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Networks and roles of Pro-Vice Chancellors: a study of the connectedness of PVCs in the 1994 group of universities

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Networks and Roles of Pro-Vice Chancellors: A study of the connectedness of PVCs in the 1994 Group of Universities.

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Summary

Faced with a turbulent higher education environment senior management teams in universities seek to secure the future of their university by accessing as much information about the environment as possible, often through networks. Pro-Vice Chancellors (PVCs) are members of these teams, normally with significant responsibility for activities that are integral to the university, but very little is known about their role and the importance that connections to others might play in it. Taking a social network perspective, this thesis investigates this gap using a two stage research design. First an electronically distributed questionnaire was used to determine the connectivity between PVCs either with responsibility for research or with responsibility for teaching from the original 16 UK universities of the 1994 Group. Secondly, semi-structured interviews were conducted with eight PVCs from four of these universities, to examine similarities and differences in the roles of different PVCs and the importance of connectivity for them. Network maps showed that research PVCs were cohesively linked; most were connected to at least two others, and often to many more. Conversely, PVCs with responsibility for teaching were almost wholly unconnected. Connections to other PVCs served three purposes. Occasionally they were important for personal development, otherwise they either enabled PVCs to perform her/his duties by providing information, or enhanced the performance of the university by allowing access to additional resources. It is concluded that PVCs play a boundary spanning role both internally and externally to the University. Moreover, enduring connections to other PVCs formed where opportunities existed to pursue additional resources collaboratively or when it was necessary to lobby government to protect the existing resource base from others. It was argued that these circumstances commonly occurred in the research environment but not in the teaching environment and so the observed pattern of connectivity amongst PVCs was explained.

List of Abbreviations

ACU – Association of Commonwealth Universities

BBSRC – Biotechnology and Biological Sciences Research Council

CEO – Chief Executive Officer

CETLS – Centres for Excellence in Teaching and Learning

EUA – European Universities Association

FE – Further Education [College]

FEC – Full Economic Costing

GWR – Great Western Research

HE – Higher Education

HEA – Higher Education Academy

HEI – Higher Education Institution

HEFCE – Higher Education Funding Council for England

ICT – Information Communications Technology

MRC – Medical Research Council

NERC – Natural and Environmental Research Council

NSS – National Student Survey

QAA – Quality Assurance Agency

PVC – Pro-Vice Chancellor

PVC – R – Pro-Vice Chancellor Research

PVC – T – Pro-Vice Chancellor Teaching

PVCs – Pro-Vice Chancellors

RAE – Research Assessment Exercise

RCUK – Research Councils UK

RDA – Regional Development Agency

R&D – Research and Development

SFC – The Scottish Further and Higher Education Funding Council

T&L – Teaching and Learning

TMP – Top Management Programme (of the Leadership Foundation for Higher Education)

TRAC(T) – Transparent Approach to Costing for Teaching

UK – United Kingdom

WUN – Worldwide Universities Network

Chapter 1 – Introduction

1.1 Social networks in the HE sector

Social networks have always been important and characteristic features of the academic landscape. Scholars in Medieval Europe travelled between universities in the pursuit of knowledge and learning. Today, individual academics collaborate with others in their own institution on research projects of increasing complexity, but increasingly this collaboration is with others in different institutions, sometimes in other countries. Similarly, individual academics share with others ideas and best practices for teaching. However, the most obvious example of the interconnectedness of individual members of academic staff from different institutions is the academic conference, where new ideas, views and opinions are shared freely, and new contacts established. Attendance at these conferences is perceived to be an integral part of an individual academic's role. Indeed, academics might be described as natural networkers, seeking a variety of resources from a range of other stakeholders in order to discharge their professional duties, and reaching across institutional and national boundaries in the pursuit of truth.

Links between individuals in universities are increasingly replicated at an organizational level, with a single university establishing multiple bilateral arrangements with other universities around the globe. This too is not a new phenomenon. For many years universities have entered formally into partnerships and larger collective groupings. As an example, The Association of Commonwealth Universities (ACU) was formally established in 1913, but its inception predates this by at least 10 years (Kirkland, 2004), and while for many years membership of the ACU was less than 100 universities, its membership now exceeds 500. Three enduring themes continue to bind these universities together in an association, and to attract others to join them. The first is the mobility of people, which permits individual professional development and more generally encourages cross-cultural understanding. The second is the collection and sharing of information, and the third is the search for the best ways to interact with and respond to the external world. Although membership of the ACU is diverse, member universities seek to use this diversity to create alternative perspectives for addressing

these three themes. More often, however, groupings of universities are built around similarity, so that common and shared perspectives help individual institutions to address these themes, and other emergent issues.

Nevertheless, these linkages are not unproblematic. At an organizational level, universities compete with each other for resources (*e.g.* funding and students), and this sets a limit on the extent of information sharing. So cooperation sits in an uneasy tension with competition at an organizational level. This also applies at an individual level. Individuals cooperate with one another, but also compete for funding and for space in academic journals. Social networks which link individuals and organizations may not only facilitate the pursuit of personal or organizational goals, they may also limit the pursuit of other objectives because the particular pattern of connections may prohibit some activities and preclude access to required resources.

Formerly, social networks were predicated on face-to-face contact. Now advances in information communications technology (ICT) allow individuals to interact across space without such physical contact. This permits easier collaboration across institutions and even nations. The Worldwide Universities Network (WUN), which consists of universities in the UK such as Bristol, Leeds, Sheffield, Southampton and York, as well as others in the USA, China, Canada, Australia and Europe, is an example of a partnership of universities made possible through high speed computing networks. These linkages, facilitated by ICT developments, obviously permit research collaboration, but they also allow shared teaching between institutions, so that teaching quality may be enhanced, while simultaneously achieving economies of scale and scope. While advances in technology enable institutions and individuals to access effectively new and different networks in the pursuit of their objectives, the characteristics of these networks, the nature of the communication processes within them and their implications for individuals and organizational identities are not clear. Moreover, it is not clear that the governance mechanisms that pertain to social networks in physical space also operate in cyber-space. The challenges of ICT to the social networks within the Higher Education (HE) sector are evident.

1.2 Changes in the Higher Education environment

The external environment in which universities are found has altered dramatically in the last 30 years or so, and continues to change (Teather, 2004). One of the more profound changes has been the move from an elite to a mass education system, particularly in the UK. In England in 1962 only 6% of those under 21 went to university, by the millennium 43% of those aged between 18 and 30 went to university (DfES, 2003). Massification has meant a greater diversity of students, in terms of age profile, prior experience and current expectations, which has required different modes of course delivery as universities accommodate the changing needs of the student population.

Greater student numbers has inevitably increased the total cost of Higher Education to the UK Government in an unsustainable manner, so that the unit of resource has declined (Shattock, 1999). In the UK funding per student fell by 36% between 1989 and 1997 (DfES, 2003). As a consequence, universities have been obliged to diversify their activities in order to generate income from other, so called "third stream" sources, so that their core activities may be sustained (Clark, 1998).

Concurrent with massification has been a gradual loss by universities of their autonomy. Governments of developed countries increasingly expect universities to play a vital role in stimulating and maintaining the economic development of regions and nations. This is to be achieved through the research that they conduct and the innovative products and practices that this research spawns. In Europe, the declaration of the European Council in Lisbon committed European nations to becoming the most competitive and dynamic knowledge-based economy in the world by 2010. Universities are seen as key contributors to the fulfilment of this vision through their research and teaching functions (CEC, 2003; CEC, 2005). In addition to this economic function, universities are also expected to play a significant role in supporting cultural development and engendering social cohesion through respect for different ideas (DfES, 2003). Universities have become instruments for delivering Government policy.

Globalization, too, has significantly altered the environment for universities in two important, yet distinct, ways. Advances in technology ensure that myriad diverse sources of information are immediately available. This accessibility begets the awareness of, and demand for, greater interconnectivity. So, actions of individuals and

organizations are increasingly interconnected. In addition to reducing the perceived physical scale and scope of the planet, globalization also has economic and political dimensions (Teather, 2004). Commonly, globalization refers to the free flow of goods and services in a global economy. In a higher education context this may refer to the free movement of students across national borders to pursue academic studies in other countries, where they perceive that they get better value for money (Anon., 2005). Universities are increasingly competing with other universities, often from different countries, for students in a global market place. This marketization of higher education is further encouraged in the UK by the ability to charge tuition fees, not only to UK students (which is capped currently at £3k), but also to overseas students at rates which are often substantially higher than the fees payable by students from EU countries.

Faced with such multiple, and often conflicting, objectives, in an environment which is increasingly competitive, volatile and uncertain, individual university leaders seek to secure the future of their institutions by accessing as much information about their environment as possible. This is done most easily and effectively through interaction with peers from other universities, often via formal and informal networks of different sizes and which serve different purposes.

1.3 UK policy environment and networks of universities

Although political, economic, social and cultural forces are encouraging the formation of networks between UK universities in some general and unspecified way, UK government and its agents are quite specific in their demands for greater connectivity between institutions to deliver particular outcomes.

The Government White Paper (DfES, 2003), "The Future of Higher Education", reinforced the notion that universities were agents of economic and social change, and clearly stipulated that collaboration between universities was essential for further improvements in research productivity and performance, and for developments in teaching to satisfy the skills requirements of industry. Research collaboration was to be actively pursued so that resources could be concentrated, and the benefits of the economies of scale and scope could be realised. The nature of the collaboration was not

specified, although regional partnerships such as the White Rose Consortium (comprising the universities of Leeds, Sheffield and York) were recognized as being especially successful. In contrast to research collaboration, 'there is too little collaboration between higher education institutions which can raise standards [of teaching and learning], support the development of modules and courses particularly at the introductory level; and promote the innovative use of ICT and credit accumulation and transfer (para. 1.19)'. Clearly, collaboration was perceived by UK Government to enhance teaching and learning, particularly for those pursuing vocational studies, or who wish to study part time or locally. 'We believe that structured partnerships between colleges and universities will be the primary vehicles to meet the aims and will deliver the best benefit for learners (para. 5.21)'. The White Paper concluded by encouraging institutions to adopt different missions so that they might collaborate and not compete. Unfortunately some missions are more financially viable or prestigious than others, making them instantly more attractive.

Collaboration has not, however, been restricted to other universities in the UK. In a discussion paper of the UK Government's "Science and Innovation Investment Framework 2004-2014" (HM Treasury, 2006), the Government was keen to encourage universities to engage with other stakeholders (including business and research organizations) to accelerate the knowledge transfer process through Knowledge Transfer Networks. It also acknowledged the need for UK universities to collaborate internationally with other world-class universities, particularly in China and India but in the USA also, and provided funding to do so. One example is the consortium of universities (Bath, Bristol, Southampton and Surrey) working with the University of California in a number of areas including wireless technology, life sciences, the environment and advanced materials.

Clearly, UK Government is keen for universities to engage with each other at an institutional level. Perhaps it is not surprising then that the Higher Education Funding Council for England (HEFCE) reflects these priorities in its strategic plan for Higher Education in England to 2011 (HEFCE, 2007). In contributing to the economy and society generally, 'universities and colleges have a growing part to play through local, regional, national and global partnerships, sharing expertise and facilities to support

regeneration and growth (para. 14)'. As part of the core strategic aim to enhance excellence in learning and teaching, the Higher Education Academy (HEA) is working with the 74 HEFCE funded Centres for Excellence in Teaching and Learning (CETL) to 'foster networks for sharing good practice, supporting each centre in disseminating knowledge and skills within and beyond their institution (para. 55)'. Likewise, in the core strategic aim to enhance excellence in research, HEFCE 'will support Higher Education Institutions (HEI's) in developing strategic research collaborations to consolidate and strengthen existing research activity, or to secure important developments which may be beyond the capacity of a single institution (para. 118)'. Similarly, in enhancing the contribution of Higher Education to the economy and society, a third core aim, HEFCE views collaboration as 'an intrinsic feature of third stream activity', noting that 'partnerships between the higher and further education sectors will be particularly important (para. 142)'. Inevitably, funding priorities will reflect these strategic aims, and so UK universities will need to collaborate and to establish partnerships with each other in a wide range of activities if they are to access funds.

Research Councils UK (RCUK), which itself is a strategic partnership of the eight UK research councils, identified in its "Synthesis of Strategies" (RCUK, 2003) that development of research excellence may require collaboration with other countries, and that the research councils collectively must create environments in which researchers from different disciplines can be brought together to tackle transdisciplinary problems. More explicitly in helping to maximize research output, RCUK will encourage 'more effective networking and collaboration between teams' (*ibid.* pg. 15). In a similar vein the EU's 6th Framework Programme introduced two new instruments, "Networks of Excellence" and "Integrated Programmes" (CEC, 2002). Both of these funding mechanisms are predicated upon collaboration between institutions. Clearly, in order to pursue research funding, universities increasingly will need to collaborate. In a survey of the processes for developing and implementing research strategies in 10 European Universities on behalf of the European Universities Association (EUA), Reichert (2006) showed that research strategies were developed to access external and additional sources of funding, and that the formation of larger groupings of researchers across disciplinary,

departmental and even institutional boundaries was necessary to gain critical mass and visibility, thereby enhancing the prospects of successful funding applications.

1.4 Thesis Outline

Teaching and research, the traditional activities of a university within the UK, have been underpinned by the sharing of ideas and information between individual academics through their own personal networks, which often span institutional boundaries and, increasingly, national ones too. More significantly, individual universities within the UK are obliged to collaborate with other universities both within the UK and internationally in order to fulfil the strategic missions of the different sponsors, as they reflect current national and international political agendas. Keeping abreast of policy developments, and more especially understanding the implications of any changes, encourages those with leadership responsibilities in universities to share information with their peers. Moreover, responsibility for organizational level partnerships between universities will lie with members of the senior management team of the universities involved. Networks thus seem to be increasingly important for fulfilling the more senior managerial roles within a university. Some of these networks between senior management teams of different universities may arise through personal contacts because the individuals involved also happen to be part of the senior management teams of different universities. However, other networks arise through formal arrangements, so that several similar institutions agree to form a network. The Russell Group is perhaps the most prominent such grouping of universities in the UK. How institutional membership of such formal networks of universities affects the behaviour of an individual senior manager in a particular university is not known. In other words we do not know whether, and how much, members of senior management teams use these formal contacts, as opposed to their own informal network of contacts, to inform their own practices in their organization. Therefore, the primary research question investigated in this study is, "How, and in what ways, is the role of a Pro-Vice Chancellor (PVC) influenced by the existence of a network of other PVCs ?" A fuller

justification for this, and the subsidiary questions, is provided by the literature review in chapter 2.

The foregoing discussion also suggests that the drivers for establishing formal partnerships between universities, and the attendant funding mechanisms that stimulate and support them, may differ between research and teaching related activities. Funding streams to support collaborative research activity seem to be better established than funding streams to support collaboration over teaching, suggesting that networks for research-related activities might be better developed than those for teaching-related activities. However, competition between universities is now perhaps more intense for attracting high quality students and so networks which facilitate the enhancement of teaching-related activities, thus permitting universities to recruit more high calibre students, must be of great value to the particular institution. So, considerable energy may be expended to access as much information as possible about the student market, and the current requirements of students. Extensive networks may be needed to achieve this. Regardless of function, accessing reliable up-to-date information is crucial to sound decision-making by any university and must be a priority for members of its senior management team. Networks appear to be critical for this.

1.5 Structure of Thesis

Chapter 2 sets out the literature on networks, role theory, social capital and social exchange theory that underpins this study. Individuals are situated in a social structure or network, which provides access to resources, including information. This structure may also influence the role that an individual plays in an organization. Social capital and social exchange theory suggest mechanisms to explain how exchanges occur within the network. The chapter concludes by presenting the research questions.

Chapter 3 describes the realist perspective adopted in this study, and explains how it has been operationalized through a two stage research design. The first stage used social network analysis to describe and analyse the network of contacts between individual PVCs in the 1994 Group of universities. Some of whom were then

interviewed, in a second stage, to explore the role, the purpose of connections for fulfilling the role and how these purposes varied between PVCs with different briefs.

Chapter 4 sets out the results of the social network analysis. It demonstrates a clear difference between the network of PVCs with responsibility for research (PVCs-R) and those with responsibility for teaching and learning (PVCs-T).

Chapter 5 describes the results of the interviews. It investigates the perception of role, the nature and relative importance of teaching and research in a university, and considers the importance of connectivity to others for the PVCs with responsibility either for teaching or research.

Chapter 6 discusses the results. The perceived role activities are aligned to known categories of managerial role. The basis of exchange between PVCs within the network is considered, and mechanisms based on social capital are used to explain the interactions. An explanation for the observed differences in network connectivity between PVCs with responsibility for research and those with responsibility for teaching is provided. It is suggested that individual PVCs use the social capital of the institution, and imbued in their position, to protect and augment the resource base of the institution by engaging in partnerships with other institutions where appropriate. Some of the limitations of the study are also explored.

In chapter 7 the conclusions of the study are presented, and some of the implications for practice that arise from the findings are discussed.

2   Chapter 2 – Literature Review

2.1   Opening remarks

A basic premise of this study is that individuals find themselves within a social structure which influences and impacts their actions and behaviours, and which they also affect by their own actions and behaviours. Interactions between individuals are therefore set within a network of personal contacts. For some authors this network provides both a resource and a context within which exchanges between individuals occur. Individuals may draw on the experience of others, and upon the skills and experiences held by contacts of these others. Particular networks clearly hold more of this social capital than others, and may therefore be of more value to network members, both individually and collectively.

Formal linkages between organizations may have considerable utility for, and impact upon, those in senior positions. Here I consider their influence on the role of the Pro-Vice Chancellor (PVC) of a university, and how and why social exchange might occur between those members of the senior management teams of UK universities. Specifically, the primary research question is, "How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs?".

Consequently, this study requires an exposition of four areas of literature which seem to illuminate these issues. These are networks, role theory (including a consideration of the role of the PVC in UK universities), social capital, and social exchange theory. Each of these will be examined in turn.

2.2   Networks

The study of inter-organizational networks is a diverse field of enquiry (Oliver and Ebers, 1998) addressing a variety of questions from a range of different theoretical perspectives, including resource dependence and network theory, with both longitudinal and cross-sectional data collection methods. This diversity, with the attendant complexities of comparison and interpretation, has two causes.

First, network studies span a number of different levels of analysis ranging from the individual, through the unit, to the organization (Brass *et al.* 2004), although all are fundamentally dyadic (Borgatti and Foster, 2003). At the micro-level (or individual) the focus is on the network of contacts of a single individual and such studies often ignore the constraints on the individual arising from their embeddedness in a wider social context. These studies adopt an agentic approach exploring the opportunities available to an individual through their choice of personal ties (Borgatti and Foster, 2003). Conversely, at the macro-level, which tends to examine the structure of the network, the role of the individual is largely overlooked. These studies are essentially structuralist and examine how the wider context constrains (or liberates) individual behaviour. Ibarra *et al.* (2005) argue persuasively that it is important to link the individual to the collective not least because the micro and macro levels interact to influence the construction of an individual's identity and also to influence the individual's perception of the network. Individuals are socialized into a group as a result of their interaction with others, but the group they are socialized into is influenced by their individual choice. Similarly, the position of individuals in a network will influence their perception of that network, but based on their perception of the wider network, individuals will alter their connections and so affect network structures.

Second, networks can be considered to be either dependent or independent variables (Borgatti and Foster, 2003). A network may be either an outcome (*i.e.* a result) of other actions, or an input, or antecedent, to other activities. Studies which view networks as an antecedent are consistent with the structuralist approach, where the existence of a network defines an actor's environment and her/his opportunity set. Such studies, which form the bulk of network research (Borgatti and Foster, 2003) focus on the consequences of pre-existing networks. The alternative position is to explore the causes of network structures, and this draws heavily on personal attributes to explain connectivity between individuals.

Achieving an overview of this diverse field in order to identify key research questions is not a simple task. Nevertheless in a review Berry *et al.* (2004) charted the origins of network research in three of the more important streams of literature (sociology, political science and public administration). In showing the similarities and

differences between these streams they articulated five key questions for network research:

      i.   How do networks develop and change ?

      ii.   What are the consequences of networks ?

      iii.   What impact do networks have ?, and how are they used ?

      iv.   Are networks managed and how do we better understand the multiple roles of network members ? and

      v.   How do networks shape behaviour and performance ?

Although distinct, these questions are not unrelated to each other, and so this particular study will inevitably touch a number of these questions even though its primary focus is more restricted. Before explaining the relevance of networks to this investigation, it is necessary to define networks and identify their purposes, before discussing in greater detail the consequences and causes of networks.

2.2.1 Definition and purpose of networks

At its simplest, a network is a 'set of nodes and relationships which connect them' (Grandori and Soda, 1995, pg. 184). Similarly, Brass *et al.* define a network as 'a set of nodes and the set of ties representing some relationship, or lack of relationship, between nodes' (Brass *et al.,* 2004, pg. 795). Focussing wholly on inter-organizational relationships, Oliver defines a network as 'the relatively enduring transactions, flows and linkages that occur among or between an organization and one or more organizations in its environment' (Oliver, 1990, pg. 241). All of these definitions emphasize the relatedness between two actors, suggesting that the tie between the actors has some beneficial purpose, acting as a conduit for an exchange between the two actors.

