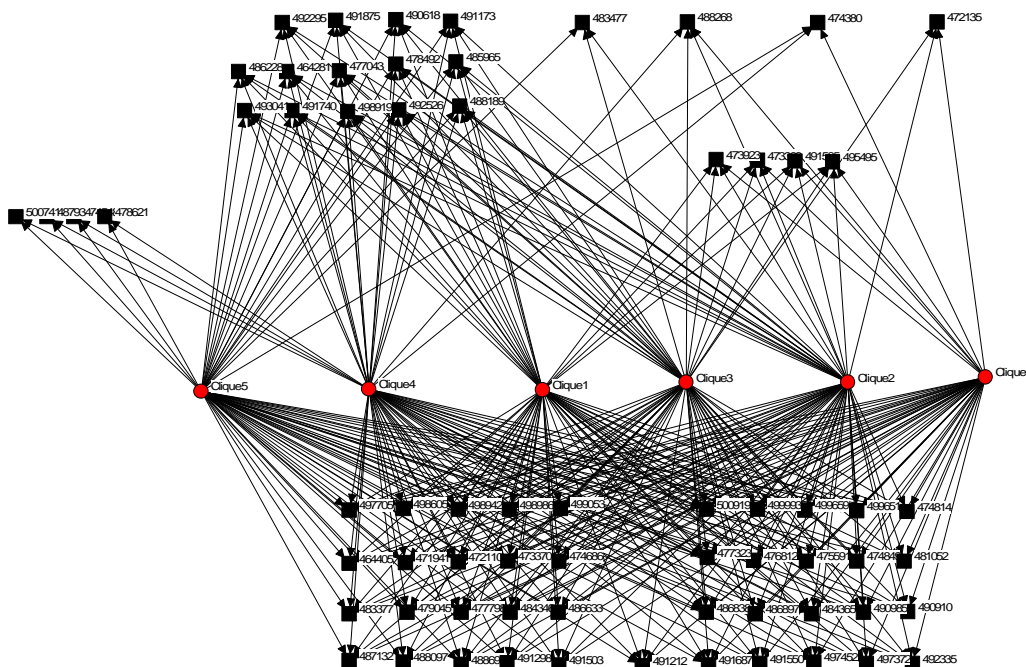


Figure 13 Unpacked map of 6 cliques overlap

The titles of the linking threads associated with various cliques are listed according to the number of cliques that took part in that thread. Note that a linking thread indicates that at least one member of each clique participated in the thread listed.

Cliques 1, 2, 3, 4, 5 and 6 (all six cliques)

- 500
- AB London Pissup Thread: 31 May 2004
- AB Piss-up
- ABTT Airborne Piss-Up
- ABTT Gettogether?
- Accra to Dakar - Roundtrip

- Accra, Ghana
 - Africa is winning today.
 - African taxis: love them or loathe them?
 - AIDS in West Africa
 - And again!!!
 - CHEAPEST FLIGHTS???
 - Crazy African bar names
 - Do Africans see whites as superior???
 - Fanti
 - Free beer competition
 - Frivolous Things.
 - Ghana "Pissup" June/July????
 - I don't have a desire to make money
 - I'm off to Ghana in 10 Days
 - If I don't ask, I'll never know
 - Internet access in Elmina???
 - It's called what?
 - Just booked...
 - Living in Africa...
 - London AB Pissup: 31 May 2004
 - London piss-up Monday 31 May??
 - LP Comet announcement
 - Malaria, what is Lariam worth taking?
 - More accolades Africa Branch!
 - Need a laugh
 - poorest country in Africa
 - Proverbs
 - Racism and reverse racism in Africa
-

- shots
- Tetnus shot
- What do you miss about Africa?
- Where NOT to go?
- Which camera to take to Africa?
- WT Pissup Saturday 5th June
- Your favorite cities in Africa

Gleaned from the list of threads above, discussions that draw actors together from cliques 1-6 vary to include reference to face-to-face gatherings while reference to Ghana appears to top the list of destinations. Considering the spring-embedded map outlining the actors and messages of clique 4 (see CD-Rom), it is noteworthy that *LSchweiger* posted a message on 24 May 2004 at 19:25. This message, being the only one of this actor in this dataset, requests information about medication against Malaria, and is entitled "Malaria, what is Lariam worth taking?" This message and the actors who replied, resulted in making *Lschweiger* part of a clique 4. The other actors who replied are *Dayo*, *Monkeygeorge*, *NgaDef* and *Pizza_Wheel*. All these actors are noted for their high frequency of participation in comparison with other actors.

Cliques 1, 2, 3, 4 and 5 have the following linking threads:

- "other" footwear for riding safari...help!
- a day in nairobi, a day in kampala
- Favourite Place
- Ghana - Rabies innoculation
- Giraffe Manor near Nairobi

- Half day trips?
- How bad are the mosquitos in Kenya and Tanzania?
- Kenya in November?
- Larium causing permanent brainstem damage
- Mombasa to Lamu
- Safari in Kenya and Tanzania plus children
- Sorry, nothing about Ghana...
- Visa for Kenya
- Wilderness camping in Kenya, Uganda...or

From the above, it is notable that threads mostly cover Ghana and Kenya.

Cliques 1, 2, 3, and 6 have the following linking threads:

- African ethnic features
- Flight duration Dakar to Accra?
- Ghana!
- where or where or where?

Cliques 4 and 5 have the following linking threads:

- Driving on the 'wrong side' ?
 - IS this Possible from the UK
 - open ended return flights to Tanzania
 - Things to do around Dar on the cheap
-

Cliques 2, 3, 4 and 6 have the following linking thread:

- Nigeria (Note: There are three threads with this title. This thread has the thread reference identification number (ID) of 488268. The ID of the other two other threads are 473962 and 499839.)

Cliques 2, 3, and 5 have the following linking thread:

- Egypt during Ramaden

SuseNZ posted this message on 17 May 2004 at 02:12.

Hi

We are looking at booking a tour of Egypt for November. The problem is that the only 2 departure time we can do seem to mean we will be there for Ramaden (sp?). The tour we will be doing will not take us off the beaten track, and we will tag on a week at the red sea. Has anyone travelled to Egypt during Ramaden? Does the place shut down? Will we likely encounter any problems? I would appreciate it if you are able to provide us with a unbiased view - as I am afraid that the tour company will just tell us what we want to hear.

It drew five replies, namely from *stefo* on 17 May 2004 at 03:00, *rOs* at 02:15, *Katiebell* at 06:25, *lise_oz* on 18 May 2004 at 20:31 and *dysfunctional* on 19 May 06:09. All the actors except *dysfunctional* contributed useful information relevant to

the question; *dysfunctional*, however, mentioned something that reflects on the sharing of information on the *Thorn Tree*, namely that frequently asked questions are included in an official *Thorn Tree* Frequently Asked Questions (FAQ) section if enough people ask the same question over and over again.

Cliques 2, 3, and 6 have the following linking thread:

- Volunteering in Ghana

Once again, as is the case with the linking messages in cliques 1,2,3,4 and 5, a message is posted about Ghana. On 4 May 2004 at 20:12 *JayDawg* posted a message requesting information about teaching and education work in Ghana. Four replies follow, all with useful information: *rbafrica*, *Katiebell*, *victory108*, and *Fairfax*.

Cliques 4, 5 and 6 have the following linking thread:

- Living in Africa

On the dataset there are two threads with this title. In this case, the thread was originated by *Sayhello* on 6 May 2004 at 23:40.

An opportunity is on the horizon to spend a few years living and working in Africa - based primarily between Nairobi and Jo'burg but with travel to most of East & South Africa. My question is just how dangerous is living in these cities. You hear all the horror stories (esp in Jo'burg) and i wonder whether its as bad as the news would have you believe. i'm a young white male from australia who's never been to Africa and i'll take all the advice i can get.

From this, *Sayhello* received three replies: one from *Pizza_Wheel* and two from *Monkeygeorge*.

In reply, *Pizza_Wheel* posted the following on 7 May 2004 at 7:51:

Jo'burg is one of my favourite cities and I'd jump at the chance to move down there (I'm jut over the border in gaborone, botswana, been here two years but it's a small town). i think what everyone has said above is true about the exageratin of crime and the complaints by many south african ex-pats who haven't gotten on in the new rainbow nation.

On Nairobi my pal is just coming up for 4 years living there and has loved every minute of it; again there is crime just be sensible.

Monkeygeorge's reply was posted at 04:49 on the same day and is insightful, especially for the local tourism industry.

I understand what #2-4 are saying, but Cape Town was the only place I've been to where I didn't do something I wanted to (walk to Lion's Head for sunset) because I was told it was unsafe. This isn't because of my paranoia, I was taking the advice of the hostel owner.

It's a shame because it's probably one of the mst beautiful cities in the world.

Table 15 lists each clique with its associated inner threads. The threads are in alphabetical order. If the threads identified as inner threads are compared to those

identified as linking threads, a majority of threads are common to both categories. However there are threads that appear in one group and not in the other as shown in Table 16. In this table it is shown that “Budget for West Africa (in Euros)” and “Sad news from SA” only appear as inner threads and not as linking threads.

3.2 Ego analysis of selected actors

Owing to the differentiated nature of actors’ interaction with others on the *Africa* category, a graphical view of their neighbourhoods is warranted. In these one-mode networks, a link is established between actors if they participate in the same thread. These actors are *Dayo* a transmitter (post and reply about equally), *dysfunctional* a sink (predominantly reply), *JayDawg* and *Micksailor* examples of sources (predominantly post) and *NgaDef* a transmitter with high reciprocated and total ties.

An analysis of their contributions and the nature of the exchanges in which they are involved are accomplished by using a two-mode network. The latter is used since it allows an affiliation of the individual actors to the various threads by considering messages of which they are the posters as the second mode. The first mode consists of the actors. Furthermore, a limited content analysis of the messages reveals the nature of the exchanges in this online computer mediated social network by analysing the content of messages.

3.2.1 Ego network map for *Dayo*

With reference to Figure 14 the ego-network map for *Dayo* (one-mode) appears to consist of two separate types of connections. On the left side of the plot from approximately the 11 o'clock position counter clockwise to approximately the 5 o'clock position the communications are largely simple and virtually one-on-one. However, the communications links for the remainder of the network are interwoven with numerous links that intertwine with other actors. *Dayo* is a transmitter and is responsible for approximately the same number of posts and replies. *Dayo's* total number of ties (in-ties plus out-ties) equals a hundred. This may include self-ties and is reflective of the level of activity of this particular actor.

Figure 14 needs to be read in conjunction with Table 18. The table lists every message for which *Dayo* is responsible. Figure 14 is, however, a simplification since it counts the number of threads and not the number of messages. From this figure, it is visible that *Dayo* is involved in threads that also draw other actors to conversations who in turn are involved in other threads. In particular, the following actors are mentionable: *Pizza_Wheel*, *Kingdoomy*, *Katiebell*, *NgaDef*, *Dysfunctional*, *Londonviking*, *Julie_L*, *Scoubidou*, *Frantic*, *twilkie22*, *eldo*, *stedo*, *Clottercream*, *Monkeygeorge*, and *taharqa*

In an effort to explain *Dayo's* ego-network it is necessary to consider the content of some of the messages for which this actor is responsible. A thread *Dayo* initiated (poster) that drew sixteen unique responses was "Favourite Place", posted on 26 April 2004 at 01:22. It reads:

What is your favourite place in the entire world? I'm not talking about generally, like a country, I mean more specific as in a city or park or lake etc.

If you can't narrow it down give us your top 3.

Chloe :)

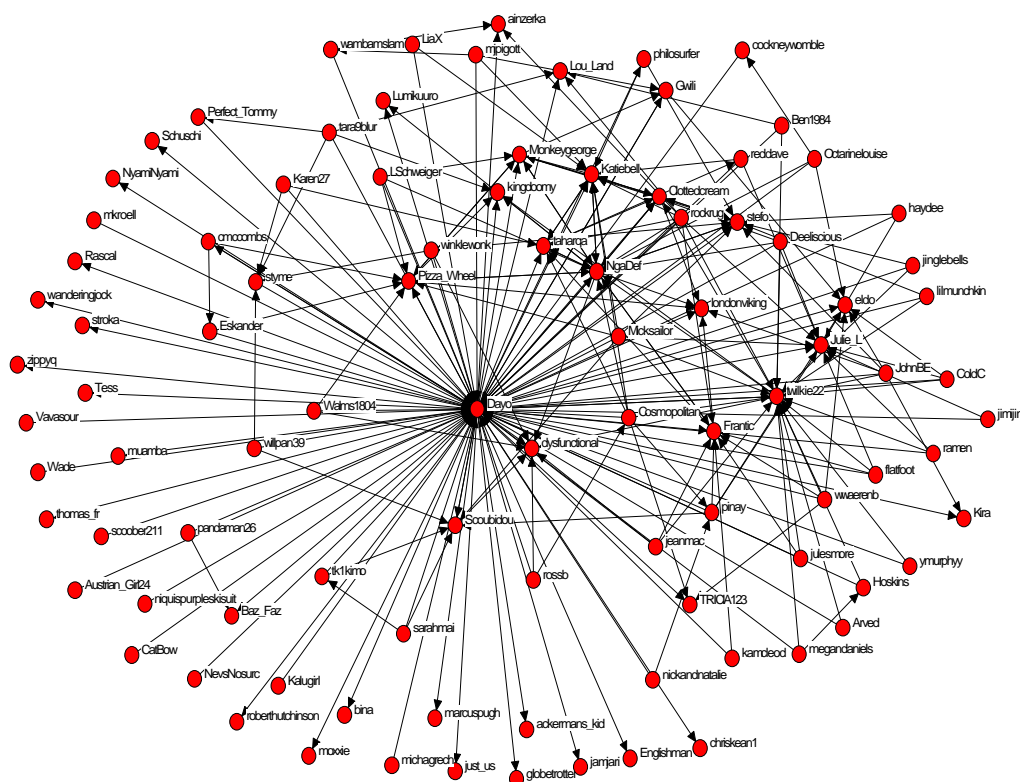


Figure 14 Graph-theoretic layout of an ego-network for *Dayo*

Based on *Dayo's* ego-network as illustrated in Figure 14 (also see Table 18 that outlines all the messages *Dayo* posted) some of the replies to this post are discussed below. *Rascal*, for example, replied:

Three places i'd go back to in a minute: The south island of New Zealand, specifically hiking in Nelson Lakes NP; Havana Cuba, can't beat the people, culture and architecture...what a vibe!; Bukhara, Uzbekistan, like a living museum, safe, friendly and totally unspoilt by tourism.

What are we to make of the figure and the connector lines? On the ten o'clock position in Figure 14, this link is represented with a pointed connector line. The base of the line is positioned on *Dayo's* node, while the arrow points to *Rascal's* node, signifying that *Dayo* is the source and *Rascal* the replier. On the accompanying matrix, *Dayo* is situated in the row and *Rascal* in the column.

Monkeygeorge, one of the actors noted above for contributions to other threads in which *Dayo* was also active reacted as follows:

Very tough, but three very different places that spring to mind are: Bundi, India; Sossusvlei, Namibia; Tunku Abdul Rahman marine park, East Malaysia.

Positioned on the nine o'clock position in the graph, *zippyq*, made the following contribution:

A restaurant on the beach facing the sunset at Railey Beach/Pranang in Thailand....the food and the view and the weather and the overall feeling were so amazing. The Angkor ruins in Cambodia, particularly the site all overrun with trees - an architectural, historical, and natural

wonder, and you could climb all over it and explore every delightful inch, at least when I was there a year and a half ago. I am so glad I went when I did because it looked as if in the future sites would be fenced off and railings erected and so forth. It won't be so marvelous forever. The streets of Rome, just wandering, smelling the pollution and vegetation and heat mixed together.

In the message above the willingness to share this information has implications for others too. Taking heed of the warning that fences and railings could affect future experiences, some members might consider taking a trip there before it happens. In Chapter Five the matter of people's willingness to share information that could influence others' experiences is brought into relation with the value aspects of social capital. The value of the information is in this case not influenced by the fact that these ties are largely weak ones. This suggests the actual strength or value of weak ties in an exchange network of this nature.

Considering another actor, *Walms1804*, and relating it to the graph (Figure 14), *Dayo* replied to a message *Walms1804* originally posted on 30 May 2004 at 08:52 with the subject "Driving across africa". *dysfunctional* is an actor noted for considerable exchanges on the *Africa* category and visibly connected more than others in *Dayo*'s ego-network. This actor replied to *Walms1804*'s message, as did *Pizza_Wheel*. This explains the pointed connector lines in Figure 14 from *Walms1804* to *dysfunctional* and *Pizza_Wheel* respectively.

For a different perspective on *Dayo*, Figure 15 represents all the messages to which this actor is affiliated. Based on a two-mode network, it needs to be noted that the matrix was normalised which means that all connections were reduced to one; more

is acceptable in network analysis where content analysis or other forms of qualitative research are used to reveal more about the nature of the ties present among actors.

3.2.2 Ego network map for *dysfunctional*

The ego-network for *dysfunctional* is largely uncomplicated, mostly because this actor is clearly a replier: there are no out-ties. Messages are analysed for greater clarity in order to ascertain the nature of *dysfunctional*'s contributions. Consider Figure 16 (ego network), Figure 17 (contributions to threads) in conjunction with Table 19.

Unlike *Dayo*, there are fewer connections among actors in this neighbourhood. This suggests that the threads that *dysfunctional* initiated (original poster) did not draw (repeated) replies from actors in this neighbourhood. Furthermore, it needs to be noted that *dysfunctional* is a sink, in other words, a replier rather than a poster.

Table 19 outlines all the posts for which *dysfunctional* is responsible. This is read in conjunction with the two-mode graph (Figure 17) outlining *dysfunctional*'s affiliation to threads. It is clear that *dysfunctional* contributes to threads of varying topics, for example South Africa ("South Africa entry reqs", "South Africa visitor's permit for 7 months"), Morocco ("trains in Morocco", "Recommendations for short stay in Morocco", "Morocco", "short camel trip into desert in Morocco", "ramadam in marakesh", "Morocco, Tunisia and Malta", "Moroccan trains", "Royal Air Maroc Pilto Strike", "Hire cars to Morocco", "Morocco with GAP Adventures") and Egypt ("Egypt questions", "Egypt to Europe by sea", "Are cellular phones forbidden in Egypt?", "Ferries between Greece and Egypt", "Paris Dakar").

The original post was made by *Dayo* on 2 June 2004 at 09:09 and read:

Woo hoo, exams are over! And to prove that I can still start decent threads when I'm not avoiding revision, here's the next one...What's the funniest/most stupid name for a product you've ever seen?

Chloe :)

From this can be deduced that the noted actors in this dataset interact, which reiterates their prominence in this network. This does not, however, automatically assume a measurable influence since it has been established that no-one exerts particular power in this sparse unconnected network.

Moreover, from the message above, *NgaDef* is clearly aware of the nature of computer-mediated communication and does perhaps seek some form of fame by starting a thread that will draw the highest number of messages or a thread that will outrun all others in terms of duration. The fact that one of *NgaDef's* messages attracted the highest number of replies does not mean it added value to travel-related information. It does, however, influence *NgaDef's* position and levels of connectivity in this network and might even add to this actor's fame.

3.2.4. Ego network map for *JayDawg*

The ego network for *JayDawg* (Figure 20) shows a contribution that consists mostly of postings (13 postings and 11 replies). This means, as noted early, that *JayDawg* is a poster. The network is relatively simple but the posts from *dysfunctional* may contribute to the posts and replies of those within *JayDawg's* neighbourhood.

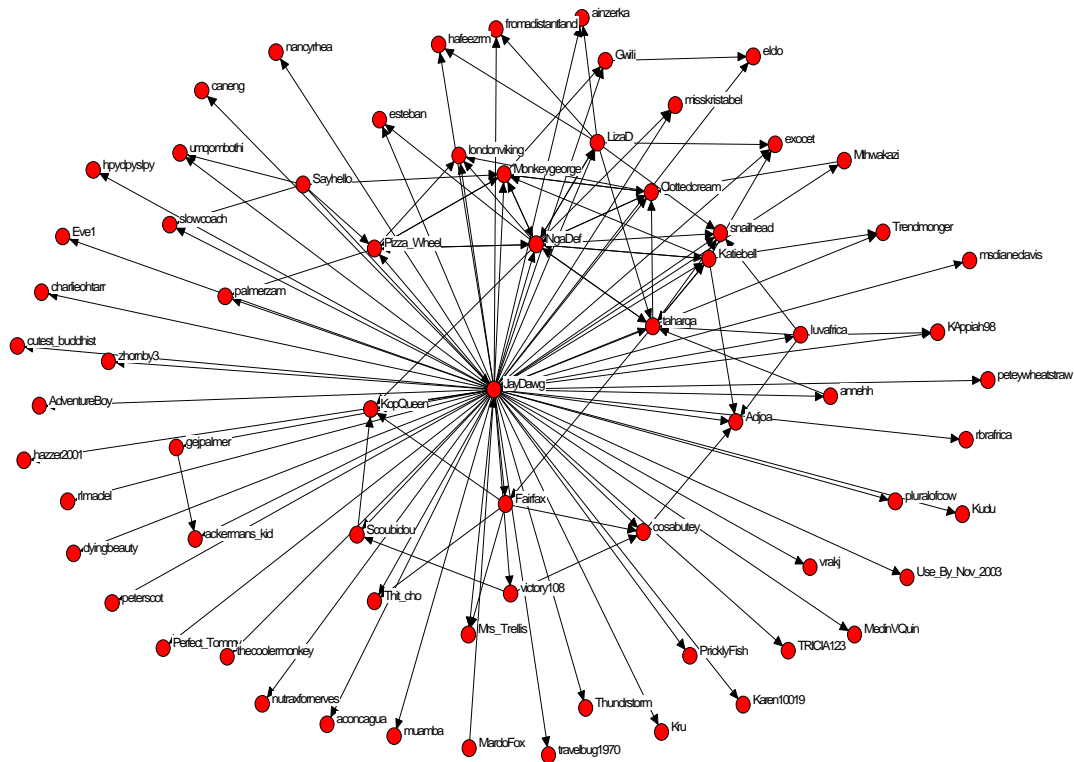


Figure 20 Graph-theoretic layout of an ego-network *JayDawg*

Table 21 lists the topics as they appear on the *Thorn Tree*, with an indication of the date and time and whether *JayDawg* is a poster or replier. It is sorted according to date, which assists in gaining insight into the activity patterns of this particular actor on the *Africa* category.

The first message posted by *JayDawg* on 4 May 2004 at 20:12 with the subject line “Volunteering in Ghana” reads:

Anyone have any experience? What are the best organizations, and which are the ones to steer clear of? I am mainly interested in teaching/education work.

JayDawg received four replies on this request, namely from *rbrafrica*, *Katiebell*, *victory108*, and *Fairfax*.

Another thread that *JayDawg* initiated drew a considerable number of responses due to its political and racial connotations. It was posted on 6 May 2004 at 11:53 with the subject “African ethnic features”.

Mostly a poster, the two messages to which *JayDawg* responded (reply) are notable. The first messages (ranked according to date) to which *JayDawg* replied is “what's up, niger”. On 6 May 2004 at 08:05 *MardoFox* posted the following:

I'm heading to Niger for a year starting in August. I suppose I'll be based in Niamey. So, if you've been or are going, know someone whose there, etc. please do drop me a line at bailey_sarahk@yahoo.com. i'm 26/f american working with a development/relief NGO). happy trails to all. sarah

To this, *JayDawg* replied on 6 May 2004 at 13:03 “Are you going to buy uranium?”

A thread with the subject line “Living in Africa” contains *JayDawg*'s second reply. *Sayhello* made the original post on 6 May 2004 at 23:40. It reads:

Hi all, An opportunity is on the horizon to spend a few years living and working in Africa - based primarily between Nairobi and Jo'burg but with travel to most of East & South Africa. My question is just how dangerous is living in these cities. You hear all the horror stories (esp in Jo'burg)... i'm a young white male from australia who's never been to Africa and i'll take all the advice i can get.

To this, *JayDawg* replied on 7 May 2004 at 00:11:

Never been there, but I have a really good friend from S.A. and she says it really is as bad as they say, if not worse. Their reaction if someone was robbed is "Just be grateful you weren't killed". Almost everyone she knows has been a victim of crime. When she went home for a visit, she was afraid to go to the beach on her own, because it's dangerous.

Taking the nature of exchanges on the *Thorn Tree* into account, the reaches of *JayDawg's* neighbourhood and contributions, the impact an actor such as this one can make by sharing views and information to fellow travellers becomes clearer. From the information contained in the message above, *JayDawg* relates information obtained from a "good friend" from South Africa. It is not possible to know what *Sayhello's* reaction to this advice might have been since there is no follow-up reply. Considering aspects related to social capital, such views surely do exert an influence on the decisions others might make who read these messages. Subsequently, ties are assets since they open opportunities to exchange information; the latter being a resource with value, i.e. capital as far as it denotes social capital.

Based on these network analytical findings, *JayDawg* could best be described as an actor who asks a lot. What does this actor contribute? A thread which caused some reaction among other actors was posted on 2 June 2004 at 11:02 with the subject “Do Africans see whites as superior?” This is an example of a message that does not relate directly to travel information but rather draws on the views of actors about race and ethnicity, political views and general knowledge about the world which can be indicative of first-hand experiences gained while travelling. In this instance *JayDawg* initiated a discussion that has implications for the structure of the network since actors could react that might not have posted messages if the content was different. This particular point is, however, speculative and needs further analysis before any concluding remarks can be made.

3.2.5. Ego-network map for *micksailor*

This actor is included in a detail discussion here for contributing the highest number of posts, i.e. originating 20 threads and replying to three others. *JayDawg* too is mostly a poster, as outlined above having started thirteen new threads and replying to eleven others. In comparison, *NgaDef* originated five threads while posting 110 replies.

On 05 May 2004 07:04 *Micksailor* posted the first thread contained in this dataset with the subject line “Maputo,...Worth it...?”

I have the opportunity (I guess) to go to Maputo from Jo`bur for 3 days. The costs will be approx 80US \$ for bus/train return and a 50 US\$ Visa application fee, thus a total of 130 US\$ to see a city for 3 days OR I could add these 3 days to my already 2 weeks in tanzania thus avoiding the 130 US \$. It`s just that I`ve read somewhere that Maputo

is a great city with great fun and nightlife and culture. Could someone suggest to me whether they would go to Maputo for 3 days for the above mentioned incremental costs and describe what I would be missing if I DID go!

This message received only two replies, one from *LizaD* and the other from *tbateman*, posted on 5 May 2004 at 11:46:

Tough one. Maputo is a really fantastic city, I admit. If money is a huge issue than you should stay in Tanz. Where will you be in Tanz? My friend had a great time out in Moshi. Said there were great clubs there. So if money is an issue, tell yourself Maputo will be there next time. That's what I do :) Don't think this helped much....sorry.

Bus/Train. If it can be done by Bus/Train, is there a website with the timetable and costs????

Table 22 in the Annexure lists the threads in which *Micksailor* participated. It needs to be reiterated that *Micksailor* is predominantly a poster with only two messages being replies.

What transpires from a content analysis of *Micksailor*'s messages is an opportunity to go to Africa and a constant stream of questions about specific regions and destinations in Africa. The following message is perhaps the most revealing about *Micksailor*'s continued interaction on the *Africa* category. Posted on 21 May at 10:19 with the subject line "First hand experience ALWAYS better", *Micksailor* wrote:

I know I can read about the cities in the LP guide BUT, i would prefer to make a decision based on peoples first hand experience and would like to know whether I shuold spend 3-4 days in Kampala/Jinga or spend them in Harare? Thanks everyone.

Only one other actor replied to this message, keeping in mind that *Micksailor* started posting messages on the *Africa* category about a planned trip to Africa on 5 May 2004. *Africalover* replied on 22 May 2004 at 04:09 as follows:

Regarding that most african cities are not particularly interesting... Kampala is a quiet, nice city. Easy to get around (never experienced problems day or night), some nice bars and discos of western standard for evening intertainement. Good facilities to stock up on anything (good banks, internet cafés are very cheap,...) but quite a lot of power cuts even well within the city. Lake Victoria is neer (I don't know of any

infection from swimming ther yet :-D). It's an easy connection from Nairobi for example. People are very friendly.

I have never been in Harare but in Bulawayo. Liked it too- gives much more the impression of a real big city, just spend one day though.

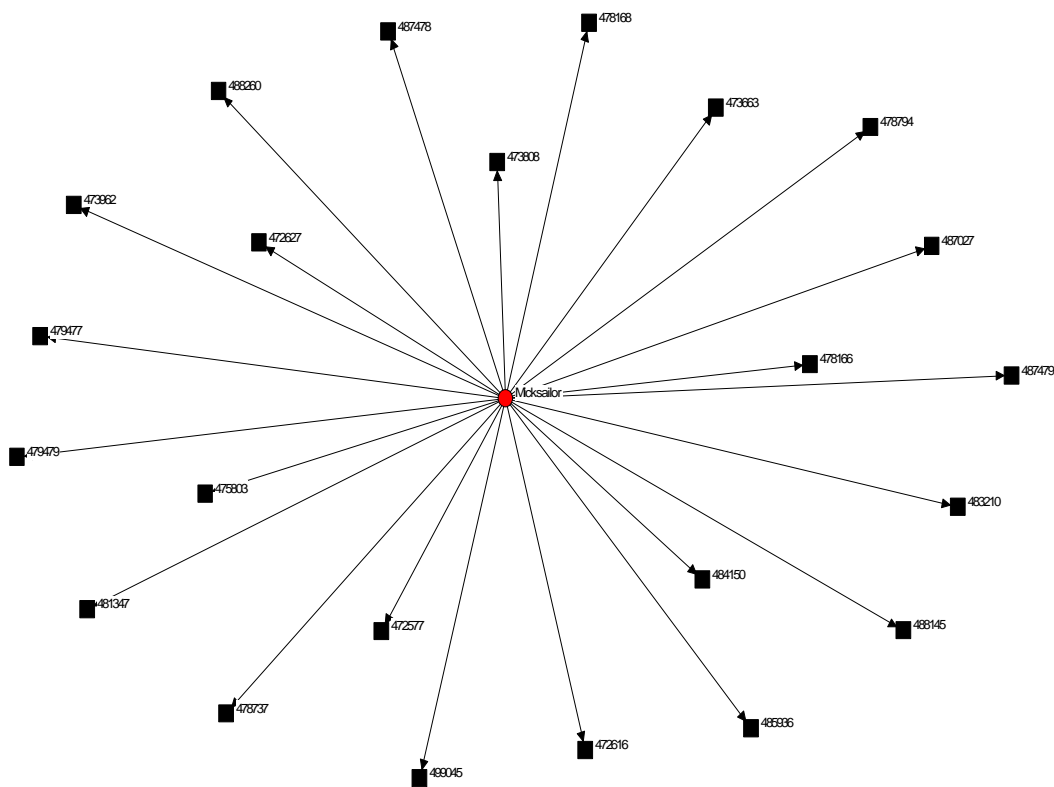


Figure 22 Graph-theoretic layout of *Micksailor's* contributions

3.2.6 Concluding remarks regarding noted actors

Considering the nature of the *Thorn Tree* as an example of an online discussion board, it is not strange to note the varied nature of discussions on the *African* category found on the *Departure Lounge* branch. Since other categories were not investigated, a comparison cannot be made with regard to style and nature of contributions, types of contributions and levels of activity amongst an array of other characteristics. As mentioned in Chapter Five, this leaves room for further study, which will also test the replicability of this study, as mentioned in Chapter Three.

If one considers the extent, frequency and nature of information exchanges made on the *Africa* category of the *Departure Lounge* branch, one can appreciate the variety of questions people have before making leisure choices. In this regard, *Micksailor's* posts are apt examples of someone who turns to the *Africa* category of the *Thorn Tree* after an opportunity has arisen for this actor to go to Africa. As outlined in Chapter Five, categorising messages and analysing messages and the nature and number of replies calls for a more in-depth study. Although this study cannot express any concluding remarks about features such as levels of trust within networks, perhaps the prominence of an actor could carry enough weight for levels of trust to increase too, although proving this would be difficult without qualitative research.

Furthermore, in agreement with Field (2003:104-105), the wider consequences of online interaction cannot be determined. A network analysis together with a limited content analysis of selected threads can indeed reveal the extent to which travellers are willing to exchange and share information with others but also the type of information that they exchange. Based on a network analysis, it is clear that this network is not dense and that it is characterised by weak ties. It needs to be reiterated however that the lack of density is not equitable to uselessness. In fact, as Granovetter's landmark study (1973) points out, weak ties are useful.

A one-mode network analysis also allows for placing actors within the network by ascertaining with which other actors they have ties. A tie is formed when actors post messages to particular threads. In those cases where actors post a message and it draws no reply and the actor also does not participate in any other threads, an isolate is formed, i.e. an actor without any ties. However, in terms of the nature of information exchanges, content analysis more than network analysis outlines the value embedded in these messages. Notably, determining the value travellers might attach to the information gleaned from other travellers is open to academic scrutiny. This particular point is not an aim of this study, although it is suggested when considering matters relevant to social capital. It is, nevertheless, important to note that on a discussion board such as the *Thorn Tree*, many messages are conversational in nature, which means that it does not contain information that could be useful to other travellers. This does not mean that such messages are unimportant, since ordinary conversation opens avenues for exchanges that could lead to greater levels of socialisation and community formation.

3.3 Two-mode perspective

3.3.1 Events

Events consist either of threads or message and relate to which ones were the most popular, that is, the ones that induced the most activity. The number of individual actors as well as the total number of messages associated with each thread is listed.

3.3.1.1 Individual actors contributing to a thread

The threads that attracted the highest number of individual actors to respond are listed in Table 23. Actors are counted once only and multiple posts are treated as one posting.

The column “Title” indicates the title of the thread. The columns “Mean”, “Std” and “Var” indicate the mean, standard deviation and variance of the contribution of this thread to all threads. As with the one-mode analysis, there is no predominant thread that overwhelms the branch. The column “Sum” indicates the number of individual actors including the poster that contributed to each thread. For example, 25 individuals contributed to the thread: “What do you miss about Africa?”

3.3.1.2 Message constituting a thread

The threads that attracted the highest number of replies are listed in Table 24. Actors are counted once for each posting to a particular thread.

The column “Title” indicates the title of the thread. The columns “Mean”, “Std” and “Var” indicate the mean, standard deviation and variance of the message associated with each thread. As with the one-mode analysis, there is no predominant thread that overwhelms the branch. The column “Sum” indicates the number of all actors including the poster that contributed to each thread. Therefore, the “Sum” indicates the total number of messages and includes the original posting. For example, 43 messages followed the initial posting (44 in total) of the thread “What do you miss about Africa?”

3.3.2 Actors

An actor either acted as a poster or replier of a number of threads. The number of threads or messages to which individual actors contributed is discussed in this section. As with the one-mode network the top 25 actors are listed for each category.

3.3.2.1 Threads contributed to by individual actors

The actors that contributed to the most number of threads are listed in Table 25. The messages are counted once only and multiple posts are treated as one posting.

The column “Participant” indicates the name or handle of the actor. The columns “Mean”, “Std” and “Var” indicate the mean, standard deviation and variance of the contribution of this actor to all actors with respect to threads. As with the one-mode analysis, there is no predominant actor that overwhelms the branch. The column “Sum” indicates the number of individual threads the actor to as either a poster or a replier. For example, *dysfunctional* contributed to 83 threads.

3.3.2.2 Messages contributed by individual actors

The actors that contributed the most number of messages are listed in the following table. Both messages and threads are counted. See Table 26.

The column “Participant” indicates the name or handle of the actor. The columns “Mean”, “Std” and “Var” indicate the mean, standard deviation and variance of the contribution of this actor to all actors with respect to messages. As with the one-mode analysis, there is no predominant actor that overwhelms the *Africa* category.

The column “Sum” indicates the number of total messages and threads the actor contributed to either as a poster or as a replier. For example, *NgaDef* posted 115 messages in total, of which five are posts (starting a thread) and 110 are replies. This is far more than the two messages of an actor such as *sheltered* for example. In this dataset, *NgaDef*'s total number of messages is considered a high number by one individual actor. Similarly, *JayDawg* contributed thirteen posts and eleven replies, *Micksailor* twenty posts and three replies, and *Dayo* seven posts and 105 replies.

3.4 Selected threads and actors

The top-three threads are listed in Table 24 according to the total number of messages received. The table is in date and time order.

In the first thread, namely “More accolades Africa Branch!”, the replies simulate that of a conversation. There is even the occasional afterthought appearing as if an actor wanted to add an almost forgotten thought.

The following two threads (“What do you miss about Africa?” and “African ethnic features”) are discussed in the sub-sections below and almost appear as serial monologues in comparison to the thread entitled “More accolades Africa Branch!” There are very few contributions or interactions and the concept of a dialogue is more or less nonexistent.

3.4.1 The “More accolades Africa Branch!” thread

On 6 May 2004 at 02:11 *NgaDef* posted the following message, thus starting a new thread with the subject “More accolades Africa Branch!”

My second ever LP TT Thread of the day!! African taxi stories. I feel so humble :)

Dayo was the first actor to reply. On the same day, at 02:38 *Dayo* posted the following:

Yay! Congratulations NgaDef, it's a great thread.

Similar to what could be expected in a normal conversation, *NgaDef* replies at 03:05 *NgaDef* with the following acknowledgement:

Why thank you Dayo

Later, following on a reply by *Pizza_Wheel*, one of the actors noted in an earlier subsection, *NgaDef* once more replies:

P_W You're right. It's time I mixed a better class of poster. Thanks for the recipe I'll try it. The blatjang is still in my fridge. We have some great photos of the meal. I expect they'll be posted eventually

Proceeding in a conversational manner, *Pizza_Wheel*'s reply to this is:

*So you've got round to reading the #1 ladies detective agency????
I drove down Zebra Drive yesterday, which is as close as we get to
Zebra Close....I don't keep my blatjang in the fridge!*

By the next day, on 6 May 2004 at 06:07 *londonviking* uses the thread started by *NgaDef* to address *Pizza_Wheel* (note the abbreviation “*P_W*”) and also to congratulate *NgaDef* on a “great thread”:

*P_W, what are your plans at xmas? I'll be in Cape Town from 16 Dec,
meet up somewhere?! BIG congratulations on the posting of the day
NgaDef!! LV*

Figure 23 is a visualisation of this thread, showing the different actors who are affiliated to it through their contributions. Refer to Table 27.

As suggested earlier, the findings from this section reiterate the fact that not all messages are contributing any useful information as far as it concerns travel. However, what is evident here is the nature of the interactions and the levels of socialisation that are evident among actors. It also illustrates the nature of computer-mediated communication. In this instance, *NgaDef* is noted as an actor that has achieved the highest number of replies to a message.

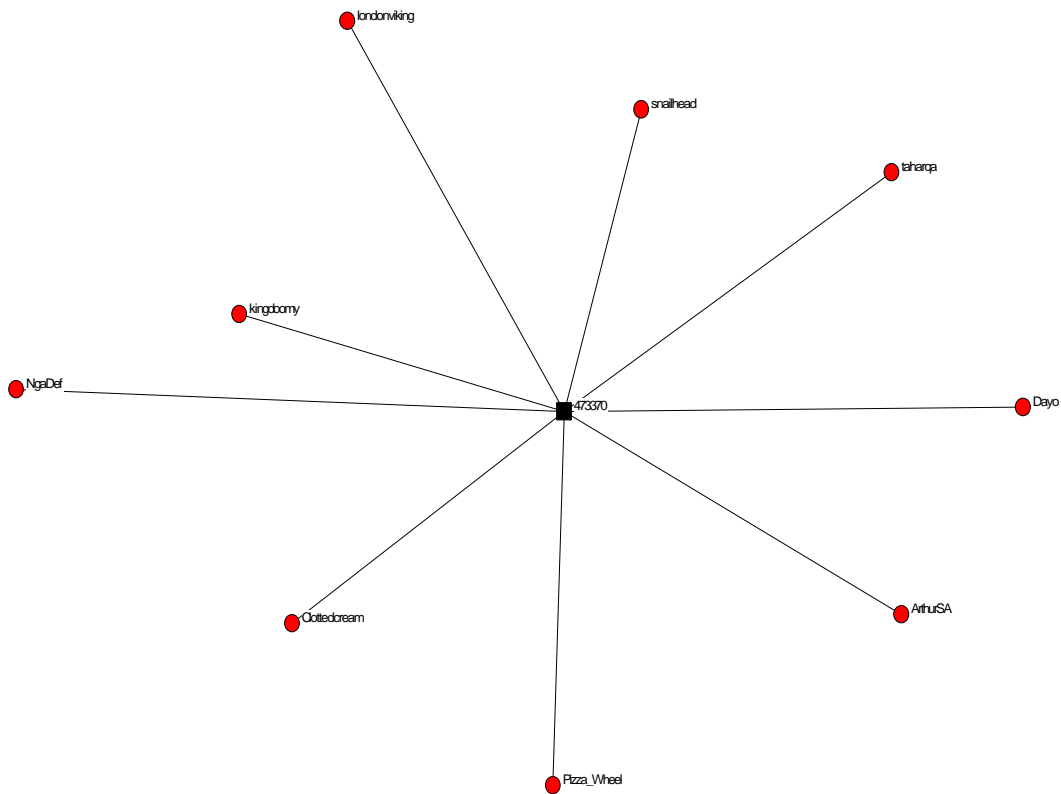


Figure 23 Graph-theoretic layout of the thread “More accolades Africa Branch!”

3.4.2 The “What do you miss about Africa?” thread

With reference to Table 28, On 25 May 2004 at 12:32 *rockrug* posted the following message, thus starting a new thread with the subject line, “What do you miss about Africa?”:

I am sitting here in my office trying to get some work done. I popped in one of my CDs with African music on it and now I find my mind drifting back to West Africa and I really miss it. I miss the people. I really miss the music. We all hear about the problems with Africa but the longer I am away from it, the more it miss it.

What do you miss most about traveling through Africa?

Numerous other *Thorn Tree* members replied, revealing their travel experiences and memories about their travels through Africa. While the complete thread can be accessed from the CD-Rom that is included at the back of this thesis, some of the messages are outlined here.

On 1 June 2004 at 07:54 *Badmonkey* replied:

I miss the barking gekos in the Nassob tented camp, Kalahadi Transfrontier Park. when i think of Africa my office loses two feet on each side.

One actor discussed in more detail in this thesis, *NgaDef*, replied on 25 May 2004 at 13:09 as follows:

I never feel alone. In Africa you are always with: Your brothers Or your sisters

Using a conversational tone in reply on *NgaDef*, rather than in reply to the original message, *Frantic* replied on 25 May 2004 at 13:10:

I know what you mean. I got back a few months ago and have started dreaming of the dusty paths, amazing plants, lovely people, smells, sun, food and beautiful scenery. That's the great thing about ABTT, many people wanting to be transported from wherever they are now, back to the places in Africa they love the most!

One thing I don't miss is the Kenyan potholes. My osteopath told me today that three months bumping and flying over them in matatus is probably a major factor my recent acquisition of sciatica....

A message that is indicative of the ability of the Internet to bring people together in social networks is that of *Sandyoz* who replied on 25 May 2004 at 14:00 as follows:

Gosh...I thought I may be the only one sitting and dreaming about Africa....

The remainder of the message reveals something about the influence real travel has on travellers:

My visit has had a profound effect on me..I realise that actually having less is more...potholes as well...I made so many African friends...I am returning to see them all in September and in the meantime all I can do is stare out of the window and dream. Troubles and all..there were

more smiles there than I had seen in a lifetime....which just goes to show....

Notably, another actor that is discussed in detail in this thesis gives consolation. On 25 May 2004 at 14:14 *Dayo* replies:

*Never Sandyoz - there's always someone. Ouch Fran, sorry about the sciatica. That'll probably be me in a few years time. Damn those potholes! Brian, I miss the kids I worked with and all my friends. Then there's the amazing views and oh those African nights.
Chloe :)*

The next day (26 May 2004 at 03:20) with a couple of messages in between, *Frantic* posted a message in reply to *Dayo*. Resultantly, a short conversation starts between these two actors:

*Thanks Chloe - the only good thing is I've been off work for three weeks in this lovely weather (although today's looking a bit grim!)
Fran*

Obviously being online at the time, shortly thereafter *Dayo* replies at 3:40 on the same day:

You're welcome Fran. The weather's only nice cos it's exam time anyway - when we've finished them it'll turn nasty again no doubt! As you can see I'm a natural optimist ;)

In reply, *Frantic* writes an hour and a half later (04:31)

Well quite! Exams and bank holidays - always sunny then pouring with rain!

Dayo's next reply suggests some insight and knowledge about *Frantic's* personal life:

Yep, that's right. Just being nosey now Fran, but have you thought of any names for Baby?

The above thread is a clear indication of the role computer-mediated communication plays in the daily lives of members (or in network terms, actors) who form part of a social network. This thread is visualised in Figure 24. Also refer to Table 28. It also points at the benefits of being online. With reference to issues of accessibility to the Net (Kendall, 1999: 58-59), it cannot be ascertained with any amount of certainty if *Dayo* might have a permanent Internet connection which furthermore reiterates findings about the integration of the Internet in everyday society as outlined in Chapter Two.

Unlike *NgaDef* whose thread does not carry much in terms of travel information, *rockrug's* thread is related to travel experiences and invites other actors in this network to share their experiences.

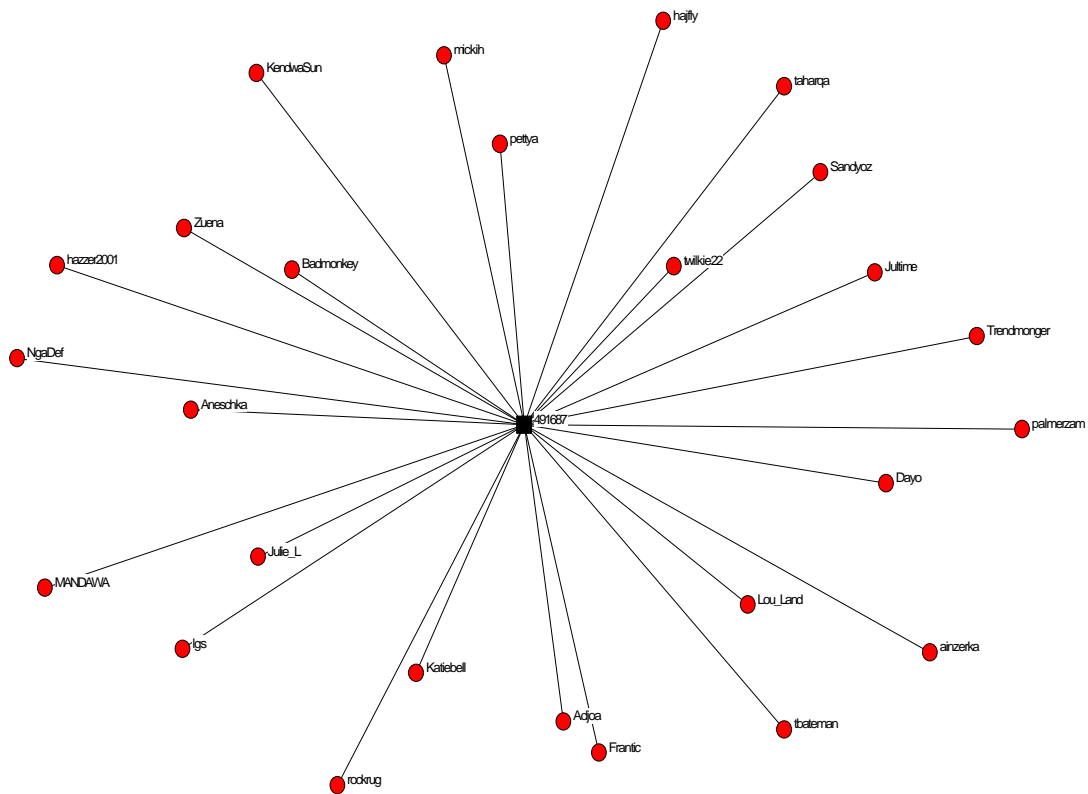


Figure 24 Graph-theoretic layout of the thread “What do you miss about Africa?”

3.4.3 The “African ethnic features” thread

JayDawg is noted at the outset of this sub-section as a transmitter with mostly out-ties. It is subsequently necessary to investigate a post originated by this actor. On 6 May 2004 at 11:53 the following message with the subject line “African ethnic features” (Table 29 and Figure 25) appears on the Africa category of the *Thorn Tree*:

I am pretty sure people who have spent a lot of time in different parts of Africa can tell what region a person is from just by looking at them,

right? Just like for people who haven't spent a lot of time in Asia, all East Asians look the same, while those that have can often tell a Chinese from a Korean or Japanese, etc. I have noticed that people in West Africa seem less dark than those in Eastern or Southern Africa. And Ethiopians/Eritreans have thinner noses and lips than most other Africans. Aren't Kenyans also taller than Ghanaians, for example? I know this is a very general question, but what are the facial and other characteristics by which one can tell people in different parts of Sub-Saharan Africa apart?

On an internationally accessible computer mediated social network such as the *Thorn Tree*, the reaction to such a post is expected. The complete thread can be accessed from the CD-Rom included at the back of this thesis.

On 10 May 2004, this thread came to a close having started on 6 May 2004. This corresponds well with findings noted earlier in this chapter regarding survival analysis.