The nature of the ties can be classified in one of four different ways. Ties serve expressive, instrumental, cognitive or objective purposes (Fombrun, 1982) in which affect, power, information or goods are exchanged between the parties in the relationship. In a similar typology of purposes for ties, Brass *et al*. (2004) substitute influence for power and combine services with goods. Others (*e.g.* Balkundi and Harrison, 2006) note that the ties between actors may serve either expressive or

instrumental purposes. This is more easily observed at an individual level of analysis than at higher levels. Individuals may share friendship ties, but may also seek advice (information) from others. Organizations may exchange information or goods/services, so displaying instrumental links, but it is less clear how they use expressive ties, *i.e.* how they exchange affect. However, organizations are connected to each other through individuals. As Hanf and O'Toole (1992) observe, the pattern of interaction of individuals is key to investigating and understanding inter-organizational action, and so it may not be necessary to attribute expressive ties to the organizational level of analysis. In contrast, the exchange of goods and services is more commonly investigated at the level of the organization, as for example in research on supply chains, than at the level of the individual. Most research at the level of the individual seems to explore the flow of information (*e.g.* Borgatti and Cross, 2003; Obstfeld, 2005) or influence (*e.g.* Brass, 1984; Krackhardt, 1990; Ibarra and Andrews, 1993).

2.2.2 Consequences of networks

According to Granovetter 'how behaviour and institutions are affected by social relations is one of the classic questions of social theory' (Granovetter, 1985, pg. 481). Networks as noted above presume that nodes (individuals or organizations) are tied to others in a structure (*i.e.* they are socially embedded), and this has consequences not only for the actions and behaviours of individual nodes within that structure, but also for the performance of the network as a whole. This is reminiscent of the structuralist argument alluded to by Borgatti and Foster (2003). At this point it is worth noting that Gulati *et al*. (2000) have identified four different forms of embeddedness, namely structural, cognitive, institutional and cultural. Each of them creates opportunities for or constrains the behaviour of the embedded nodes, but in different ways. Structural embeddedness relates to the different positional relationships between nodes and will be discussed more fully below. The other three forms of embeddedness relate respectively to the way perceptions, behavioural norms and values influence the behaviour of individual actors in a network. Before exploring how different structures affect exchange

processes, it is important to discuss some of the significant elements of network structure.

2.2.2.1   Network structures

Networks are composed of nodes tied to other nodes, in a relational structure. The scope of a network is often difficult to define because one node connects to another which connects to another, and so on, often in a seemingly endless manner. Nevertheless, limits (albeit arbitrary ones, *e.g.* Marsden, 1990) can often be placed on the extent of the network and this permits the investigation of network effects. Within the delimited network each node is connected to other nodes, but perhaps not to all nodes. The extent of connectivity between nodes determines the density of the network. As the connectivity increases so the density and also the cohesiveness of the network increase. Within this inter-linked network structure, some nodes will occupy a peripheral position attached to few others, while other nodes will occupy a more central position connected to many nodes. Measures of centrality (degree and betweenness) capture the positional relationships between nodes within the same network. Formally, social network analysis examines the degree of similarity in the social position of these nodes relative to others. If two nodes have identical ties to and from all other nodes in the network, then they are structurally equivalent (Wasserman and Faust, 1994).

The network may also contain pockets in which the nodes are extensively inter-linked to form a cohesive sub-structure, or clique, and pockets where there is limited (or no) inter-connectivity. The absence of connectivity between groupings of nodes creates "structural holes" (Burt, 1997; 2004) within the network. Nodes which create links between structural holes act as boundary spanners between clusters and may play a powerful brokerage role (Burt, 2005).

In addition to the positioning of one node in relation to another, a network also consists of ties, which can have variable strength. In his seminal paper, Granovetter observed that the 'strength of a tie is a combination of the amount of time, the emotional intensity, the intimacy and reciprocal services which characterise the tie' (Granovetter, 1973, pg. 1361). As any one of these tie characteristics increases so the strength of the tie is perceived to increase. Thus strong ties are characterized by more frequent

interactions, and by closer relationships, perhaps involving multiple exchanges between both partners. Evidently, any particular node can maintain a limited number of tie relationships. If the tie relationships are strong, then it is probable that there will be fewer ties. Conversely, it is possible to maintain a greater number of weak ties. Of itself tie strength has little importance, but when considered in conjunction with the purpose for which the tie was formed, then tie strength has considerable impact on the nature of the exchange process. This will be considered in the next section.

2.2.2.2 Functions of networks

By connecting nodes, either individuals or organizations, networks provide access to wanted resources (*e.g.* Hite and Hesterley, 2001). For most individuals and organizations the primary resource exchanged through a network is information, or knowledge. Knowledge has many forms, and the movement of each form through a network is facilitated by different types of tie, or network structure, so that the effectiveness of the network in accessing and creating new knowledge is a function of both the knowledge form and the tie type.

In a study of new product development projects within a large electronics company Hansen (1999) concluded that weak ties were an efficient means of transferring simple, or codified information, but that strong ties were necessary if complex or tacit information was to be transferred. Weak ties tend to be extensive, and perhaps wide ranging across the network. These provide access to non-redundant information (*i.e.* information that is not available from other parts of the network) which may be important if new or unfamiliar problems are to be solved, especially if they are simple. However, problems may not be simple and so complex information is required. Strong ties, where exchanges are frequent, reciprocal and for multiple items, are required to support the interactions needed to facilitate the transfer of complex knowledge. Recognizing that the cost of maintaining strong ties is higher than the cost of maintaining weak ties and that ties may serve different purposes, shows that it is important to maintain a balance of tie types in order to be able to access and transfer information (or knowledge) effectively.

Knowledge may also be construed as public or private, and tie types affect transmission. Uzzi and Lancaster (2003) in their study of lending practices amongst Chicago bank managers, showed that public knowledge could be easily and satisfactorily transferred by arm's length ties (or weak ties), whereas private knowledge (which was essentially uncodified or tacit) could only be transferred by embedded (or strong) ties. Moreover, they went on to show that the exchange of private knowledge (and therefore the existence of strong ties) is vital for explorative learning, where risks are higher and outcomes are uncertain, but that exploitative knowledge is based upon the exchange of public knowledge, and weak ties will therefore suffice.

These two studies suggest that strong ties are important for solving complex problems. However, Perry-Smith and Shalley (2003) in a review offer an alternative view. They argue that the development of strong ties is contingent upon nodes sharing similar attributes, and that this is antithetical to creativity, because it engenders conformity. Strong ties may not be beneficial for 'generating novel and appropriate ideas, processes or solutions' (Perry-Smith and Shalley, 2003, pg. 90). Nevertheless, they do suggest that weak ties, by connecting people who are different, augment the pool of available knowledge by accessing non-redundant information and expose individuals to different approaches. While the authors of the two previous studies may not disagree with this, they might suggest that the nature of the problem may dictate whether strong ties or weak ties are the relevant vehicle for information exchange. Furthermore, Perry-Smith and Shalley (2003) argue that peripheral positions are inherently more creative than central ones, because of the constraining influence of a greater number of other ties on the latter. Peripheral positions (such as boundary spanners) often have contacts to otherwise inaccessible information, and this enhances their potential creativity. Centrality (or relative position in the network) rather than tie characteristics, therefore, may also influence information exchange or knowledge transfer.

In a different field, Carpenter *et al.* (1998) also support the view that weak ties (or acquaintances) are important for accessing and transferring information in a lobbying network. In this context simply knowing which officials to talk to is sufficient. Such information can be obtained as easily through weak ties, as through strong personal contacts.

Accessing resources is dependent upon establishing appropriate connections to other actors. If some of them are influential, then they may confer legitimacy on the focal actor, enabling it to gain access to resources from others. Baum and Oliver (1991; 1992) in a study of child care service organizations in Toronto, Canada found that institutional links to particular types of organizations (such as government agencies for funding or churches and schools for premises) increased the survival rates of these child care service organizations compared to those that did not have these links. Such links were especially important for young or small organizations providing access to resources and enhanced legitimacy or status. Similarly in a study of more than 300 biotechnology firms, Stuart *et al.* (1999) showed that connections transmit reputations or endorsements so that the liability of newness (*i.e.* youth and inexperience) is mitigated. They argue that prominent organizations are unlikely to associate with weak or low quality ones, and that the existence of a link suggests that exchange with others is possible. Although important for young organizations, such sponsorship mechanisms are equally important for legitimizing individuals in their roles; who one knows is often more important than the number of contacts one has.

While important and influential contacts may confer legitimacy and access to resource, they may also constrain individual behaviours. Individuals mimic the processes adopted by their immediate contacts, rather than their competitors with whom they may have no contact (Davis, 1991; Westphal *et al.,* 2001) and so behaviours are socialized and reproduced. This may stifle innovation and change. McDonald and Westphal (2003) have shown that Chief Executive Officers tend to adhere to existing practices and to seek advice from their peers, even when firm performance declines. There is a tendency to seek out others who will affirm the current strategy and attribute poor firm performance to environmental circumstances rather than to inadequacies in strategy or practice. To do otherwise may be to run the risk of losing status and legitimacy.

As well as influencing the access to and transfer of information, network structural characteristics can affect the productivity of the network. Dense networks with many ties increase cohesion. This facilitates the coordination of network activities and allows productivity to increase (Kogut, 2000; Reagans and Zuckerman, 2001). In this

same study of R&D teams in 7 different industries, Reagans and Zuckerman (2001) also showed that network heterogeneity increased team performance, through access to diverse sources of information, thus confirming the findings noted above from Hansen (1999) and Uzzi and Lancaster (2003). Independently, Uzzi (1997) had shown in an earlier study of CEOs of dress-making firms in New York that for effective network exchanges a single firm required a mixture of embedded and arm's length ties to simultaneously achieve efficient resource allocation and economies of time and avoid the liability of redundant information.

This brief review of network consequences suggests that network structures affect information exchange and knowledge transfer, constrain or influence individual behaviours to secure legitimacy within a group, and influence performance. Unsurprisingly Podolny and Page (1998) in their review identify three functions of network forms of organization which correspond to the three network consequences outlined above: *i.e.* networks foster learning through ease of access and rapid transfer of information, and by facilitating the synthesis of diverse sources of information; legitimacy for an actor may be obtained by association with higher status actors, which is particularly important for young organizations which may have insufficient status themselves and, networks offer economic benefits in that embedded relations lower transaction costs and reduce the cost of coordination.

2.2.3 Causes of networks

Two key questions underpin a consideration of the formation of networks. First, what drives or stimulates their formation ? and secondly, how do actors choose partners to form a network ?. I shall deal with each in turn.

2.2.3.1   Drivers of network formation

Taking an organizational perspective, Oliver (1990) identified six critical contingencies for the formation of linkages between organizations:

Necessity. Often linkages between organizations are formed to meet necessary legal or regulatory requirements. These mandated relationships contrast with voluntary

interactions, where exchange partners are chosen freely. Clearly, the bases of these two relationships are very different, as are the consequent behaviours.

Asymmetry. The formation of relationships may enable one organization to exercise power or control over another, or to access resources held by a more powerful actor. Generally, organizations seek to avoid the loss of their own autonomy (or control) but seek to gain control over another. Such asymmetrical motives can stimulate the formation of relationships.

Reciprocity. In contrast, motives of collaboration and cooperation underpin the pursuit of common or shared goals, especially in circumstances of resource scarcity. Participating organizations acknowledge that the benefits of linkage outweigh the loss of control.

Efficiency. Organizations may develop relationships with others in an attempt to reduce their own internal costs or to increase the productivity of their assets. Rather than depending upon market-based transactions, which are individual and unique, organizations which have specific assets and recurrent transactions with the same partners may benefit from formalizing relationships.

Stability. Uncertainty over environmental circumstances may lead to the formation of partnerships and networks in order to bring stability and therefore predictability to the environment. Stability helps to ensure a reliable flow of resources to the organization.

Legitimacy. Establishing links to other organizations may improve the reputation of a focal organization or demonstrate congruence with the prevailing environmental norms, where pressures to conform are high.

Each of these six contingencies is a sufficient condition for the formation of a linkage between two or more organizations. They may also combine in different ways to strengthen the demand for interaction between organizations. Such interactions may vary with the type of relationship being invoked. For example board interlocks are different from joint ventures, and both of these differ from trade associations (Oliver, 1990).

Having identified some internal (efficiency) and external (necessity, asymmetry, stability and legitimacy) drivers for establishing relationships between organizations, it is worthwhile exploring the processes by which these relationships are formed. Ring and

Van de Ven (1994) provide a model of this developmental process (see Figure 1), in which the relationship between partners is continuously shaped and 're-structured by actions and symbolic interpretations of the parties involved' (Ring and Van de Ven, 1994, pg. 96).
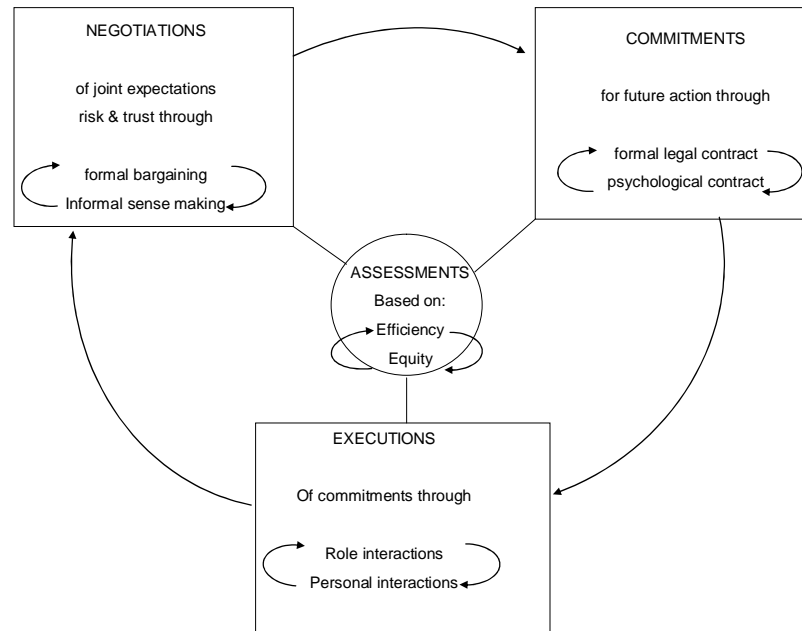
Figure 1. Process framework of the development of cooperative Interorganizational Relationships (IORs) – from Ring and Van de Ven (1994).

Four pre-conditions are attached to the model. First, uncertainty surrounds the formation of an inter-organizational relationship. Uncertainty is found not only within the relationship between the parties but also in the future state of the environment. Trust, *i.e.* confidence in the other parties' goodwill, is required to face these uncertainties and stems from interpersonal interactions. Second, the relationship must be perceived as equitable, but not necessarily equal. Exchanges must be perceived to be fair, and lead to greater efficiency for both parties. Third, safe-guards to manage disputes in an uncertain environment will rely more on informal psychological contracts between the parties concerned than on formal legal documents. Fourth, the activity of individuals is key to the development of a relationship between organizations. As agents of their organization these individuals may not be able to rely on trust as extensively as they would if they

were operating on their own behalf. These four pre-conditions emphasize the importance of individual relationships as vehicles for the formation of inter-organizational relationships, and also the importance of informal practices, notably trust in establishing and maintaining these contacts.

These pre-conditions form the basis for the three stages in a cyclical model (see Figure 1), where interaction is continuous through negotiation, commitment and execution, and where each stage is assessed according to the criteria of efficiency and equity. Although moderated by role requirements, inter-organizational relationships are driven through interpersonal relationships where trust is a critical factor.

2.2.3.2 Partnering: whom to choose ?

The selection of appropriate partners to fulfil one of the three functions of networks identified by Podolny and Page (1998), in response to the six drivers for network formation (Oliver, 1990), is not easy. For example, learning may require close partners who can share complex information or may require distant partners who have access to novel information. Legitimacy can be obtained by association, but this does not need to be close. Productivity benefits are more likely to be found through close ties. Conclusions on whom to select as a partner might therefore be contingent upon the function of the network. Nevertheless, there have been a number of studies that attempt to answer the question of whom to partner with.

In a study of strategic international alliances in three industries over 20 years, Gulati and Gargiulo (1999) concluded that organizations tend to partner with those organizations about which they already possess some information. This most commonly comes from prior contact. Walker *et al.* had previously noted that 'as an unintended outcome of their cooperative strategies, firms build the network that serves as a map for future associations' (Walker *et al.*, 1997, pg. 110). So there is a path-dependency in the selection of future partners. Information about a potential partner may also be obtained from its current position within a network. Organizations that lie in the core of a network are likely to be key players, and therefore have high status. These organizations are legitimate targets for partnering, particularly if the initiating organization is currently

situated on the periphery of the same network. In addition to being guided by relational and positional factors, organizations may also be cognisant of structural factors. Organizations that are structurally equivalent within a network are not in direct contact, but occupy similar relative positions. Information on these potential partners can be obtained via a third party. Kogut (2000), in attempting to define rules to explain the emergence of network structures, concluded that organizations should only cooperate with players of equal status.

Creating new links within a network alters the network structure. According to Heider's Theorem (Cartwright and Harary, 1956), there is a tendency to retain balance between relationships in a network, so that establishing links outside of a cohesive cluster becomes more difficult (Gulati and Gargiulo, 1999). This conclusion of self-perpetuating linkages in a network is reinforced by Kreiner and Schultz's (1993) earlier observation of R&D in the biotechnology sector in Denmark that 'collaboration breeds collaboration' (Kreiner and Schultz, 1993, pg. 194).

The inherent conservatism in the formation of networks may not persist as the networks evolve. Hite and Hesterly (2001) challenge this conservative view suggesting that firms move from an identity-based network to a calculative network, in which the focal organization assesses the costs and benefits of each relationship. The network shifts from one based exclusively on socially embedded ties to one in which there is a mix of embedded and arm's length ties. This enables the organization to explore new information by reaching beyond "structural holes". Thus path-dependency in the formation of the network gives way to a managed set of relationships. But rather than this sequential shift to a managed set of relationships from a position of interdependence between actors, Doz *et al.* (2000) have suggested that there are two distinct and parallel paths to network formation. In a survey of 84 R&D consortia, they observed an emergent process, in which organizations shared a common interest and similar views and a network emerged and developed in response to a changing environment. However, they also observed an engineered process, in which a triggering event stimulated the active recruitment of potential members to a consortium. This corresponds to Hite and Hesterly's (2001) managed network.

Although the observations in this short review appear to conflict, this is not necessarily so. Networks of organizations are predicated on personal contacts. These personal contacts provide information about organizations that can both stimulate and inhibit the formation of a link. The nature of these links, and how they are utilized, may vary and an impression is given that some are actively managed while others are not.

2.2.4 Networks in this study

Within universities the key resource perhaps is ideas. Ideas are vital for research and integral to teaching, the primary activities of a university. How they are shared and with whom are critical questions for understanding the dynamics within the Higher Education sector. One of the purposes driving the formation of networks is the exchange of information, which may also include ideas. Unsurprisingly, therefore members of academic institutions create networks of contacts both within their own institutions and into other institutions, through which they exchange information in order to stimulate their own thinking and so advance their research and improve their teaching. It is also possible that ties may serve an expressive purpose, providing support for both sender and recipient.

Where information is public or codified and ideas are simple, then weak ties are sufficient to facilitate the exchange. Indeed, weak ties may permit access to novel (or previously unconsidered) information. These ties may be characterized by infrequency of contact or by serving a single purpose. Conversely, where information is private or tacit, and where ideas are complex, strong ties between individual actors are required in order for exchange to occur effectively. Such ties serve multiple purposes, and often are used frequently.

In addition to these connections between individual members of academic staff that inevitably link institutions in a network, there are exogenous drivers, such as stability and legitimacy, that may promote the formation of linkages at an organizational level. Universities may form partnerships in order to stabilize an increasingly turbulent environment and so ensure a reliable flow of resources into their organizations. Linkages may also be formed in order to create legitimacy. Reputations may be enhanced through

successful partnerships. It is also possible that in conditions of constrained resourcing, universities may perceive benefits in collaborating or cooperating, particularly if the institutions share common interests or goals. Although these drivers are operating on the organization as a whole it is individuals who are taking the decisions to respond to them in specific ways. Individual performances are instrumental in determining organizational actions.

Networks of universities may therefore arise through the actions of individuals, but they may also arise from actions of individual members of a senior management team, which commit universities to work together. However, it is not always clear whether the network of universities is formed as a result of the actions of these different individuals, or whether those individuals interacted in the manner that they did because of the existence of a prior network of universities. In other words the network of universities may be a dependent variable resulting from the actions of others or it may be an independent variable, permitting and constraining the actions of individuals. This study, which examines "How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs?", adopts the latter perspective.

2.3 Role

2.3.1 Elements of a managerial role

Through an exploration of managerial work, Stewart (1982) discovered not only that managers were driven by what must be done to satisfy the requirements of the job, but also that they were able to choose to undertake some activities but not others from a range of opportunities that was delimited by constraints imposed by both internal and external factors. Each of these three elements (the demands, the choices and the constraints) is determined in part by the actions and expectations of other people, for it is axiomatic that managerial work involves the interaction with people. Katz and Kahn conceive of roles in general as 'the summation of the requirements with which the system confronts the individual member' (Katz and Kahn, 1978, pg. 186). Managerial roles are simply a subset of this; an individual manager responds to the demands and opportunities of the organization (or system). But how are the requirements specified ? and by whom ?