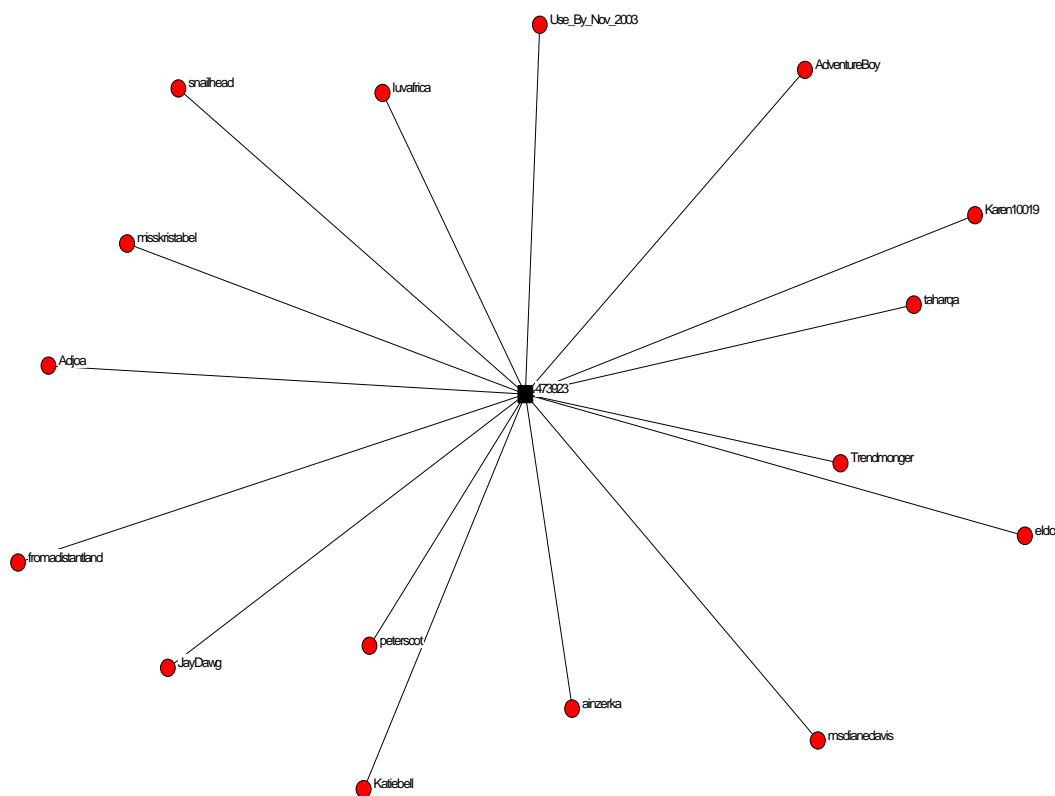


Figure 25 Graph-theoretic layout of the thread “African ethnic features”

3.5 Common threads: *NgaDef*, *Dayo*, *dysfunctional* and *Micksailor*

Figure 26 is a graphical representation of an ego network based on a two-mode matrix for *NgaDef*, *Dayo*, *dysfunctional* and *Micksailor*. This effectively combines the four individual visualisations for each of these actors described in the respective sub-sections above.

There are ten common threads between *NgaDef* and *Dayo*. These are listed in Table 30. There are four common threads between *Dayo* and *dysfunctional*. These

are listed in Table 31. There is one common thread between *Micksailor* and *Dayo*, namely “Masai Mara OR Amboseli OR Ngorogoro Crater???” *Micksailor* has no common threads with any of the other actors in this two-mode view.

There are two common threads between three of these actors with the exception of *Micksailor*. These are “African taxis: love them or loathe them?” (Thread ID 464405) that was posted on 26 April 2004 at 04:49 by *NgaDefi* and *And again!!!* (Thread ID 499651) that was posted on 3 June 2004 at 02:31 by *twilkie22*. Only the second thread listed above is dealt with in more detail below, since the first one has already been dealt with in a previous sub-section. The complete thread can be accessed from the CD-Rom.

On 3 June at 02:31 *twilkie22* posted the following message, thereby starting a thread under the title “And again!!!”

Dayo you really should do exams more often - the fab questions just keep coming! Thread for today. Keep up the good work! :)

Short replies between a very limited number of actors that are noted for being more active than others on the *Africa* category follows.

On 3 June at 04:27 *NgaDef* replied:

I'm so proud

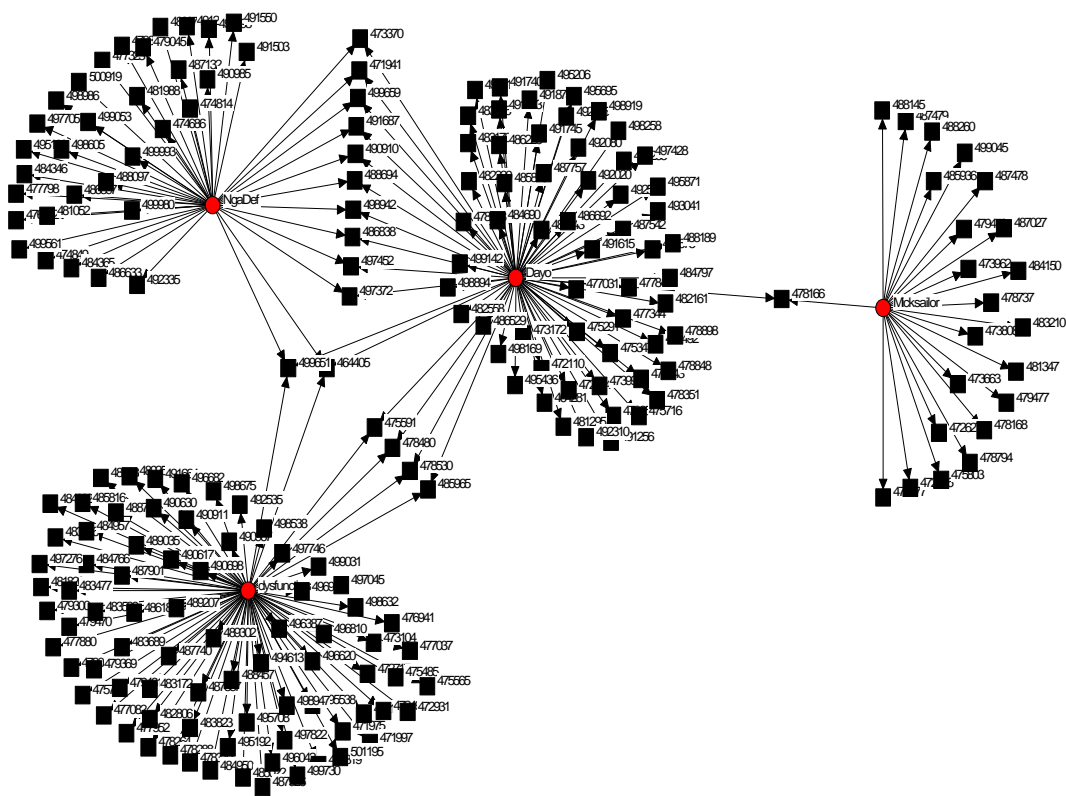


Figure 26 Common threads: *NgaDef*, *Dayo*, *dysfunctional* and *micksailor*

On 3 June at 04:33 *Clottedcream* replied:

NgaDef - you sound like *Dayo's* Dad! Well lets hope she performs as well as on ABTT in her exams!! Are they over yet? Congrats *Dayo*....is it your third thread of the day?

On 3 June at 04:49 *NgaDef* replied "She's my cyberspace little sis ;)". On 3 June at 04:58 *kingdoomy* replied:

Dayo for our new princess! Keep up the good work and become the new ABTT Queen, (pinch HoT dress!) You'll be great at those awards in december!!! 6 months to go!!!

In short succession, actors responded to each other simulating an ordinary conversation. Nevertheless, the computer-mediated communication made possible on the *Thorn Tree* remains asynchronous in nature, which means that there can also be considerable time lapses between responses. On 3 June 2004 at 05:10 *NgaDef* replies:

Peaking to early ;) She'll be tired out by December

The two messages below, however, follow two hours later and prove actors' ability to converse comprehensibly despite time lapses. On 3 June 2004 at 07:22 *kingdoomy* posted the following message:

NgaDef true but I'm sure someone will be around to remind us all of your little Sister's performances, and at this rate she'll be going all the way!!! ABTT rules!!!!!!

In one of the messages in this thread, reference is made to the longest thread on the *African* category. The refereed thread is not captured in this dataset.

have a look Dayo. African Awards. The longest thread ever on Africa Branch.

Seemingly, *NgaDef* and *Dayo* have developed a rather close relationship and might even know some personal detail about each other, which is possible from interactions over time resulting from continuous communication in a computer-mediated environment. This concurs with the view Field (2003:105) holds namely that there is no real basis for viewing online interaction and face-to-face relationships as incompatible. This is revealed in one of the replies in which *NgaDef* remarks: “She's my cyberspace little sis ;)”.

The second common thread between *NgaDef*, *Dayo* and *dysfunctional* has already been outlined in a sub-section above where the thread “More accolades [sic] Africa Branch!” is described. Interestingly enough there are no common threads between *dysfunctional* and *NgaDef*.

4. Conclusion

Social networks offer vast resources to its members. Examples cited include such tasks such as finding employment and the “old boys’ networks”. The Internet has, unquestionably offered exciting new possibilities for sharing information and communication, which perhaps helps to explain Field’s remark (2003: 93) that online interaction has expanded at a remarkable rate in recent years. This has been noted in Chapter Two as well, explaining the intense academic interest in cyberculture and attempts to understand the social effects of the Internet. Indeed, given the large number of people using online communication and the rapid spread of uses to which it has been put so far, it would be surprising if it had no effect. Briefly mentioned in Chapter One and explained in more detail in Chapter Two, writing extensively on social capital Putnam pays particular attention to the connections people make using the Internet. However, according to Field (2003: 96-97), Putnam is sceptical about the influence of the Internet, although it is accepted that the Internet does facilitate

communication among people. Kendall (1999: 59) notes in particular how accessibility to the Internet influence people's participation in digital domains such as discussion boards, chatrooms and newsgroups.

Haythornthwaite (1996) notes that social network analysis is an approach and set of techniques to study the exchange of resources among actors. Moreover, regular patterns of information exchange reveal themselves as social networks, "with actors as nodes in the network and information exchange relationships as connectors between nodes" (323). Clearly, social network analysis derives structure empirically, as proven in this study. By using a one-mode network, the patterns that emerge reveal with whom actors such as *NgaDef*, *JayDawg*, and *dysfunctional* interact. It also, however, shows which threads received no replies, or actors who are unconnected. In total, 165 threads received no replies despite the fact that some of them have been viewed.

The maxim for social network analysis is relationships. Relationships indicate a connection between two or more actors. In this instance, a link is established by posting a message on an electronic bulletin board. In this instance, the relationship is characterised by the content, although the particular content to be examined depends on what is being studied. Moreover, by specifying direction, it is possible to determine the direction of communication among actors of the *Africa* category. Using the ego network of *NgaDef* as an example, it is possible to determine with whom communication took place.

Relying on the measurements associated with a two-mode network, the affiliation of actors to message threads is scrutinised. This gives a different perspective to the information exchange in this network. In particular, it shows the varied nature and extent of actor contributions to different threads on the *Africa* category. An important characteristic of the *Africa* category network is its low density and centrality.

Furthermore, it confirms the suspicion after an initial analysis of the messages that ties are particularly weak. Friedkin states (1982: 273) that it is natural to assume that strong ties are more efficient contributors to information flows than weak ties. However, this does not suggest that the exchange of information *per se* is negligible. To the contrary, the importance of weak ties to the transmission of new information is a well-established fact among network analysts (Granovetter, 1973). This also concurs with what happens among travellers in the real world: strangers often exchange valuable information about destinations, attractions to see and dangers to avoid, amongst an array of other things without strong ties forming between them.

Furthermore, considering the most important actors, *NgaDef*, *Dayo* and *dysfunctional*, it is clear that closer ties exist between *NgaDef* and *Dayo* and that they have come to know each other quite well. This observation points at the *Thorn Tree* being a meeting place in cyberspace that also offers opportunities for people to develop relationships that could extend to face-to-face meetings in real life, as noticed by Kendall (1999: 59-60). Notably, Urry (2003) argues that increased connectivity in a networked society has led to a sharp increase in travel. Understanding how interactions in a digital domain function necessitates a greater understanding for the functioning of groups which in the case of the Internet suggests levels of income, education and inclination. In this regard Kendall (1999: 59-60) remarks that people's workplace situations, their use of computers for work and leisure activities, their various responsibilities and time constraints, and the availability of online access at work or at home constitute some of the more obvious connections between social organisations and online participation. These examples, for Kendall (1999) also point to connections between people's identities and social status and their access to online participation. Members of a group share some sense of belonging. This of course, distinguishes groups from mere aggregates of people (for example passengers who happen to be on the same flight) or categories

in sociological terms that point at people who share a common feature such as being retired but otherwise do not act together (Schaefer and Lamm, 1998: 153).

Many individuals join computer-mediated social networks or interest groups voluntarily as is the case with the *Africa* category. As mentioned at the outset of this study in Chapter One, a number of aspects are not being investigated here.

Subsequently, no conclusion could be reached that concurs or differs with that of other scholars such as Putnam, Castells and Fukuyama regarding the profile of users. Information about individual actors on the *Thorn Tree* in this study's dataset is not reliable or available in order to reach any conclusions about Internet users and non-users.

In this study it is clear that actors of this forum not only provide opportunities to interact via text-based messages with one another in a digital domain, but the probability that face-to-face communication can take place between some members too. On the *Thorn Tree*, this is referred to as "piss-ups". On 4 June 2004 at 09:26 *Clottedcream* asked:

WT Pissup Saturday 5th June

Whose attending this Glitterballs Pissup tomorrow?

I think Ngadef, Lumi and pijembe is I can make it now as well! Summer sun and beer.....perfect well apart from its in london!

To this, *NgaDef* replied some half an hour later:

Yes I'll be there. See you tomorrow

Clearly, the Internet not only provides avenues for socialisation in a digital domain, but also facilitates traditional interactions, i.e. face-to-face interactions. As such, it has far-reaching implications for social capital. While authors such as Putnam fear a decline of social capital as a result of television amongst other reasons, this study can claim without a doubt that a digital domain such as the *Thorn Tree* increases it. Moreover, it also facilitates traditional forms of interaction.

From this can be deduced that the Internet, as a network of computers spanning the globe, can facilitate the networking of people in traditional ways, i.e. face-to-face. This is perhaps welcomed by critics of electronic communication who question whether nonverbal communication, voice inflections and other forms of interpersonal interaction will be lost as people turn to email and other forms of electronic communication such as chatrooms. This brings into question a view held by some authors such as Fukuyama that the Internet erodes established relations. Castells (1996) claims that the technologies we associate with the Information Age have helped demolish the rigid identities of industrial modernism, based on class and nation, so that we now live in a network society where all kinds of contacts and values can be built into our sense of who we are. According to Castells (1996), the new technologies are central to this process of opening up the social space, for they provide unparalleled opportunities for linking disparate and scattered elements into a fluid but structured whole.

Although evidence on the relationship between social capital and online connectivity has been hard to come by, there is enough evidence to suggest that those who develop connections through the Internet are “neither devious individualists nor the shock troops of hypermodernity” (Field, 2003: 102). The communication between actors in this dataset, such as *NgaDef*, *dysfunctional*, *Pizza_Wheel*, *JayDawg* and *Dayo*, among others, suggest that they have real world interactions too. The *Thorn Tree* offers merely another way for people to facilitate interactions albeit in a

computer-mediated environment, thereby supplanting more traditional forms of communication such as face-to-face communication.

Chapter Five

Conclusion

The question of whether or not one can find “community on-line is asked largely by those who do not experience it. Committed participants...have no problem in accepting that...they belong to them (Haythornthwaite et al, 1998: 212).

The Internet has gained popularity and acceptance by allowing free access to valuable information. For something to have value, in the Western sense of the word, there must be some way to collect that value, some form, although indirect, of monetary compensation, of exchange of capital (Jones, 1999: xxiii).

1. Introduction

In this, the concluding chapter, research findings are outlined under the sub-heading “Summary”. This also contains a reflection on the lessons learnt from this research. Since the research problem centres on travel information recommendations with regard to policy and practice for the tourism industry are outlined in the sub-section “Policy and practice”. This is part of the section “Recommendations”. Suggestions for further research are covered in the sub-section “Further research”, which is also part of the section “Recommendations”.

The section entitled “Discussion” reflects on methodological aspects and the research technique that was used in this study. Moreover, part of a substantive reflection, findings in this study are compared with findings that followed from a literature survey. The latter is covered in Chapter Two.

This study attempts to increase our understanding of the impact of the Internet on travel information exchange by focussing on the networks that form when people participate in online discussions. In the sub-section “Scientific reflection”, conclusions are reached with regard to the contribution this study has made by employing a network approach.

2. Summary

At the outset of Chapter One, it is stated that this study investigates aspects of information exchange in an online network whose members share an interest in travel. This online computer-mediated social network, called the *Thorn Tree*, is managed by *Lonely Planet* and can be found on the WWW at <http://www.lonelyplanet.com>. The *Thorn Tree* resembles a real thorn tree with its various branches on which travellers hang travel notes or other messages. Similarly, the cyber-based *Thorn Tree* accessible through the Internet is also divided into branches and categories, as explained in Chapter Three. This demarcation determined the boundary of the population for the dataset, since whole populations are considered for analysis when employing social network analysis. The background to the development of the research problem is given in Chapter One and this, together with other reasons given in Chapter Three, explains why only the *Africa* category of the *Departure Lounge* branch was selected.

In Chapter One the aim is stated as an attempt to determine what the structure of the network resulting from *Thorn Tree* members participating in online discussions reveals about travel information exchange on the *Africa* category of a branch called the *Departure Lounge*. In other words, network analysis is used to explain how human interaction produces differential access to information resources. Network analysis reveals “who talks to whom”; content analysis, albeit limited to a selected number of messages, considers “what gets exchanged”.

Network analysis necessitates a clearly demarcated population for inclusion into a dataset. As mentioned in Chapter One and discussed in detail in Chapter Three this study focuses on the *Africa* category while data capturing occurred for a month. Furthermore, only actors that contributed to or initiated threads are included in the dataset. Mere viewers or people who only read messages cannot be included since no means exist to capture them as actors in this dataset. Inclusion in the dataset subsequently means that an actor has either originated a thread (posting the first message), replied to messages or both. In certain cases actors contributed more than once to a thread that they initiated. From such different ways and frequency of participation, patterns emerge which give structure to the network and subsequently places actors in various relations to others in the network. It also allows for measurements such as levels of reciprocity, density and centrality, not excluding clique analysis.

Reflecting upon the findings of the literature review outlined in Chapter Two, the nature of the Internet's impact on society is used as background for contextualising the role of the *Thorn Tree* and the manner in which members interact with each other in this computer-mediated environment. While scholars have different views regarding the nature and effects of the Internet's impact on society, the ability to create expanded networks across the globe is uncontested. More importantly, however, is the scale of these networks since time and space are no longer inhibitors to network or even community formation. An outstanding development brought about by the Internet is that networks are centred on interest more than anything else. Although the utopian goal of an all-inclusive network is propagated, the so-called digital divide is, however, a reality since certain (groups of) people are excluded from the Internet which means that factors other than time and location determine participation and thus inclusion. Before the Internet, time and location often determined the reach of social connectivity and the reaches of such networks.

Concerning shared interest, *Thorn Tree* members share a basic interest in travel, although cognisance is taken of the fact that not all messages are limited to travel information. Some messages contain information of a personal nature too, while others are aimed at evoking strong emotions and opinions about aspects not solely related to travel or related leisure activities. Being a discussion forum for travellers, its international reach and members' interest in general world matters or even personal affairs are understandable. However, consideration has been given to the possibility that membership of the *Thorn Tree* could be reflective of the profile of users of the Internet *per se*. In the absence of any reliable statistics, no conclusiveness on the issue could be reached.

With reference to Chapter Two, a question about computer-mediated social networks that raises questions among scholars relates to community. Commentators claim that the Internet has spawned unique forms of community – virtual communities marked by new kinds of social interaction, with revolutionary consequences for local and global communication and politics. While comments have been made in Chapter Four regarding the Internet and the “global village” globalisation could perhaps be realised as mainstream society is freed from the constraints of nationality, gender, race and class. Perhaps online communication is merely a substitute for the loss of “traditional” physical communities, or even the cause of their demise. More complex theoretical perspectives indicate that we need to interrogate our very notions of community and contemporary social networks. Moreover, mindful of the Internet's ability to accelerate differences (Castells, 1996) taking cognisance of exclusivity and who owns technological advancements, the notion of an ever-increasing divide among races or even along the lines of gender and class cannot be excluded.

Clearly, defining community is at the base of different conclusions about the capabilities of the Internet and computer-mediated communication to provide for the formation and continued existence of communities. For the most part, “community”

still refers to neighbourhood. Yet, most of the social support and much of the information and resources that people require to function in their day-to-day lives come from sources outside of the local setting.

Rheingold, a scholar that has been noted for his groundbreaking work during the early years of the Internet, claims that the creation of a whole new type of community, the “virtual community,” has done much to highlight the potential for communities to form beyond the confines of geographic space. This point is not necessarily contested, but Rheingold has been criticised for not exploring the concept community in detail: assuming community when dealing with computer-mediated social networks is subsequently dangerous and unscientific. This reiterates the importance of context when considering communities on the Internet. As such, assuming that the group of *Thorn Tree* members is a community might be premature or worse still, unfounded. From the evidence produced by this study, the following observations were made that could be influential in deciding whether to describe the *Thorn Tree* as a community or not. First, few members make frequent contributions or know each other well. Second, most members make very few contributions and have very little knowledge of other members, which explains the low density of the network and the weakness of ties. Thirdly, although initial contact was initiated in a computer-mediated environment, attempts are made by a limited number of members to meet in person. The notion exists that those members who propose so-called “piss-ups” or make the effort to attend such face-to-face meetings are frequent Internet users, known members on the *Thorn Tree*, and well-travelled in the physical world. This notion has not been scientifically tested, however.

Another notable point regards to the findings of Simmel concerning the size of groups. In large networks, it is easier to ignore some or even most. In a larger group, each member has less time to speak, more points of view to absorb and a more elaborate structure within which to function. At the same time, an individual has greater freedom to ignore certain members or viewpoints than he or she would in a

smaller group. In network analysis, dyads are prominent although the triad (three member groups) could be regarded as more influential and important with regard to group dynamics. Triads are surely more instable and thus more dynamic than dyads.

Although the Internet has created new avenues for people to form and become part of social networks that are based more or less exclusively on interest, it is the nature of these computer-mediated environments and the manner in which communication takes place that could affect community and community formation (Holmes, 1997: 27-43) While some scholars, like Castells (1996) have reservations about the Internet and its influence on community, others like Putnam, who theorises about social capital, see in the Internet a vehicle for the revival of social capital. The biggest concern with the findings of so-called dystopians according to Hampton (2002) is their tendency to privilege the Internet as a social system removed from the other ways people communicate. The study of cyberspace has largely maintained the frame of “community” as something that is physically bounded, by geographies of bites and bytes, if not by streets and alleyways.

Hampton (2002: 2) remarks that while the social presence and media richness of computer-mediated communication may mean the exchange of fewer social cues than with in-person interactions, there is little doubt that computer-mediated communication can be used in the maintenance of community relations and in the exchange of aid and support. As outlined in Chapter Two and Four respectively, the findings of Haythornthwaite and Wellman are applicable. It is impossible to determine if the size of peoples' social networks, if the frequency of contact because of Internet use decrease, or if the use of computer-mediated communication allow people to shift the maintenance of social ties to a new communication medium. Alternatively, the Internet may even allow people to reinvest time spent on in-person contact to establish new ties or maintain a greater number of social network members online, as is illustrated by calls to attend so-called “piss-ups”.

Looking only at cyberspace and ignoring the network of social relations that extend to other social settings fails to consider the crosscutting nature of community and the many ways and the many places where people interact. In accordance with Hampton's views (2002), online relationships should not be treated as entities in themselves as if existing social networks and existing means of communication did not exist. This is proven beyond doubt by this study.

Apart from community formation on the Internet in general and the *Thorn Tree* specifically, the concept community has not been tested among travellers yet. The fact that travellers who happen to be in the same geographical location such as a train in India or a backpackers' lodge in New Zealand share information and socialise does not mean a community is in the making; nor does the fact that people who have visited the same travel destination or who share similar travel experiences can form a community on these two grounds alone.