According to Ashforth (2001) there are two different aspects to a role, namely a structural-functionalist aspect and a symbolic-interactionist aspect, and both may influence the requirements of the role. The first identifies the norms (or behavioural expectations) associated with a given position in a social structure, such as an organization. These are institutionalized patterns of action that are relatively invariant, to which the holder of the role conforms. The second indicates that roles are also emergent, stemming from a negotiated understanding between individuals of the nature, or requirements, of any particular role. Together individuals jointly define a role. Clearly, it is possible that there could be more than one individual (perhaps many more) who contribute to the definition of any specific role within an organization. Both structures (including social situation) and people help to define the role of an individual.
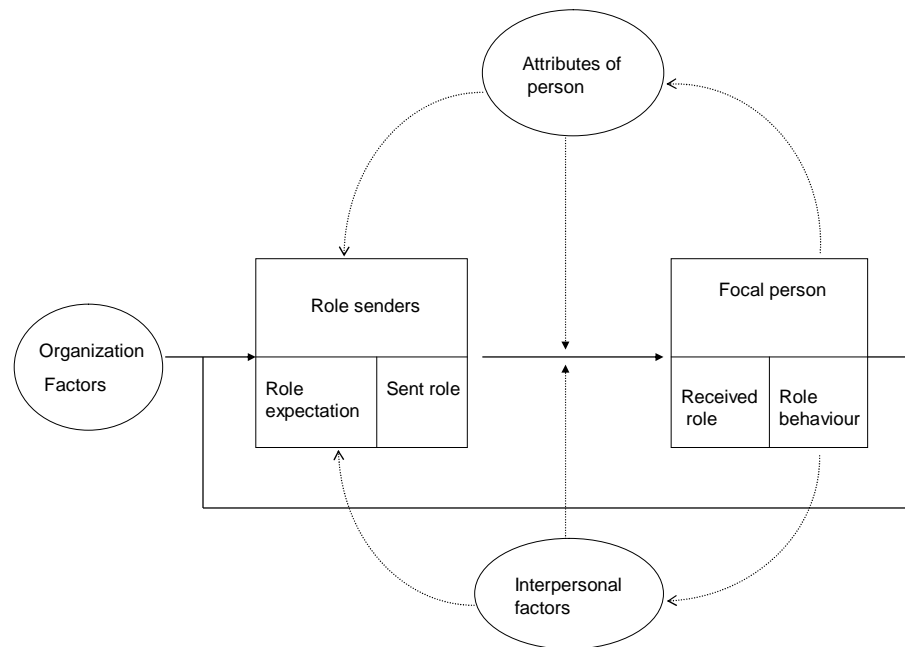
Figure 2. Model of factors involved in taking of organizational roles (see Katz and Kahn, 1978).

Katz and Kahn (1978) suggest ways in which people influence a role. Their model demonstrates how any particular role of a specific focal actor is determined by processes of role sending and role receiving, which are themselves moderated by the attributes of the focal actor and by the interpersonal relations between the focal actor and the role senders (Figure 2). In the process of role sending the anticipated behaviours and actions of the role of the focal actor are communicated to the focal actor by members of the role set based not only on their understanding of the role but also on the character of the focal actor. The role set thus defines the role identity of the focal actor. However, what is transmitted (or sent) by the role set may not be received by the focal actor. The focal actor's perceptions of the role requirements and thus the behaviour of the focal actor may differ from the expectations of the role senders. Such discrepancy contributes to role conflict. The probability of role conflict, which is the 'simultaneous occurrence of two or more role expectations, such that compliance with one would make compliance with the other more difficult' (Katz and Kahn, 1978, pg. 204), increases when the focal actor engages in many activities with a diverse range of role senders, or through the adoption of multiple roles, particularly when they cross boundaries, either

within or between organizations. These characteristics of variety of role senders, many roles, and boundary spanning are commonly found in managerial activities, and so role conflict is invariably part of the experience of these managerial positions.

Certainty characterizes the actions of the focal actor and/ or the expectations of the behaviours or actions of the focal actor by the role senders in circumstances of role conflict. The perceptions of both parties are clear as to what should or should not be done in a particular circumstance. Unfortunately, the perceptions differ and there is disagreement over the content and validity of the perceptions of the other party. While certainty characterizes circumstances of role conflict, the opposite is true in circumstances of role ambiguity, 'where it is uncertain what the occupant of a particular office is supposed to do' (Katz and Kahn, 1978, pg. 206). Neither party is certain what the appropriate course of action is in a particular circumstance. Those in managerial positions often face uncertain circumstances and have to make choices between alternative courses of action that will determine their subsequent actions and behaviours.

Each individual managerial role therefore seems to be multi-faceted, with the actual behaviour of a focal manager determined by her/his synthesis not only of the many cues to appropriate behaviour sent by multiple role senders, but also of her/his own perceptions of the requirements of the managerial role. The latter suggests a more proactive stance by an individual towards defining the requirements of the role, compared to the former position, where the manager passively receives and responds to the expectation of others.

Evidently, it is important to discover, for any particular manager, not only who is sending the cues (making the demands, influencing the choices, creating the opportunities or constraints), but also who is being solicited by the focal manager to provide cues, and what messages from which senders are being prioritized in determining the actions and behaviours of the focal manager. Not all of those who act as role senders are considered to be role referents by the focal actor.

2.3.2 Identifying referents

Individuals commonly evaluate their behaviour by comparison with others (Festinger, 1954) through the existence of a collective norm established by the majority within a referent group. When the behaviour of the individual conforms to the norm, the individual's choice of referents remains acceptable to the individual. But as the actual and expected behaviours diverge, then the referent group becomes less acceptable to the individual. This forces the individual to adopt one or more of three possible courses of action:

1.   to change her/his own behaviour;

2.   to change the composition of the referent group; or

3.   to alter the scope of the behaviours for which this is the referent group.

Selecting an appropriate and relevant set of referents is an important determinant of an individual's behaviour. Goodman (1974) identified three classes of referent group which may establish norms for a focal actor, namely the "system", other people and self. The formal administrative system creates norms through the existence of written documents, *e.g.* procedures or codes of practice. These are explicit and perhaps contrast with the norms established by other people, which may be implicit. An individual creates her/his own norms by referring either to past experiences either in the same or different roles, or to the requirements necessary to fulfil future aspirations. Appropriate comparisons require that the focal individual has access to information about the referent(s) and that the referent is relevant to the focal individual in her/his current role (Goodman, 1974; Kulik and Ambrose, 1992). It is often easier to ensure access and relevance when the referent is a "system" or self than when the referent is another person or group of people.

Position within the social structure is a key factor in determining a focal individual's ability to access information about another individual (Shah, 1998). Where individuals are directly linked through close ties, it is possible for them to gain information through direct enquiry. Transfer of information in this mode is often based on trust arising from the frequent interactions associated with proximity. Alternatively,

where individuals are not connected, but have identical role sets (*i.e.* the positions are structurally equivalent), it is possible for the focal individual to gain information about another individual indirectly by monitoring their actions. This may occur in situations where the two individuals are not known to each other, or where directly accessing the information would be an admission of incompetence or weakness by the focal individual. For senior managers in particular, such an admission may be unacceptable. So access to information can be affected by social structure.

The relevance of a referent to a focal individual is ultimately a function of situational and personal factors, according to Kulik and Ambrose (1992), or a function of the type of information required, according to Shah (1998). While situational and personal factors may influence the availability of information to a focal individual through the control of access, they also impact the relevance of the information to the individual.

Homophily Theory (McPherson *et al.,* 2001) suggests that as the similarity in personal attributes increases between two individuals, so the likelihood of interaction also increases. Furthermore, the greater the similarity between the individuals, the greater is the salience for the other of the information that each possesses. Consequently, the two individuals come to materially influence each other as their similarity increases. These other individuals with similar personal attributes are thus perceived to be more relevant to the focal individual.

Individuals who are engaged in similar jobs, or who are closely connected to a focal individual are also more likely to be perceived by the focal individual as possessing relevant information. Thus the situation, or position, of the other person can create relevant referents for a focal individual. Moreover, the relevance of others to a focal individual created by these situational factors (*e.g.* similar jobs) is also more or less congruent with the relevance that these other individuals hold for the focal individual through the types of information that they possess. The information possessed by an individual will be more useful to someone carrying out a similar task, than to another person carrying out a dissimilar task.

Broadly, there are two categories of information that are useful to any individual in an organization (Morrison, 1995). The first category contains information that

pertains to the job, such as technical information (what skills are required to execute the task?), referent information (what is required or expected as part of the role?), and appraisal or performance information (what is appraised and how?), while the second category contains information relevant to understanding the organization, such as normative information (what is the organizational culture?), social information (who are the important others? and what do they do?), or political information (where does the power lie in the organization?). Vital questions for any individual in an organization are therefore how to access the relevant information? and from whom ?

In focussing on the others who provide relevant and accessible information, it is important not to forget the focal individuals. Their position and personal attributes will influence from whom they seek advice / information. Kulik and Ambrose (1992) in their review, note that both professionals and those people occupying more senior positions commonly seek external referents (*i.e.* they identify with and solicit information from individuals outside their own organization). Furthermore, individuals who have been in the same post for a period of time are also less likely to refer to other individuals especially in the same organization, because of the embarrassment that arises from such an approach.

2.3.3 The PVC role in a university

In common with all senior managers, PVCs will have a numerous and varied role set, which come both from within and from outside the particular university. Given the PVC's position in a university structure it is likely that these internal role senders will be other senior colleagues within the university (Vice Chancellor, PVCs, Deans and Heads of Department). Outside the focal university it is possible that these role senders may include other PVCs, although this is not known.

2.3.3.1 A transformed role

In UK universities the position of the PVC has evolved, over the past 30 years or so, from a largely ceremonial one into a position of considerable influence within the university. Impetus for this change came first from the injunctions made by the Jarrett Report (CVCP, 1985) for Vice-Chancellors to behave more like the "chief executive" of

a university. Shattock (1999) noted that this report, coupled with the worsening financial circumstances of universities at that time, encouraged the adoption of a more managerial style by those responsible for the leadership of a university. This was a step away from the collegial form of governance hitherto characteristic of pre-1992 universities, and towards a more corporate or managerial style (McNay, 1995). A second set of stimuli came from the recommendations arising from the report of the Dearing committee (National Committee of Inquiry into Higher Education, 1997). This report advocated the regular review of the effectiveness of universities, and a move towards smaller university councils. Again, the focus was on the leadership and management of the university, and so further encouragement was given to the creation of smaller senior management teams with considerable executive decision-making powers. A third driver was the change in status of the former polytechnics, with the abolition by Act of Parliament of the binary divide in 1992. Polytechnics had been managed by directors and assistant directors. These became Vice-Chancellors and PVCs. Unlike the PVCs in the pre-1992 universities, who at that time were mainly full-time academics spending only a proportion of their time on university affairs and without executive powers, the PVCs in the post-1992 universities were full time and had decision-making responsibilities (Shattock, 1999). The governance structure of the "new" universities was evidently "top-down" rather than the "bottom-up" approach of the "old" universities.

Other contemporaneous changes in the higher education environment (outlined in Chapter 1) together with these interventions, created the conditions where small senior management teams (of Vice Chancellor, Deputy Vice Chancellors and/or PVCs) to lead and manage universities in the UK could develop. Henkel (1997) observed that the creation of a senior management team in a university to support the Vice Chancellor provided PVCs with a new role.

2.3.3.2   A new role

Being a relatively new role in its current configuration there is almost no literature to inform a discussion of the PVC role. In response to this dearth of information the Leadership Foundation for Higher Education recently sponsored a

research project to investigate this role (Smith *et al.,* 2006). Unfortunately, the results from that investigation appeared too late to substantively inform this study. Nevertheless, they concluded that the PVC role is central to 'the working of the dual structure of academic work and management' (Smith *et al*., 2007, pg. 49) of a contemporary university.

However, an earlier ESRC sponsored project between 1998 and 2000 (Deem *et al.*, 2001) explored, amongst other things, the role and practices of "manager-academics", a category, which along with Vice-Chancellors, Deans and Heads of Department, included PVCs. Results from the 135 interviews suggest that meetings, mountains of paperwork and rivers of emails dominate the activities/practices of senior managers in a university. Moreover, there is little time for reflection and the hours are long. Motivations for taking on such an apparently thank-less and demanding role, fell into three groups. Some individuals, particularly in the post-92 universities, fully embraced a managerial career, and sought to progress up the career ladder. Others, alarmed at the prospect of being managed by others, who were deemed to be less competent, took on the managerial role reluctantly and often temporarily. This was commonly the case in pre-92 universities. A final category, found in both classes of university, were the "good-citizen" academics, often late in their careers, who take on managerial responsibilities as a means of repaying a perceived debt to the institution.

While those seeking a permanent position and a career in the management of universities often had appropriate managerial skills and knowledge, it was more common for "manager-academics", particularly those only temporarily pursuing a senior management role, to have little or no managerial training, so that their learning curve in the role was steep! Deem *et al.* (2001) reported that most of the sample 'had engaged in important informal learning, including seeking out more experienced colleagues' (*ibid.* pg. 5). Johnson (2002), in a fuller discussion of the same project, noted that learning for the "manager-academic" occurred mainly through engagement with practice (*i.e.* doing the job) and through social interaction (*i.e.* talking with others grappling with similar issues at meetings). Much of the learning was therefore tacit rather than overt and cognitive. The emphasis on the social acquisition of knowledge was explained at least in part by the rapidly changing environment. This demanded that new skills and practices

were learnt because those gained through the experience of teaching and research were found to be insufficient for the task. Moreover, the general absence of formal training of "manager-academics" may reflect a lack of programmes caused by the inability of formal training programmes to keep pace with the needs posed by a changing environment. Apparently, and perhaps surprisingly given their prior role, "manager-academics" failed to focus on learning the requisite new skills, so that training opportunities were ignored and consequently skills were devalued (Johnson, 2002). This ESRC project therefore suggested that "manager-academics", by drawing on prior skills and knowledge however inadequate for the current task, used themselves as referents. In addition, the project showed that by actively seeking out experienced colleagues they used others as referents. One might anticipate, therefore, that "manager-academics" such as PVCs may engage both formally and informally with similar others in order to learn generally about their role, and also to help them undertake and resolve the specific issues and challenges with which they are faced in the course of their duties.

It is also likely that senior "manager-academics" may network with others who are perceived to be important and or significant in order to increase their chances of promotion. Smith *et al.* (1999) in their analysis of the career paths of UK university Vice Chancellors between 1960 and 1996, concluded that progression through the senior academic hierarchy in a university was overwhelmingly the most common route to the most senior position. Moreover, Bourdieu (1986) in his study of the French Academy discovered that individuals had power either through their scientific prestige or through the position they held. Such holders of power controlled the destiny of their subordinates. For individuals, who are on a management career track at least, a PVC position provides them with the opportunity to establish links with significant others, thereby enhancing their social capital, and acts as a stepping stone to the position of Vice Chancellor.

It is likely therefore that PVCs will seek referents external to their own institution, and it is possible that these other colleagues will become significant role referents for the focal PVC. However, it is not known (i) whether other PVCs, rather than other senior colleagues, act as referents, or (ii) for what aspects of the PVC role these other PVCs act as referents, and whether this varies with each individual.

Having indicated that others may act as role referents for an individual PVC, it is necessary to suggest possible mechanisms by which this influence could be exerted. Here I will examine two, social capital and social exchange theory.

2.4 The concept of social capital

2.4.1 Introduction

Universities, in Mintzberg's typology of organizational types (Mintzberg, 1979) would best be described as professional bureaucracies of individuals (the members of the academic staff) who take their frame of reference not only from within the university but also more importantly from outside the university, especially from the academic discipline to which they belong (Becher, 1989). In addition, the delivery of outcomes which characterize universities, curricula and increasingly research, require the coordination of the activities of individual members of academic staff. Through their activities individual members of academic staff in a university are woven together in a network so that each benefits from the operation of the whole organization.

According to Putnam social capital 'refers to features of social organization such as networks, norms and social trust that facilitates coordination and cooperation for mutual benefit' (Putnam, 1995, pg. 67). At least superficially then, this might describe the organization of the activities of individual members of a university. Moreover, as Schuller *et al.* (2000, pg. 1) note, 'social capital …. has become an influential concept'. Clearly the operation of social capital in a university context merits further consideration.

While social capital may be a useful concept for exploring the activities of individuals at all levels in a university (*e.g.* Bourdieu, 1988), it has more commonly been investigated in other settings. Woolcock (1998) noted seven substantive fields of social capital research:

    i.   social theory and economic development;
    ii.   families and youth behaviour problems;
    iii.   schooling and education, more often at secondary or high school level;
    iv.   community life;
    v.   work and organizations;
    vi.   democracy and governance; and finally
    vii.   collective action problems.

A concept that is useful in each of these diverse fields demands careful definition.

2.4.2 Definitions of social capital

A precise definition of social capital that is universally accepted is apparently unavailable. Woolcock suggests that it is 'generally defined as the information, trust and norms of reciprocity inhering in one's social networks' (Woolcock, 1998, pg. 153), although he acknowledges that other more specific definitions are provided by particular key authors, such as Coleman, Burt, Bourdieu and Portes.

Adler and Kwon (2002) in their review helpfully provide a table containing 23 variants on the definition of social capital, but only from 20 different sources, suggesting that particular authors adapt their definition as necessary. Nevertheless, Adler and Kwon were able to aggregate these definitions into three groups.

The first group focuses on the relation between two actors, so that social capital is a resource that inheres in the relationship that ties one actor to another. For example, Adler and Kwon assign Portes' definition of social capital namely, 'the ability of actors to secure benefits by virtue of membership in social networks or other social structures' (Portes, 1998, pg. 6), to this first group. Conversely, the second group focuses on the structure of relations (*i.e.* linkages) among actors in a collectivity (such as an organization or community) so that together they can pursue common goals. The definition of social capital provided by Putnam (above) falls into this second group. A further example from this group is given by Coleman, who states that 'social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspects of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure' (Coleman, 1988, pg. S98). The third grouping of definitions incorporates the dimensions of the other two groups into a single definition as implied by Woolcock's definition (above). Social capital is the 'sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit. [It] thus comprises both the network and the

assets that may be mobilized through that network'(Nahapiet and Ghoshal, 1998, pg. 243). Similarly, Szreter suggests that 'social capital flows from the endowment of mutually respecting and trusting relationships which enable a group to pursue its shared goals more effectively than would otherwise be possible' (Szreter, 2000, pg. 57). More concisely, Foley and Edwards conceptualize social capital as 'access plus resources' (Foley and Edwards, 1999, pg. 141).

The basis for the existence of such a wide range of definitions requires some explanation.

2.4.3 A critique of social capital definitions

Unsurprisingly, the variation in definitions has caused some authors (*e.g.* Edwards and Foley, 1998) to observe that social capital lacks conceptual clarity. Part of the confusion arises from differences in perspective. While some authors concentrate on an "external" view of social capital, so that resources are accessed by a focal actor or by a group of actors from others beyond the individual or group, other authors take an "internal" view, where social capital describes the linkages, and so resources, available to members within a group. Essentially, the internal view is a structural one.

This distinction between internal and external is however a matter of perspective. For example, the relationship between two individuals may be external to both, but internal to the organization for whom they work. However, because an individual cannot have an internal perspective on social capital, a more satisfactory labelling would be perhaps to categorise the definitions according to those that focus on an individual (or scaling up, on any larger unit that operates as a single entity) so that all interactions are external to the unit. These could be labelled as "particular" or "nodal" conceptualizations of social capital, and should be contrasted with the "collective" or "network" conceptualizations, which focus on the structure <u>and</u> character of relationships between individuals (or groups) within (or internal to) a specified network or other social structure.

Furthermore, the lack of conceptual clarity arises because social capital has been considered as both a dependent and an independent variable (see Foley and Edwards,

1999). As a dependent variable, greater levels of social capital are produced by an increase in some resource, either because the volume of resource increases or because the access to it improves. Conversely as an independent variable, higher levels of social capital contribute to an increase in some other variable, such as social cohesion. Moreover as Edwards and Foley (1997) note, by defining social capital functionally, it is impossible to separate what it is from what it does; it is both the infrastructure and the content of social relations. To return to the previous discussion (above), it is both "internal" and "external". Clearly greater precision is required in the definition of social capital as a concept, and greater clarity in its subsequent operationalization.

In addition to the conceptual stretch enabled by permitting social capital to be both cause and effect, Woolcock (1998) noted a number of other concerns with the concept of social capital. First, it has been used to justify opposing social policy measures; whether it is beneficial to increase or diminish the intervention of the state in society. Secondly, it is often assumed that social capital is good, and should therefore be maximised. However, Portes (1998) suggests that this is not always the case. Social capital has some negative consequences. It may act as a constraint, for example precluding the exploitation of opportunities, because members of a network may be obliged to fulfil other duties to other group members which prevent them undertaking new duties.

The concept of social capital has a broad specification that encourages two alternative responses. Either the concept is abandoned, or the differences and concerns noted above are resolved by tighter specification of the concept. Some of the variability might be accounted for by the discovery that there are different types, levels or dimensions of social capital. Before these can be explored, however, it is necessary to establish the key requirements of the concept of social capital.

2.4.4 Key requirements for social capital

Social capital is only available to an individual when he/she is in relation to others. Resources available to an individual outside a relationship to others may be economic or human capital, but not social capital. Social capital inheres in the

relationships between individuals in a social structure and as a consequence is not dependent on the individual, but rather on the skills, attributes and connections that the others have. Portes (1998) observed that there were four different explanations why others would allow a focal actor access to their resources.

If particular behaviours are taken-for-granted as acceptable modes of behaving, then individuals may freely presume that these behaviours will be adopted by others. These internalized norms held by any individual become appropriable by others. This is *value introjection* and in particular circumstances may lead to social control. Evidently, when particular behaviours cannot be assumed, then social resources are diminished, and in some cases social cohesion declines.

Such taken-for-granted assumptions may however emerge amongst a specific collection of individuals as a result of the circumstances in which they find themselves. Those involved in this specific grouping may be more favourably inclined towards one another, and so allow other individuals from within the group to ask for help or other favours. Resources within the group are not universally accessible, but access is restricted to group members only. This is *bounded solidarity*. Closely identifying with one particular group against another is a common example of this form of social capital.

A third form of social capital is *reciprocal exchange*. Individuals within a group allow others access to the resources that they hold in the knowledge that these dues will be repaid in the future (*i.e.* access will be reciprocated). Evidently, this relies on an individual's knowledge of the other actor with whom he/she is dealing and the development of trust between them. It is worth noting not only that the timing of repayment is unspecified, but also that the form of repayment may differ from the form in which the original payment was made.

Finally, rather than relying on individual knowledge of particular other actors to determine what resources are exchanged, the placement of actors in a common social structure, ensures that trust is enforced and exchanges reciprocated by the possibility of group sanctions. By embedding transactions in a social structure, donors may be guaranteed repayment and may also obtain approval by the group.

These four motivations of social capital may be broadly divided into two groups. The first two, also alternatively defined as socialization and shared destiny (Adler and

Kwon, 2002), are considered to be "consummatory" (Portes, 1998), perhaps referring to an ideal state arising from the completion of a set of other activities (*i.e.* because other activities have occurred and been completed, such as growing-up or sharing a prior experience, then these other exchanges can follow). The second set (reciprocal exchange and enforced trust) are "instrumental" in nature, and are based on a rational actor model of human behaviour where individuals respond according to a calculus of self-interest. Different authors normally adopt one or other of these contrasting perspectives on social capital. In practice it is probable that any single actor will be responding to an aggregation of these different motivations based on the specific circumstances in which he finds himself.

An essential requirement for the existence of social capital is a social structure, in which individuals are linked to others. Considerable attention has been given both to the configuration of ties (*i.e.* structure) and also to the quality of the ties (*i.e.* the frequency, the strength and the content) in particular social structures, commonly firms (*e.g.* Kraatz, 1998; Nelson, 1989; Gargiulo and Benassi, 2000). Two opposing views exist on the way in which the structure of ties affects social capital.

Coleman (1988) taking an "internal" perspective on social capital advocates the importance of network closure (*i.e.* the linkage between the contacts of a focal actor) for the development of effective social norms and the generation of trust amongst members of the network. A coherent and dense network of ties ensures that each actor can be monitored by others, so that obligations are fulfilled and actions monitored. Coleman (1988) argues that reputations (both good and bad) cannot easily arise in an open structure. A closed structure therefore allows individuals to appropriate the social capital from within the group. According to Coleman, therefore, social capital is a public good (Inkpen and Tsang, 2005).

Conversely, Burt (*e.g.* 1997; 2004), with an "external" perspective, champions the view that a sparse network with few redundant ties provides greater social capital benefits. By acting as a link between otherwise unconnected others, an individual actor can gain considerable social capital benefit. Networks that contain these structural holes provide opportunity for individual actors to exploit their connections to their own advantage. This suggests that social capital is a private good (Inkpen and Tsang, 2005).

Actions in this setting are generally motivated by instrumental behaviour, whereas in a closed network, both consummatory and instrumental motives can be expected.

Having established that both motivations for action and structure are vital components of the concept of social capital, it is necessary to now examine the dimensions of social capital.

2.4.5 Dimensions of social capital

Exchange is the fundamental activity in the concept of social capital, and this exchange occurs in a network of relationships. Following Putnam, Nahapiet and Ghoshal (1998) identify three different dimensions of social capital - structural, relational and cognitive. The first two of these dimensions have been discussed above, but the third (a cognitive dimension) is new and requires elaboration. Each of these dimensions is multi-faceted.

The structural dimension refers to the pattern of relationships between actors within a network, which can be analysed from three perspectives, *i.e.* that of the individual ties, the configuration of the whole structure and the stability of membership (Inkpen and Tsang, 2005). Ties between actors provide access to resources, particularly information, which subsequently affect action. Evidently, who you know affects what you know, and this influences what you do. The benefits of this information is determined particularly by the accessibility of information (how easy it is to obtain information that is useful for informing action) and by the timing of information (how quickly it is available to one actor before it is available to others) (Burt, 1997).

While any particular exchange occurs at a dyadic level, the configuration of ties in the entire social structure affects the pattern (both direction and velocity) of exchange that can occur throughout the whole network. In particular, density, connectivity and hierarchy are structural features of the network that impact the degree of contact and level of accessibility between members of the network, and so influence the ease of exchange (Nahapiet and Ghoshal, 1998). As the density of a network increases, so the possibility of obtaining new information from among the members in the network

diminishes, *i.e.* ties become redundant. Connectivity, especially if it is not bi-directional between ties, can influence the speed of access to information in a network.

The stability of a network, defined by the flux in membership, can influence the dyadic exchanges and so the creation of social capital in a network. If actors continuously enter and leave a network, ties cannot be firmly established and so the content of exchanges is reduced. In a network with a stable composition multiple exchange ties may develop between specific actors so that links developed for one purpose, or in one context, can be used to facilitate exchange for a different purpose or in a different context. As single ties become multiplex ties, so the level of resources available within the network and accessible to members of the network increases (Coleman, 1988). Nevertheless, ties will endure only if the exchange relationship is of value to both parties (Bourdieu, 1988). Once a tie ceases to be of value, the link between the actors will break, thereby contributing to network instability.

While the structural dimension provides the framework within which social capital may operate, the relational dimension provides the motivation necessary to effect social capital. Nahapiet and Ghoshal (1998) identify four facets of the relational dimension, trust, norms, obligations and expectations and identification. Three of these are congruent with the four motivations identified contemporaneously by Portes (1998). Norms represent a degree of consensus in the social system, and correspond to value introjection. Identification and bounded solidarity both describe the process whereby one individual sees himself as one with another individual or group of individuals. Such another individual or group becomes a reference group to the focal individual, influencing his actions and behaviours. Trust, based not only on a confidence in the competence and capability, but also in the reliability of the other party (*i.e.* their openness and good intention), ensures that exchange between actors will occur reciprocally (Nooteboom, 2000).

Finally, obligations and expectation, according to Nahapiet and Ghoshal (1998), represent a commitment or duty to undertake some activity in the future. This definition has greater similarity to a facet of the definition of value introjection provided by Portes (1998) than to his definition of enforceable trust. However, it is possible that obligations and expectations only occur because of the social context within which they are found. If

the exchanges were not conducted within the context of an inter-linked set of contacts, then it would be possible for individuals to default on obligations without fear of penalty, and "free-riding" would be possible. The prospect of collective sanctions ensures that obligations and expectations are fulfilled. It seems, therefore, that rather than representing a new category separate from value introjection and distinct from enforceable trust, obligations and expectations actually equate with Portes' enforceable trust.

An essential part of social exchange is meaningful communication. For this to happen reliably there must be a shared understanding of the context in which the exchange is occurring. This cognitive dimension has several different aspects. First, a common language allows people to access and to share information. Without a common language individuals in the network would not be able to understand each other, and so the opportunity for sharing resources and accessing the social capital inherent in the network is restricted. Secondly, and consequent upon the first, is a shared perception. A common language permits communication. A shared perception permits the development of a common conceptual framework within which activities can be understood or agreed, so that network tasks and outcomes are achieved and shared goals fulfilled. Thirdly, a shared culture ensures that the same taken-for-granted assumptions govern the relationships between the members within the network. This enables exchange to occur without formally or explicitly defining the basis for it. Moreover, it is through the development of a shared culture that the motive for exchange changes from "instrumental" to "consummatory". Shared language and/or perceptions permit trust and reciprocal exchange, but the development of a shared culture (*i.e.* shared values, (Schein, 1981; Schein, 1984) allows exchange to occur on the basis of value introjection or bounded solidarity.

These three dimensions of social capital have multiple facets. By combining the several facets of each dimensions in different ways, a large number of different formulations of the concept of social capital are possible. This perhaps accounts for the many different definitions. However, it also suggests that social capital has a wide range of consequences and effects (Ibarra *et al.*, 2005). These different outcomes will now be considered.

2.4.6 Outcomes of social capital

Irrespective of whether one conceives of social capital as operating within a group of individuals, or between individuals or groups, the outcomes are observed at the level of the node within the network, which is often the individual. Foley and Edwards (1999) note that 'social organization, both formal and informal, provide multiple resources to <u>individuals</u>' (*ibid.,* pg. 155, emphasis added), and that 'social relationships can give <u>individuals</u> access to critical resources' (*ibid.,* pg. 144, emphasis added). However, the value of social capital to an individual is contingent upon the number of people within the social structure with similar expertise and requirements (*i.e.* doing the same work) (Burt, 1997). If there are many people doing the same work then the value of social capital is relatively low compared to the circumstance where there are few individuals engaged in the same activity.

Social capital, like all other forms of capital, accumulates over time (Bourdieu, 1986), and in common with other capital, is not distributed evenly amongst the owners (Foley and Edwards, 1999). The volume of social capital possessed by an individual depends not only on the size of the network of contacts to whom he/she is connected but also on the volume of capital that each of the contacts possesses (Bourdieu, 1986). For example, a large network, where each node possesses a limited volume of capital, may have less social capital than a smaller network, where each node is well endowed. Thus, the social capital of an individual invested with much capital is higher than for an individual with limited capital. In an organizational setting it is worth noting that social capital accumulates towards the "top" of the organization (Burt, 1997), as the more senior individuals are charged with speaking and acting on behalf of the organization. These senior individuals, in representing the organization, exercise a power incommensurate with their individual contribution to social capital, because they have access to the capital owned collectively by the organization (Bourdieu, 1986). In any particular social setting, therefore, the distribution of social capital amongst the individuals in the network will influence the probable outcomes not only for any specific individual in the network, but also for the network as a whole (Adler and Kwon, 2002).

While it has been common to report positive outcomes (benefits) arising from social capital, there are also negative outcomes (risks) too, which are often understated

(Portes, 1998). One of the direct benefits of social capital is information. Earlier discussion indicated that access and timeliness were important elements of this benefit. The quality and relevance of the information may also be increased through the operation of social capital. Different social structures may permit access to information in different ways. Cohesive networks where nodes are tightly bound together facilitate the rapid flow of information to members of the network and allow the group to quickly achieve a common understanding. Conversely, bridging ties enable actors to acquire information from diverse sources and increase the volume of information available to the individual or group.

A second benefit of social capital arises from the influence, control or power that accrues to the individual. In a cohesive network it is possible to build up a set of obligations, so that focal actors may be able to exercise power over others to achieve their own goals. Of course this could be to the detriment of the group as a whole. If individuals act as bridges between otherwise disconnected groups, they can exercise power by brokering the exchanges between these groups. Again, this may or may not be beneficial to the group as a whole.

A third benefit of social capital, particularly in networks that are closed, arises from the norms shared amongst the individual members. The possibility of self-monitoring within the group reduces the need for formal controls, which may be difficult to agree, time consuming to adhere to, and costly to adopt.

In contrast to these positive outcomes of social capital, there are also negative consequences. At an individual level, Adler and Kwon (2002) suggest that investing in a monitoring relationship with others is costly, so that in some circumstances (*e.g.* knowledge transfer) it is more efficient and more effective to have weak ties than strong ties (*e.g.* Hansen, 1999). Furthermore, once individuals develop ties to others, there is a risk that the focal actor becomes embedded in these relationships and immune to new ideas from outside the immediate group of contacts. This may prevent individuals adopting novel ideas or changing (*e.g.* Perry-Smith and Shalley, 2003). It is also possible that deeply embedded relations create obligations for the focal actor which drain her/his resources or otherwise hinder her/his development. At an aggregate level Portes (1998) identified four negative outcomes. First, cohesive ties between group members based on

solidarity and trust, prevent others from gaining access. Second, strong community ties may constrain individual members, who are particularly innovative or entrepreneurial, restricting their freedom and autonomy. In a similar manner, and as noted above, strong ties may ensure that a focal actor is obliged to fulfil duties, particularly of mutual assistance to other members of the network, that prevent him from developing as quickly as he might otherwise do. A final negative outcome arises where the solidarity amongst members of a disadvantaged group ensures that members continue to accept the norms that are consistent with being disadvantaged, even when there is the potential for change.

That the motivations for social capital should have positive outcomes is unsurprising, it is also unsurprising that these same motivations may also have negative consequences too. What is surprising, however, is the rather limited examination of these drawbacks. This suggests perhaps that the concept of social capital has been enthusiastically embraced with too little critique. The plethora of definitions should have been a warning that this critique is necessary.

2.4.7 The limitations of social capital

In attempting to define what social capital is, how it can be measured, where it comes from and how more can be obtained, Johnston and Percy-Smith conclude that 'the status of social capital as a concept should more accurately be characterized as chaotic, while at times it operates as little more than a warm metaphor or a vaguely suggestive heuristic device' (Johnston and Percy-Smith, 2003, pg. 332). Fine (2001) provides a more analytic but equally scathing critique of the concept. He identifies a number of critical features.

First, he notes that all capital is social (*i.e.* set within a social context and is interpreted socially). 'Capital is embroiled in social relations, social structures, in social reproduction involving social power and conflict, and is attached to definite economic and social tendencies' (*ibid.*, pg. 33). Capital that is not social does not exist. Consequently, "social capital" is meaningless. Nevertheless, he does concede that social capital points to the existence of resources which are not directly linked to commercial forms.

Secondly, as noted above, social capital eludes definition, accommodating a variety of perspectives. Edwards and Foley concur with this view noting that 'social capital should be conceptualized more narrowly as a social relational and structural resource characteristic of social networks and organizations' (Edwards and Foley, 1998, pg. 135). Moreover, it is over-versatile contributing to very many different fields (as noted above).

Thirdly, all concepts need to be grounded both historically and socially (Fine, 2002). This is especially so for social capital as it is often defined functionally (*i.e.* by what it is and what it does, *e.g.* Coleman, 1988). Such definitions require an understanding of the context within which the relationship between individuals occurs. The development of any particular relationship has a unique path-dependent history which must be examined if the benefit of the particular dyadic relationship is to be discovered and the resulting social capital evaluated. This context specificity precludes generalization.

Fourthly, the instrumental categories of social capital are underpinned by social exchange theory (*e.g.* Emerson, 1975), which presumes a rational choice model of individual behaviour. It seems unlikely that rational choice explains every individual action, and highly improbable that the actions of these individuals can be aggregated to generate accounts of group behaviour, where groups may range in size from a few individuals to nations (*e.g.* Putnam, 1995). Extreme care should be exercised when trying to link micro to macro levels in social studies.

Fifthly, the operationalization of the concept of social capital is problematic. It is improbable that a single index can accommodate the diversity of content embraced by social capital. So, if more than one scale is required will the units be commensurable? This would be necessary to ensure that my social capital is the same as yours. Moreover, is it possible to achieve consensus on what constitutes social capital?, since the latter depends on small, but sometimes not so small, differences in social ranking. It is unlikely that agreement on differences in social ranking will be easily reached. Furthermore, it is unclear whether social capital is a discrete or continuous variable. Is it either present or absent or is it present in greater or smaller amounts?

With such a catalogue of disadvantages, the firmness of the foundations of social capital is clearly questionable. Consequently, it may be (very) unwise to consider using the concept of social capital. However, it does have two particular advantages (Schuller *et al.*, 2000). First, it is a relational concept, focusing on the pattern of interactions between agents, rather than on the behaviour of the individual agent. Second, it attempts to relate the micro (the individual) to the meso (the organizations) or the macro (society). The importance of these for this study will now be explained.

2.4.8 How social capital links to this study

This study takes the perspective that social capital is both a resource and a structure, and that the latter affects access to the former. In other words it conforms to Adler and Kwon's (2002) third category and privileges Nahapiet and Ghoshal's (1998) definition or Foley and Edward's more succinct version, namely 'access plus resources' (Foley and Edwards, 1999, pg. 141).

Much of the criticism of social capital as a concept stems from failures to clearly specify the context in which it is being used, and to take findings that pertain to social capital, apply them uncritically to a different context, and then to assume that social capital means the same thing in both situations. Many of these deficiencies can be overcome by a careful and thorough description of the study. Here I shall be examining PVCs with responsibility for either teaching or for research from 1994 Group universities. These individuals share a similar standing in their organization, being imbued with much of the social capital of the university that each represents. Within the social structure defined by membership of this network of universities, it is not known who is connected to whom?. The extent and nature of the social structure is not known. Furthermore, if there are benefits to be derived from interaction, then it is not known what these benefits may be. The literature suggests that access to information is probably a key benefit. But are there other benefits ? if so, what?, and if it is solely information, what is the nature of the information that is exchanged ? The section on networks suggests, for example, that it may be simple or complex. Are the benefits solely appropriated by the individual or are there collective benefits? While it seems

likely that both occur, this has not been demonstrated, which suggests that we know little about the motivations amongst members of the 1994 Group that permit the sharing of resources. One may suspect both "consummatory" and "instrumental" motives since membership of the group permits the development of a shared culture which may facilitate "bounded solidarity", but that "reciprocal exchange" will also be likely as individuals with similar responsibilities seek and share information from each other at different times.

With careful definition of social capital to include both the structure of the relationships within a specified social setting and the content of those relationships, I have argued that social capital can provide an appropriate conceptual lens with which to investigate who PVCs talk to and about what?, and thereby contributing to the examination of the primary research question, "How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs?".

2.5 Social Exchange Theory

In his review, Emerson noted that Social Exchange Theory (SET) is not a theory at all, but rather a 'frame of reference' (Emerson, 1975, pg. 336) which allows many other theories, both micro and macro, to interface with each other. This framing role is facilitated by Social Exchange Theory's own diverse origins, stemming on the one hand from the work of Homans (*e.g.* Homans, 1958) in social behavioural exchange and on the other from the work of Blau on the economic basis for exchange.

2.5.1 Definition and elaboration of SET

Quoting Blau, Emerson defined social exchange as 'actions that are contingent on rewarding reactions from others' (Emerson, 1975, pg. 336), while Cook defined exchange as 'consisting of voluntary transactions involving the transfer of resources between two or more actors for mutual benefit' (Cook, 1977, pg. 64). From these definitions it is apparent that the essential features of an exchange are

(i)   the involvement of at least two distinct actors, who are

(ii)   freely involved in transactions or exchanges of goods or services that are

(iii)   materially beneficial (*i.e.* there is a reciprocal flow of resources between the two actors).

For any particular exchange to occur between two specific actors there must be a real or perceived benefit accruing to the actors that rewards (and so reinforces) the exchange. Without this benefit no exchange would occur, or if it did occur once, the probability of re-occurrence would be small. Benefit, however, is contingent upon a number of factors. First, there are "comparison levels", whereby exchanges in one relationship for a specific resource may bring more or less benefit than that from a similar exchange in another relationship. Where normative values for exchange may be known, exchanges that deviate from these norms may bring positive or negative reactions, depending on the perspective of the actor and the direction of deviation. Secondly, saturation of the requirement for the resource may occur, so that exchanges freely and eagerly entered into in the beginning of a series of exchanges are approached

less enthusiastically as the resource ceases to be limiting. The resource has 'diminishing marginal utility' (Emerson, 1975, pg. 348). Thirdly, by undertaking some exchanges, others, with their attendant rewards, are foregone. The loss of these rewards can be considered as a "cost" of pursuing the original exchange. Obviously the idea of opportunity costs fit this definition.

Resources may be defined as abilities, possessions, or other attributes of an actor that another actor requires or values. Therefore, resources are specific to an identified exchange relationship. If a different (third) actor does not value an ability held by one or other of the original two actors, then that ability is no longer a resource for a relationship with the third actor. Consequently, resources do not strictly reside with the individual actor but inhere in the relationship between two actors. Information, power, sentiment or goods (Cook, 1977; Fombrun, 1982) may all be resources in different relationships. Clearly, it is necessary to identify the resource which forms the basis of any particular exchange relationship.

Benefits are indeterminately temporally situated, by which I mean it is not necessarily obvious that the benefit of any particular exchange will be accrued at the moment of the exchange. Although it is common for the benefit to be realized at the point of exchange, it is entirely possible for benefits to be realized at some later, undetermined, point in the future. This contrasts with the rational choice model of exchange that evaluates the benefits of exchange based wholly on an historic view of the relationship, not on a future possibility. It is possible for an individual actor A, engaged in an exchange relationship with Actor B to behave in an apparently irrational manner, by anticipating outcomes other than those expected from a knowledge of Actor B and the context of the relationship with Actor A.