This point has implications when considering what Wenger (1998) calls communities of practice. Clearly, "practice" has relevance when considering *Lonely Planet's* philosophy: informed travellers have more fun and can be more responsible and considerate towards the local populations of the places they visit. This implies that we can refer to the practice of travelling and that such practices should be done in a responsible manner that would minimise the negative impacts of tourism. It also implies sharing knowledge amongst each other.

In some instances, "practice" can be replaced by "interest", which leaves yet another concept to be tested, namely "communities or networks of interest" since membership of the *Thorn Tree* is largely based on a common interest. It is also "common interest" that influences social capital and the extent to which social ties are beneficial. Concerning "benefit", *Lonely Planet's* views on the value of useful information raises an academic interest about social capital among travellers, emphasising "capital". Benefiting from information exchanges, how does one

calculate the value of experiences that became possible only because a fellow traveller was willing to share a vital piece of information? The opposite is also true: How does one calculate the value of a missed experience that could very well have been a once-in-a-lifetime occurrence or opportunity?

Since travel and travel experiences involve travellers and local populations alike, social capital gains considerable importance and without a doubt, the *Thorn Tree* facilitates social capital among travellers since it allows members to share their experiences. This does not mean that interaction in terms of social capital is limited to information exchanges. Scrutinising the content of messages, as outlined in Chapter Four, clearly shows that members share more than just travel information. For some there is a real interest in the personal lives of other actors, for example.

For destination areas, as suggested above, information exchanges have benefits in as far as these exchanges minimize negative impacts and raise awareness of obscure or unknown destination areas which could lead to an increase in the number of tourists and tourist spending. This does not mean that all information exchanges on the *Thorn Tree* or on the Internet *per se* are beneficial. Cognisance must be taken of malicious attacks, a single bad experience that is offered as the norm (bad service or unsafe taxis for example), or uninformed views (most Caucasians predominantly view themselves as superior to others). Perhaps an increase in travellers to a particular destination area is unwanted, for whatever reason. These and other matters raise a number of important questions about the extent of the Internet's influence; we are only starting to understand the effect of the Internet on social capital. Notable, however, is the limited attention the Internet has thus far received from theorists of social capital. Fortunately, from the point of view of leisure studies, social capital is starting to draw attention.

With the advent of the Internet, computer-mediated communication has opened avenues for many-to-many communications on a scale hitherto unknown to people.

Where other mass media such as television and radio before it are predominantly one-way media, the Internet offers various avenues that enable ordinary people to participate actively. While this has raised hopes for a world-wide democracy and active citizen participation, applied to other real world phenomena such as travel an online discussion board like the *Thorn Tree* offers a platform for people to provide information based on their own experiences. As such, ordinary people become information providers and not only information consumers reliant on travel agents, brochures, marketing material and so forth. In this instance, the concept participant media becomes prevalent. Related to the question about its influence on consumer choices, another question can be added: Is there anything different about the message when it is disseminated across the Internet? This question falls squarely in the realm of media studies and is not covered in this study.

An issue mentioned above has relevance to views about the Internet. It involves the manner in which digital domains are used and experienced by those participating in it. Although described as a platform by some, is a digital domain on the Internet another place and space altogether? In Chapter Two views about cyberspace, virtuality and virtual reality are outlined. Gackenbach et al (1998: 323) claim that the real significance of the Internet lies beyond the fact that it is a collection of information and interactions that flow over it:

[T]he collection of all of these components creates a new wholeness which is greater than the sum of its parts. The unique experience of and through this system including all the aspects of shared experience, dynamic interactions, and automated interaction with information, is a new and powerful extension to our normal experiences. The cyberspace is indeed an entire world unto itself, of and from our more concrete world, but more abstract and powerful in its representation and reflections of it.

Before expressing any views about how the *Thorn Tree* could be experienced by those browsing through its messages or participating in online discussions, it is necessary to note that in some ways the near immediacy of online interactions and the potential adventures that could result from a click of the mouse can very well be transposed to real travel. However, is the *Thorn Tree* another “place” people go to when seeking travel information? In this study, although not a main concern or focus nor a question that could be answered by means of social network analysis, it is questionable whether the *Thorn Tree* would be experienced as another place or digital destination. Yet, alternate views might depend on the manner in which individual members experience being connected to the Internet itself. Reflective on findings in Chapter Two about cyberculture studies, notably those of Stolterman et al (ca 2002) and Silver (2000), it would seem that finding an answer to this question would necessitate qualitative research involving interviews and questionnaires.

Viewed in terms of social capital, as explained in Chapter Two and mentioned in Chapter Four, ties among people are assets since such ties put them in contact with one another which means that resources can be exchanged. Indeed, one such resource is information. In the process of communicating and exchanging information among members in a network of others, patterns emerge. This suggests, as outlined at the outset of this thesis the importance of structure in an exchange network, which receives particular attention in Sociology too. However, in communication studies, especially in those cases where it involves Information Science, network analysis is a useful technique to study the exchange of information among users across computer networks.

In real travel, as much as in cyberspace, strangers make contact and exert particular influences on each other. Conversations centre on a number of things, giving cues to conversing parties and steering conversations into near predetermined directions. This also hints at a special kind of (mis)trust: When travellers converse, seasoned travellers are quick to sense when to retreat. As such, Internet surfers have adapted

their communication skills and developed new ones to communicate effectively and safely in an online domain, since computer-mediated communication is different to other forms of communication. It is mostly the absence of normal cues (eye movement, body language, voice intonation, and so forth) that complicates text-based communication. Moreover, it is the absence of any certainty with regard to identities that has necessitated adaptations when relying on computer-mediated communication. The temporality of interactions on the Internet too adds to the caution for some but excitement for others.

With reference to people's travel information needs and the use of the Internet to satisfy such needs, travellers in the physical world often exchange information amongst each other. Stokowski's landmark study (1988) points out how embeddedness in a network influences consumer choices and affects leisure experiences. In the case of the former, knowledge about leisure possibilities depends on accessibility to sources of information, which influences leisure choices. In the tourism cycle, gathering information is the first phase in the consumer decision-making process. In the physical world, travellers often converse and exchange travel information in meeting places *en route*, for example bars, backpacker lodges, stations and so forth. In the physical world, some people might ask a lot of questions, while others would be more inclined to reflect on their experiences without being prompted; some opt to remain quiet. Explained in Chapter Three, one of the premises that can be tested using social network analysis is the relations among *Thorn Tree* members based on information exchange, i.e. the extent to which members are sources, sinks or transmitters. Based on a one-mode network, the ego-networks of a limited number of actors were analysed thus indicating who communicates with whom. *Dayo* was classified as a transmitter, *dysfunctional* as a sink and *JayDawg* as a source while *NgaDef* was noted for being a transmitter with high reciprocated and total ties. *Micksailor* posted the highest number of messages (20), consisting mostly of questions about particular regions or

destinations in Africa after an opportunity has seemingly arisen for this actor to travel to this continent.

Apart from findings derived from a network analysis (one-mode), a content analysis of the contributions of the above-mentioned actors revealed more about the possible value of their contributions in terms of the capital others could derive from such contributions. Content analysis in this regard reflects on what is being said or exchanged.

It is however, necessary to consider aspects such as reciprocity and centrality in order to characterise the network and determine the role of specific actors. While the levels of reciprocity in this network are relatively low, closeness too is low. Only 23 actors engaged at one time or another in a reciprocal reply. Two actors are noted for their relative high levels of reciprocity, namely *DanFromPerth* and *NgaDef*. As outlined in Chapter Four, closeness is also related to betweenness which is often brought into relation with the influence an actor exerts. No-one in this network is particularly close to anyone else which means that no-one really exerts particular power (as measured and viewed in network analytical terms).

Apart from the above, it is apt to comment on cliques and clique formations in networks. As mentioned in Chapter Four, the strongest definition of a clique is some number of actors who have all possible ties present among themselves. Among the 1 282 actors, 1 027 threads and 6 547 messages, analysis indicates that there are 301 3-member cliques, 45 4-member cliques and 6 5-member cliques. This is considered low and corresponds well with other findings gleaned from a network analysis of this dataset that reiterate the low density of this network.

The differences between the total number of actors (1 282) and the number of posters or repliers indicate the number of actors who did not initiate or reply to a thread. Approximately 50% of all actors initiated at least one thread, 60% of all

actors replied to at least one thread and 5.6% neither posted nor replied to any message. The top 25 repliers account for approximately 27% of the total threads (postings), 3% of all repliers and 2% of all actors. As indicated in Chapter Four, the coefficient of variation for each of the 25 posters ranges from 3.9 (*dysfunctional*) to 8.6 (*londonviking*) indicating weak ties to the rest of the actors. In Chapter Four it is noted too that only three actors (*Dayo*, *NgaDef* and *Pizza_Wheel*) appear in the top 25 posters and repliers. With the exception of these three actors, actors are predominantly posters (sources) or repliers (sinks) and not both (transmitters).

As outlined in Chapter Four, the median response is 3, the average response is 3.63 and the mode response is 1. These results estimate that 25% of all threads terminate within 2¼ hours, 50% of all threads terminate within 20½ hours and 75% of all threads terminate within 56½ hours. This suggests a rather short duration for threads. Perhaps, similarly to an information kiosk, once answers to requests have been offered, those requesting the information move on. Similarly, travellers might converse while waiting for a train or while sitting in a bar. Answering questions and exchanging information about travel experiences does not suggest extended relations once a journey has been concluded. As such, the discussions on the *Thorn Tree* perhaps mirror what happens between travellers in real life too. This view is supported by the research findings: the number of views suggests that a large number of people are information consumers or sinks without making contributions. This is supported by the fact that the proportion of replies received to the number of views of a message is also very low: one in twenty views receives a reply.

From the above, the matter of the strength of weak ties comes to the fore. Weak ties, as is the case with the *Africa* category, are not useless. In fact, weak ties often connect people who are dissimilar, which tend to link people to other social worlds, providing new sources of information and other resources. This is clearly the case in a computer-mediated network such as the *Thorn Tree*. The tendency for ties to be weak rather than strong, as proven by the network analysis of the *Africa* category, is

furthermore emphasised by the ease and placelessness of electronic communication. Clearly, through the global reach of the Internet, people can belong to any number of specialised networks based on interest, moreover, contributions to a network can be made by members with varied backgrounds, points of view, experiences and intent.

3. Discussion

3.1 Methodological reflection

Rice (1994) outlines the application of a network approach to the study of computer-mediated communication systems and identifies a few central distinctions in computer-mediated communication research that uses network analysis methods. Notably, in the so-called structural phase, Rice mentions Contractor and Eisenberg who attempted to integrate Giddens's structural theory and Burt's structural theory of action to develop a useful initial framework for applying a network perspective to the study of computer-mediated communication systems (1994: 169). As outlined in Chapter Two, social network analysis examines patterns of resource exchange among actors to determine how and what resources flow from one actor to another. This corresponds with Rice's remark that for the majority of network-oriented computer-mediated communication research the unit of analysis is at the level of individual responses or ego-networks (1994: 172). Regular patterns of relations reveal themselves as networks, with actors as nodes in the network and relations between actors as connectors between nodes.

Haythornthwaite et al (1998: 210) states that since computer networks are also social networks, a social network perspective is especially useful for studying computer-mediated communication. Many of the issues of reaching others, exchanging information and support and maintaining community lend themselves to

discussion from a social network perspective. From this perspective, ties and exchange among computer-mediated communication users are the key elements for analysis (Haythornthwaite et al, 1998: 213). This, more than anything else, became a convincing factor in the choice of research methodology in the study of the nature and extent of interaction among and levels of exchange between members of the *Thorn Tree*.

A characteristic of social network analysis that adds to its usability for the study of Internet-based networks is the fact that this research technique strives to derive social structure empirically, based on observed exchanges among actors. Of particular importance are the core differences between social network analysis and other research approaches in defining “group”. Other research approaches, as outlined by Haythornthwaite et al (1998: 214), define group by an *a priori* classification of its boundaries. In contrast, a social network analyst examines what relations exist between actors before labelling them as a group. It is the patterns of “who exchanges what resources with whom” that gives the category of “group” its usefulness as a construct.

With its application to leisure and tourism as outlined by Stokowski (1988), social network analysis has its roots in sociology and particularly network theory. However, Homans (1986) claims that social network theory cannot be a general sociological theory since the existence of networks themselves still has to be explained. Homans, as mentioned in Chapter Two, does acknowledge that network analysis should help to clarify what social phenomena it has to explain. In this study, located within the cadre of Information Science, social network analysis proved an appropriate research technique to study the nature and extent of information exchange among *Thorn Three* members in a computer supported social network.

As expected, network analysis alone cannot reveal anything about the content of messages, i.e. the nature of the information that is exchanged. Based on the

findings of a network analysis, participation in a thread through posting messages are the reason for the existence of links (ties) between actors in a one-mode network. However, actors are related to messages and threads by viewing it as an affiliation, i.e. a two-mode network. This enabled the researcher to identify specific threads and actors, i.e. threads with the highest number of replies and actors that were clearly the most prominent source, transmitter or receiver. In this regard, one common thread (“Masai Mara or Amboseli or Ngorogoro Crater?”) between *Micksailor* and *Dayo* caused the former to be included in the two-mode graph.

Content analysis was used in conjunction with network analysis to investigate the content of messages in order to determine the nature of information exchange. This suggests that network analysis alone cannot lead to insight regarding the nature of exchanges. This was expected, since network analysis is used in conjunction with qualitative techniques such as content analysis to add to the interpretation of network analytical research results.

In conclusion to this sub-section it can be stated that although contributions to threads determine actors’ inclusion in this dataset and position in this network, amongst other things, it is the content of these contributions that determines the value other actors might attach to it and the influence it might have on tourism in general.

3.2 Substantive reflection

Since this study involves the Internet, it is necessary to reflect upon the study of computer networks. However, this study is foremost a social network analysis. It subsequently reiterates findings by other studies that computer networks are predominantly social networks. Computer networks are inherently social networks,

linking people, organisations, and knowledge. In this study, the emphasis falls upon travel information.

Studying the exchange of travel information using a network approach, Chapter Two states that a limited number of studies employing a network approach to travel information exchanges exist. The research was done before the large-scale integration of the Internet and the World Wide Web (WWW) into everyday society (Stokowski, 1994: 74-75). Employing social network analysis to gain insight into travel information exchange among people in a computer-mediated social network, attempts at expanding the applicability of network analysis. Subsequently, a comparison of results is in order.

This study has shown that a network analysis of a computer-mediated social network is capable of mapping the simultaneous interactions of multiple actors. While relationships or ties can exist depending on what is measured, in this study relations exist between those actors who post messages to the same thread. An important finding in this study that reiterates the overall view regarding the strength of network analysis is that people have differential access to resources such as information or to other people. Correspondingly, different opportunities arise for participation.

It has also been proven beyond doubt that computer-mediated social networks have a particular structure since they comprise specific patterns of relational communication and interaction that are distributed among the roles and positions of social behaviour. Importantly, social networks are systems of people bounded by context. In the case of travellers using a computer-mediated environment, the *Thorn Tree* offers such a context. Resultantly, exchanges take place, such as travel information exchange.

This study furthermore agrees with other studies about travel information exchange in as far as travellers are willing to share information. Importantly, the information is based on recollections, which often change over time although this was not tested in any way in this study. This study does, however, concur with a study about information exchanges among backpackers (Murphy, 2000), as noted in Chapter Two. Results indicate that gathering information on destinations/businesses is a motivation for them to interact with one another. However, several factors influence the value placed on information, including the consistency of reports received, personal feelings or attitudes towards the provider, and previous expectations regarding the destination or business under discussion. In this study, however, the value actors place on the contributions of others was not tested.

In concurrence with studies about social network analysis as an approach for the study of information exchange, this study reiterates the findings of other studies. A notable study is that of Haythornthwaite (1996) that also found that information relationships indicate what kinds of information are being exchanged, between whom and to what extent. The work of Wellman (1997) also needs to be mentioned here. Furthermore, the pattern of relationships between actors reveals the likelihood that individuals (or actors in a network) will be exposed to particular kinds of information. However, the likelihood of their considering that data to be authoritative was not ascertained in this study and as pointed out in this chapter as well as in Chapter Four, something that needs different research tools. It is however, notable, as pointed out above too that this study concurs with a landmark study by Granovetter (1973) that information can be useful despite the sparse nature of a network.

Usefulness is a concept that could also be related to social capital in as far as it denotes value, since value in turn hints at capital. Warde and Tampubolon (2001) reflect on the way in which personal ties affect the nature and content of consumption. Stating that it is “banal to observe that friends, kin, colleagues and

neighbours influence anyone's pattern of consumption", these researchers indicate that comparatively little work exists on how this process operates. Since no other substantial evidence exists either to elucidate on matters of how social capital influence choice and taste with regard to consumer choices in respect of travel destinations too, no clear conclusions could be drawn on the possible impact social capital on the *Africa* category can have. However, it is necessary to point out that academic progress is made in the study of social capital and leisure. This is proven by the fact that a special edition of the authoritative *Journal of Leisure Research* intends to publish findings in this regard in the fourth quarter of 2005.

3.3 Scientific reflection

This study highlights the usability of social network analysis when doing research about communication among members of a computer supported social network. As such, it reiterates the fact that dealing with the Internet the so-called "virtual" nature of the data does not mean that it ought to be handled in a manner different from data that was collected in other ways. The fact that large samples can be taken without the usual constraints does not mean that attention should not be given to errors in data. For this reason, although social network analysis relies on various statistical calculations that could point out problems with the dataset, a number of descriptive statistical analyses were included that assisted with finding errors in the data.

However, in order to reflect on the nature of travel information exchanges among members of the *Thorn Tree*, it was necessary to undertake a limited content analysis too, i.e. analysing the contributions by following the messages constituting threads in chronological order. In the absence of any reliably biographical information, this revealed some information about actors. This assisted the researcher to gain insight into the contributions certain actors made which also helped to explain the findings gained from the network analysis.

Considering the landmark work of Stokowski (1988) in which the importance of place within a network of others can play with regard to travel experiences and related consumer choices, this study addresses the need to reconsider the importance of the Internet as a means to establish networks among people that in turn could influence leisure choices. As such, the Internet offers another channel or avenue to acquire information and establish contacts.

What has indeed transpired from this study is the effect of the Internet on society especially with regard to travel and tourism. As such, this study's contribution is concerned with the nature and extent of travel information exchanges in a digital domain such as the *Thorn Tree*. By using network analysis, the research design relies solely on the data that is obtainable from *Lonely Planet's* website. Due to the way in which the *Thorn Tree* is managed and the data that is captured by the *Lonely Planet* servers usable data was obtainable. From this, after converting the raw data as outlined in Chapter Tree, a dataset could be prepared that was used to construct the matrix on which the graphical representations and other statistical calculations associated with network analysis were done. *UCINET* software application was used in conjunction with *Netdraw*.

4. Recommendations

In the following sub-section, recommendations are made that could be helpful to the tourism industry. The manner in which the Internet enable people across the world to share in experiences thus enhancing the power of word-of-mouth to truly global levels has an influence on advertising and marketing campaigns. Members of social networks can surely benefit from the social capital present within the ranks of such expanded groups; rumours could also be damaging to all concerned.

4.1 Policy and practice

As outlined in Chapters Two and Three respectively, social networking and community involve the exchange of resources among actors. With the *Thorn Tree* as an example, the question arises to what extent the exchanges that take place among *Thorn Tree* members actual travel and tourism choices are influenced. The answer has far-reaching consequences, not only for viewpoints of a theoretical nature, but moreover for the leisure industry too. If a positive correlation exists between exchanges in computer-mediated social networks and customer behaviour in the real world, it would mean that leisure destinations and providers could learn much from the online discussions among travellers. After all, word-of-mouth has always been considered a powerful marketing technique. In as far as “word-of-mouth” entails messages across the Internet, word-of-mouth in this regard does not entail face-to-face communication but is reliant on computer-mediated communication in a digital domain that is text-based. This raises the question whether the medium influences the message. Are messages on digital discussion boards more trustworthy and believable than spoken words in face-to-face conversations, for example?

Interaction across the Internet certainly raises questions about trust. While Giddens' views (1990) on the matter are relevant as outlined in Chapter Two the levels of anonymity that could be achieved on the Internet bring to the fore the matter of identity too. Related to this study, the question arises whether the messages travellers post on the *Thorn Tree* are more or less believable than were they to be communicated through other media, i.e. print, radio, television or face-to-face or where the identities of actors are known.

Important for the tourism industry, what contingency plans and marketing actions need to be in place in order to circumvent the negative impacts of rumours, blatant lies and other unfounded or skewed views expressed in a digital domain such as the

Thorn Tree? No advertising is allowed on the *Thorn Tree* and *Lonely Planet* has strict policies with regard to advertisements. However, tourism authorities can indeed use a forum such as the *Thorn Tree* in a responsible manner to rectify skewed views or restore credibility where it is due. Research about the Internet as tourism marketing tool is not complete and many questions still need to be answered, such as trustworthiness and reachability of Internet-based marketing.

Considering the large amounts of money that gets spent on advertising annually, tourism service providers and their advertising agents can gain considerable insight into the consumer needs of travellers by scanning the threads on the *Thorn Tree* and other online discussion boards.

While *Lonely Planet* is at pains to draw attention to the fact that it cannot be held responsible for any views expressed by members on its electronic discussion board, it stands to reason that the views expressed by *Thorn Tree* members could affect their consumer choices. The extent of this effect was not measured in this study because it was not one of the aims. As outlined below, this is perhaps a question for future research.

4.2 Further research

With the advent of the Information Age, people have become inundated with information, to the extent that terms such as “information overload” have entered our dictionaries. The beginnings of the information age could be traced back to the invention of the telegraph in the 19th century and not the Internet. With the telegraph, the speed of information essentially separated itself from the speed of human travel. As such, information has taken on not only a speed of its own but also a life of its own. With computers, according to some scholars as noted by Brown and Duguid (2000: 17-18), this decisive separation has entered a second phase. Information

technologies have become capable of producing information independent of human intervention.

Brown and Dugiud (2000) argue that it is important not to overlook the significance of information's power to breed upon itself. However, they call for some caution and the need to ponder:

It might be time to retreat from exuberance (or depression) at the volume of information and to consider its value more carefully. The ends of information, after all, are human ends. The logic of information must ultimately be the logic of humanity. For all information's independence and extent, it is people, in their communities, organizations, and institutions, who ultimately decide what it all means and why it matters (2000:18).

Computers have been heralded as the passports to seemingly limitless stores of information. It has also been suggested that this liberating ability to be part of the information superhighway could satisfy people's *wanderlust* without the need to wander from the keyboard (Brown and Dugiud, 2000: 20). Despite Brown and Dugiud's critique of modern-day society's reliance on and simultaneous bombardment with information, the same technology has also made it possible for communities to exist in cyberspace. As such, so-called virtual communities, like their real life counterparts continue to thrive on information. Moreover, in a computer-mediated social network like the *Thorn Tree*, members add meaning to the countless bits of information stored on *Lonely Planet's* servers.

5. A final remark

Urry (2003: 156) claims that there is a large and increasing scale of travel that has grown simultaneously with the proliferation of communication devices that might substitute travel. Although Microsoft's advertisement caption "Where do you want to go today?" might entail "stay in front of your computer", members of the *Thorn Tree* show that no amount of Internet surfing can beat the pleasures of physical travel as an expression of leisure. In accordance with Urry (2003: 155; 171), who seeks to examine the place of travel within the emergent pattern of a networked sociability, this study proves that many people use the Internet in search of travel information: avenues vary and include the WWW or other avenues such as newsgroups and discussion groups. Based on these and also other sources of information, travellers make consumer choices. Unique travel experiences might fast become something of an enigma in an age where information about every destination on earth is available at the touch of a button or constantly streamed across other mass media channels such as TV, at least, the Internet has made it possible for those with physical or other barriers to share in others' travel experiences. Moreover, electronic discussion boards such as the *Thorn Tree* resemble an open-to-all travelogue that is constantly updated by the countless members who contribute to it.

Notably, the concept community is not applied in this study to either the computer-based social network that exists as a result of the *Thorn Tree* or to tourists travelling in real time between locales in the physical world. Yet, a content analysis of the messages in the dataset underpinning this study suggests that an electronic discussion board set in cyberspace offers a trustworthy source of (first-hand) travel information. As much as interactions in a backpacker's lodge for example might be valuable yet short-lived, cyber-based interactions with strangers known only by their screen names are in most instances limited but can fulfil specific needs.

These needs, often closely related to reasons for connecting to the Internet, can go beyond the functional level and include social, psychological or hedonic needs. Although it was not the intention of this study to find reasons why people post certain messages, contextualising conversations are important especially in an effort to understand the presence or absence of connections among certain actors. Although a context analysis was not developed or incorporated with the network and content analyses underpinning this study, not all conversations in this discussion board relate directly to travel. This in itself indicates that electronic domains such as the *Thorn Tree* can be meeting places for the sake of meeting and sustaining social ties with others based on shared interests.