The term actor in the definition of exchange given above is not limited to individuals, but can also include groups (and or organizations) as collectives. Moreover, the prior discussion of benefits and resources, also suggests that exchange relations can be extrapolated from an individual dyad to a higher level of social organization, and that these also must be set (or embedded) within a larger social structure. For example, sometimes benefits of an exchange can only be determined by reference to another similar exchange, which implies that both exchanges are embedded in a larger web of

inter-actor relations. Therefore, it is important to consider how the benefits accruing to two individuals from the transaction of resources inherent in the relationship between these two individuals, can be disaggregated and evaluated when other dyadic transactions which radiate from this initial pair, are occurring concurrently.

2.5.2 Exchange networks

In scaling up from a pair of individuals within a simple dyadic relationship, to multiple individuals (or collective actors) set in a larger social structure, single exchange relations become the building blocks for the creation of exchange networks, so that 'exchange networks are viewed as connected sets of exchange relations, pg. 113' (Cook and Whitmeyer, 1992, pg. 113). The embedding of a single dyadic relationship in a larger social structure, demands that mechanisms exist either to enable, or to protect, the exchange occurring within particular relationships. Jones *et al.* (1997) identify four social mechanisms that in different ways influence either the coordination of exchanges or the safe-guarding of the exchange relationship. These four are:

1. restricted access to exchanges;
2. macroculture;
3. collective sanctions; and
4. reputation.

These are similar to the four explanations provided by Portes (1998) for the motivation behind actors sharing resources or to the relational dimensions of social capital (Nahapiet and Ghoshal, 1998) (see previous section on Social Capital). In fact, the "consummatory" motives (value introjection and bounded solidarity, or more broadly socialization) underpin a reduction in coordination costs, through the establishment of common values, while the "instrumental" motives (reciprocal exchange and enforced trust) act as safeguards for the exchange, through the development of trust and the reciprocal monitoring of actions (Jones *et al.*, 1997).

While the discussion of Social Capital considered the benefit of exchange and the relational requirements by which exchange might occur from an individual perspective, the four mechanisms identified by Jones *et al.* (1997) may operate for

exchanges that occur at a collective rather than an individual level. At an organization level, exchange occurs primarily because of specialization or scarcity (Cook, 1977). Most organizations develop only a few capabilities or competencies (*i.e.* they specialize) and must rely on exchange with other organizations not only to acquire necessary resources but also to market their products and services. The volume of interaction (and therefore exchange) between organizations is a function of the type of organization; some organizations by virtue of what they do are obliged to interact with other organizations in order to fulfil their goals more than another group of organizations needs to. Scarcity restricts available resources, and this not only forces organizations to specialize but also requires them to interact with other organizations in order to access the resources they need in order to fulfil their goals (Levine and White, 1961). By establishing stable exchange relationships with other organizations the environmental uncertainty for a specific organization caused by scarcity of resources can be mitigated somewhat. The benefit to the organization of exchange is, therefore, a reduction in uncertainty and a greater predictability in the organizational environment.

Jones *et al.* (1997) in their review elaborate on these themes of specialization, scarcity and uncertainty and suggest four conditions necessary for the emergence of exchange networks. The first condition is product demand uncertainty with stable supply. While uncertainty may arise from the unpredictable behaviour of suppliers, it can also come from the unpredictable behaviour of customers. This might be through shifting customer preferences, seasonality or rapid changes in technology. As the demand for a product changes rapidly autonomous units, rather than vertically integrated organizations, can respond flexibly to these environmental changes, by changing their pattern of resource acquisition. In other words they can change the content of the exchange relationship with other organizations.

The second condition is human-asset specificity. The more specialised members of the workforce become, the greater is the need for units in an organization, or organizations themselves, to interact with each other to fulfil organizational level goals. This is often achieved through a network.

A third condition is task complexity, in which a number of different specialised inputs are needed to complete the task. The integration of these inputs, especially when time is limiting, is most effectively achieved through a network.

A final condition, is the frequency of exchange. Exchanges that occur often are more readily governed by informal mechanisms because the relationship becomes more deeply embedded. Not only does the relationship between the two parties develop, so that each comes to consider the objectives of the other, but also awareness of the exchange parties other relations also develops so that organizations become aware of their structural embeddedness. This not only provides a source of information but also acts as a source of social control.

2.5.3 Exchange relations in this study

As noted in Chapter 1 the environment within which universities find themselves is becoming increasingly turbulent and constrained. Moreover, university staff are increasingly specialized, yet need to work together to deliver the organizational goals of both teaching and research. According to Jones *et al.* (1997), such circumstances demand exchange networks both between Schools or Departments within a university and between universities themselves in order to reduce uncertainty and to create stability in the local environment.

These exchanges, however, are often organized and managed at the level of the individual member of staff, rather than at some higher level of organization within the university. Individuals pursue these exchanges because they are personally rewarding, *i.e.* some benefit accrues to both parties from entering into the exchange relationship. PVCs are no different. For example, they may establish exchange relationships with other PVCs in order to gain access to information that allows them to perform their job within their own institution more effectively. Furthermore, they may engage with PVCs from other universities in order to benefit their own university, perhaps by securing access to additional resources through joint activities.

In the context of the 1994 Group of Universities in the UK, it is not known how exchanges are organized and controlled either between institutions or between

individuals (such as PVCs) who may represent these different universities. Social Exchange Theory provides a framework for examining these exchange relationships between individuals and for exploring why they may be formed between organizations, and what controls may exist to safe-guard exchanges. This theoretical perspective permits an exploration of the question, "What is the basis for interaction between PVCs?", which contributes to answering the primary research question, "How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs?".

2.6 Research Questions

Having set out four separate, yet evidently related, literatures pertaining to networks of individuals and organizations, to the concept of role, to the concept of social capital and to the framework provided by social exchange theory, a brief synthesis is now necessary in order to articulate a primary research question, plus a number of secondary ones.

The focus of this study is the PVCs of 1994 Group universities, for reasons that will be explained more fully in Chapter 3. It is clear from a consideration of role theory that individual PVCs will be influenced both directly and indirectly by the actions, or behaviours, and expectations of other PVCs. Unfortunately, how this influence is exerted, or in which ways and to what extent ?, is not known. Networks of relationships between individuals create a social structure within which exchanges can occur. Through the selection of particular individual exchange partners, or by belonging to specific networks, individuals can gain more or less benefit for themselves, and be a resource of more or less value to others. Two resources of interest in this study are information and affect, since these are the two resources of greatest use to a PVC. One provides a resource for strategic leadership, while the other lends support to the individual and generates confidence in decision making. To date, this is only supposition. Not only is there no documented evidence for the existence of exchange relationships between PVCs of different universities, but the basis of these putative exchange relationships is also not known (*i.e.* what is exchanged ? and for what purpose ?).

A number of different mechanisms for coordinating exchange relationships have been suggested in the literature, but it is not known which of them has any influence on the exchange relationships between PVCs. Are exchanges always reciprocal and based on trust, which deepens as the relationship develops, and exchange frequency increases ? Or, if the universities to which the individual PVCs belong are part of a network, then are exchanges governed by this common background ? and if so how and in what ways ?

Clearly, there are many questions arising from this review of the literature. Nevertheless, the primary research question in this study is:

How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs ?

Evidently, this demands that some of the other questions alluded to earlier are tackled as subsidiary questions. While there is a network of organizations (universities) within the 1994 Group, there may, or may not, be a network of individuals (particularly PVCs from these constituent universities). So it is reasonable to ask:

Is there a network of PVCs ?, and furthermore
What is the basis of their interactions?

In addition, and in order to interpret the answers to the previous questions, it will be necessary to explore the nature of the PVC role, and how this may differ between different PVC positions. In other words, an ancillary question is:

What does a PVC do ?

3 Chapter 3 – The Study: Setting, Design and Operation

3.1 Introduction

Formal networks of universities seem to be an increasingly important phenomenon in the global Higher Education Sector. How membership of a network affects the institutions that belong to it or, more pertinent to this study, how membership of a network influences the senior managers of any particular university within a network is not known. This thesis begins to address this issue.

In this chapter I shall first provide a thorough description of a particular network of UK universities (the 1994 Group). This will be followed by a consideration of research methodology, the development of an overall research design, and a discussion of some of the issues surrounding the possible methods. Finally, the methods used in this study will be outlined.

3.2 1994 Group

According to their promotional material the 1994 Group 'provides a central vehicle to help members promote their common interests in higher education, respond efficiently to key policy issues, and share best methods and practice' (1994 Group, 2007b). Established in 1994, the 1994 Group of universities sought to respond to developments in the UK HE Sector by offering a distinctive mission that balances high quality research and excellent teaching, whilst providing a very high standard of student experience (1994 Group, 2007c).

3.2.1 A similar "set" or a diverse "grouping"?

The original 1994 Group comprised 16 universities dispersed throughout England and Scotland (University of Bath, Birkbeck University of London, Durham University, University of East Anglia, University of Essex, University of Exeter,

Goldsmiths University of London, Royal Holloway University of London, Lancaster University, London School of Economics and Political Sciences, University of Reading, University of St Andrews, University of Surrey, University of Sussex, University of Warwick, University of York). This has subsequently increased to 19 with the addition of the Universities of Leicester, Loughborough, Queen Mary University of London, and the School of Oriental and African Studies, and the loss of London School of Economics and Political Sciences. The original set of 16 universities is the focus of this study.

The objectives of the 1994 Group are: 'to promote excellence in research and teaching'; 'to enhance student and staff experience' at member universities; and 'to set the agenda for higher education', by influencing government policy (1994 Group, 2007a).

In summary, the main aims of the group are:

> ➢ To secure widespread recognition and a position of strength to influence decision- and policy-making groups;

> ➢ To achieve awareness and profile that underpins the ambitions of members in global markets;

> ➢ To promote the need for diverse, distributed centres of research and teaching excellence;

> ➢ To share good practice, enhancing the experience of staff and students; and

> ➢ To provide services to help members respond effectively to changing market conditions (1994 Group, 2007a).

Historically, the Board of the 1994 Group has been composed of the Heads (normally the Vice Chancellors) of each institution, with a Chair elected from amongst the members. From 2006-09 this is Prof. Smith, Vice Chancellor at the University of Exeter. More recently, three policy groups have been established for Research and Enterprise, Student Experience, and Strategic Planning and Resources. These policy groups permit the 1994 Group to strengthen its inter-institutional activity and provide it with a forum in which longer-term policy positions can be developed and through which responses to consultation exercises can be prepared. The constitution of these policy

groups comprises the relevant PVC from each member institution. In addition to the Board and the policy groups, there are also officer level groups, which provide informal networking opportunities for senior administrative officers (*e.g.* Registrar, Librarian or Director of Finance) to exchange information and develop best practice collectively.

The sizes of the 16 original member universities, both in terms of numbers of academic staff and numbers of students (both undergraduate and postgraduate), varies considerably (Figure 3). The smallest, Goldsmiths, has less than one quarter of the number of academic staff and a little more than one third of the students of the largest, Warwick. Nevertheless, within the UK HE sector they may be classified as small- to medium-sized institutions, which are often campus-based.
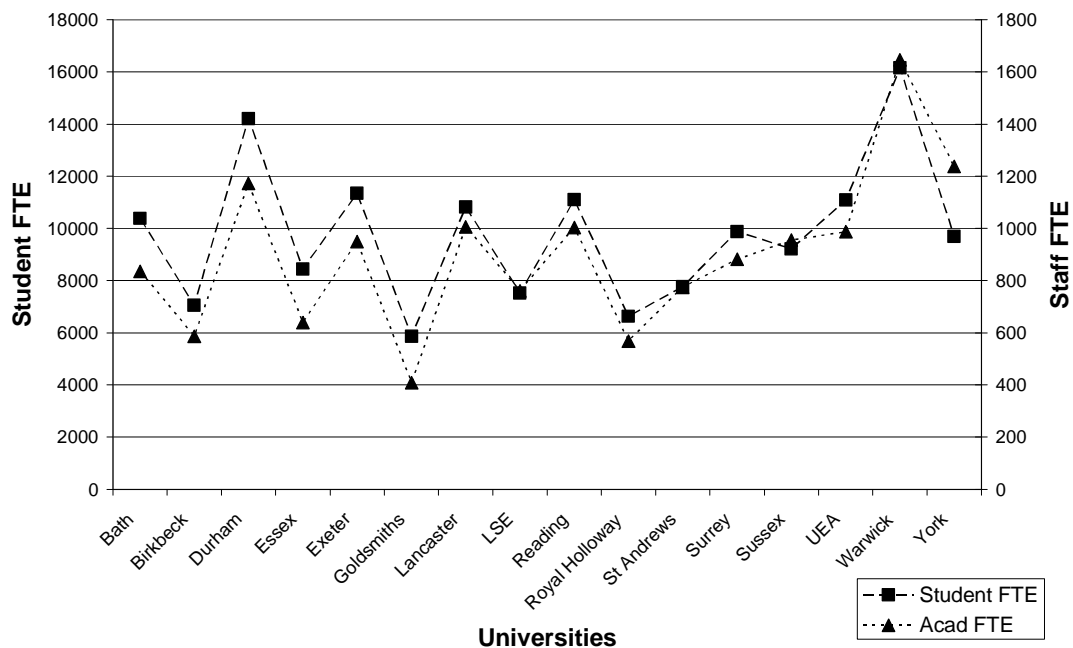
Figure 3. Staff and Student FTE in 1994 Group universities in 2004-05.

While the absence of a medical school is a shared characteristic of the original 16 members, their common "research intensity" may be open to question, although all of the 1994 Group universities would be more research active than many within the UK HE Sector. Total annual research income ranged from £1.69m to £40m in 2003/04 (HESA, 2006). There was also significant variation in both the amount of funding from UK

Research Councils and its proportion relative to the total research income. Amounts of UK Research Council income varied from £745k to £13.13m, while the proportion was at best 60% and dwindled to 30%.

Similarly, the claim to a universal "international renown" is not unequivocally substantiated by the results of the 2001 Research Assessment Exercise, where in these 16 universities the number of academics in 5* rated submissions (a top grade equivalent to international excellence in more than half of the submitted research activity for a particular unit of assessment) was always less than 51%, and for most (12) of the universities was never more than 30% (RAE, 2001). Nevertheless, the 1994 Group of universities does have considerable research standing within the UK; more than 53% of the academics were included in submissions rating 4 and above (*i.e.* where more than 90% of the submitted research activity was of national or international quality). In a majority of universities it exceeded 70%. Many (5) of these 1994 Group universities had no 3 rated submissions, but where they did these often constituted less than 10%, and never exceeded 17% of the submitted staff. Moreover, in all cases the proportion of staff submitted to the Research Assessment Exercise in 2001 exceeded 78%, and in the majority of cases was more than 85%. Several exceeded 90% (RAE, 2001).

3.2.2 Academic FTE

Data on academic Full Time Equivalents (FTE) from the Higher Education Statistics Agency (HESA) tables (HESA, 2006) showed that the mean number of academic FTE in a 1994 Group university increased from 841 to 901 from 2003-04 to 2004-05 (see Figure 3 for 2004-05 data), with standard deviations of 264.9 and 298.4 respectively in these years. In 2003-04, four universities had academic FTE numbers which differed from the mean by more than one standard deviation, namely Goldsmiths, Birkbeck, Reading and Warwick, whereas in 2004-05 there were five such universities. These were Goldsmiths, Royal Holloway, Birkbeck, York and Warwick. Warwick consistently had the largest number of academic FTE, while Goldsmiths had the smallest. Lancaster and Surrey most closely matched the mean number of academic FTE in 2003-04 and 2004-05 respectively.

3.2.3 Student FTE

Warwick and Durham had the larger numbers of student FTE in both 2003-04 and 2004-05, Goldsmiths and Royal Holloway had the smaller numbers in both years (see Figure. 3 for 2004-05 data) (HESA, 2006).

On average, student FTE's increased from 9653 in 2003-04 to 9822 in 2004-05 across these 16 universities of the 1994 Group. Standard deviations of these means were 2534.4 in 2003-04 and 2725.8 in 2004-05, so that there were four universities with student FTEs that differed from the mean by more than one standard deviation in 2003-04 (Goldsmiths, Royal Holloway, Durham and Warwick) and five such universities in 2004-05 (those from 2003-04 plus Birkbeck).

3.2.4 Student-Staff Ratio

Student-staff ratios, on average across these 16 universities, decreased by 1 unit from 11.9 to 10.9 between 2003-04 and 2004-05. In 2003-04, student-staff ratios ranged from 17.97 at Goldsmiths to 8.86 at York, while in 2004-05 Goldsmiths had a student-staff ratio of 14.35 and York had a student-staff ratio of 7.83.

3.2.5 Composition of Student Numbers

Data on the composition of the student population in 2004-05 at each of the 16 universities was obtained from (HESA, 2006). Total student numbers differ from student FTE in proportion to the size of the part-time student population and the extent to which these part-time students are studying. Part-time students may study for 50% of their time, but greater or lesser proportions are possible.

In 2004-05, the total student numbers ranged from little more than 7k at Goldsmiths to nearly 30k at the University of Warwick (Figure 4). Eleven of the 16 universities had between 10 and 20k students. Three of the four universities that had fewer than 10k students were found in London (Royal Holloway, London School of

Economics and Goldsmiths). On average there were 13,789 students at any one institution in 2004-05.

Generally, between one quarter and one third of all students were postgraduate, although at some universities this proportion was either substantially greater (*e.g.* more than one half at London School of Economics) or smaller (around one fifth at Lancaster and St Andrews).
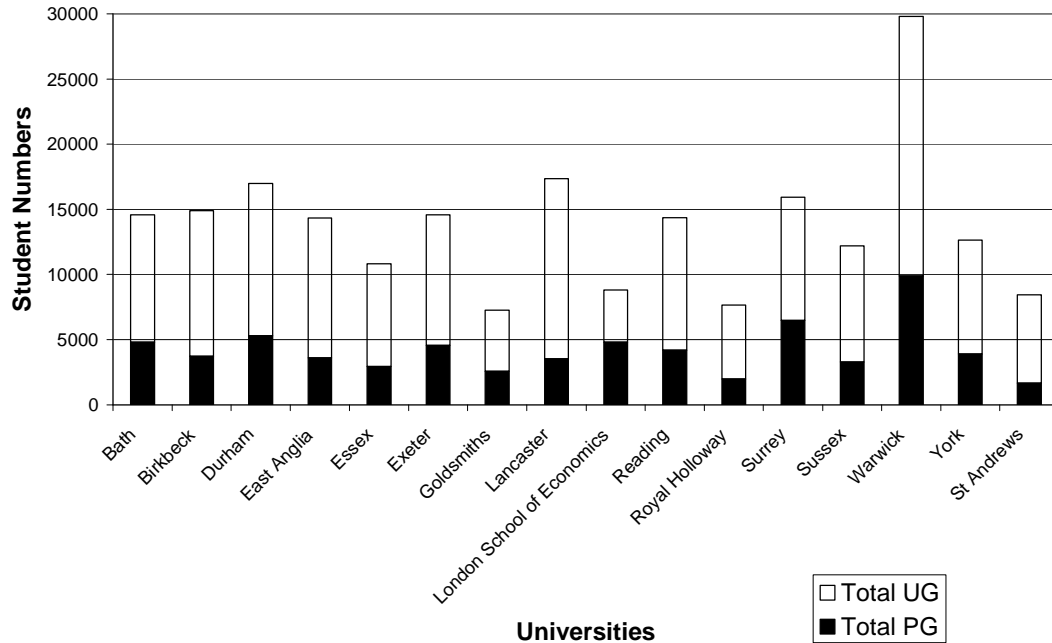
Figure 4. Total number of undergraduate and postgraduate students at 1994 Group universities in 2004-05.

3.2.5.1 Postgraduate Numbers

The total number of postgraduate students in 2004-05 ranged from 1675 at St Andrews to 9885 at the University of Warwick, but averaged 4197($\pm$1948) across these 16 universities (Figure 4). Nine of the 16 universities had more full time postgraduate students than part-time ones, although on average the number of part-time postgraduate students (2110$\pm$1496) was slightly greater than the number of full time postgraduate students (2086$\pm$801).

At a majority of the 16 universities more than 60% of the postgraduate students were UK nationals. Two notable exceptions were the London School of Economics,

where the proportion was only 24%, and Essex, where the percentage was 34%. At all 16 universities more of the non-UK postgraduate students came from outside the EU than from within it. Often there were more than twice as many overseas postgraduate students as EU postgraduate students.

3.2.5.2 Undergraduate Numbers

Total undergraduate numbers varied almost five-fold from 4020 at London School of Economics to 19910 at Warwick in 2004-05 (Figure 4). On average there were fewer than 10k undergraduate students (9592±3789) at these 16 universities. Few universities fell outside 1 standard deviation; Warwick and Lancaster had more undergraduates, and London School of Economics and Goldsmiths had fewer undergraduates.

With the exception of Birkbeck, all of the universities had more full time than part-time undergraduates. For most of the other universities more than 70% of the undergraduate population was full time. Both Lancaster and Warwick had roughly equal proportions of full time and part-time undergraduate students.

At half of the universities at least 90% of the undergraduates were UK nationals. The obvious exception was London School of Economics, with only 55% of the undergraduate population coming from the UK. At five of the remaining 7 universities more than 80% of the undergraduates were of UK origin. With the exception of Sussex, the number of overseas undergraduate students exceeded the number of EU undergraduate students at all the universities. However, the dominance of overseas students in the non-UK undergraduate population was less than in the non-UK postgraduate population. Only at three universities (Warwick, London School of Economics and St Andrews) were there more than twice as many overseas undergraduate students as undergraduates from other EU countries.

3.2.5.3 Summary of institutional models of student populations

The most common model for the student population at any of these 16 universities was for an undergraduate population of full time students mainly from the UK, which was twice as large as the postgraduate student population. Many of the latter came from countries outside the EU. By selecting full time undergraduate students from

the UK, universities were able to maximize income from the funding councils (HEFCE or SFC) and to supplement this by charging variable fees to postgraduate students from outside the EU. Nevertheless, there were also two other distinctly different models. Birkbeck offers courses mainly on a part-time basis. London School of Economics has an international focus, with more students coming from outside the UK.

3.2.6 QR Funding (2004-05) and Total Funding Council Income

Quality Related (or QR) research funding to the 16 universities in 2004-05 (HESA, 2006) ranged from £6.49m for Goldsmiths to £22.63m for Warwick (Table 1), although the average was £13.33m (±£4.23m). The amount of QR funding for the universities of York, Durham and Warwick was greater than the mean by more than 1 standard deviation, while QR funding for Goldsmiths, Birkbeck and Essex was less than the mean by more than 1 standard deviation. For most universities QR funding was between 25-40% of the total sum received from the funding councils. The notable exception was London School of Economics with a figure of 56%. Although it received more than the average amount of QR funding, reflecting its strong RAE performance in RAE2001, the relatively small proportion of UK nationals in its student body meant that it received much less income from other funding council sources compared with the other 15 universities. In total it received £24.7m whereas the University of Warwick received almost £66m (Table 1). On average, the 16 universities received from funding councils in total £40.8m (±£12.24m) each. The total non-QR funding from funding councils in 2004-05, primarily for student numbers, ranged from £10.94m at London School of Economics to £43.85m at Durham, but averaged £27.52m(±£9.15m). This average sum is approximately double the amount for QR funding from funding councils.

Table 1. Sources of income (£m) for 1994 Group universities in 2004-05.

University	QR Funding (£m) (col. 2)	Non-QR Funding (£m) (col. 3)	Total Funding Council income[1] (£m) (col.2 + col.3)	Total grant and contract income (£m) (col. 5)	Total Research income (£m) (col.2 + col.5)
University of Bath	13.39	31.24	44.63	22.91	36.30
Birkbeck University of London	7.22	21.43	28.65	9.07	16.29
Durham University	17.65	43.85	61.49	31.64	49.29
University of East Anglia	12.77	29.94	42.71	25.90	38.67
University of Essex	8.41	19.62	28.03	12.06	20.47
University of Exeter	10.78	38.00	48.78	15.25	26.03
Goldsmiths University of London	6.49	20.56	27.06	2.07	8.56
Royal Holloway University of London	10.98	17.99	28.96	9.21	20.19
Lancaster University	13.20	26.57	39.77	21.22	34.42
London School of Economics	13.75	10.94	24.69	15.03	28.79

[1]For all Universities, except St Andrews, this is HEFCE. St Andrews are funded by The Scottish Further and Higher Education Funding Council (SFC).

Table 1. Contd.

University	QR Funding (£m) *(col. 2)*	Non-QR Funding (£m) *(col. 3)*	Total Funding Council income[1] (£m) *(col.2 + col.3)*	Total grant and contract income (£m) *(col. 5)*	Total Research income (£m) *(col.2 + col.5)*
University of Reading	17.50	32.78	50.28	23.86	41.36
University of St Andrews	11.59	20.70	32.39	22.49	34.09
University of Surrey	15.20	24.48	39.68	27.83	43.03
University of Sussex	14.07	30.74	44.81	20.10	34.17
University of Warwick	22.63	43.34	65.97	58.56	81.19
University of York	17.58	28.08	45.65	36.25	53.83

[1]For all Universities, except St Andrews, this is HEFCE. St Andrews are funded by The Scottish Further and Higher Education Funding Council (SFC).

3.2.7 Research Income

Total research grant and contract income from the HESA tables (HESA, 2006) for 2004-05 for these 16 universities of the 1994 Group ranged from £2.07m at Goldsmiths to almost £60m at Warwick University, although only York and Durham earned more than £30m from research grants and contracts in 2004-05 (Table 1). So the variation between universities was less than it might appear. Furthermore only two other universities (Birkbeck and Royal Holloway) earned less than £10m (Table 1).

As a proportion of the research grant income won in 2004-05, QR funding for the same year, which reflects past research performance, was generally less than 0.75. Nevertheless values for Goldsmiths and Royal Holloway both exceeded 1 (*i.e.* QR

income was greater than the annual total research grant and contract income for 2004-05).

The combined total income for research grants and contracts and QR funding, which could represent research related funding for an institution, was on average £35.4m for each institution in the 1994 Group in 2004-05 (Table 1). Clearly, the totals differed by a factor of almost 10, from £8.5m at Goldsmiths to £81.2m at Warwick; this latter figure was more than the combined income of the lowest four universities (Goldsmiths, Birkbeck, Royal Holloway and Essex).

With the exceptions of Birkbeck and Warwick the major source of research grant income for the other universities in 2004-05 was from research councils, although its importance for any particular university varied, contributing only 30% of the research grant income at Surrey but 66% at Essex. For half of the universities income from research councils accounted for about 50% (±5%) of the total research grant income. For many universities UK government was the next largest contributor to total research grant income although, as a proportion of the total, the contribution varied widely ranging from almost 48% at Warwick to 8% at Surrey and Sussex. With the exception of Bath, the research grant income contribution from industry to universities was less than 10% and for most less than 5% of the total. Goldsmiths received no research income from industry. Funding from charities ranged from £412k to £7.8m, at Goldsmiths and Warwick respectively.

Not all of the research grant income at each institution came from UK sources. On average in 2004-05, £3.2m came from non-UK sources, either EU or overseas. Surrey earned £13.8m from non-UK sources, but all of the other 15 universities earned less than £5m from non-UK sources. With the exception of Surrey, where research grant income from non-UK sources exceeded that from UK sources, at all of the other universities the research grant income from the UK sources was at least 3 times greater than that from non-UK sources, and more than 10 times greater at both Warwick and Birkbeck.

3.2.8 National Student Survey

Results of the National Student Survey in 2006 obtained from the Guardian website (Guardian, 2006) gave overall student satisfaction scores ranging from 4.3 (for Birkbeck) to 3.9 (for the Universities of Surrey and Sussex). All of the 1994 Group of universities received their lowest score across each of the six dimensions of the survey for "Assessment and Feedback". Scores for this ranged from 3.3 to 3.8. The highest marks were generally scored either for "Learning Resources" (3.7-4.2) or for "The teaching on my course" (3.9-4.3).

3.2.9 Summary

The previous sections indicate a wide range in values between universities in the 1994 Group for each of the measured variables, implying quite dissimilar universities. Nevertheless, their generally small size and campus base, together with a serious commitment to both Research and Teaching, in which they score highly in national assessments, perhaps because a high proportion of academic staff engage in both of these activities, seems to generate a shared tacit appreciation of their similarity and, more importantly, their distinctiveness in comparison with other universities in the UK. It is this distinctiveness which collectively they wish to defend (1994 Group, 2007c), and which provides the impetus for the existence of the 1994 Group.

3.3 Research Methodology

While Guba and Lincoln (1994) distinguish between four different paradigms of inquiry that each vary along ontological, epistemological and methodological lines, Blaikie (1993) simply identifies two different orientations to the ontological question, 'What is the nature of reality ?'. The fundamental difference hinges on the relationship between the observer/researcher and the object under investigation. In a constructivist view, reality is created, shaped and interpreted by the interaction of different actors. Reality does not exist independently of the actors. Conversely, a realist view acknowledges a reality that exists independent of the experience of the observer, which

can be observed objectively. How the reality of the constructivist or the realist is then described, analysed, explored, examined, investigated or understood is the epistemological question, which must be impacted by the initial starting position. A number of epistemological approaches seem to be acceptable within either of Blaikie's two orientations to reality, for example positivist and critical rationalist approaches tend to be used to describe a real world, whereas interpretivism and some aspects of realism and hermeneutics tend to be used to describe a socially created world.

It is clear from Marsden (1990) that networks exist independently of any actor involved in that network, so the networks in this study have a reality that can be observed and measured. However, networks, including those within the 1994 Group, may also be socially constructed by the actors involved in them (see Ibarra *et al.,* 2005). These two seemingly ontologically contradictory positions may be combined in a single study by adopting a realist perspective (Sayer, 1992). Similarly, the PVC position and associated role exists independently of an individual actor in the structure of a university hierarchy, so the function can be observed and objectively studied but the role may also be created by the social expectations of others. According to Sayer (1992) the realist perspective permits the reconciliation of these ontologically divergent positions

Realism accepts the existence of both "real" and "thought" objects. Real objects connote facts, such as things or states of the world (Sayer, 1992, pg. 47), that exist whether they are known by any randomly chosen individual or not. These real objects are described, using language that is theory-laden, or concept dependent, by thought objects. Thought objects define an individual's understanding of his or her world and aid the communication of that world to another. Like concepts, perceptions, which are expressed through object-dependent language, are also deemed to be thought objects and therefore amenable to study.

The realist "theorem" states that an event is a function of the operation of a mechanism on an object in a specific context, where the particular context may either permit or prevent the occurrence of an anticipated outcome, and where the object may be either "real" or "thought" (Sayer, 1992; pg. 108). Thus, in this study, both the performance of a PVC role and the perception or understanding of the PVC role are objects set within the context of a formal network of universities. How the

actions/behaviours of individual PVCs in this context result in specific outcomes, in this case interactions with each other, is not known. In other words, the mechanisms have not been identified that encourage PVCs to interact within a formal network of Universities. The investigation of these mechanisms in two different contexts, Teaching and Learning or Research, may permit their elucidation more easily. So in this study the context could either encourage or suppress interaction between PVCs within the 1994 Group of universities.

3.4 Research Design

3.4.1 General Outline

The study had two phases. In the first phase, maps of connections between PVCs in two of the policy groups in the 1994 Group were produced. In the second phase, the significance to individual PVCs of the connections between individuals within (but also outside) these two policy groups was explored.

The study used a combination of two different network approaches. A single policy group within the 1994 Group constitutes a bounded network of 16 PVCs. The connections between the 16 actors within the whole network were mapped and the social structure analysed. This "whole" network approach can be contrasted with the "ego-centric" network approach where the links to others from a single actor are mapped. This latter approach was used to explore the significant links that individual PVCs within the 1994 Group have to others outside this group. Clearly, the level of analysis for the study was the individual PVC, but the unit of analysis was the dyadic connection between individual actors.

These maps formed the basis for subsequent semi-structured interviews with a smaller number of the PVCs. The purpose of these interviews was to explore the PVC role and the importance of connectivity to others for these PVCs. It also permitted an exploration of the similarities and differences between the role of Pro-Vice Chancellor with responsibility for research (PVC-R) and Pro-Vice Chancellor with responsibility for teaching (PVC-T).

Due consideration was given to ethical issues during the research. Participants were informed that their participation was voluntary, and recorded consent of participation was obtained. Confidentiality was respected and data have been anonymized in presentation, so that participants cannot be identified.

3.4.2 Reflections on Research Design

3.4.2.1 Network Issues

Defining the boundary of a network is one of the critical elements in the study of any network (Marsden, 1990) Boundaries that are defined by the researcher may be artificial and can distort the data that are collected. Natural boundaries, in contrast to artificial ones, may not bias the data, but might be difficult to ascertain and may include unnecessary information, or exclude data of importance to addressing the particular network questions. The purpose of this study was to explore the influence of belonging (or not belonging) to a network on the actions of individual PVCs. The 1994 Group provided a bounded self-defining network of universities which espouse common aims. While other bounded networks of universities could have been explored (*e.g.* Russell Group or the group of "non-aligned universities"), the particular network is unimportant. What was important to this study, however, was the extent to which an individual did or did not "belong" to the particular network in question, as indicated by the number of ties from an individual actor to others in the same network. Consequently, it was important not only to explore the connectivity between all members of the whole network, but also to take individual actors in the network and explore their own ego-networks. The relative sizes of these two networks and their perceived relative importance may shape the actor behaviours and will determine the significance of the focal network (in this case the 1994 Group) and contribute to our understanding of the importance of the focal network.

Networks tend to integrate different levels of analysis, so that at least two different levels (commonly the individual and the organization) (Kilduff and Tsai, 2003) are combined in a single study. This may create difficulties of interpretation, and demands that units and levels of analysis are clearly defined and rigorously adhered to.

Alternatively, networks may be considered to be a dependent or an independent variable (*i.e.* a consequence or a cause) (Borgatti and Foster, 2003). In this study, the network is the independent variable, and membership of the network may be a major factor influencing the activities and behaviours of individual PVCs.

Social networks normally evolve. New members join and old members leave. There may also be an expectation that they change in size (Barabasi, 2002), increasing or decreasing according to the relative rates at which actors join or leave. While the size of the whole network in this study was fixed at the 16 institutions, the composition of the group could change over time depending upon the existence of fixed terms of office for PVCs. The study did not consider the evolutionary nature of the network explicitly, although it did so implicitly. One of the demographic factors collected was duration of tenure. This may account for some of the observed variation in connectivity; those newest to the PVC role will have had less time to develop contacts with a large number of others. Conversely, those with a long history as a PVC may have a larger number of connections both within and outside the 1994 Group. The single cross-sectional view of the network also located the study temporally, and therefore necessarily limited the extent to which generalizable conclusions could be made.

3.4.2.2   Issues of method

A consideration of access determined the selection of the 1994 Group over the main alternative, the Russell Group. The aspiring nature of the institutional members of the 1994 Group was felt likely to make them more inquisitive about the management of their group, and more keen to explore issues which might impact their performance. Similar reasoning also suggested that PVCs might be more accessible and more informative than Vice Chancellors. So the study focused on PVCs from the 1994 Group of universities.

Both the survey instrument and the interview protocol were piloted prior to data collection. It is important to ensure that meanings are understood and instructions and questions are clear. A notable difficulty in studies of networks is in the definition of a connection. Is this an enduring relationship or is it a transient interaction ? Is a regular dialogue the same, or different, from an irregular contact, for example frequent and

intense dialogue interspersed with periods of silence ? Moreover, does the medium of contact affect whether the connection is more or less significant ? Is a face-to-face discussion a more important connection than an email ? In addition to frequency of contact and the medium, there is also the issue of content of the connection. How does the content of the interaction affect its significance and whether or not it constitutes a meaningful connection ? For the purposes of this study, a connection was defined as one where information or support was exchanged and was perceived by the recipient or by the donor to be helpful to performing the duties of a PVC.

A web-based questionnaire ensured that questions were delivered in the same manner to all respondents, although they may not have been perceived in the same way depending upon the particular circumstances of the recipient. Nevertheless, it was presumed that the differences in the answers were real and therefore comparable, and not a consequence of the interaction between the researcher and the researched. This contrasts with the semi-structured interview where errors may be introduced by the respondent, by the interview protocol, or by the interviewer (Fontana and Frey, 1994). Respondents may withhold information or attempt to give plausible or reasonable answers. This could be true in this study where individual PVCs might wish to justify their actions and choices in a rational and logical manner. Although piloted prior to use, the interview protocol could still have been obscure or ambiguous. As an interviewer I may have had a poor technique, so that neutrality was not maintained. Ensuring that the same questions were asked in an identical manner is critical to obtaining comparable data but it is difficult to assess how easily this was achieved in this study. Some PVCs were quite formal in which case a set sequence and format of questions was relatively easy to adhere to. Others were more convivial and conversational. As the formality of the meetings decreased it became more difficult to retain the semi-structured format, ensuring that all questions were posed in the same manner and in the same order. Nevertheless, this may have improved the richness of understanding and quality of insight. This tension has been noted by Holstein and Gubrium (1997) and also by May (1997). May (1997) identified three necessary conditions for a successful interview (accessibility – does the respondent have access to the information? cognition – does the respondent understand what is required? and motivation – does the respondent want to

participate?). Successful interviews are dependent upon establishing rapport, which can be influenced both by the power dynamics between interviewer and interviewee, and by any obvious discrepancy in characteristics (*e.g.* age, race and gender) between interviewer and interviewee. In this study, the power dynamics favoured the PVCs and not the interviewer! It is unclear whether this facilitated or hindered data gathering, particularly regarding the opportunities to probe for clarification or amplification of answers. Both of which are recommended by May (1997).

3.4.2.3   Issues of reliability, validity and generalizability

The three concepts (reliability, validity and generalizability) each describe a different facet of the truthfulness of the research.

Reliability, describes the consistency of the findings, or 'the degree to which the finding is independent of the accidental circumstances of the research (Ansii, 1997)'. The triangulation of data from different sources improves the reliability of the research. For example, in this study the existence or non-existence of a tie between a pair of actors was more reliably ascertained because both actors were invited to answer the question. Marsden (1990) noted that the self-reporting of network ties is problematic, but that data are more reliable where there is mutual disclosure of a tie. He also noted that reliability increases when general perceptions of the network connectivity are requested (as in this study) rather than connections occurring at particular events. This suggests that in this study the structure of the networks will be known reliably. However, the importance of the network for any particular actor is only informed by the response of the individual actor concerned. Clearly, this may or may not be reliable. Nevertheless, the reasons why the specific functional sub-group of the 1994 Group was more or less important to the way in which an individual PVC performs her/his duties was more or less reliably known since this was a synthesis of the responses from a number of separate interviews. A comparison of the reasons given by members of each of the two sub-groups confirms the reliability of the findings. This does of course assume that the networks of the functional subgroups are comparable. The data and subsequent conclusions only remain reliable if the act of questioning, either by survey or by interview, did not subsequently

alter an actor's behaviour, so that new links were formed or different uses sought for existing links in the network.

Validity is the primary emphasis of qualitative research (Kirk and Miller, 1986). 'Validity pertains to the degree that a method investigates what it is intended to investigate (Kvale, 1996)', or more pragmatically, 'Are we calling the measured item by the correct name ? (Ansii, 1997)'. Prior studies have used similar instruments for gaining data on the connectivity between actors and then used Social Network Analysis techniques to analyse the data (*e.g.* Krackhardt, 1990; Wasserman and Faust, 1994; Hansen, 1999; Kilduff and Tsai, 2003). These have been accepted as valid studies, so the derived map of each network in this study was valid. Much less appears to have been done to explore the impact of membership of a formal network on the behaviour of any single individual, or to ascertain the perceived importance of one network over another, so questions could not be sourced from other studies. It is possible that semi-structured interviews were not the only valid method for accessing this type of information from individuals. A different epistemology may have required a different method, but still produce valid results.

Generalizability presents a challenge to the utility of the research for different audiences. As noted earlier, the study is limited to networks formed between holders of a particular senior management role in 16 self-selecting universities and how these people perceive that their membership of the network influences their performance of the PVC role. The extent to which networks of other UK universities, or universities in other countries function in the same manner as the 1994 Group would determine the extent to which the data and conclusions from this study are more widely applicable. In addition, universities with a different orientation (*i.e.* perhaps less research intensive) or different characteristics may form networks that have a different influence on participating individuals. It may also only apply to holders of the position of PVC. Differences, or similarities, between the responses from the two sub-groups suggest the extent to which the data are unique to this particular context or more widely applicable. Moreover, this study is time-bound, and so may only be applicable to those networks that are early in their evolution, or facing the particular HE policy environment at the time. Participation in more mature networks may have a different influence on the individuals involved.

3.5 Methods Phase 1 - On-line questionnaire

3.5.1 Details of questionnaire

An on-line questionnaire was developed and customized using the web-based tool "Survey Monkey" (www.surveymonkey.com) in order to gather data on the connectivity between individuals in the whole network. It contained both structured and unstructured questions (See Appendix 1). A pilot of the questionnaire was conducted with a number of colleagues, peers from DBA3 and with my supervisor to check understanding of the language and ease with the technology.

The first two questions explored the frequency of contacts between either PVC-T or PVC-R outside the formal 1994 Group meetings, using a 6 point Likert-Scale ranging from "Never" to "Weekly". By reversing the question the reciprocity of the relationship was assessed (Borgatti and Cross, 2003). Respondents were asked to state who else they consulted with about their role, as a means of assessing the importance of the 1994 Group to the particular individual, and how widely their personal network spread beyond the "bounded" network of the 1994 Group. Factors which individuals felt particularly encouraged or discouraged interactions between them and other 1994 Group researchers were requested in "free text" areas. Finally, they were asked to provide some basic demographic data relating to age (gender being known), previous experience and details of the current post. These may help to determine the impact of the Homophily Principle (McPherson *et al.* 2001) on connectivity.