The Internet and associated technologies have proven without doubt humans' ability to replace, stimulate and indeed reconstitute the world by way of technoscience, and indeed in the image of technoscience. While this study has emphasised the communicative abilities of the Internet by considering the exchange of travel-related information in a computer-mediated social network aimed at travellers, it is this particular transformation of modes of communication and information that lies at the heart of setting postmodern technosciences apart from for example Enlightenment science. In this regard Holmes (1997: 2) rightly remarks that human needs are no longer given, they are as much a product of the way the world is changed as are the commodities produced to satisfy them. For Holmes, as suggested by this study too, one very "special kind" of transformation brought about by postmodern technoscience is noteworthy: the transformation of communication and information. In this, the transformation of social context is achieved by the conversion of the communicative and informational contexts in which the needs for products and services arise. Since time and space are no longer real factors, modes of social integration and social recognition are reshaped to adapt to the new digital environments in which even identities are fluid.

Annexure: Tables

Table 1 Typology of boundary specification for delimiting actors

Meta-Theoretical Perspective	Definitional Focus for Delimitation	Relational Approach	Participative Approach	Multiple Foci
	Attribute of Nodes			
Realist	I	III	V	VII
	Corporate Group (Weber, 1947), Bank Wiring Room (Roethlisberger and Dickson, 1939), Monestary (Sampson, 1969) High School (Coleman, 1961; Fararo and Sunshine, 1964), Norwegian Island Parish (Barnes, 1954) cell room of Electrozinc Plant (Kapferer, 1969) School Classroom (Davis, 1970)	Primary Group, Clique (Cooley, 1909)	Participants in a community controversy (Dahl, 1961) Participants in common social events (Homans, 1950) Street Corner society (Whyte, 1955)	Klasse für sich (Marx) Ethnic Community (Barth, 1975); Laumann, 1973; Yancey, Erickson and Juliani, 1976)
Nominalist	II	IV	VI	VIII
	Klasse für sich (Marx) Doctors in a small city (Galaskiewicz, 1979) Community influentials (Laumann and Pappi, 1973, 1976)	Small World Problem (Tavers and Milgram, 1969; Erickson, 1978)	Invisible College (Crane, 1972; Burt, 1978b)	Supporters of Psychotherapy (Kadushin, 1966) National Elite Circles (Moore, 1979)

Table 2 Frequency of replies

Replies	Frequency
0	165
1	176
2	170
3	150
4	94
5	73
6	38
7	41
8	34
9	15
10	11
11	9
12	5
13	7
14	1
15	3
16	6
17	2
18	0
19	24
20	0
21	0
22	1
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	1
31	0
32	0

33	0
34	0
35	0
36	0
37	0
38	0
39	0
40	0
41	0
42	0
43	1

Table 3 The 24 threads with 19 replies

No	Subject	Poster
1	Favourite Place	Dayo
2	African taxis: love them or loathe them?	NgaDef
3	500	Dayo
4	Tetnus shot	Karen27
5	ABTT Gettogether?	Clottedcream
6	London piss-up Monday 31 May??	stefo
7	95% DEET?	tara9blur
8	Unwanted travel advice....	signalsilence
9	Your favorite cities in Africa	JayDawg
10	2010 world cup in Africa	hero2003
11	Southafrica	joscar40
12	AB London Pissup Thread: 31 May 2004	NgaDef
13	If I don't ask, I'll never know	Octarinelouise
14	Fun photo journal of trip to Nairobi, Tanzania & Zanzibar	AliInWonderland
15	Need a laugh	Clottedcream
16	Malaria, what is Lariam worth taking?	LSchweiger
17	Driving in darkness - in Southern Africa	AfroGirl
18	Free beer competition	NgaDef
19	poorest country in Africa	LizaD
20	Crazy African bar names	Frantic
21	London AB Pissup: 31 May 2004	NgaDef

22	South africa security question	jmr
23	Africa is winning today.	Deeliscious
24	Do Africans see whites as superior???	JayDawg

Table 4 The threads with no replies

No	Title	PosterName	Date	Time	Views
1	Nile Cruises	SILKBOY	04 May	11:41	8
2	Tunisian Camel Treks?	Fred15	05 May	09:35	6
3	Aboakyer Festival	Kim1025	05 May	13:33	0
4	Al Jamila, Magic I, Magic II	mandy_in_perth	05 May	17:52	0
5	accomodation in Conakry	sheltered	06 May	00:41	5
6	Overland in Northern Kenya	Annmcc	06 May	01:30	5
7	ZANZIBAR HOTEL	jurosa	06 May	04:32	6
8	Taxi from airport to hotel	jenandjen	06 May	08:34	5
9	Apartments in Cairo	Debichan	06 May	12:47	6
10	Southern Africa 4X4 or 4x2?	sidlogic	07 May	02:18	6
11	Grande Kabylie, North Algeria	LackoB	07 May	04:48	7
12	Just to share	pauli	07 May	07:35	0
13	Affordable Accomodations in Maritius?	MrMtnMan	07 May	11:37	6
14	. [sic]	sarahkelly	07 May	11:49	7
15	Tsodilo and Khaudum	opsafari	08 May	06:54	5
16	Security in Uganda and Rwanda	HodgeP	08 May	10:08	47
17	safety in Algeria and Libya?	kalnins	08 May	10:56	29
18	Employment Opportunities and Ideas	donglemouse	08 May	11:43	8
19	Nairobi to Rwanda, overland.	ColdC	08 May	14:00	48
20	Seychelles	cmarshall	08 May	15:24	21
21	Zimbabwe	South_of_60	08 May	16:54	10
22	need a travel buddy	kezarspice	08 May	18:39	28
23	Bus from Uganda to Tanzania	Lyndalee	08 May	18:46	52
24	Short-term housing in Nairobi	ck2004	08 May	20:20	23
25	inflation rate in Egypt?	ppzz70	08 May	22:19	53
26	guides for egypt oases?	dumdeeedum	10 May	03:22	7

27	Jews and Arabs Living in Peace	FunnyYetTasty	10 May	07:26	10
28	Arusha contact	maluminse	10 May	08:58	2
29	Between Mbeya and Dar	Monkeygeorge	10 May	09:00	0
30	Tunisia update	ecologyman	10 May	13:29	2
31	Timbuktu or Marrakech	doogieqld	10 May	15:31	5
32	IFESH or Amity volunteers	dyl81	10 May	20:08	0
33	help on travel operator in Cairo	trammie1	10 May	21:26	13
34	Normal car insurance in South Africa	Afrikatrip	11 May	00:06	0
35	Auto Route : South-Africa-Mozambique-Malawi	willemjiskoot	11 May	04:51	1
36	accommodation merzouga morocco	w_rauch	11 May	08:04	12
37	Dakar : private accomodation	micneshka	11 May	15:09	1
38	Photos & Travelogues of Africa	elJeffe	11 May	20:36	5
39	film in egypt	ecalpemos	12 May	03:42	3
40	Travel companion - South Africa 2005	fsv76	12 May	09:11	2
41	Ethiopian Visa, Cairo, Sorted	skybluekid	12 May	10:05	7
42	Anyone been to Nakhl, Egypt?	ppzz70	14 May	01:19	6
43	visa ethiopia - kenya	johnnyloveboat	14 May	02:17	18
44	Congo(DRC)	JohnMck	14 May	10:08	21
45	Info on Kampala / Uganda	Mercedes_King	14 May	22:12	15
46	bus from DES to kampala	AMITinSF	15 May	00:12	15
47	volunteer work	sezzyb	15 May	04:57	8
48	Red Sea Transport	mrcurtain	15 May	05:26	2
49	Cheap Air Tickets in Nairobi	Juggernaut	15 May	06:22	2
50	Overlanding in West Africa	SabreTrust	15 May	10:27	5
51	Accra City Website	KAppiah98	15 May	17:26	23
52	Kenya to Ghana overland	Frobozz	16 May	04:46	3
53	Rwandan Genocide Memorial Centre in Kigali	ljkn0	16 May	07:10	7
54	ghana accra hotel	MovE	16 May	11:48	3
55	Cholera Outbreak	EA	16 May	23:59	6
56	Egypt from Spain/Portugal/Italy	sherwes	17 May	03:03	3

57	6 Months Overland 2006 members wanted	tomattic	17 May	04:57	2
58	Africa overland - wanna come? - UK to cape, Nov	kplimer	17 May	08:38	7
59	Zimbabwe	South_of_60	17 May	09:51	21
60	Sudanese visa	rugbystd1	17 May	11:19	7
61	South Africa, Zimbabwe, Mozambique in three weeks???	Stanneke	17 May	20:16	11
62	Insurance	peacecat	18 May	08:46	17
63	Testing	MIP	18 May	09:13	0
64	Volunteering Uganda	bill27	18 May	09:15	48
65	Insurance	tony66	18 May	09:16	2
66	Travel between Mombasa and Zanzibar	adventuretraveller	19 May	08:10	11
67	Open Free Invitation for aaaaaaaaaaall!	R_Youssef	19 May	13:38	6
68	Lawyers in Luanda	sng	19 May	19:05	3
69	Anyone been to this resort?	Sandyoz	20 May	03:23	1
70	EGYPT - Ferry from Hurghada to Sharm El Sheik	ljkn0	20 May	06:20	0
71	Cote D'ivoire	fulfur	20 May	08:33	2
72	where is best place to discovery south Africa music?	Chunyu	20 May	09:54	3
73	The ends of the earth	machiruda	20 May	11:24	2
74	Massage in Capetown	masseurken	20 May	16:50	3
75	KIGOMA BEACHES	iconoclast	21 May	02:16	2
76	Sierra Leone	Slowchimes	21 May	05:20	2
77	How about Senegal?	19681917888	21 May	12:11	6
78	Wedding in Stellenbosch	Paul_Theroux	21 May	21:49	8
79	Bobby tours	galgal	22 May	01:10	5
80	Uganda Gorilla story...helping the community!	Clottedcream	22 May	06:02	20
81	visa information	ponsore	22 May	08:28	2
82	Canadian International School of Egypt in Cairo	kib	22 May	09:02	1

83	Addis Ababa: Hotel	Zacher	22 May	12:54	6
84	LP update South Africa	alphabet	22 May	14:45	7
85	maps of Accra	edana	23 May	00:56	29
86	beer in seychelles	1stacey1	23 May	01:20	10
87	Trains - Luxor to Aswan	davidlwilde	23 May	01:21	2
88	Tanzanian safari&Kili	frankrousselle	23 May	01:38	31
89	Canoe trip on Zambezi	KylienMike	23 May	04:22	35
90	uganda without one's vehicle	arsene	23 May	04:41	30
91	On a Budget in Tunisia	aline	23 May	04:55	8
92	From Cape town to Victoria Falls	BramandMarieke	23 May	07:19	43
93	How to get to sodwana bay?	Stanneke	23 May	07:30	4
94	Ghana and Togo	dyingbeauty	24 May	09:37	3
95	Cape Town TT (Thorntree) Gatherings & Meetups	MIP	24 May	10:41	2
96	Addis Ababa: hotels	Zacher	24 May	12:17	3
97	South African trucks	pandaman26	24 May	22:24	1
98	Overland to Cape 2006 for age 30+	tomattic	25 May	00:32	3
99	Cheap accomodation in Khartoum, Sudan	winnet	25 May	09:19	0
100	Egypt	tico8	25 May	10:24	2
101	Bongani mountain Lodge	Egil	25 May	12:19	7
102	Rental Car from Damascus to Petra and Back	Snite	26 May	05:02	2
103	cheap flights	waitangiwest	26 May	06:49	14
104	More Morocco questions	signalsilence	26 May	07:48	11
105	gambia	boniface	26 May	15:10	3
106	visa blah blah blah	MovE	26 May	16:43	3
107	Mt Toubkal	MusicMan	27 May	02:52	1
108	Please Assist me	Martial Eagle	27 May	02:57	2
109	Re: Assist Me	Martial Eagle	27 May	03:04	4
110	Rwanda co-traveller	Bere	27 May	06:22	2
111	Departure Tax - Uganda???	SazB	27 May	07:16	0

112	Gambia	pupi	27 May	07:55	1
113	Broke egypt	leahrhcprocks	28 May	09:36	34
114	Johannesburgo-Cameroon Plane tickets	janefonda	28 May	12:34	7
115	travelling in kenya/tanzania/zanzibar alone	WEIRDIRISHGIRL	28 May	13:58	70
116	Dreams and Africa	Eskander	28 May	16:20	29
117	Morocco in August!	treetraveler	28 May	19:01	13
118	CONAKRY, GUINEA PLEEEAAASSSEEE	AfriqueandAsie	29 May	00:30	5
119	Travel Companion	leefch2001	29 May	20:32	0
120	Cape Town TT (Thorntree) Gatherings & Meetups	MIP	30 May	12:28	2
121	Libya independantly	Tuzza	30 May	15:25	3
122	Horseback Treking in S. Africa	kristin_a_gogo	30 May	17:44	0
123	Maurituius i am on way..where do i stay	Kundan	31 May	01:04	1
124	Lake Malawi Advertising?	Ngala Special	31 May	03:32	1
125	Is anyone going to be in Dar es Salaam this week?	JamesLondon	31 May	04:39	4
126	equipment to rent for climb	Streverton	31 May	06:21	7
127	Copy of message from another day to see if I get better info	thornyRose	31 May	08:40	15
128	Bright focus tours, Libya	Mat	31 May	09:10	4
129	Good Earth Tours for Safari?	ColdC	31 May	09:12	10
130	Camel trekking from Zagora, Morocco	JonJones	31 May	10:45	9
131	Egypt - 2005	fsv76	31 May	11:10	6
132	WARNING! Sidi Kaouki Beach....Morocco	laurajane	31 May	15:33	3
133	Little Airports in Burkina Faso	lmc45	31 May	15:34	2
134	Rental Cars in Burkina, Ghana,	lmc45	31 May	15:37	3
135	Zanzibar budget	phenter	31 May	23:26	9
136	three weeks in Abidjan	surdo	01 Jun	06:01	2
137	Is N.Africa safe for U.S. travelers?	zhornby3	01 Jun	07:15	5
138	Senegal and West Africa	19681917888	01 Jun	07:44	6

139	Tanzania / Zambia rail travel	cjb360	01 Jun	09:24	4
140	Namibia : wanna share a car?	LizDelft	01 Jun	09:39	2
141	caprivi region or Maun?	LizDelft	01 Jun	09:43	1
142	Wanted: rubber stamp from Antananarivo, Madagascar	ramfor	01 Jun	09:46	1
143	egypt and tanzania alone	ninja22	01 Jun	13:09	2
144	Eritrea- any personal recommendations? Meskel?	CarolineC	02 Jun	03:43	4
145	algeria Timimoun	EAST17	02 Jun	05:25	0
146	Mbeya to Dar train	Monkeygeorge	02 Jun	05:36	5
147	African transport	uncan	02 Jun	09:40	2
148	4x4 for Sale	Englishman	02 Jun	10:34	3
149	Joburg Intl Airport to Rotunda Bus Depot	Loubag	02 Jun	21:40	1
150	mazsons hotel stonetown, zanzibar	pinay	03 Jun	02:50	4
151	Africa Overland	kplimer	03 Jun	03:12	4
152	Travel companions for libya	starraider	03 Jun	04:37	0
153	expedition vehicle for sale	keep_on_truckin	03 Jun	07:08	7
154	Kruger tours?	Vic7	03 Jun	08:43	0
155	African written languages	JayDawg	03 Jun	09:08	4
156	Language in Togo	WhistleHappyTune	03 Jun	10:11	0
157	Travel companion needed for South Africa	krobins	03 Jun	10:50	4
158	Morocco camel rides/ desert camping	menoush5	03 Jun	10:54	3
159	flight?	mreggi	04 Jun	02:53	1
160	How expensive is Reunion?	whenderson	04 Jun	04:50	0
161	Burkina and Ghana - Game reserves and festivals	lmc45	04 Jun	13:13	0
162	Sudan & Ramadan	Dietmar	04 Jun	13:25	2
163	Mikumi tanzania	leopardo	04 Jun	14:27	0
164	trekking Sinai	tokumbo	04 Jun	14:48	0
165	Kigali Rwanda Hotels	scoober211	04 Jun	20:50	1

Table 5 Survival Percentile: Kaplan-Meier Product Limit analysis

Percentiles of thread duration	Thread duration (hours)
25th percentile (lower quartile)	256.694
50th percentile (median)	1234.912
75th percentile (upper quartile)	3388.193

Table 6 Length of messages in characters

Result	Value
Number of messages	4756
Average	471
Standard deviation	529
Median	335
Minimum	4
Maximum	10367
Lower Quartile	170
Upper Quartile	599

Table 7 Values used in one-mode network analysis

Item	Total
Participants	1282
Posters	630
Threads	2782
Repliers	761
No participation	72

Table 8 Univariate statistics produced by UCINET and eVal

Statistic	UCINET	eVal
Mean	0.002	0.0017
Standard deviation	0.041	0.0411
Sum	2,782	2,782
Eucidean Norm	52.745	52.7447
Observations	1,642,242	1,642,242

Table 9 Overall embeddedness of posters

Poster	Mean	Std	Var	Sum
JayDawg	0.0515	0.2211	0.0489	66
Micksailor	0.0390	0.1937	0.0375	50
Dayo	0.0336	0.1801	0.0324	43
NgaDef	0.0234	0.1512	0.0229	30
rockrug	0.0195	0.1383	0.0191	25
signalsilence	0.0172	0.1299	0.0169	22
griesi	0.0156	0.1240	0.0154	20
Deeliscious	0.0133	0.1144	0.0131	17
AliInWonderland	0.0125	0.1111	0.0123	16
Frantic	0.0125	0.1111	0.0123	16
JohnBE	0.0125	0.1111	0.0123	16
mjpigott	0.0125	0.1111	0.0123	16
paddyemily	0.0125	0.1111	0.0123	16
winklewonk	0.0125	0.1111	0.0123	16
AMITinSF	0.0117	0.1076	0.0116	15
Eyeshviper	0.0117	0.1076	0.0116	15
LizaD	0.0117	0.1076	0.0116	15
LSchweiger	0.0117	0.1076	0.0116	15
KathleenG	0.0109	0.1040	0.0108	14
Pizza_Wheel	0.0109	0.1040	0.0108	14
fsv76	0.0101	0.1002	0.0100	13
Hero2003	0.0101	0.1002	0.0100	13
johnnycake	0.0101	0.1002	0.0100	13
joscar40	0.0101	0.1002	0.0100	13
kamon	0.0101	0.1002	0.0100	13

Table 10 Overall embeddedness of repliers

Replier	Mean	Std	Var	Sum
dysfunctional	0.0617	0.2406	0.0579	79
Dayo	0.0445	0.2062	0.0425	57
stefo	0.0343	0.1821	0.0332	44
Julie_L	0.0297	0.1697	0.0288	38
twilkie22	0.0258	0.1584	0.0251	33

ArthurSA	0.0250	0.1561	0.0244	32
Eve1	0.0242	0.1537	0.0236	31
Monkeygeorge	0.0242	0.1537	0.0236	31
Pizza_Wheel	0.0242	0.1537	0.0236	31
akshar	0.0219	0.1462	0.0214	28
Bosch	0.0219	0.1462	0.0214	28
Katiebell	0.0219	0.1462	0.0214	28
Trendmonger	0.0219	0.1462	0.0214	28
NgaDef	0.0211	0.1436	0.0206	27
ainzerka	0.0195	0.1383	0.0191	25
Scoubidou	0.0187	0.1356	0.0184	24
peterscot	0.0180	0.1328	0.0176	23
taharqa	0.0180	0.1328	0.0176	23
travelbug1970	0.0180	0.1328	0.0176	23
BatSmith	0.0172	0.1299	0.0169	22
wigman	0.0172	0.1299	0.0169	22
Mrs_Trellis	0.0148	0.1209	0.0146	19
Adjoa	0.0141	0.1177	0.0139	18
alanR	0.0141	0.1177	0.0139	18
londonviking	0.0133	0.1144	0.0131	17

Table 11 Top 25 actors: decreasing order-- neighbourhood size

Character	None	In	Out	Total	Recip	Neigh	Closeness
Dayo	1186	57	43	100	5 (5.26%)	95	0.00012913
dysfunctional	1202	79	0	79	0 (0.00%)	79	0.00010000
JayDawg	1213	2	66	68	0 (0.00%)	68	0.00013584
Micksailor	1228	3	50	53	0 (0.00%)	53	0.00012913
stefo	1234	44	5	49	2 (4.26%)	47	0.00012913
NgaDef	1235	27	30	57	11 (23.91%)	46	0.00012913
Julie_L	1238	38	5	43	0 (0.00%)	43	0.00012913
Pizza_Wheel	1238	31	14	45	2 (4.65%)	43	0.00012913
ArthurSA	1241	32	9	41	1 (2.50%)	40	0.00012913
twilkie22	1242	33	7	40	1 (2.56%)	39	0.00012913
Eve1	1244	31	7	38	1 (2.70%)	37	0.00010087
Monkeygeorge	1244	31	10	41	4 (10.81%)	37	0.00012913

Katiebell	1246	28	9	37	2 (5.71%)	35	0.000012913
Scoubidou	1251	24	7	31	1 (3.33%)	30	0.000012913
taharqa	1251	23	10	33	3 (10.00%)	30	0.000012913
akshar	1252	28	1	29	0 (0.00%)	29	0.000010008
Bosch	1252	28	1	29	0 (0.00%)	29	0.000010008
kamon	1253	15	13	28	0 (0.00%)	28	0.000012913
Trendmonger	1253	28	0	28	0 (0.00%)	28	0.000010000
Frantic	1255	11	16	27	1 (3.85%)	26	0.000012913
Ainzerka	1256	25	0	25	0 (0.00%)	25	0.000010000
LizaD	1256	11	15	26	1 (4.00%)	25	0.000012913
Rockrug	1256	0	25	25	0 (0.00%)	25	0.000012992
Signalsilence	1256	3	22	25	0 (0.00%)	25	0.000013045
AliInWonderland	1258	7	16	23	0 (0.00%)	23	0.000012913

Table 12 Top 25 actors: decreasing order -- reciprocated ties (%)

Character	None	In	Out	Total	Recip	Neigh	Closeness
DanFromPerth	1277	2	3	5	1 (25.00%)	4	0.000012913
NgaDef	1235	27	30	57	11 (23.91%)	46	0.000012913
Helen_of_Troy	1272	4	7	11	2 (22.22%)	9	0.000012913
Clottedcream	1266	11	7	18	3 (20.00%)	15	0.000012913
Jesswinskell	1275	6	1	7	1 (16.67%)	6	0.000012913
lighthearted	1274	5	3	8	1 (14.29%)	7	0.000010087
Gwili	1272	7	3	10	1 (11.11%)	9	0.000012913
Monkeygeorge	1244	31	10	41	4 (10.81%)	37	0.000012913
taharqa	1251	23	10	33	3 (10.00%)	30	0.000012913
cmccombs	1270	1	11	12	1 (9.09%)	11	0.000012913
hafeezrm	1265	10	7	17	1 (6.25%)	16	0.000012913
Katiebell	1246	28	9	37	2 (5.71%)	35	0.000012913
AMITinSF	1263	4	15	19	1 (5.56%)	18	0.000012913
Dayo	1186	57	43	100	5 (5.26%)	95	0.000012913
Pizza_Wheel	1238	31	14	45	2 (4.65%)	43	0.000012913
ljkn	1259	14	9	23	1 (4.55%)	22	0.000012913
stefo	1234	44	5	49	2 (4.26%)	47	0.000012913
LizaD	1256	11	15	26	1 (4.00%)	25	0.000012913
Frantic	1255	11	16	27	1 (3.85%)	26	0.000012913

Scoubidou	1251	24	7	31	1 (3.33%)	30	0.000012913
Eve1	1244	31	7	38	1 (2.70%)	37	0.000010087
twilkie22	1242	33	7	40	1 (2.56%)	39	0.000012913
ArthurSA	1241	32	9	41	1 (2.50%)	40	0.000012913
1093909392	1278	2	1	3	0 (0.00%)	3	0.000010008
19681917888	1278	3	0	3	0 (0.00%)	3	0.000010000

Table 13 List of 5-member cliques

Dayo	Frantic	NgaDef	rockrug	taharqa
Cosmopolitan	Dayo	Katiebell	NgaDef	taharqa
Dayo	Katiebell	NgaDef	rockrug	taharqa
Dayo	LSchweiger	Monkeygeorge	NgaDef	Pizza_Wheel
Clottedcream	Dayo	Monkeygeorge	NgaDef	stefo
JayDawg	LizaD	NgaDef	snailhead	taharqa

Table 14 Linking threads in cliques 1 to 6

Clique 1	Clique 2	Clique 3	Clique 4	Clique 5	Clique 6
500	500	500	500	500	
a day in nairobi, a day in kampala					
			AB London Pissup Thread: 31 May 2004	AB London Pissup Thread: 31 May 2004	
AB Piss-up	AB Piss-up	AB Piss-up	AB Piss-up	AB Piss-up	
ABTT Airborne Piss- Up	ABTT Airborne Piss-Up	ABTT Airborne Piss-Up	ABTT Airborne Piss-Up	ABTT Airborne Piss- Up	ABTT Airborne Piss-Up
Accra to Dakar - Roundtrip	Accra to Dakar - Roundtrip	Accra to Dakar - Roundtrip			

Africa is winning today.	Africa is winning today.	Africa is winning today.	Africa is winning today.	Africa is winning today.	
	African ethnic features	African ethnic features			African ethnic features
African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?
AIDS in West Africa	AIDS in West Africa	AIDS in West Africa	AIDS in West Africa		
And again!!!	And again!!!	And again!!!	And again!!!	And again!!!	
					Budget for West Africa (in Euros)
Crazy African bar names	Crazy African bar names	Crazy African bar names			
			CHEAPEST FLIGHTS???	CHEAPEST FLIGHTS???	
			Do Africans see whites as superior???		
Fanti	Fanti	Fanti			
	Favourite Place	Favourite Place	Favourite Place	Favourite Place	
					Flight duration Dakar to Accra?

Annexure: Tables

Free beer competition	Free beer competition	Free beer competition	Free beer competition	Free beer competition	Free beer competition
Frivolous Things.	Frivolous Things.	Frivolous Things.	Frivolous Things.	Frivolous Things.	Frivolous Things.
					Ghana!
	Ghana - Rabies inoculation	Ghana - Rabies inoculation			
Ghana "Pissup" June/July????	Ghana "Pissup" June/July???	Ghana "Pissup" June/July??			
	Giraffe Manor near Nairobi				
I don't have a desire to make money	I don't have a desire to make money	I don't have a desire to make money			
If I don't ask, I'll never know	If I don't ask, I'll never know	If I don't ask, I'll never know	If I don't ask, I'll never know	If I don't ask, I'll never know	If I don't ask, I'll never know
I'm off to Ghana in 10 Days	I'm off to Ghana in 10 Days	I'm off to Ghana in 10 Days			
			Internet access in Elmina???	Internet access in Elmina???	
			IS this Possible from the UK		

other footwear for riding safari...help!					
			Sad news from SA		
poorest country in Africa	poorest country in Africa	poorest country in Africa			
Proverbs	Proverbs	Proverbs			
Racism and reverse racism in Africa	Racism and reverse racism in Africa	Racism and reverse racism in Africa			
Safari in Kenya and Tanzania plus children					
			shots	shots	
	Sorry, nothing about Ghana...	Sorry, nothing about Ghana...			
Tetnus shot	Tetnus shot	Tetnus shot			
	Visa for Kenya				
What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?
	Where NOT to go?	Where NOT to go?			

Roundtrip	Roundtrip	Roundtrip	Roundtrip	Roundtrip	Roundtrip
Accra, Ghana	Accra, Ghana	Accra, Ghana	Accra, Ghana	Accra, Ghana	Accra, Ghana
Africa is winning today.	Africa is winning today.	Africa is winning today.	Africa is winning today.	Africa is winning today.	Africa is winning today.
African ethnic features	African ethnic features	African ethnic features			African ethnic features
African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?	African taxis: love them or loathe them?
AIDS in West Africa	AIDS in West Africa	AIDS in West Africa	AIDS in West Africa	AIDS in West Africa	AIDS in West Africa
And again!!!	And again!!!	And again!!!	And again!!!	And again!!!	And again!!!
CHEAPEST FLIGHTS?? ?	CHEAPEST FLIGHTS?? ?	CHEAPEST FLIGHTS???	CHEAPEST FLIGHTS???	CHEAPEST FLIGHTS?? ?	CHEAPEST FLIGHTS???
Crazy African bar names	Crazy African bar names	Crazy African bar names	Crazy African bar names	Crazy African bar names	Crazy African bar names
Do Africans see whites as superior???	Do Africans see whites as superior???	Do Africans see whites as superior???	Do Africans see whites as superior???	Do Africans see whites as superior???	Do Africans see whites as superior???
	Egypt during Ramaden (sp)	Egypt during Ramaden (sp)		Egypt during Ramaden (sp)	
Fanti	Fanti	Fanti	Fanti	Fanti	Fanti
Favourite Place	Favourite Place	Favourite Place	Favourite Place	Favourite Place	
Flight duration	Flight duration	Flight duration			Flight duration

Annexure: Tables

Mombasa to Lamu	Mombasa to Lamu	Mombasa to Lamu	Mombasa to Lamu	Mombasa to Lamu	
More accolades Africa Branch!	More accolades Africa Branch!	More accolades Africa Branch!	More accolades Africa Branch!	More accolades Africa Branch!	More accolades Africa Branch!
Need a laugh	Need a laugh	Need a laugh	Need a laugh	Need a laugh	Need a laugh
	Nigeria	Nigeria	Nigeria		Nigeria
			open ended return flights to Tanzania	open ended return flights to Tanzania	
other footwear for riding safari...help!	other footwear for riding safari...help!	other footwear for riding safari...help!	other footwear for riding safari...help!	other footwear for riding safari...help!	
poorest country in Africa	poorest country in Africa	poorest country in Africa	poorest country in Africa	poorest country in Africa	poorest country in Africa
Proverbs	Proverbs	Proverbs	Proverbs	Proverbs	Proverbs
Racism and reverse racism in Africa	Racism and reverse racism in Africa	Racism and reverse racism in Africa	Racism and reverse racism in Africa	Racism and reverse racism in Africa	Racism and reverse racism in Africa
Safari in Kenya and Tanzania plus children	Safari in Kenya and Tanzania plus children	Safari in Kenya and Tanzania plus children	Safari in Kenya and Tanzania plus children	Safari in Kenya and Tanzania plus children	
shots	shots	shots	shots	shots	shots
Sorry, nothing about Ghana...	Sorry, nothing about Ghana...	Sorry, nothing about Ghana...	Sorry, nothing about Ghana...	Sorry, nothing about Ghana...	
Tetnus shot	Tetnus shot	Tetnus shot	Tetnus shot	Tetnus shot	Tetnus shot
			Things to do	Things to do	

			around Dar on the cheap	around Dar on the cheap	
Visa for Kenya	Visa for Kenya	Visa for Kenya	Visa for Kenya	Visa for Kenya	
	Volunteerin g in Ghana	Volunteering in Ghana			Volunteering in Ghana
What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?	What do you miss about Africa?
Where NOT to go?	Where NOT to go?	Where NOT to go?	Where NOT to go?	Where NOT to go?	Where NOT to go?
where or where or where?	where or where or where?	where or where or where?			where or where or where?
Which camera to take to Africa?	Which camera to take to Africa?	Which camera to take to Africa?	Which camera to take to Africa?	Which camera to take to Africa?	Which camera to take to Africa?
Wilderness camping in Kenya, Uganda...or	Wilderness camping in Kenya, Uganda...or	Wilderness camping in Kenya, Uganda...or	Wilderness camping in Kenya, Uganda...or	Wilderness camping in Kenya, Uganda...or	
WT Pissup Saturday 5th June	WT Pissup Saturday 5th June	WT Pissup Saturday 5th June	WT Pissup Saturday 5th June	WT Pissup Saturday 5th June	WT Pissup Saturday 5th June
Your favorite cities in Africa	Your favorite cities in Africa	Your favorite cities in Africa	Your favorite cities in Africa	Your favorite cities in Africa	Your favorite cities in Africa

Table 16 Inner and Linking threads: Comparison

Inner threads only	Linking threads only
Budget for West Africa (in Euros)	ABTT Gettogether?
Sad news from SA	Accra, Ghana

	Driving on the 'wrong side' ?
	Egypt during Ramaden (sp)
	Half day trips?
	How bad are the mosquitos in Kenya and Tanzania?
	London piss-up Monday 31 May??
	Nigeria
	open ended return flights to Tanzania
	Things to do around Dar on the cheap
	Volunteering in Ghana
	WT Pissup Saturday 5th June

Table 17 In-ties and out-ties of each actor -- prominent cliques

Number	Participant	In-ties	Out-ties	Total ties
1	NgaDef	27	30	57
2	Dayo	57	43	100
3	taharqa	23	10	33
4	Katiebell	28	9	37
5	Monkeygeorge	31	10	41
6	rockrug	0	25	25
7	Clottedcream	11	7	18
8	Cosmopolitan	6	8	14
9	Frantic	11	16	27
10	JayDawg	2	66	68
11	LizaD	11	15	26
12	LSchweiger	0	15	15
13	Pizza_Wheel	31	14	45
14	snailhead	12	0	12

Table 18 All messages *Dayo* posted

Title	Action	Date	Time
Favourite Place	Poster	26-Apr	01:22
Favourite Place	Replier	26-Apr	06:33
Favourite Place	Replier	26-Apr	06:36
African taxis: love them or loathe them?	Replier	26-Apr	07:03

Annexure: Tables

African taxis: love them or loathe them?	Replier	26-Apr	12:44
Favourite Place	Replier	26-Apr	14:44
500	Poster	4-May	14:35
500	Replier	5-May	00:06
Tetnus shot	Replier	5-May	00:11
Train Travel	Replier	5-May	00:22
500	Replier	5-May	08:56
Tetnus shot	Replier	5-May	09:04
500	Replier	6-May	02:29
More accolades Africa Branch!	Replier	6-May	02:38
Safari suggestions for October	Replier	6-May	02:45
500	Replier	6-May	08:39
Any information about accomodation in Lamu and Diani Beach?	Replier	6-May	08:42
Selecting a Safari in the Masai Mara	Replier	7-May	00:39
Tetnus shot	Replier	8-May	07:21
Selecting a Safari in the Masai Mara	Replier	8-May	07:22
Needing help with African proverb	Replier	8-May	07:26
ANYTHING ABOUT ZANZIBAR	Replier	8-May	07:33
Proverbs	Poster	8-May	07:40
Proverbs	Replier	8-May	13:44
Only in Kenya	Replier	8-May	13:47
25 Days in Kenya: What did you love?	Replier	10-May	06:40
How bad are the mosquitos in Kenya and Tanzania?	Replier	10-May	06:48
95% DEET?	Replier	10-May	11:08
95% DEET?	Replier	10-May	15:38
95% DEET?	Replier	11-May	00:35
Mombasa - Malindi - Lamu	Replier	11-May	00:46
Electricity in Africa	Replier	11-May	13:31
Ghana - Rabies inoculation	Replier	11-May	13:33
Africa trip help!!! here again	Replier	11-May	13:37
Tour after Kenya-Victoria Falls? Suggestions Appreciated!	Replier	11-May	13:44
Masai Mara OR Amboseli OR Ngorogoro Crater???	Replier	11-May	13:48
WHERE should I visit in Africa?	Replier	12-May	03:38
Safety in Nairobi	Replier	12-May	03:40
Nairobi; anything worth seeing?	Replier	12-May	03:43

Annexure: Tables

Nairobi; anything worth seeing?	Replier	12-May	03:44
Visas for Uganda, Rwanda & Kenya	Replier	14-May	09:53
dollars in kenya, weather in uganda	Replier	16-May	00:35
Hello everybody!!!	Replier	16-May	00:36
Morocco	Replier	16-May	05:02
Travelling independently through south east Africa	Replier	17-May	00:18
Visa for Kenya	Replier	17-May	13:54
Beach	Replier	18-May	09:45
Train from Nairobi - Mombasa	Replier	18-May	09:46
Visa for Kenya	Replier	19-May	11:35
Any experience on Air Kenya or Mombasa air?	Replier	19-May	11:37
Malaria shots!	Replier	20-May	00:16
Giraffe Manor near Nairobi	Replier	20-May	00:19
Giraffe Manor near Nairobi	Replier	20-May	09:15
Visa for Kenya	Replier	20-May	09:22
If I don't ask, I'll never know	Replier	20-May	09:45
Bus to Kisumu (Kenya)	Replier	20-May	09:49
flights to kisumu	Replier	20-May	09:53
transport in tanzania	Replier	20-May	23:52
swahili and malaria!	Replier	21-May	11:27
KENYA - VISA NEEDED????	Replier	21-May	11:31
Kenya in November?	Replier	21-May	16:53
Need a laugh	Poster	22-May	07:00
Need a laugh	Replier	22-May	11:04
Need a laugh	Replier	22-May	11:07
Need a laugh	Replier	22-May	11:52
Need a laugh	Replier	23-May	11:46
Need a laugh	Replier	23-May	14:54
Malaria, what is Lariam worth taking?	Replier	25-May	01:51
Wilderness camping in Kenya, Uganda...or	Replier	25-May	02:31
Wilderness camping in Kenya, Uganda...or	Replier	25-May	03:17
Wilderness camping in Kenya, Uganda...or	Replier	25-May	03:19
Train from Nairobi to Mombasa	Replier	25-May	06:15
Mombasa to Lamu	Replier	25-May	06:31
6 month in southern africa - 4x4 wanted	Replier	25-May	11:22
Wilderness camping in Kenya, Uganda...or	Replier	25-May	14:00

Annexure: Tables

First overland African journey.	Replier	25-May	14:06
Sorry, nothing about Ghana...	Replier	25-May	14:09
What do you miss about Africa?	Replier	25-May	14:14
best guidebook	Replier	26-May	00:47
Airpass for Eastern and Southern Africa	Replier	26-May	00:52
Airpass for Eastern and Southern Africa	Replier	26-May	00:58
"other" footwear for riding safari...help!	Replier	26-May	01:05
What do you miss about Africa?	Replier	26-May	03:40
Half day trips?	Poster	26-May	03:55
What do you miss about Africa?	Replier	26-May	06:12
mombasa to zanzibar boat trip?	Replier	26-May	06:20
Safari in Kenya and Tanzania plus children	Replier	26-May	08:18
Larium causing permanent brainstem damage	Replier	27-May	01:02
mombasa to zanzibar boat trip?	Replier	27-May	08:32
Nairobi mid-range hotel recommendations?	Replier	29-May	14:19
Visa requirements for vsiist from Kenya to Uganda	Replier	29-May	14:21
East Africa	Replier	30-May	01:26
Africa trip-Visa	Replier	30-May	05:06
Driving across africa	Replier	30-May	09:08
AB Piss-up	Poster	1-Jun	00:04
AB Piss-up	Replier	1-Jun	03:26
Africa is winning today.	Replier	1-Jun	03:46
things to do in nairobi	Replier	1-Jun	03:47
AB Piss-up	Replier	1-Jun	06:17
Africa is winning today.	Replier	1-Jun	08:50
Travelling in Africa	Replier	2-Jun	08:44
Visas for South Africa,Tanzania, Malawi	Replier	2-Jun	08:55
a day in nairobi, a day in kampala	Replier	2-Jun	08:57
quick trip to kenya	Replier	2-Jun	09:05
It's called what?	Poster	2-Jun	09:09
It's called what?	Replier	2-Jun	09:12
Kenya, Tanzania and Zanzibar	Replier	2-Jun	14:18
It's called what?	Replier	3-Jun	08:02
LP Comet announcement	Replier	3-Jun	08:08
And again!!!	Replier	3-Jun	08:16
LP Comet announcement	Replier	3-Jun	09:06

And again!!!	Replier	3-Jun	17:28
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Table 19 All messages *dysfunctional* posted

Title	Action	Date	Time
African taxis: love them or loathe them?	Replier	26-Apr	07:25
cheap flights to Gambia	Replier	4-May	15:34
Beach ware in Essaouira??	Replier	5-May	09:23
Ferry Tunisia to Sicily	Replier	5-May	09:26
Emigrating to Morocco	Replier	5-May	09:57
Casablanca	Replier	6-May	09:27
South Africa Entry Reqs	Replier	6-May	13:25
Libya - Algeria	Replier	8-May	05:04
help for sudan	Replier	8-May	07:43
Proverbs	Replier	8-May	07:55
morocoo.news....	Replier	8-May	12:10
Recommendations for short stay in Morocco	Replier	9-May	05:00
Fuerta ventura	Replier	10-May	04:16
Morocco	Replier	10-May	07:33
trains in morocco	Replier	11-May	06:06
South Africa visitor's permit for 7 months?	Replier	11-May	09:23
Morocco street map	Replier	11-May	09:27
Urgent Info Ferry my Hurghada to Sharam	Replier	11-May	09:30
Tunisia or Morocco?	Replier	11-May	09:31
South Africa visitor's permit for 7 months?	Replier	11-May	09:36
short camel trip into desert in Morocco	Replier	11-May	09:41
South Africa visitor's permit for 7 months?	Replier	11-May	09:50
Africa trip help!!! here again	Replier	11-May	12:10
Electricity in Africa	Replier	11-May	12:59
Gorilla Permits in Uganda-Bwindi	Replier	12-May	09:22
Egypt questions	Replier	12-May	09:23
Across north Africa	Replier	12-May	10:56
Morocco Excess baggage	Replier	12-May	11:01
South Africa visitor's permit for 7 months?	Replier	14-May	07:52
DOUBLE-ENTRY VISA FOR MOROCCO	Replier	15-May	07:45
DOUBLE-ENTRY VISA FOR MOROCCO	Replier	15-May	10:48

DOUBLE-ENTRY VISA FOR MOROCCO	Replier	16-May	05:39
learning french in Africa	Replier	16-May	08:22
Canary Islands	Replier	17-May	09:35
Passports in Morocco	Replier	17-May	09:42
Interrail Marocco?	Replier	17-May	09:50
Cheap Rail in morocco/Fez on Friday	Replier	17-May	10:01
best of morocco	Replier	17-May	10:05
Tunisia Ferries	Replier	18-May	09:19
Marrakech flights from UK.	Replier	18-May	09:38
Riad Hiba	Replier	18-May	09:46
Old Wives Tale?	Replier	18-May	09:47
Ferries between Greece and Egypt	Replier	18-May	10:18
best of morocco	Replier	19-May	04:01
Are cellular phones forbidden in Egypt?	Replier	19-May	06:00
Egypt during Ramaden (sp)	Replier	19-May	06:09
Valable Jusqu'au	Replier	19-May	06:35
Visa for Kenya	Replier	19-May	08:38
By car through West Africa	Replier	19-May	13:38
best of morocco	Replier	20-May	01:15
Cheap travel in Libya??!	Replier	20-May	08:53
Morocco, Tunisa and Malta	Replier	21-May	04:47
Advice needed for Morocco	Replier	21-May	04:52
Getting to Egypt	Replier	21-May	06:28
ramadan in marrakesh	Replier	21-May	06:37
Morocco, Tunisa and Malta	Replier	21-May	06:40
ramadan in marrakesh	Replier	21-May	11:16
ramadan in marrakesh	Replier	22-May	07:02
Egypt to Eurpoe by sea?	Replier	22-May	09:03
overland on public transport from tripoli to cairo	Replier	22-May	09:38
overland on public transport from tripoli to cairo	Replier	22-May	10:05
overland on public transport from tripoli to cairo	Replier	22-May	11:19
overland on public transport from tripoli to cairo	Replier	23-May	03:25
Going from Tunsia to Morocco	Replier	23-May	03:27
Current Prices Ghana	Replier	23-May	03:32
Egypt Trains - getting tickets	Replier	23-May	04:24
Egypt Trains - getting tickets	Replier	23-May	04:33

train from Nairobi to Mombasa	Replier	23-May	05:03
Can I sell my car in Kenya?	Replier	24-May	12:33
Morocco with GAP Adventures	Replier	24-May	12:41
Morocco with GAP Adventures	Replier	24-May	13:36
Morocco with GAP Adventures	Replier	24-May	13:47
Mosque at casablanca	Replier	24-May	14:10
Mosque at casablanca	Replier	24-May	14:14
Flying into Morocco from Copenhagen	Replier	25-May	07:47
plug sockets	Replier	25-May	12:43
Hire cars to Morocco	Replier	26-May	09:16
morocco costs and political situation	Replier	26-May	09:27
Mauritania and Morocco	Replier	28-May	15:55
Mauritania and Morocco	Replier	28-May	16:03
Moroccan "guides"	Replier	30-May	01:56
bus	Replier	30-May	03:48
Around Morocco on a camel?????	Replier	30-May	07:25
trying to get from London to Cairo on the cheap	Replier	30-May	14:03
Cairo galabiyya and shoes	Replier	31-May	03:03
Oh dear	Poster	31-May	05:18
Morocco trains	Replier	31-May	08:51
Paris Dakar	Replier	31-May	09:38
Oh dear	Replier	31-May	11:28
just a though?????	Replier	31-May	13:13
just a though?????	Replier	31-May	13:36
just a though?????	Replier	31-May	13:56
the easiest way to get to Morocco??	Replier	31-May	14:28
moroccan visa	Replier	1-Jun	00:10
Israeli Stamp	Replier	1-Jun	09:17
Royal Air Maroc Pilot Strike	Replier	1-Jun	09:32
Help getting cheap flight one way from Egypt to UK	Replier	1-Jun	10:15
Royal Air Maroc Pilot Strike	Replier	1-Jun	10:59
Israeli Stamp	Replier	1-Jun	11:44
Royal Air Maroc Pilot Strike	Replier	1-Jun	13:04
Help getting cheap flight one way from Egypt to UK	Replier	1-Jun	13:10
Royal Air Maroc Pilot Strike	Replier	2-Jun	00:46
Beer in Morocco	Replier	2-Jun	08:17

Morocco weather	Replier	2-Jun	08:20
Bus Dakhkla-Mauretania - Myth?	Replier	2-Jun	08:22
Safety in Morocco	Replier	2-Jun	10:52
Visa for Ghana	Replier	2-Jun	10:55
Mauritania: Israili Stamp issues?	Replier	3-Jun	08:05
And again!!!	Replier	3-Jun	13:24
And again!!!	Replier	3-Jun	13:35
Morocco to Gibraltar and onward	Replier	4-Jun	17:15

Table 20 All messages *NgaDef* posted

Title	Action	Date	Time
African taxis: love them or loathe them?	Poster	26-Apr	04:49
African taxis: love them or loathe them?	Replier	26-Apr	05:01
African taxis: love them or loathe them?	Replier	26-Apr	12:15
African taxis: love them or loathe them?	Replier	27-Apr	06:07
African taxis: love them or loathe them?	Replier	28-Apr	05:39
African taxis: love them or loathe them?	Replier	30-Apr	03:59
500	Replier	5-May	04:22
500	Replier	5-May	06:03
500	Replier	6-May	02:05
More accolades Africa Branch!	Poster	6-May	02:11
More accolades Africa Branch!	Replier	6-May	03:05
More accolades Africa Branch!	Replier	6-May	04:05
More accolades Africa Branch!	Replier	6-May	04:42
More accolades Africa Branch!	Replier	6-May	05:25
More accolades Africa Branch!	Replier	6-May	05:54
More accolades Africa Branch!	Replier	6-May	06:39
500	Replier	6-May	06:43
500	Replier	6-May	06:44
More accolades Africa Branch!	Replier	6-May	06:45
More accolades Africa Branch!	Replier	6-May	08:03
More accolades Africa Branch!	Replier	6-May	08:30
More accolades Africa Branch!	Replier	6-May	11:54
More accolades Africa Branch!	Replier	7-May	00:55
ABTT Airborne Piss-Up	Replier	7-May	08:21

More accolades Africa Branch!	Replier	7-May	09:13
Ghana "Pissup" June/July????	Replier	7-May	09:22
Ghana "Pissup" June/July????	Replier	8-May	04:34
ABTT Airborne Piss-Up	Replier	9-May	03:35
Ghana "Pissup" June/July????	Replier	10-May	02:25
ABTT Airborne Piss-Up	Replier	10-May	02:51
Accra, Ghana	Replier	10-May	11:53
ABTT Gettogether?	Replier	10-May	11:57
ABTT Gettogether?	Replier	11-May	00:39
London piss-up Monday 31 May??	Replier	11-May	00:50
ABTT Gettogether?	Replier	11-May	01:44
London piss-up Monday 31 May??	Replier	11-May	05:34
Your favorite cities in Africa	Replier	11-May	05:53
ABTT Gettogether?	Replier	12-May	03:42
London piss-up Monday 31 May??	Replier	12-May	03:43
London piss-up Monday 31 May??	Replier	12-May	04:42
London piss-up Monday 31 May??	Replier	12-May	05:33
London piss-up Monday 31 May??	Replier	12-May	05:45
London piss-up Monday 31 May??	Replier	12-May	06:37
CHEAPEST FLIGHTS???	Replier	12-May	07:08
CHEAPEST FLIGHTS???	Replier	12-May	07:12
attending university in Africa	Replier	14-May	01:14
Living in Africa...	Replier	14-May	01:34
2010: South Africa	Replier	15-May	11:26
AIDS in West Africa	Replier	18-May	03:32
Which camera to take to Africa?	Replier	18-May	03:43
attending university in Africa	Replier	19-May	05:49
Accra to Dakar - Roundtrip	Replier	19-May	06:09
AB London Pissup Thread: 31 May 2004	Poster	20-May	00:46
AB London Pissup Thread: 31 May 2004	Replier	20-May	01:06
AB London Pissup Thread: 31 May 2004	Replier	20-May	04:38
If I don't ask, I'll never know	Replier	20-May	05:26
AB London Pissup Thread: 31 May 2004	Replier	20-May	06:09
If I don't ask, I'll never know	Replier	20-May	06:24
Just booked...	Replier	20-May	07:38
shots	Replier	21-May	01:56