3.5.2 Respondent issues

Respondents were identified from a listing of Vice Chancellors, Pro-Vice Chancellors and Deputy Vice-Chancellors at 1994 Group Universities. It is noteworthy that titles vary widely between institution, so it was not always clear who was responsible for Research or, more often, Teaching. While some (10) Pro-Vice Chancellors responsible for Research only had one brief, others were also responsible for Business Development (*e.g.* Essex), or Enterprise (*e.g.* Goldsmiths), or Knowledge

Transfer (*e.g.* UEA). Responsibility for teaching, however, was often combined with responsibility for learning too, although the ordering of these two activities varied between universities. In some instances no-one was responsible for "teaching" and/or "teaching and learning", but responsibilities were for "academic standards" (*e.g.* Essex), "academic development" (*e.g.* Lancaster), "academic affairs" (*e.g.* Royal Holloway) or "students experience and teaching quality" (*e.g.* LSE). It was assumed that the content and focus of these roles was broadly similar, and at least obviously different from the focus of those responsible for research.

Although the information claimed to be current at the time of use, responses to the questionnaire showed that it was in fact inaccurate. In particular, it took no account of recent changes in the incumbent. This had more impact on the survey of PVC-T, where three incumbents (at Royal Holloway, Reading and Sussex) had changed or were about to change during the period of the study, than in the survey of PVC-R, although one of these (Goldsmiths) changed too. Such changes meant that the named individuals on the questionnaire were inaccurate, and could consequently distort the representation of the relationships between individuals, and so the universities they represent. Links between individuals, where the individual no longer remained in post would not be relevant and would over estimate the inter-connectivity. By ignoring links that have emerged, but that were not permitted by the questionnaire, the questionnaire would under-estimate the inter-connectivity.

The responses also suggested that the assumptions about responsibility were not always correct. At two universities responsibilities for teaching were shared between a number of individuals, for example:

We do not have an ideal person to fit your bill. We split T&L management between myself, a PVC for student affairs and a undergraduate director and a postgraduate director – PVC, Dordor Tar

Such inaccuracies (as indicated in the above email reply) may also serve to reduce the inter-connectivity of the individuals.

3.5.3 Questionnaire distribution

The web-link for the questionnaires together with a covering letter (Appendix 2) was emailed to each of the 16 individual PVCs believed to be responsible for teaching on 26 June 2006. It was distributed on a further seven occasions to the same group over a three month period in an attempt to improve the initial response rate. In the end 13 responses were obtained, although only 10 of these were useful. Some replies indicated that the respondent declined to participate:

Sorry can't do this – PVC-T, Hurley.

Another claimed multiple PVC roles, but with a primary focus on resources and planning which diverted them away from engaging with either network of interest in this study.

I think I had better pass at the moment. I hold the PVC brief both for L&T and for Resources and Planning and as yet have only been able to attend the latter network – PVC-T, Pakuwa

Similarly, for Research, the questionnaire with covering letter was emailed to the selected 16 individuals on 4 July 2006. This was repeated, because of the low response rate, on a further six occasions until early October. A final response rate of 11 completed questionnaires was achieved.

The difficulty in obtaining responses and the eventual failure to obtain a complete set of responses was something of a surprise for I had erroneously anticipated greater interest in, and support for, the project, and had failed to understand the intense time pressures on individuals at this level in the university organization, a point made much more apparent in the second phase of data collection. The incomplete set of responses inevitably had consequences for the subsequent statistical analysis of the data where an originally small population was made smaller, so that the likelihood of discerning statistically significant results was diminished.

The necessarily extended period of data collection from a small number of individuals did raise some concerns about the accuracy of the information provided. In

several cases the same level of frequency of connection was recorded from a single individual to all other PVCs in the population. While this may be possible, given the variable connectivity of other respondents, it seems more probable that this is indicative of a hastily completed questionnaire, which has not been given due attention. While haste may be a factor contributing to scoring of an identical response to all other PVCs, it is also possible that the questions were not sufficiently clear to be understood quickly and easily. The respondent may not have noted that the focus was on informal contact only, rather than formal contact or any type of contact at all. Misreading the question in these two ways would tend to create uniform patterns of interaction with all other PVCs, because most would attend formal meetings of the respective groupings at least once during the year.

3.5.4 Data collection, manipulation and analysis

Data collected on-line could be saved in an MS-Excel file which removed the need for double entering of data, and made data manipulation and analysis more straightforward. The appropriate data were easily transferred into an adjacency matrix within UCINET (Borgatti *et al.*, 2002), a software package used to analyse social network data. Data on the connectivity of each PVC were managed in two ways. First, the data retaining the different measures of frequency of interaction were analysed (*i.e.* the analysis was conducted on a valued network). Second, the data were dichotomized according to the presence or absence of a tie. In this case the adjacency matrix represented all ties irrespective of the frequency of contact as 1, and no ties as 0. Clearly, this loses some of the differentiating power inherent in the original data, but this permits easier interpretation. Several different measures were used to describe the networks in this study.

The number of possible different ties in a network, assuming that the connection between nodes A and B is different from the connection between nodes B and A, is n x (n-1), where n equals the number of nodes in the network, in this case 16. Evidently, the total number of connections any node can have in a network of size n is n-1 (Wasserman and Faust, 1994). The total number of ties to other nodes that any particular node has is a

measure of the out-degree of that node. As the number of connections increases so the influence that the node exerts on other nodes in the network increases. Conversely, the number of ties that a node receives is a measure of in-degree. The node receiving the largest number of ties from other nodes in the network may be considered to be the most prestigious or prominent. Large differences in the number of ties, either sent or received, between nodes in a network can indicate some of the structural aspects of a network. For example, it may indicate those nodes that occupy a peripheral position (if they have few ties) in contrast to those that occupy a central position (if they have many ties).

The density of a valued network is defined as the sum of the ties divided by the number of possible ties, while the density of a binary network (where the data have been dichotomized) is simply the proportion of all possible ties that are actually present (Hanneman and Riddle, 2005) . Knowing the density of a network may indicate the level of social capital, or social constraint, within a network.

While in-degree/out-degree both indicate the connectivity of one node to another and therefore indicate the position of a node in a network and the ability of the node to seek resources from or provide resources to others, there is an alternative measure of centrality; betweenness centrality. Unlike degree centrality, which simply measures connections as an index of centrality, betweenness centrality measures the extent to which any particular node stands between other pairs of nodes in the network, thereby acting as a broker and possibly controlling the resource exchange between these other two nodes (Haythornthwaite, 1996). Both of these measures indicate different aspects of the social power found within a network of social relations.

Chi-Squared tests were used to explore whether the presence or absence of ties obtained from the dichotomized network data could be explained by differences in one of the attributes captured in the questionnaire. But, because the data are from individuals in the same network, the observations are not independent and so standard statistical techniques are not valid. Consequently, the relational contingency table analysis available within UCINET was used. The distributions to test significance were generated from 10,000 random permutations.

Maps of the networks were drawn using mapdraw (within UCINET). Directional arrows indicate the direction of the link between nodes. Colours of the lines were used to

indicate the frequency of the connection. The circle option was used to place the nodes on the map, permitting the easy visualization of the different connectivity of each node by the density of the lines attached to it. Universities have been anonymised by giving them names of different agricultural research stations in three different countries at which I conducted field experiments, and of associated places that I frequently visited, whilst a post-doctoral research fellow at the University of Reading.

3.6 Methods Phase 2 - Interviews

A second phase of data collection used semi-structured interviews to try to understand the significance for and purpose of connections between PVCs and to seek explanations for the particular maps of connectivity between PVCs in the 1994 Group found in the first phase of data gathering. Time did not permit the interviewing of all 32 PVCs in the study; it took between 3-5 months to obtain a mutually convenient date in a particular PVC's diary from the date of the initial request for an interview.

A sampling strategy could have been based on selecting particular individuals based on the results of the network maps, irrespective of their institutional affiliation. Instead, it was decided to target particular universities. By interviewing both the PVC-T and the PVC-R from the same university, some of the variability that could potentially have arisen by selecting individuals from a wider range of universities, was reduced. A number of the 1994 Group universities were ruled out in the selection process for a variety of reasons: a lack of common funding system (St Andrews), scale (Warwick and Goldsmiths), imminent departure from the 1994 Group (LSE), or a unique teaching orientation (Birkbeck). Four universities were selected from the remaining 12, and interviews were requested and granted with the appropriate PVC. Interviews were scheduled between January and March 2007, although the final interview was conducted in July 2007. The demographic characteristics of each of the interviewees are shown in Table 2. There were six males and two females. The eight individuals have been given names that correspond to particular individuals from the agricultural research stations where I have conducted field work.

An email was sent to each of the 8 PVCs (and copied to their PAs) approximately 1 week before the meeting. This indicated a number of general areas for possible discussion, and confirmed anonymity in data reporting (See Appendix 3). Each interview was scheduled to last for 30 minutes, and was to be conducted in the office of the particular PVC.

Table 2 indicates the actual duration of each interview and the date when it was conducted. One interview was conducted in an open reception area, because the office of the particular PVC had been "trashed" by a TV company on the previous day. Another interview was conducted by telephone. A third moved location during the interview. Table 3 indicates the primary questions used in the eight semi-structured interviews with the PVCs. These were supplemented by requests for clarification or examples where necessary. The wording of these questions had been checked for clarity and agreed with my supervisor prior to the interviews. Maps of the networks were shown to the interviewees after question 2, and then again after question 5. The first map showed the network to which the particular PVC belonged, while the second map showed the network to which their counterpart in the institution belonged.

Permission to record the interview was requested prior to commencing the interview, and was granted in every case. While this was normally given willingly, this was not so in one particular case. The subsequent interview was short and quite difficult. Unlike his peers this particular PVC claimed to have difficulty in understanding the initial question and atypically was rather negative about the study. This salutary experience helped to sharpen my interview technique and reminded me to focus more on my preparation before the subsequent interviews, which went more smoothly.

Table 2. Details of interviews and demographic characteristics of interviewees.

		Details of Interview			Demographic Characteristics					
University	Names	Date	Duration (mins.)	Transcribed words count	Gender (M/F)	Age category (yrs.)	Nature of Post (FT/PT)	Previous Position	Tenure in role (yrs.)	Subject specialism
Kiboko	Rose	24 January	29	4062	F	50-54	FT	Dean	3	Natural Science
	Wambua	24 January	40	4389	M	55-59	FT	Dean	<1	Natural Science
Muguga	Njenga	13 March	26	2948	M	>60	FT	Dean	3	Social Science
	Kenneth	12 March	62	6483	M	55-59	PT	Dean	3	Natural Science
Tel Hadya	Sonia	19 March	47	5947	F	50-54	PT	Dean	2	Natural Science
	Ali	19 March	50	6311	M	55-59	PT	Head of School	4	Arts and Humanities
Pakhribas	Dil	11 July	39	5401	M	50-54	FT	Head of Department	2	Social Science
	Ram	1 March	20	2833	M	55-59	PT	Head of School	2	Natural Science

The digital recordings of each interview were transcribed. Each transcript was then coded using NVivo 7.0 onto a common "tree". Nodes and sub-nodes were built up additively, as each transcript was coded. This coding structure was revisited with each transcript after all of the interviews had been completed.

Table 3. Primary questions used in the semi-structured interviews with PVCs in the 1994 group.

Primary Question	Secondary Question
1. How do you perceive your role as a PVC ?	What are the main functions or key elements ? Consider both internal and external perspectives.
2. What is the importance to your role of contact with other PVCs ?	Why ? What are the benefits ?
3. Do you have any comments upon the [appropriate] network map ?	
4. What are the similarities / differences between the PVC-R and PVC-T role ?	Why ?
5. How might this affect connectivity between the two groups ?	Why might connectivity be more or less important for them ?
6. Do you have any comments on their map ?	
7. How would you account for the difference between the two maps ?	

4 Chapter 4 – Social Network Analysis Results

4.1 Social Network Analysis Results

4.1.1 Comparison of attributes of PVCs-R and PVCs-T

Using data from the respondents it was possible to compare the attributes of PVCs-R with those of PVCs-T. In the 1994 Group PVCs-T were significantly ($p<0.05$) younger than PVCs-R ($\chi^2=9.3$; d.f.=4). The former were mostly in their early 50's, while the latter were mainly in their late 50's (Figure 5). The span of ages ranged from 45-49 through to >60 in both categories. None of the PVCs were in the 40-44 age category.
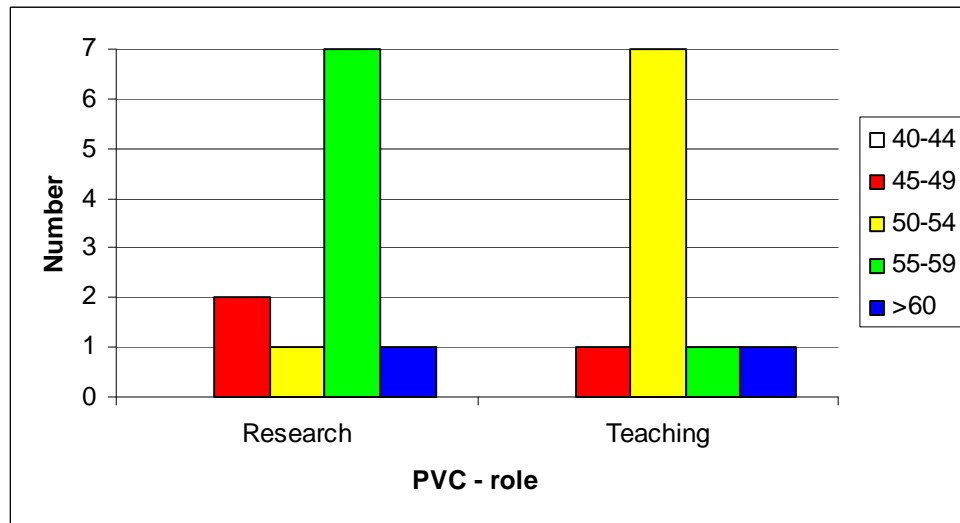
Figure 5. Distribution by 5-year age category of PVCs in the 1994 Group with responsibility for either Research or Teaching.

A substantial majority of PVCs were male (Figure 6). There was no significant gender differentiation between those PVCs-T and PVCs-R ($\chi^2=0.4$; d.f.=1).

A majority of PVCs studied Natural Sciences, although a substantial minority studied Social Science subjects or subjects in the Arts and Humanities (Figure 7). Significantly ($p<0.05$) more of the PVCs-R had a Natural Science background than PVCs-T ($\chi^2=5.09$; d.f.=2). The academic background of the latter group was more evenly distributed across the subject spectrum.
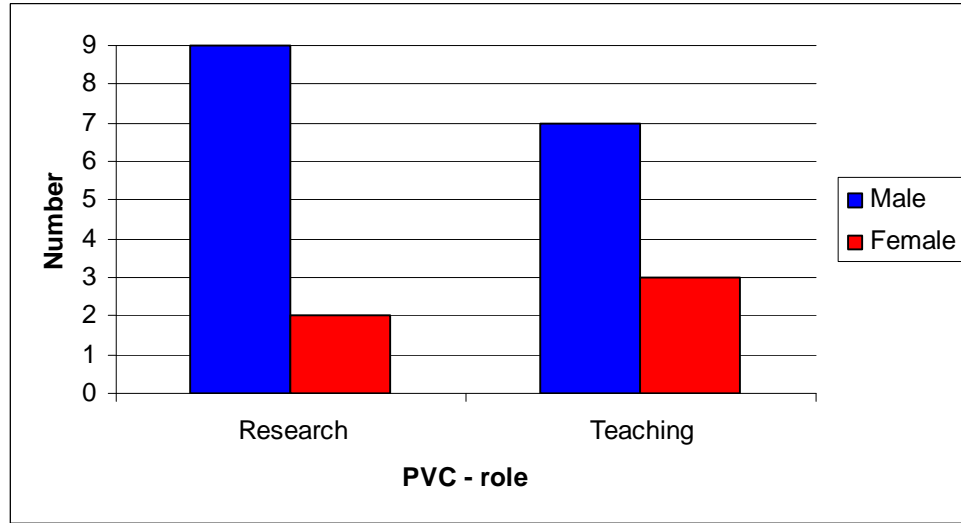
Figure 6. Gender differences between PVCs in the 1994 Group responsible for either Research or Teaching.
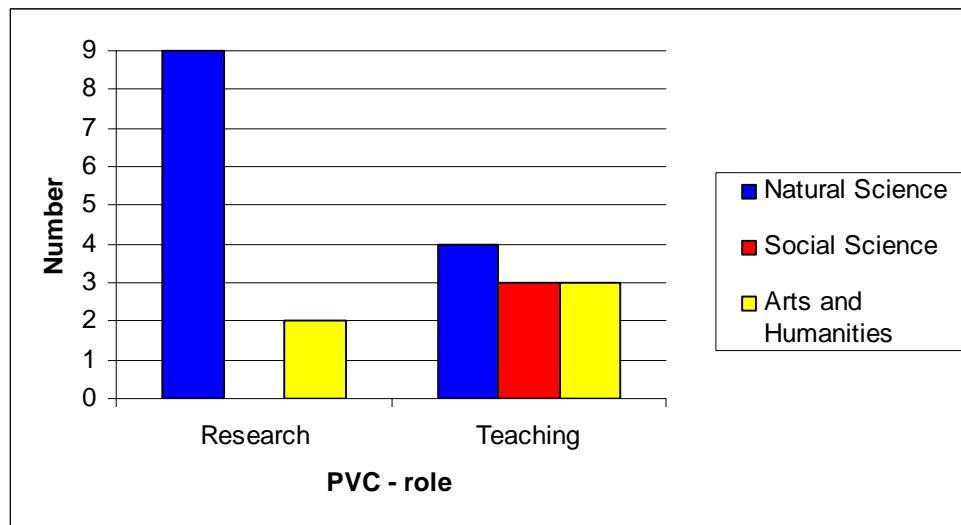
Figure 7. Differences in subject specialism of PVCs in the 1994 Group with responsibility for either Research or Teaching.

Many PVCs hold a part-time post (Figure 8). There was no significant difference between PVCs-R and PVCs-T in the distribution of full time and part time positions (χ^2=0.69; d.f.=1).
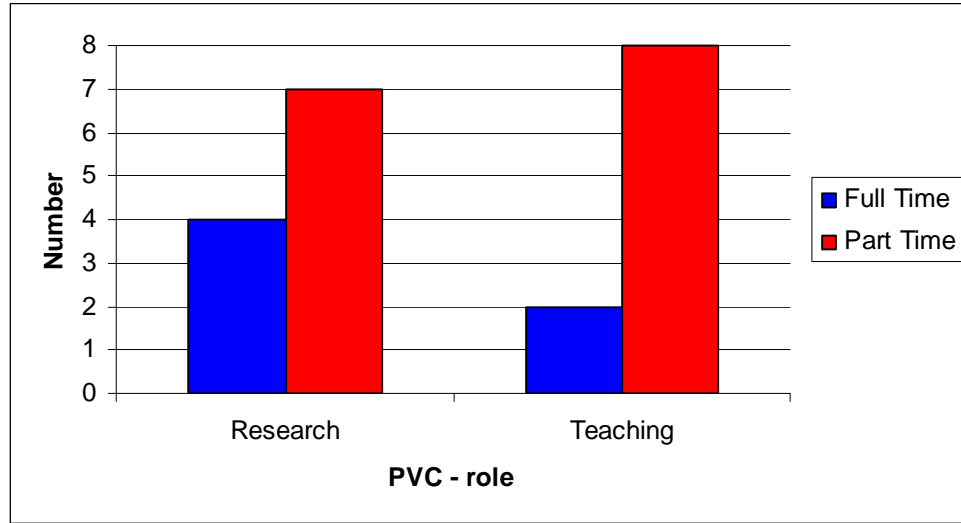
Figure 8. Differences in nature of post (FT/PT) of PVCs in the 1994 Group with responsibility for either Research or Teaching.

The prior management background for a PVC was similar for PVCs-T and PVCs-R (Figure 9), and was almost equally divided between those who had been Heads of School, Deans or had held other senior management roles (χ^2=0.095; d.f.=2).
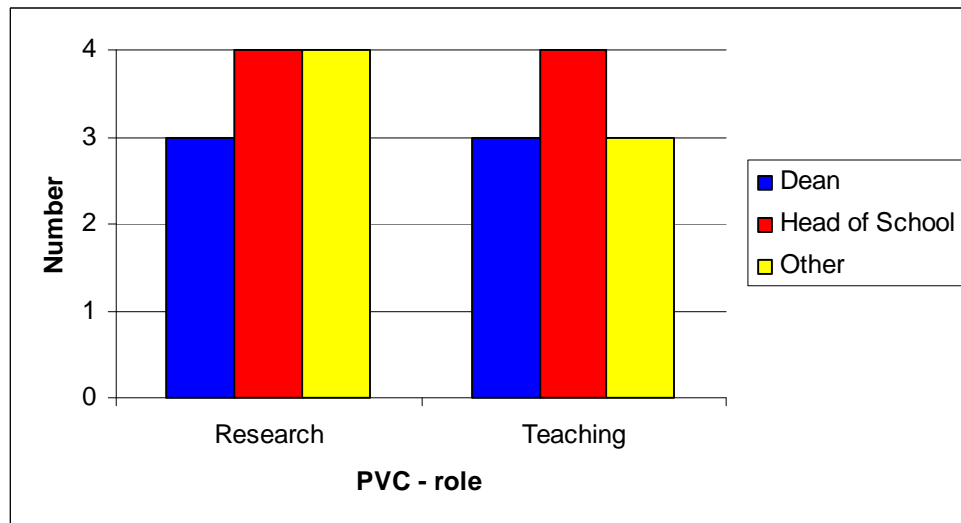
Figure 9. Prior management position of PVCs in the 1994 Group with responsibility for either Research or Teaching.