AB London Pissup Thread: 31 May 2004	Replier	21-May	02:17
shots	Replier	21-May	03:11
If I don't ask, I'll never know	Replier	21-May	03:14
shots	Replier	21-May	04:55
AB London Pissup Thread: 31 May 2004	Replier	21-May	05:09
shots	Replier	21-May	05:23
AB London Pissup Thread: 31 May 2004	Replier	21-May	05:35
Need a laugh	Replier	22-May	09:44
I don't have a desire to make money	Replier	23-May	05:03
Malaria, what is Lariam worth taking?	Replier	25-May	01:53
Internet access in Elmina???	Replier	25-May	02:29
Internet access in Elmina???	Replier	25-May	02:44
Internet access in Elmina???	Replier	25-May	03:54
Free beer competition	Poster	25-May	04:00
Free beer competition	Replier	25-May	05:40
Free beer competition	Replier	25-May	06:32
poorest country in Africa	Replier	25-May	13:04
What do you miss about Africa?	Replier	25-May	13:09
Crazy African bar names	Replier	26-May	02:58
London AB Pissup: 31 May 2004	Poster	26-May	04:42
London AB Pissup: 31 May 2004	Replier	26-May	05:51
London AB Pissup: 31 May 2004	Replier	26-May	09:01
I'm off to Ghana in 10 Days	Replier	26-May	12:00
London AB Pissup: 31 May 2004	Replier	27-May	05:15
London AB Pissup: 31 May 2004	Replier	29-May	07:09
ATM's in Dakar/Banjul	Replier	29-May	07:23
AB Piss-up	Replier	1-Jun	05:21
Africa is winning today.	Replier	1-Jun	06:50
Where NOT to go?	Replier	1-Jun	07:12
Where NOT to go?	Replier	2-Jun	02:42
Fanti	Replier	2-Jun	06:24
Fanti	Replier	2-Jun	07:05
Fanti	Replier	2-Jun	08:34
Fanti	Replier	3-Jun	00:11
Do Africans see whites as superior???	Replier	3-Jun	00:45
It's called what?	Replier	3-Jun	00:49

Fanti	Replier	3-Jun	04:16
LP Comet announcement	Replier	3-Jun	04:26
And again!!!	Replier	3-Jun	04:27
Racism and reverse racism in Africa	Replier	3-Jun	04:30
Fanti	Replier	3-Jun	04:35
sudan	Replier	3-Jun	04:43
sudan	Replier	3-Jun	04:44
And again!!!	Replier	3-Jun	04:49
Fanti	Replier	3-Jun	04:55
And again!!!	Replier	3-Jun	05:10
Fanti	Replier	3-Jun	05:31
If you were to sod-it off...	Replier	3-Jun	13:10
And again!!!	Replier	3-Jun	13:17
Frivolous Things.	Replier	3-Jun	13:21
And again!!!	Replier	3-Jun	13:28
And again!!!	Replier	4-Jun	00:12
Frivolous Things.	Replier	4-Jun	00:35
Frivolous Things.	Replier	4-Jun	04:59
WT Pissup Saturday 5th June	Replier	4-Jun	10:02

Table 21 All messages JayDawg posted

Volunteering in Ghana	Poster	04 May	20:12
African ethnic features	Poster	06 May	11:53
what's up, niger	Replier	06 May	13:03
African ethnic features	Replier	06 May	14:44
Anyone else planning to volunteer in Africa this summer?	Poster	06 May	18:23
African ethnic features	Replier	06 May	18:31
African ethnic features	Replier	06 May	21:11
Anyone else planning to volunteer in Africa this summer?	Replier	07 May	00:08
Living in Africa	Replier	07 May	00:11
Accra, Ghana	Poster	09 May	23:22
Your favorite cities in Africa	Poster	10 May	21:26
AIDS in West Africa	Poster	17 May	20:14
Accra to Dakar – Roundtrip	Poster	17 May	20:31
AIDS in West Africa	Replier	17 May	23:45

AIDS in West Africa	Replier	18 May	12:06
Accra to Dakar – Roundtrip	Replier	18 May	12:10
Nigeria	Poster	21 May	13:39
Long term accomodations in Accra	Poster	01 Jun	06:55
Where NOT to go?	Poster	01 Jun	06:59
Where NOT to go?	Replier	01 Jun	07:37
Racism and reverse racism in Africa	Poster	02 Jun	09:46
Do Africans see whites as superior???	Poster	02 Jun	11:02
Do Africans see whites as superior???	Replier	02 Jun	11:50
African written languages	Poster	03 Jun	09:08

Table 22 All messages Micksailor posted

Maputo,...Worth it...?	Poster	05 May	07:04
Jo`burg TO Maputo (Time and Cost) – DESPERATE FOR INFO	Poster	05 May	07:56
Length of TIME per destination...	Poster	05 May	08:10
WEST Africa Itinerary	Poster	06 May	07:34
Cape Town and/or Jo`Burg...?	Poster	06 May	10:02
Nigeria	Poster	06 May	12:24
Weather in Cape Town June/July	Poster	08 May	14:15
Masai Mara OR Amboseli OR Ngorogoro Crater???	Poster	11 May	06:31
Money in Western Africa	Poster	11 May	06:32
Time to climb Kilimanjaro?	Poster	11 May	17:17
Joburg to HARARE	Poster	11 May	18:34
Time/place WEST AFRICA...	Poster	12 May	10:39
Digital Camera WEST Africa	Poster	12 May	10:41
Gorillas in Uganda or 3 day Safari in Serengetti?	Poster	14 May	07:55
Kampala, Harare or Maputo?	Poster	16 May	19:11
Whats the cost of a safari to Serengetti?	Poster	17 May	14:29
South Africa Vs India!	Replier	19 May	09:25
Fun photo journal of trip to Nairobi, Tanzania & Zanzibar	Replier	20 May	08:39
Nairobi to Kampala	Poster	20 May	19:19
Advice on which part of Africa	Replier	20 May	19:56
First hand experience ALWAYS better	Poster	21 May	10:19
Visa for Zimbabwe	Poster	21 May	13:24

NHL Playoffs in Cape Town	Poster	02 Jun	10:52
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Table 23 Threads with highest number of individual actors

Title	Mean	Std	Var	Sum
What do you miss about Africa?	0.0195	0.1383	0.0191	25
Unwanted travel advice...	0.0148	0.1209	0.0146	19
Your favorite cities in Africa	0.0148	0.1209	0.0146	19
Favourite Place	0.0133	0.1144	0.0131	17
Fun photo journal of trip to Nairobi, Tanzania & Zanzibar	0.0133	0.1144	0.0131	17
Crazy African bar names	0.0133	0.1144	0.0131	17
African ethnic features	0.0125	0.1111	0.0123	16
Malaria, what is Lariam worth taking?	0.0125	0.1111	0.0123	16
poorest country in Africa	0.0125	0.1111	0.0123	16
Tetnus shot	0.0109	0.104	0.0108	14
95% DEET?	0.0109	0.104	0.0108	14
2010 world cup in Africa	0.0109	0.104	0.0108	14
safari and kili climb	0.0109	0.104	0.0108	14
southafrica	0.0109	0.104	0.0108	14
I don't have a desire to make money	0.0109	0.104	0.0108	14
It's called what?	0.0109	0.104	0.0108	14
African taxis: love them or loathe them?	0.0101	0.1002	0.01	13
Living in Africa	0.0101	0.1002	0.01	13
mountain gorillas- any critics?	0.0101	0.1002	0.01	13
Driving on the 'wrong side' ?	0.0101	0.1002	0.01	13
If I don't ask, I'll never know	0.0101	0.1002	0.01	13
Driving in darkness - in Southern Africa	0.0101	0.1002	0.01	13
Africa is winning today.	0.0101	0.1002	0.01	13
nando's	0.0094	0.0963	0.0093	12
Immunization questionsadvice	0.0094	0.0963	0.0093	12

Table 24 Threads that attracted the highest number of replies

Title	Mean	Std	Var	Sum
More accolades Africa Branch!	0.0343	0.5216	0.272	44
What do you miss about Africa?	0.0234	0.1838	0.0338	30
African ethnic features	0.018	0.1823	0.0332	23
Favourite Place	0.0156	0.1573	0.0247	20
African taxis: love them or loathe them?	0.0156	0.2047	0.0419	20
500	0.0156	0.2494	0.0622	20
Tetnus shot	0.0156	0.1889	0.0357	20
ABTT Gettogether?	0.0156	0.2463	0.0606	20
London piss-up Monday 31 May??	0.0156	0.2675	0.0716	20
95% DEET?	0.0156	0.1669	0.0279	20
Unwanted travel advice....	0.0156	0.1301	0.0169	20
Your favorite cities in Africa	0.0156	0.1301	0.0169	20
2010 world cup in Africa	0.0156	0.1622	0.0263	20
southafrica	0.0156	0.1669	0.0279	20
AB London Pissup Thread: 31 May 2004	0.0156	0.2366	0.056	20
If I don't ask, I'll never know	0.0156	0.1715	0.0294	20
Fun photo journal of trip to Nairobi, Tanzania & Zanzibar	0.0156	0.147	0.0216	20
Need a laugh	0.0156	0.2332	0.0544	20
Malaria, what is Lariam worth taking?	0.0156	0.1622	0.0263	20
Driving in darkness - in Southern Africa	0.0156	0.176	0.031	20
Free beer competition	0.0156	0.176	0.031	20
poorest country in Africa	0.0156	0.1522	0.0232	20
Crazy African bar names	0.0156	0.147	0.0216	20
London AB Pissup: 31 May 2004	0.0156	0.2085	0.0435	20
South africa security question	0.0156	0.2525	0.0638	20

Table 25 Actors that contributed to most number of threads

Participant	Mean	Std	Var	Sum
dysfunctional	0.0809	0.2727	0.0744	83
Dayo	0.0741	0.2619	0.0686	76
stefo	0.0487	0.2152	0.0463	50
NgaDef	0.0429	0.2026	0.041	44

Julie_L	0.0409	0.1981	0.0393	42
twilkie22	0.0389	0.1935	0.0374	40
Monkeygeorge	0.037	0.1889	0.0357	38
Pizza_Wheel	0.037	0.1889	0.0357	38
ArthurSA	0.0351	0.184	0.0339	36
Eve1	0.0351	0.184	0.0339	36
taharqa	0.0321	0.1764	0.0311	33
Trendmonger	0.0321	0.1764	0.0311	33
Katiebell	0.0312	0.1738	0.0302	32
akshar	0.0292	0.1685	0.0284	30
Bosch	0.0283	0.1657	0.0275	29
Scoubidou	0.0263	0.1601	0.0256	27
Ainzerka	0.0253	0.1572	0.0247	26
BatSmith	0.0234	0.1511	0.0228	24
travelbug1970	0.0234	0.1511	0.0228	24
Micksailor	0.0224	0.148	0.0219	23
peterscot	0.0224	0.148	0.0219	23
Wigman	0.0214	0.1448	0.021	22
Ljkno	0.0195	0.1383	0.0191	20
londonviking	0.0195	0.1383	0.0191	20
Adjoa	0.0185	0.1348	0.0182	19

Table 26 Actors that contributed most number of messages

Participant	Mean	Std	Var	Sum	Max
NgaDef	0.1121	0.7428	0.5518	115	13
Dayo	0.1092	0.4691	0.2201	112	6
dysfunctional	0.1072	0.4191	0.1756	110	4
ArthurSA	0.0741	0.488	0.2382	76	8
Pizza_Wheel	0.0682	0.434	0.1883	70	8
stefo	0.0652	0.3511	0.1233	67	5
Monkeygeorge	0.0458	0.259	0.0671	47	4
Julie_L	0.0439	0.2186	0.0478	45	2
twilkie22	0.0428	0.2209	0.0488	44	2
taharqa	0.0409	0.2502	0.0626	42	3
Bosch	0.04	0.2524	0.0637	41	3

Trendmonger	0.0399	0.2322	0.0539	41	2
ainzerka	0.038	0.2853	0.0814	39	5
Eve1	0.037	0.1989	0.0396	38	2
akshar	0.0351	0.2224	0.0495	36	3
Katiebell	0.0351	0.2088	0.0436	36	3
Clottedcream	0.0322	0.2648	0.0701	33	4
Scoubidou	0.0312	0.1999	0.04	32	2
BatSmith	0.0283	0.2028	0.0411	29	3
londonviking	0.0273	0.2362	0.0558	28	5
travelbug1970	0.0263	0.1827	0.0334	27	3
Wigman	0.0263	0.1931	0.0373	27	3
peterscot	0.0244	0.1663	0.0277	25	2
slowcoach	0.0243	0.2215	0.0491	25	4
JayDawg	0.0234	0.2195	0.0482	24	4

Table 27 "More accolades Africa Branch!" thread

Participant	Action	Date	Time
NgaDef	Poster	6-May	02:11
Dayo	Replier	6-May	02:38
NgaDef	Replier	6-May	03:05
Pizza_Wheel	Replier	6-May	03:58
NgaDef	Replier	6-May	04:05
Pizza_Wheel	Replier	6-May	04:38
NgaDef	Replier	6-May	04:42
Pizza_Wheel	Replier	6-May	04:49
NgaDef	Replier	6-May	05:25
Pizza_Wheel	Replier	6-May	05:50
NgaDef	Replier	6-May	05:54
londonviking	Replier	6-May	06:07
ArthurSA	Replier	6-May	06:21
NgaDef	Replier	6-May	06:39
ArthurSA	Replier	6-May	06:41
NgaDef	Replier	6-May	06:45
londonviking	Replier	6-May	06:46
ArthurSA	Replier	6-May	06:49

londonviking	Replier	6-May	06:59
kingdoomy	Replier	6-May	07:05
ArthurSA	Replier	6-May	07:06
ArthurSA	Replier	6-May	07:09
snailhead	Replier	6-May	07:44
kingdoomy	Replier	6-May	07:48
NgaDef	Replier	6-May	08:03
kingdoomy	Replier	6-May	08:07
ArthurSA	Replier	6-May	08:14
NgaDef	Replier	6-May	08:30
Pizza_Wheel	Replier	6-May	08:42
londonviking	Replier	6-May	09:09
Pizza_Wheel	Replier	6-May	09:20
taharqa	Replier	6-May	09:20
taharqa	Replier	6-May	09:28
londonviking	Replier	6-May	09:38
taharqa	Replier	6-May	10:10
kingdoomy	Replier	6-May	10:55
NgaDef	Replier	6-May	11:54
ArthurSA	Replier	7-May	00:05
NgaDef	Replier	7-May	00:55
Pizza_Wheel	Replier	7-May	08:28
ArthurSA	Replier	7-May	08:36
Pizza_Wheel	Replier	7-May	08:44
NgaDef	Replier	7-May	09:13
Clottedcream	Replier	7-May	09:29

Table 28 “What do you miss about Africa” thread

Participant	Action	Date	Time
rockrug	Poster	25-May	12:32
NgaDef	Replier	25-May	13:09
Frantic	Replier	25-May	13:10
Jultime	Replier	25-May	13:58
Sandyoz	Replier	25-May	14:00
Dayo	Replier	25-May	14:14

Katiebell	Replier	25-May	15:14
Adjoa	Replier	25-May	15:41
MANDAWA	Replier	25-May	15:52
Julie_L	Replier	25-May	16:31
Lou_Land	Replier	25-May	16:36
hajfly	Replier	25-May	17:11
ainzerka	Replier	25-May	17:23
taharqa	Replier	25-May	17:38
lgs	Replier	25-May	19:40
tbateman	Replier	25-May	20:18
palmerzam	Replier	25-May	22:02
pettya	Replier	25-May	23:06
twilkie22	Replier	26-May	01:55
Frantic	Replier	26-May	03:20
Zuena	Replier	26-May	03:27
Dayo	Replier	26-May	03:40
Frantic	Replier	26-May	04:31
Dayo	Replier	26-May	06:12
hazzer2001	Replier	27-May	02:49
KendwaSun	Replier	27-May	08:16
mickih	Replier	27-May	18:53
Aneschka	Replier	27-May	22:21
Adjoa	Replier	28-May	13:24
Badmonkey	Replier	1-Jun	07:54
Trendmonger	Replier	1-Jun	09:57

Table 29 “African Ethnic Features” thread

Participant	Action	Date	Time
JayDawg	Poster	6-May	11:53
Karen10019	Replier	6-May	12:47
Trendmonger	Replier	6-May	12:56
JayDawg	Replier	6-May	14:44
luvafrica	Replier	6-May	16:51
Katiebell	Replier	6-May	16:58
peterscot	Replier	6-May	17:09

taharqa	Replier	6-May	17:16
AdventureBoy	Replier	6-May	18:31
JayDawg	Replier	6-May	18:31
eldo	Replier	6-May	20:04
JayDawg	Replier	6-May	21:11
Use_By_Nov_2003	Replier	7-May	00:05
misskristabel	Replier	7-May	01:40
misskristabel	Replier	7-May	01:49
peterscot	Replier	7-May	01:51
msdianedavis	Replier	7-May	14:31
snailhead	Replier	8-May	00:45
eldo	Replier	8-May	07:21
ainzerka	Replier	8-May	08:11
fromadistantland	Replier	8-May	16:22
Adjoa	Replier	10-May	19:52
Karen10019	Replier	11-May	08:30

Table 30 Ten common threads between NgaDef and Dayo

Thread	Title	Actor	Action	Date	Time
471941	500	Dayo	Poster	04 May	14:35
473370	More accolades Africa Branch!	NgaDef	Poster	06 May	02:11
486838	If I don't ask, I'll never know	Octarinelouise	Poster	20 May	05:14
488694	Need a laugh	Dayo	Poster	22 May	07:00
490910	Malaria, what is Lariam worth taking?	LSchweiger	Poster	24 May	19:25
491687	What do you miss about Africa?	Rockrug	Poster	25 May	12:32
497372	AB Piss-up	Dayo	Poster	01 Jun	00:04
497452	Africa is winning today.	Deeliscious	Poster	01 Jun	02:05
498942	It's called what?	Dayo	Poster	02 Jun	09:09
499659	LP Comet announcement	Cosmopolitan	Poster	03 Jun	02:47

Table 31 Ten common threads between Dayo and dysfunctional

Thread ID	Title	Actor	Action	Date	Time
475591	Proverbs	Dayo	Poster	08 May	07:40

478480	Africa trip help!!! here again	winklewonk	Poster	11 May	11:51
478530	Electricity in Africa	Scoubidou	Poster	11 May	12:51
485965	Visa for Kenya	rossb	Poster	19 May	08:36

Bibliography

“Bradt Travel Guides”, <http://www.bradt-travelguides.com>, [Accessed on 14 May 2004]

“Footprint Travel Guides”, <http://www.footprintbooks.com>, [Accessed on 14 May 2004]

Aarseth E, 2003, “We all want to Change the World: The Ideology of Innovation in Digital Media”, IN: Liestøl G, Morrison A and Rasmussen T, 2003, *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*, London: The MIT Press.

Allison MT, 1988, “Breaking Boundaries and Barriers: Future Directions in Cross-Cultural Research”, IN: *Leisure Sciences*, 10(4):247-259.

Barnes JA, 1954, “Class and Committees in a Norwegian Island Parish”, IN: *Human Relations*, 7: 39-85.

Beith M, “Travel by the Book”, *Newsweek*, 26 May-2 June 2000.

Bell D and Kennedy BM, 2002, *The Cybercultures Reader*, London: Routledge.

Berger B, 1962, “The Sociology of Leisure: Some Suggestions”, IN: *Industrial Relations*, 1(Feb):31-45.

Bohrnstedt GW and Knoke D, ca1988, *Statistics for Social Data Analysis*, Itasca: Peacock.

Boissevain J and Mitchell JC, (eds), 1973, *Network Analysis: Studies in Human Interaction*, The Hague: Mouton.

Borgatti SP, Everett MG, Freeman LC, 1999, *UCINET 6.0 Version 1.00*, Natick: Analytic Technologies.

Bowker NI, 2001, “Understanding Online Communities Through Multiple Methodologies Combined Under a Postmodern Research Endeavour”, IN: *Forum Qualitative Social Research*, 2(1). Available at: <http://qualitative-research.net/fqs/fqs-eng.htm>. [Accessed on 27 December 2004]

Brofenbrenner U, 1943, “A Constant Frame of Reference for Sociometric Research:

-
- Part II. Experiments and Inference”, *Sociometry*, 7: 40-75.
- Brown JS and Duguid P, 2000, “Communities of Practice”. Available at http://www.innoversity.dk/communities_of_practice.htm. [Accessed on 14 May 2003]
- Brown JS and Gray ES, 1995, “People are the Company”, IN: *Fast Company*, No 1.
- Burdge RJ, 1983, “Making Leisure and Recreation Research a Scholarly Topic: Views of a Journal Editor, 1972-1982”, IN: *Leisure Sciences*, 6(1):99-126.
- Burdge RJ, Buchanan T and Christensen JE, 1981, A Critical Assessment of the State of Outdoor Recreation Research”, IN: Napier TL (Ed), *Outdoor Recreation Planning, Perspectives and Research*, Dubuque: Kendall-Hunt.
- Burnett G, Dickey H, Kazmer MM and Chudoba KM, 2003, “Inscription and Interpretation of Text: A Cultural Hermeneutic Examination of Virtual Community”, IN: *Information Research*, 9(1), Available at: <http://informationr.net/ir/9-1/paper162.html>. [Accessed on 25 June 2004]
- Burt RS, 1976, “Positions in Networks”, IN: *Social Forces*, 55: 93-112.
- Burt RS, 1982, *Towards a Structural Theory of Action: Network Models of Social Structure, Perceptions and Action*. New York: Academic Press.
- Cai Ruomei Feng LA and Breiter D, 2004, “Tourist Purchase Decision Involvement and Information Preferences “, IN: *Journal of Vacation Marketing*, 10(2):138-148.
- Cartwright D and Harary F, 1956, “Structural Balance: Generalization of Heider’s theory”, IN: *Psychological Review*. 63: 277-292.
- Castells M, 1996, *The Rise Of The Network Society: The Information Age: Economy, Society and Culture*, Vol 1, Oxford: Blackwell Publishers.
- Cheek NH (Jr), 1971, “Toward a Sociology of Not-work”, IN: *Pacific Sociological Review*, 14(3): 245-258.
- Chesher C, 1997, “The Ontology of Digital Domains”, IN: Holmes D (ed), 1997, *Virtual Politics: Identity and Community in Cyberspace*, London, Sage Publications.
- Costigan JT, 1999, “Introduction: Forests, Trees and Internet Research”, IN: Jones S (Ed), *Doing Internet Research: Critical Issues and Methods of Examining the Net*, London: Sage Publications.
- Crompton JL, 1981, “Dimensions of the Social Group Role in Pleasure Vacations”,
-

IN: *Annals of Tourism Research*, 8(4):550-568.

Dance FEX, 2003, "The Digital Divide", IN: Strate L, Jacobson RL and Gibson (eds), 2003, *Communication and Cybespace: Social Interaction in an Electronic Environment* (2nd ed), New Jersey: Hampton Press.

Davis JA, Holland PW and Leinhardt S, 1971, "Comments on Professor Mazur's Hypothesis about Interpersonal Sentiments", IN: *American Sociological Review*, 36: 309-311.

Dawson D, 1988, "Social Class in Leisure: Reproduction and Resistance", IN: *Leisure Sciences*, 19(3):193-202.

Degenne A and Forsé M, 1999, *Introducing Social Networks*, London: Sage Publications.

Durlauf SN, 2002, "On the Empirics of Social Capital". Draft Document. Available at: <http://econwpa.wustl.edu:80/eps/dev/papers/0409/0409060.pdf> [Accessed on 28 February 2005].

Emirbayer Mand Goodwin J, 1994, "Network Analysis, Culture and the Problem of Agency", IN: *American Journal of Sociology*, 99: 1411-1454.

Etzioni A and Etzioni O, 1999, "Face-to-face and Computer-Mediated Communities, a Comparative Analysis", IN: *The Information Society*, 15: 241-248

Field J, 2003, *Social Capital*, New York: Routledge.

Figallo C, 1998, *Hosting Web communities: Building Relationships, Increasing Customer Loyalty, and Maintaining a Competitive edge*, New York: John Wiley & Sons, Inc.

Floyd MF, 1998, "Getting Beyond Marginality and Ethnicity: The Challenge of Race and Ethnic Studies in Leisure Research", *Journal of Leisure Research*, 30(10).

Freeman LC, 1984, "Turning a Profit from Mathematics: The Case of Social Networks", IN: *Journal of Mathematical Sociology*, 10: 343-360.

Freeman LC, ca2001, "Visualizing Social Networks", Available at <http://moreno.ss.uci.edu/vis.html>. [Accessed on 12 March 2003]

Freeman LC, Freeman SC and Michaelson AG, 1989, "How humans see social groups: A test of the Sailer-Gaulin models", IN: *Journal of Quantitative Anthropology*,

1: 229-238.

Freeman LC, White DR and Romney AK (Eds), 1989, *Research Methods in Social Network Analysis*, Virginia: George Mason University Press.

Frew AJ, 2000, "Information and Communications Technology Research in the Travel and Tourism Domain: Perspective and Direction", IN: *Journal of Travel Research*, Vol. 39(2):136-145.

Gackenbach J (Ed), 1998, *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications*, San Diego: Academic Press.

Gackenbach J, Guthrie G and Karpen J, 1998, "The Coevolution of Technology and Consciousness", IN: Gackenbach J (Ed), *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications*, San Diego: Academic Press.

Galimberti C, Ignazi A, Vercesi P and Riva G, (2001), "Communication and Cooperation in Networked Environments: An Experimental Analysis", IN: *CyberPsychology and Behaviour*, 4(1).

Garton L, Haythornthwaite C and Wellman B ,1999, "Studying Online Networks", IN: Jones S (Ed), *Doing Internet Research: Critical Issues and Methods of Examining the Net*, London: Sage.

Gauntlett D, 2000, "Web Studies: A User's Guide", IN: Gauntlett D (ed), 2000, *Web.studies: Rewiring Media Studies for the Digital Age*, New York: Arnold Publishers.

Giddens A, 1990, *The Consequences of Modernity*, Stanford (California): Stanford University Press.

Giddens A, 1991, *Modernity and Self-identity: Self and the Society in Late Modern Age*, Cambridge: Polity.

Giddens A, 2001, *Sociology* (4th ed), Oxford: Polity.

Giese M, 2003, "From ARPAnet to the Internet: A Cultural Clash and its Implications in Framing the Debate on the Information Superhighway", IN: Strate L, Jacobson RL and Gibson S (eds), 2003, *Communication and Cyberspace: Social Interaction in an Electronic Environment* (2nd ed), New Jersey: Hampton Press.

Glaeser EL, 2001, "The Formation of Social Capital", *ISUMA: Canadian Journal of*

- Policy Research*, 2(1), Accessible at http://www.isuma.net/v02n01/glaeser/glaeser_e.shtml. [Accessed on 25 January 2005]
- Gould RV, 1993, "Collective Action and Network Structure", IN: *American Sociological Review*, 58: 182-196.
- Graburn NHH, 1989, "Tourism: The Sacred Journey", IN: Smith CL (ed), *Hosts and Guests: The Anthropology of Tourism*, Philadelphia: University of Pennsylvania Press.
- Graham IS, 1997, *HTML Sourcebook. A Complete Guide to HTML 3.2 and HTML Extensions* (3rd ed), New York: John Wiley and Sons.
- Granovetter MS, 1973, "The Strength of Weak Ties", IN: *American Journal of Sociology*, 78: 1360-1380.
- Greenblat CS and Gagnon JH, 1983, "Temporary Strangers: Travel and Tourism from a Sociological Perspective", IN: *Sociological Perspectives*, 26:89-110.
- Greenwood DJ, 1989, "Culture by the Pound: An Anthropological Perspective on Tourism as Cultural Commoditization", IN: Smith VL (ed), *Hosts and Guests: The Anthropology of Tourism*, Philadelphia: University of Pennsylvania Press.
- Hafner, 1997, "The Epic Saga of *The Well*: The World's Most Influential Online Community (and it's not AOL)" IN: *Wired*, Vol. 5.05: 98-142.
- Hall H, no date, "Borrowed Theory: Applying Exchange Theories in Information Science Research", Available at <http://www.soc.napier.ac.uk/publication/op/getpublication/publicationid/1813267>, [Accessed on 21 April 2004]
- Hampton and Wellman B, 2003, "Neighboring in Netville: How the Internet Supports Community and Social Capital in a Wired Suburb", IN: *City and Community*, 2(4): 277-311.
- Hampton KN, 2002, "Place-based and IT Mediated 'Community'", IN: *Planning Theory & Practice*, 3(2): 228-231.
- Hanneman RA, ca1999. *Introduction to Social Network Methods*, Available on UCINET Help.
-

- Harary F, 1953, "On the Notion of Balance of a Signed Graph", *Michigan Mathematical Journal*, 3: 37-41.
- Harary F, 1955, "On Local Balance and n -Balance in Signed Graphs", IN: *Michigan Mathematical Journal*, 3: 37-41.
- Harasim L (ed), ca1993, *Global Networks: Computers and International Communication*, Cambridge: MIT Press.
- Harries D (ed), 2002, *The New Media Book*, London: British Film Institute.
- Haythornthwaite C, 1996, "Social Network Analysis: an Approach and Technique for the Study of Information Exchange", IN: *Library and Information Science Research*, 18(4): 323-342.
- Haythornthwaite C, Wellman B and Garton L, 1998, "Work and Community via Computer-mediated Communication", IN: Gackenbach J (Ed), 1998, *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications*, San Diego: Academic Press.
- Heider F, 1946, "Attitudes and Cognitive Organisations", IN: *Journal of Psychology*, 21: 107-112.
- Heim M, 1993, *The Metaphysics of Virtual Reality*, New York: Oxford University Press.
- Hein C, 2000, *Virtual Ethnography*, London: Sage Publications.
- Hemingway JL, 2005, "Leisure, Social Capital, and Civic Competence: A Preliminary Statement", Abstract of a Paper to be Presented at the Preconference Symposium on Rethinking Leisure and Community Research: Critical Reflections and Future Agendas, Canadian Conference on Leisure Research, Naniamo, BC, May 17, 2005. Available at:
http://www.wiu.edu/users/jh108/PDF_Files/Publications/Hemingway__CCLR_2005.htm, [Accessed on 12 March 2005]
- Hiltz SR, 1984, *Online Communities: A Case Study of the Office of the Future*, Norwood: Ablex Publishing Corporation.
- Holland PW and Leinhardt S (ed), 1979, *Perspectives on Social Network Research*, New York: Academic Press.
-

- Hollard PW and Leinhardt S, 1981, "An Exponential family of probability distributions for directed graphs", IN: *Journal of American Statistical Association*. 76: 33-65.
- Holmes D, 1997, "Virtual Identity: Communities of Broadcast, Communities of Interactivity", IN: Holmes D (ed), 1997, *Virtual Politics: Identity and Community in Cyberspace*, London: Sage Publications.
- Homans G, 1958, "Social Behaviour as Exchange", IN: *American Journal of Sociology*, 62: 597-606.
- Homans G, 1986, "Fifty Years of Sociology", IN: *American Review of Sociology*, 12: xiii-xxx.
- Hutchison R, 1988, "A Critique of Race, Ethnicity, and Social Class in Recent Leisure-recreation Research", IN: *Journal of Leisure Research*, 20(1): 10-30.
- Iso-Ahola SE (ed), 1980, *The Social Psychology of Leisure and Recreation*, Springfield: Charles C Thomas Publishers.
- Jacobson D, 1999, "Impression Formation in Cyberspace: Online Expectations and Offline Experiences in Text-based Virtual Communities", IN: *Journal of Computer-Mediated Communication*, Available at <http://www.ascusc.org/jcmc/vol5/issue1/jacobson.html>, [Accessed on: 27 September 2003]
- Jones S (ed), 1999, *Doing Internet Research: Critical Issues and Methods of Examining the Net*, London: Sage Publications.
- Jones S, 1995, "Understanding Community in the Information Age", IN: Jones S (ed), *CyberSociety: Computer-Mediated Communication and Community*. London: Sage Publications.
- Katz L and Powell JH, 1955, "Measurement of the Tendency Towards Reciprocation of Choice", *Sociometry*. 18: 659-665.
- Kendall L, 1999, "Recontextualising 'Cyberspace': Methodological Considerations for On-line Research", IN: Jones S, 1999, *Doing Internet Research. Critical Issues and Methods for Examining the Net*, London: Sage Publications.
- Kiesler S (ed), 1997, "The Net as It Was and Might Become", IN: Kiesler S, 1997, *Culture of the Internet*, New Jersey: Lawrence Erlbaum Associates.
-

- Kiesler S (ed), 1997, *Culture of the internet*, New York: Lawrence Erlbaum Associates.
- Kiesler S, Siegel J and McGuire TW, 1984, "Social Psychological Aspects of Computer-mediated Communication", IN: *American Psychologist*, 39(10): 1123-1134.
- King and Moreggi, 1998, "Internet Therapy and Self-help Groups", IN: Gackenbach J (ed), 1998, *Psychology and the Internet. Intrapersonal, Interpersonal, and Transpersonal Implications*, London: Academic Press.
- Klov Dahl 1986, "VIEW-NET: A New Tool for Network Analysis", IN: *Social Network*, 8: 313-342.
- Knipscheer CPM and Antonucci TC (eds), *Social Network Research. Substantive Issues and Methodological Questions*, Amsterdam: Swets & Zeitlinger B.V.
- Knoke D and Kuklinski JH, ca1982, *Network Analysis*. Beverly Hills: Sage Publications.
- Lauman EO, Marsden and Prensky, 1989, IN: Freeman L, White DR and Romney AK (eds), *Research Methods in Social Network Analysis*, Fairfax (VA): George Mason University Press.
- Laumann EO and Knoke D, 1987, *The organisational state: social choice in national policy domains*, Madison: University of Wisconsin Press.
- Laumann EO and Pappi F, 1976, *Networks of Collective action: a perspective on community influence systems*. New York: Academic Press
- Lee RG, 1972, "The Social Definition of Outdoor Recreational Places", IN: Burch WR (Jr.), Cheek NHH (Jr.), and Taylor L (eds.), *Social Behaviour, Natural Resources and the Environment*, New York: Harper & Row.
- Leinhardt S (ed), 1977, *Social Networks: a Developing Paradigm*. New York: Academic Press.
- Levine JH, 1972, "The Sphere of Influence", IN: *American Sociological Review*, 37: 14-27.
- Lonelyplanet, <http://press.lonelyplanet.com/comp/hist.htm>. [Accessed on July 1 2001]
-

- Lorrain F and White HA, 1971, "Structural Equivalence of Individuals in Social Networks", IN: *Journal of Mathematical Sociology*, 1: 49-80.
- MacCannell D, 1976, *The Tourist: A New Theory of the Leisure Class*, New York: Schocken Books.
- Macy MW and Skvoretz J, 1998, "The Evolution of Trust and Cooperation Between Strangers: A Computational Model", IN: *American Sociological Review*, 63: 638-660.
- Marsden PV, 1990, "Network Data and Measurement", IN: *Annual Review of Sociology*, 16: 435-463.
- McGoodwin JR, 1986, "The tourism-impact Syndrome in Developing Coastal Communities: A Mexican Case", IN: *Coastal Zone Management Journal*, 14: 131-146.
- Mitra A and Cohen E, 1999, "Analysing the Web: Directions and Challenges", IN: Jones S, 1999, *Doing Internet Research: Critical Issues and Methods of Examining the Web*, London: Sage.
- Monge PR, no date, "Emergence of Communication Networks", Available at <http://www.tec.spcomm.uiuc.edu/nosh/HOCNets.html> [Accessed on 21 April 2004]
- Montovani g, 2001, "Psychological Construction of the Internet: From Information Foraging to Social Gathering to Cultural Mediation", IN: *CyberPsychology & Behaviour*, 4(1).
- Moreno JL and Jennigs HH, 1945, "Sociometric Measurement of Social Configurations, Based on Deviations from Chance", IN: *Sociometric Monographs*, No 3, New York: Beacon House.
- Mouton J and Marais HC, 1996, *Basic Concepts in the Methodology of the Social Sciences*, Pretoria: HSRC Publishers.
- Mouton J, 2001, *How to Succeed in Your Master's & Doctoral Studies. A South African Guide and Resource Book*, Pretoria: Van Schaik Publishers.
- Murdock SH, Backman K, Hoque MN and Ellis D, 1991, "The Implications of Change in Population Size and Composition on Future Participation in Outdoor Recreation Activities", IN: *Journal of Leisure Research*, 23(3): 238-259.
- Murphy L, 2001, "Exploring Social interactions of Backpackers", *Annals of Tourism*
-

Research, 28(1): 50-67.

Newcomb TM, 1953, "An Approach to the Study of Communicative Acts", IN: *Psychological Review*, 60: 393-404.

No Author, "Foreign and Commonwealth Office Travel", Available at: <http://www.fco.gov.uk/travel>. [Accessed on: 18 April 2004]

No Author, "Pausanias", Available at: <http://citd.scar.utoronto.ca/CITDPress/holtorf/7.16.html>. [Accessed on 10 January 2004]

No Author, "UCINET IV Dataset", Available at <http://vlado.fmf.uni-lj.si/pub/networks/data/UciNet/UciData.htm>, [Accessed on 12 February 2004]

No Author, "US State Department Travel Warnings", Available at: http://travel.state.gov/travel_warnings.html. [Accssed on 18 April 2004]

No Author, 6 May 2001, "Lonely Planet Online", Available at: <http://press.lonelyplanet.com/auth/auth.htm>. [Accessed on 25 February 2002]

Novak M, 1991, "Liquid architects in cyberspace", IN: Benedikt M, 1993 (Fifth print), *Cyberspace: First Steps*, London: The MIT Press.

Nunes M, 1997, "What Space is Cyberspace? The Internet and Virtuality", IN: Holmes D, 1997, *Virtual Politics: Identity and Community in Cyberspace*, London: SAGE Publications.

Ostwald MJ, 1997, "Virtual Urban Futures", IN: Holmes D, 1997, *Virtual Politics: Identity and Community in Cyberspace*, London: SAGE Publications.

Pew Internet & American Life Project, 2002, "Holidays online – 2002 Email grows as a Seasonal Fixture and e-Shopping Advances", Available at: <http://www.pewinternet.org>. [Accessed on 28 February 2005]

Pew Internet & American Life Project, 2004, "Trends 2005: Internet The Mainstreaming of Online Life", Available at: <http://www.pewinternet.org>. [Accessed on 28 February 2005]

Poon A, 1993, *Tourism, Technology and Competitive Strategies*, Wallingford: CAB International.

Poster M, 2003, "The Good, the Bad and the Virtual: Ethics in the Age of Information", IN: Liestøl G, Morrison A and Rasmussen T, 2003, *Digital Media*

- Revisited: Theoretical and Conceptual Innovations in Digital Domains*, London: The MIT Press.
- Pretzler M, 2004, "Turning travel into text: Pausanias at work", IN: *Greece and Rome*, 51(2):199-216.
- Pyo S and Chang UHM, 2002, "Knowledge Discovery in Database for Tourist Destinations", IN: *Journal of Travel Research*, Vol. 40(4):396-403.
- Rasmussen T, 2003, "On Distributed Society: The Internet as a Guide to a Sociological Understanding of Communication", IN: LiestØI G, Morrison A and Rasmussen T, 2003, *Digital Media Revisited: Theoretical and conceptual innovations in digital domains*, London: The MIT Press.
- Reid E, 1998, "The Self and the Internet: Variations on the Illusion of One Self", IN: Gackenbach J (Ed), 1998, *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications*, San Diego: Academic Press.
- Reinhard JC, 1994, *Introduction to Communication Research*, Madison: WCB Brown and Benchmark.
- Rheingold H, 2000, *The Virtual Community: Homesteading on the Electronic Frontier* (Revised Ed), Michigan: MIT Press.
- Rice RE and Rogers EM, 1984, "New Methods and Data for the Study of New Media" IN: RE Rice (Ed), 1984, *The New Media, Communication, Research and Technology*, Beverly Hills: Sage Publications.
- Rice RE, 1989, "Issues and Concepts in Research on Computer-mediated Communication Systems", IN: *Communication Yearbook*, 12.
- Rice RE, 1994 "Network analysis and Computer-Mediated Communication Systems", IN: Wasserman S and Galaskiewicz J, *Advances in Social Network Analysis: Research in the Social and Behavioural Sciences*, Thousand Oaks (Calif): Sage Publication.
- Ridings CM and Gefen D, 2004, "Virtual Community Attraction: Why People Hang Out Online", IN: *Journal of Computer-mediated Communication*, 10(1). Available at: http://jcmc.indiana.edu/vol10/issue1/ridings_gefen.html. [Accessed on: 10 January 2005]
-

- Ritzer G, 2000, *Sociological Theory* (5th ed), New York: McGraw-Hill.
- Romney AK and Faust K, 1982, "Predicting the Structure of a Communications Network from Recalled Data", IN: *Social Networks*, 4: 285-304.
- Ryan M (Ed), 1999, *Cyberspace Textuality: Computer Technology and Literary Theory*, Indianapolis: Indiana University Press.
- Sandbothe M, "Media Temporalities in the Internet: Philosophy of Time and Media with Derrida and Rorty", Available at <http://www.uni-jena.de/ms/mt.html>. [Accessed on 29 September 2002]
- Schaefer RT and Lamm RP, 1998, *Sociology: An Annotated Instructor's Edition* (6th ed), New York: McGraw-Hill.
- Schuller T, 2001, "The Complementary Roles of Human and Social Capital", IN: *ISUMA: Canadian Journal of Policy Research*, 2(1), Accessible at http://www.isuma.net/v02n01/schuller/schuller_e.pdf. [Accessed on 28 January 2005]
- Schultze U and Orlikowski WJ, 2001, "Metaphors of Virtuality: Shaping an Emergent Reality", IN: *Information and Organization*, 11: 45-77.
- Scott J, 1991, *Social Network Analysis: A Handbook*, California: Sage Publications.
- Sharma P and Carson D, 2001, "Online Opportunities and Challenges for Indigenous Cultural Tourism in Australia", IN: *Information Technology and Tourism*, 4(2):77-90, Available at: <http://www.ingentaconnect.com/content/cog/itt/2001/000000004/00000002/itt68>
- Shaw D, 1997, "Gay Men and Computer Communication: A Discourse of Sex and Identity", IN: Jones S (ed.), *Virtual Culture: Identity and Communication in Cybersociety*, London: Sage Publication.
- Sheldon, 1997, *Tourism Information Technology*, New York: Cab International.
- Shibutani T, 1986, *Social Processes: an Introduction to Sociology*, Berkeley: University Of California Press.
- Silver D, 2000, "Looking Backwards, Looking Forward: Cyberculture Studies 1990-2000", IN: Gauntlett D (ed), *Web.studies: Rewiring Media Studies for the Digital Age*, Oxford: Oxford University Press.
-

- Silver D, 2004, "Internet/cyberculture/digital culture/new media/ fill-in-the-blank Studies", IN: *New Media & Society*, 6(1): 55-64.
- Slevin J, 2000, *The Internet and Society*, Malden: Blackwell Publishing.
- Smith CW, 1979, *A Critique in Sociological Reasoning: An Essay in Philosophical Sociology*, Oxford: Blackwell.
- Smith M and Kollock P (Eds), 1999, *Communities in Cyberspace*, Padstow: Routledge.
- Smith MA, 1999, "Invisible Crowds in Cyberspace: Mapping the Social Structure of the Usenet", IN: Smith MA (Ed), 1999, *Communities in Cyberspace*, New York: Routledge.
- Smith VL, 1989, *Hosts and Guests: the Anthropology of Tourism*, Philadelphia, University of Pennsylvania Press.
- Sproull L and Faraj S, 1997, "Atheism, Sex, and Databases: The Net as Social Technology", IN: Kiesler S, *Culture of the Internet*, New Jersey : Lawrence Erlbaum Associates.
- Stamps D, 2000, "Communities of Practice: Learning is Social. Training is Irrelevant", IN: Lesser EL, Fontaine MA and Slusher JA (eds), *Knowledge and Communities*, Boston: Butterworth Heineman.
- Stewart WP and Hull RB, 1996, "Capturing the Moments: Concerns of *in situ* Leisure Research", *Journal of Travel and Tourism Marketing*, 5(1/2), pp. 3-20.
- Stokowski PA, 1988, *A Revised Sociology of Leisure: the Social Relationships of Network Structures of Leisure Behaviours*, DPhil, University of Washington.
- Stokowski PA, 1990, "Extending the Social Groups Model: Social Network Analysis in Recreation Research", IN: *Leisure Sciences*, Vol. 12: 251-263.
- Stokowski PA, 1994, *Leisure in Society: A Network Structural Perspective*, London: Mansell.
- Stolterman E, Ågren P, Croon A, ca 2002, "Virtual Communities – Why and How are they Studied". Available at: <http://www.informatik.umu.se/nlrg/whyhow.pdf>. [Accessed on: 24 June 2004].
- Strate L, Jacobson RI and Gibson S (ed), 2003, *Communication and Cyberspace:*
-

- Social Interaction in an Electronic Environment* (2nd ed), Cresskill: Hampton Press.
- Talamo A and Ligorio B, 2001, "Strategic Identities in Cyberspace", IN: *CyberPsychology & Behaviour*, 4(1): 109-122.
- Thompson PA, 2003, "What's Fuelling the Flames in Cyberspace? A Social Influence Model", IN: Strate L, Jacobson RL and Gibson (eds), 2003, *Communication and Cyberspace: Social Interaction in an Electronic Environment* (2nd ed), New Jersey: Hampton Press.
- Turner JH, 1982, *The Structure of Sociological Theory*, Homewood: Dorsey Press.
- Urry J, 1990, *The Tourist Gaze: Leisure and Travel in Contemporary Societies*, Newbury Park: Sage Publications.
- Urry J, 2003, Social Networks, Travel and Talk, IN: *British Journal of Sociology*, 54(2):155-175.
- Vince J, 2001 (3rd ed), *Essential Virtual Reality Fast: How to Understand the Techniques and Potential of Virtual Reality (Essential Series)* London: Springer-Verlag.
- Vogt CA, 1998, "Affective and Cognitive Effects of Information Use Over the Course of a Vacation", IN: *Journal of Leisure Research*, 30(4): 498-520.
- Wang Y and Fesenmaier DR, 2004, "Modelling Participation in an Online Travel Community", IN: *Journal of Travel Research*, 42:261-270.
- Warde A and Tampubolon G, April 2001, *Social Capital, Networks and Leisure Consumption*, CRIC Discussion Paper No 42, University of Manchester and UMIST. Available at <http://les1.man.ac.uk/cric/papers.htm>. [Accessed on: 28 January 2005]
- Wasserman S and Faust K, 1994, *Social Network Analysis: Methods and Applications, Structural Analysis in the Social Sciences*, Cambridge: Cambridge University Press.
- Wellman B and Berkowitz SD (eds), 1988, *Structural Analysis of the Social Sciences. Social Structures: A Network Approach*, New York: Cambridge University Press.
- Wellman B, 1997, "An Electronic Group is Virtually a Social Network", IN Kiesler S,
-

- 1997, *Culture on the Internet*, Mahwah: Lawrence Erlbaum Associates.
- Wenger E, 1998, *Communities of Practice: Learning, Meaning, and Identity*, Cambridge: Cambridge University Press.
- Wenger E, 2000, "Communities of Practice: the Key to Knowledge Strategy", IN: Lesser EL, Fontaine MA and Slusher JA (eds), *Knowledge and Communities*, Boston: Butterworth Heineman.
- Wenger E, McDermott R and Snyder WM, ca2002, *Cultivating Communities of Practice: a Guide to Managing Knowledge*, Boston: Harvard Business School Press.
- West PC, 1982, "A Nationwide Test of the Status Group Dynamics Approach to Outdoor Recreation Demand", IN: *Leisure Sciences*, 5(1): 1-18.
- West PC, 1984, "Status differences and Interpersonal Influence in the Adoption of Outdoor Recreation Activities", IN: *Journal of Leisure Research*, 16(4): 350-354.
- Willson M, 1997, "Community in the Abstract: A Political and Ethical Dilemma?", IN: Holmes D, 1997, *Virtual Politics: Identity and Community in Cyberspace*, London: Sage Publication.
- Woelfel J, Fink EL, Serota GA, Barnett GA, Holmes R, Cody M, Saltiel J, Marlier M and Gillham JR, 1977, *GALILEO: A Program for Metric Multidimensional Scaling*, Honolulu: East-West Communication Institute.
-