4.1.2 Teaching and learning

4.1.2.1 To whom do you talk?

Figure 10 indicates the connections made by individual PVC-T towards other PVCs-T in the 1994 Group outside formal meetings, and the frequency with which these connections occurred. The map contained 30 ties and half of these arise from an infrequently (*i.e.* less than annually) occurring connection initiated from the PVC-T at University of Pakhribas. Only 6 of these directed ties were expressed more than quarterly and one, that which occurred from Muguga to Tel Hadya, was expressed monthly. No connections occurred more frequently than monthly. The mean density of the dichotomised map (*i.e.* simple presence or absence of a connection) was 0.167, with a standard deviation of 0.373.

Table 4 shows the number of contacts received from others (in-degree) for each PVC-T in the 1994 Group according to whom he/she talks. All of the 16 PVCs-T received at least one connection from another PVC-T because of the infrequent communications from the PVC-T at Pakhribas. Consequently, the network was complete with no isolates. However, only 7 PVCs-T acted as sending agents (out-degree), initiating a connection with other PVC-T (Table 4). In order of decreasing connectivity these were Pakhribas, Muguga, Kholitar, Chambas, Sutton Bonington, Dordor Gaun and Tel Hadya. Nevertheless, as the number of relationships decreased so the frequency of connection appeared to increase. Reflecting these descriptive observations, the map has an out-degree of 93%, indicating a very centralized structure and suggesting that the PVC-T at Pakhribas University has considerable influence. This however ignores the infrequency of the connections from that person. In reflecting on his stated interactions he noted, *I may have overestimated my networks … so for example I would not know the names of half / three-quarters of these people, so I really wouldn't overestimate this at all. That's what I meant by I have occasional [contact].* By removing connections that occurred less than annually, the out-degree fell to 11% indicating that the network has a much more dispersed structure. Similarly the in-degree percentage of all connections on the dichotomized map was 8%, showing this same dispersed structure, and indicating that none of the PVCs-T was especially prominent.
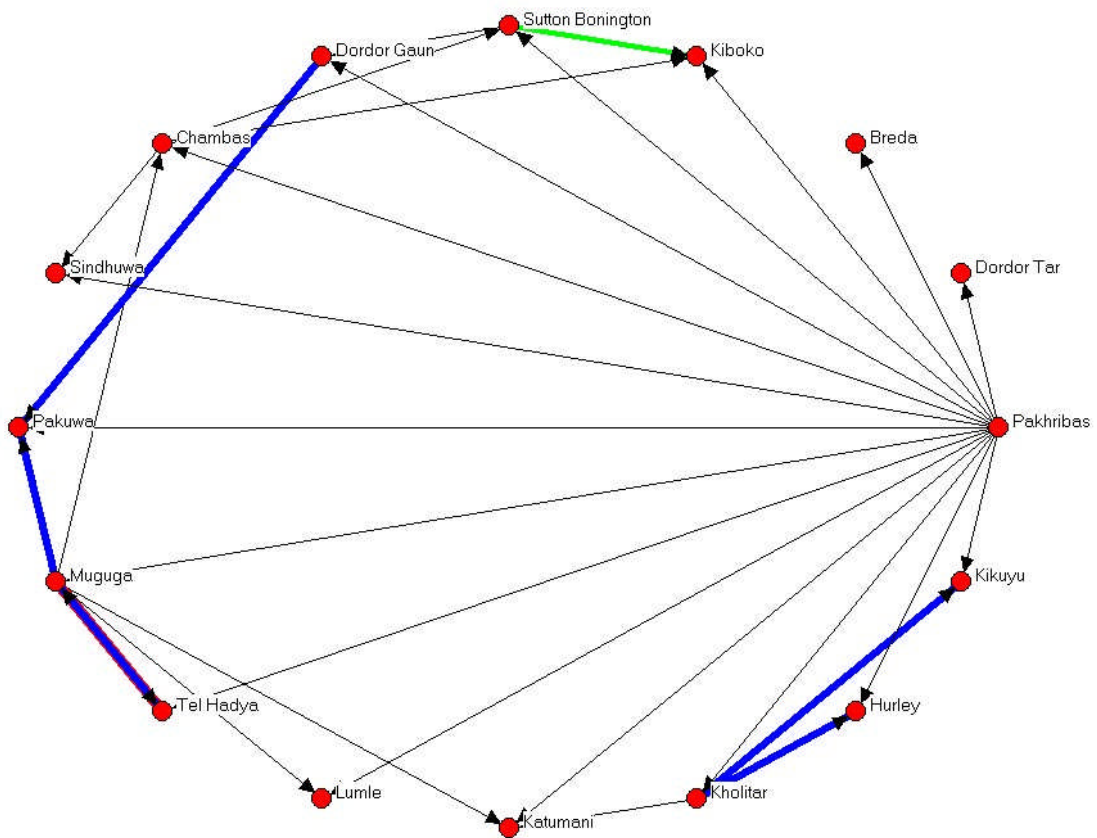
Figure 10. Frequency of connections (sent ties) from each PVC-T to other PVCs-T in the 1994 Group. (Black lines represent less than annual contact, Green lines represent annual contact, Blues lines represent quarterly contact and Red lines represent monthly contact).

Although no single individual was particularly prominent, some individual PVCs-T were situated between others, acting as bridges to connect other individual PVCs-T. Such positions offer particular opportunities to control and influence others. For example, the PVC-T at Muguga acted as the bridge through which the PVC-T at Tel Hadya could link to other members of the network, namely Lumle, Katumani, Pakuwa, Dordor Gaun, Sutton Bonington, Chambas, Kiboko and Sindhuwa. Not all of these connections were direct from Muguga, some required the mediations of one or more others. For example the link to Dordor Gaun required a path from Muguga through both Chambas and Sutton Bonington. Furthermore, Sutton Bonington by acting as a bridge

for connections to the PVC-T at Dordor Gaun, from Muguga, Chambas and Tel Hadya, had a betweenness degree of 4. Table 4 shows the betweenness degree for each of the PVCs-T. However, these seemingly important gate-keeping roles became less apparent when the frequency of connection was taken into consideration. By removing all connections that occurred with a frequency of annually or less, only one connection was left, namely the path from the PVC-T at Tel Hadya to the counterpart at Pakuwa via the PVC-T at Muguga.

Table 4. Measures of centrality for communications between the PVCs-T in the 1994 Group.

University	To whom do you talk ?		Who talks to you ?		
	Out-degree[a]	*In-Degree[b]*	*Out-degree[a]*	*In-degree[b]*	*Betweenness*
Muguga	10	4	7	3	8
Breda		1			
Katumani[1]		3			
Pakuwa[2]		7		3	
Dordor Gaun	3	2			2
Tel Hadya	3	5	3	4	
Lumle		2			
Dordor Tar[2]		1			
Hurley[2]		4		2	
Kiboko[1]		4			
Sutton Bonington	3	2			4
Kikuyu[1]		4		2	
Chambas	3	2			8
Sindhuwa		2			
Kholitar	7	1	4		
Pakhribas	15	0			

[1]non-respondent [2]unusable response [a]Measure of connection to others [b]Measure of connection from others.

4.1.2.2   Who talks to you?

Rather than relying on the indirect information implied by the directionality of the arrows in Figure 10, which showed who received information from whom, Figure 11 shows the map of which PVC-T directly received communication from another PVC-T within the 1994 Group. Only 5 ties were present on the map, and these occurred in two clusters. In the first cluster the PVC-T at Kholitar University was connected to Kikuyu and Hurley, but PVCs-T at these 2 universities only communicated with the PVC-T at Kholitar on an annual basis. In the second cluster the PVCs-T at Muguga and Tel Hadya communicated reciprocally on at least a quarterly basis; Muguga communicated more frequently to Tel Hadya than the other way around. The PVC-T at the University of Pakuwa communicated with the PVC-T at the University of Muguga on a quarterly basis.

Ten of the PVCs-T from the 16 Universities appeared to be unconnected to any of the other PVCs-T in the 1994 Group, and the connectivity of this map (Figure 11) was significantly less dense than the map of to whom do you talk (Figure 10). In addition, the two clusters of three universities were disconnected from each other. The mean density of the dichotomised map was only 0.028, with a standard deviation of 0.164. The out-degree and in-degree percentages for this map are 12% and 14% respectively, suggesting a very dispersed structure. These figures correspond to the in-degree percentage for the map of to whom do you talk (Figure 10). Only 1 PVC-T acted as a broker. The PVC-T at Muguga connected the PVC-T at the University of Pakuwa to the University of Tel Hadya, but because of the directionality the reverse connection was not the case.
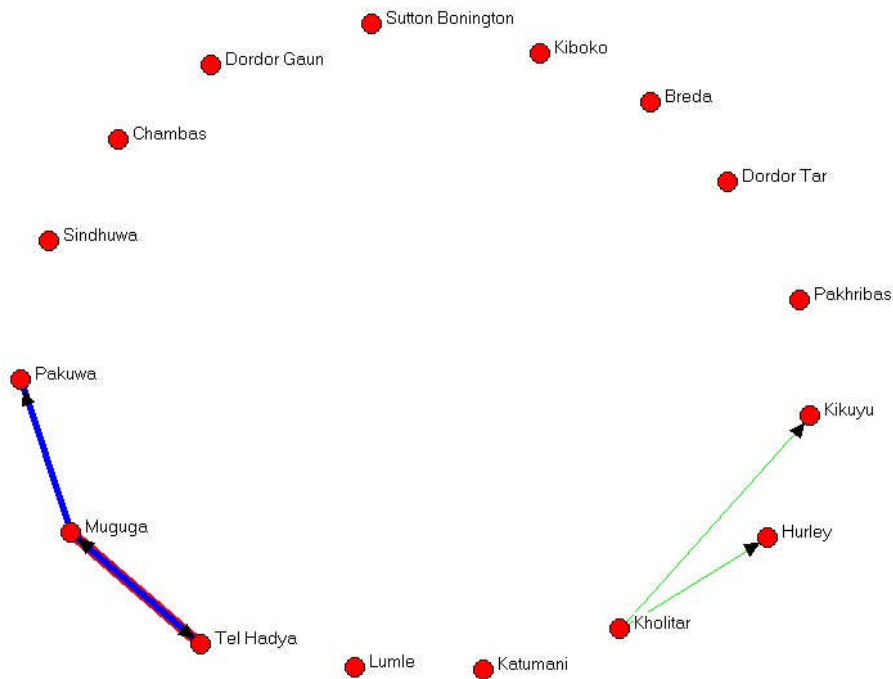
Figure 11. Frequency of connection (received ties) from other PVCs-T to each PVC-T in the 1994 Group. (Black lines represent less than annual contact, Green lines represent annual contact, Blues lines represent quarterly contact and Red lines represent monthly contact).

4.1.2.3   Reciprocal communication

Combining the information from Figure 10 and Figure 11 provides an opportunity to cross check the reliability of the indicated connectivity, and perhaps also to assess the respondents' understanding of the questions.

One dyadic relationship between PVCs-T was confirmed. This was between the University of Muguga and the University of Tel Hadya, who mutually agreed that they communicated at least quarterly.

Three other dyadic connections between PVCs-T may be apparent, but cannot be definitively confirmed. These were:

1.   between the University of Muguga and the University of Pakuwa. The PVC-T at the University of Muguga sends and receives communication from the

University of Pakuwa on a quarterly basis. The lack of response from the PVC-T at the University of Pakuwa precludes confirmation of this;

2.   between the University of Kholitar and the University of Kikuyu. The PVC-T at the University of Kholitar communicates with the PVC-T at Kikuyu on a quarterly basis, and believes that this is reciprocated at least annually. Again the absence of data from Kikuyu prevents confirmation of this;

3.   between the University of Kholitar and the Hurley. Identical comments apply to this relationship, as for 2 above.

Curiously, the PVC-T at Dordor Gaun talks to the PVC at Pakuwa quarterly (Figure 10) but did not indicate that the PVC-T at Pakuwa reciprocated the relationship (Figure 11). The absence of data from the PVC-T at the Pakuwa precludes drawing conclusions about this relationship.

Finally, Figure 11 revealed that none of the other PVCs-T received communication from the PVC-T at the University of Pakhribas. This is perhaps not surprising given the infrequency (less than annually) with which these communications were claimed to be initiated (Figure 10). It also perhaps raises doubts about this respondent's understanding of the questions (see his earlier comments in section 4.1.2.1).

4.1.2.4   Effect of different attributes

Differences associated with different dimensions of an attribute (*e.g.* male or female in the gender attribute) either in to whom a PVC-T talks, or in who talks to a PVC-T, were examined using the χ^2 analysis in UCINET (*Tools>Testing Hypotheses>mixed Dyadic/Nodal>Categorical Attributes>Relational Contingency Table Analysis*)

Table 5 shows the χ^2 statistics and associated probabilities for each of the attributes. Age groupings, gender, subject specialism and previous role did not account for whom PVC-Ts talked to in the 1994 Group. Those holding a FT post were significantly more likely to talk to others than those holding a PT post. This can simply be explained by the PVC-T at Pakhribas who spoke to everyone, albeit infrequently (see

Figure 10). Table 5 also shows the same detail for those PVCs-T in the 1994 Group who talk to others (as per Figure 11). Again those connections were not significantly affected by gender, subject specialism, age groupings and FT/PT status or by previous role.

Table 5. Effect of different attributes on whom PVCs-T talk to and upon who talks to PVCs-T

Attribute	To whom a PVC talks		Who talks to a PVC	
	χ^2	Probability	χ^2	Probability
Age	10.62	0.332	9.92	0.066
Gender	2.18	0.812	1.22	0.539
Subject Specialism	17.79	0.101	4.97	0.133
FT/PT	24.58	0.039	2.34	0.373
Previous Role	8.95	0.689	1.47	1.000

As well as exploring the connectivity between PVCs-T and how this is affected by different classes within an attribute, it was also possible to test whether measures of centrality (in-degree, out-degree and betweenness) were significantly influenced by any of the attributes using a one-way ANOVA (*Tools>Testing Hypothese>Node-level>Anova*). Table 6 shows that none of the measures of centrality differed significantly amongst any of the groupings for a particular attribute.

Table 6. Effect of attribute on measures of centrality of whom a PVC-T talks to and upon who talks to them.

To whom a PVC talks	In-Degree[a]		Out-Degree[b]	
Attribute	F-Stat	Probability	F-Stat	Probability
Age	0.619	0.622	0.321	0.812
Gender	0.066	0.856	1.497	0.311
Subject Specialism	0.949	0.424	1.222	0.337
FT/PT	0.94	0.399	2.908	0.084
Previous Role	0.979	0.419	0.594	0.672
Who talks to a PVC	**In-Degree[a]**		**Out-Degree[b]**	
Age	0.612	0.658	1.358	0.288
Gender	0.076	0.806	0.672	0.733
Subject Specialism	0.875	0.401	0.660	0.549
FT/PT	0.168	0.876	2.226	0.144
Previous Role	0.103	0.968	1.439	0.256
	Betweenness			
Age	2.257	0.218		
Gender	0.882	0.502		
Subject Specialism	0.535	0.644		
FT/PT	0.638	0.614		
Previous Role	0.424	0.804		

[a]Measure of connecton from others.   [b]Measure of connection to others.

4.1.3 Research and Development

4.1.3.1   To whom do you talk?

The reported connections initiated by any one of the 16 PVCs-R in the 1994 Group towards any other PVC-R in the 1994 Group are shown in Figure 12. There were a total of 84 ties out of a maximum number of possible ties of 240. Only half of these ties (42) were initiated on at least a quarterly basis; with only 12 connections occurring on a monthly basis. Overall 29% of ties were reciprocated. The mean density of the dichotomized maps was 0.35 (±0.477).
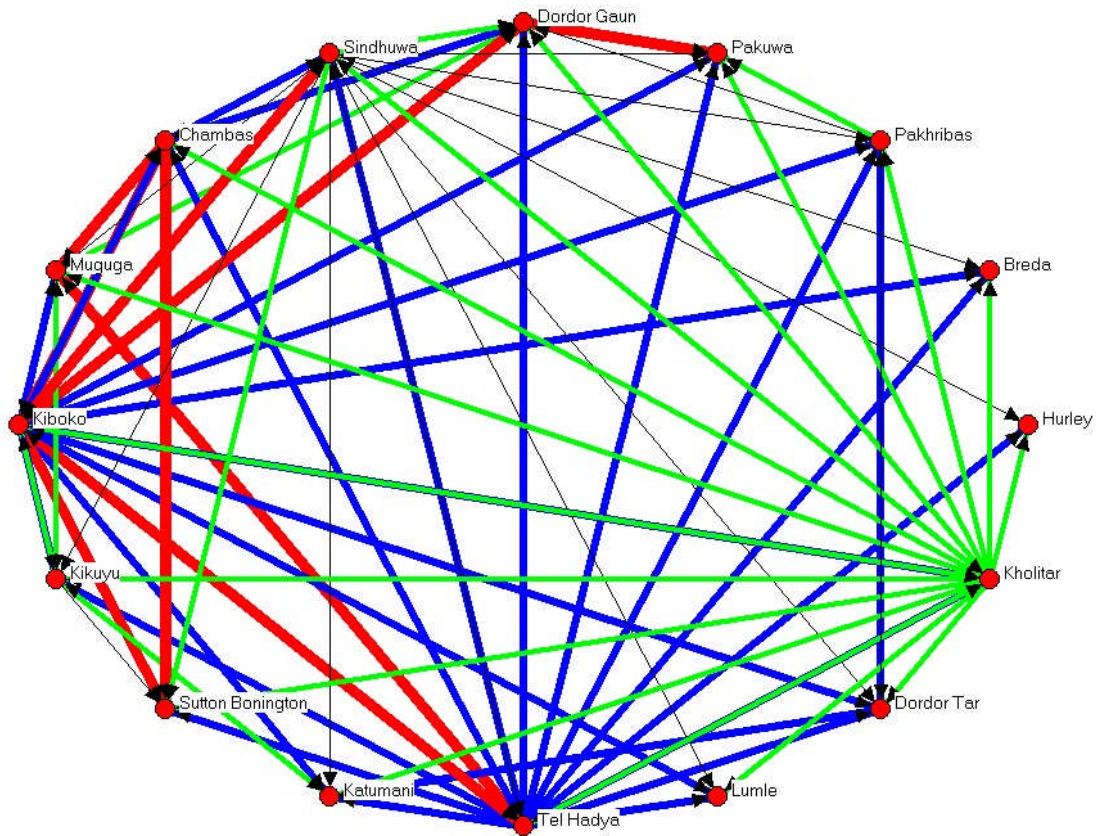

Figure 12. Frequency of connections (sent ties) from each PVC-R to other PVCs-R in the 1994 Group. (Black lines represent less than annual contact, Green lines represent annual contact, Blues lines represent quarterly contact and Red lines represent monthly contact).

Four of the PVCs-R were connected to all of the other PVCs-R in the group; these were the PVCs-R from Kiboko, Tel Hadya, Kholitar and Sindhuwa. Of these four, the PVCs-R from Kiboko and Tel Hadya communicated with most of the others on at least a monthly basis (Figure 12), while the PVC-R at Kholitar communicated annually, and the PVC-R at Sindhuwa generally communicated even less frequently (Figure 12). Although the average value for the frequency of communication was less than one for several of the other PVCs-R in Table 7, this reflected the absence of a relationship with some of the other PVCs-R, and not the frequency of contact with those PVCs-R with whom a connection existed (see Figure 12). Such variability is indicated by the standard deviation; large variation was found where the frequency of contact varied substantially depending upon the particular relationships. For example, the mean score for the PVC-R at Muguga was 0.8, but the standard deviation was 1.22. This particular PVC-R had monthly contact with counterparts at Chambas and Tel Hadya, quarterly contact with the PVC-R at Kiboko, but only annual contact with the PVC-R at Kikuyu and Dordor Gaun, and still less frequent contact with the PVC-R at Sindhuwa. Conversely, the PVC-R at Kholitar had annual contact with everyone else, giving a mean of 2 and a standard deviation of 0.

The remaining PVCs-R that replied to the questionnaire (outside the 4 PVCs-R connected to all others mentioned above) communicated with only a proportion of the others in the group (ranging from 2 to 6; Table 7). This gave an average measure of communication to others (out-degree) of 5.3 for the valued network. The large standard deviation (5.83) suggested that there was considerable variation in influence; some PVCs-R appeared to be more influential than others amongst the group of PVC-R who responded. These relationships would differ if all the members of the group had responded. While the mean in-degree (measure of connection from others to a single PVC) for the valued network was also 5.3, the standard deviation was only 1.299 showing much less variation between PVCs-R in the number of incoming ties that each received (ranging from 3-7; Table 7). Those with higher scores for receiving ties may be considered to be more prominent. These in-degree values are under-estimated by the extent to which any of the 6 non-responding PVCs-R would have contacted them. The network of sending and receiving ties showed network centralizations of 69.3% and

12.4% respectively, irrespective of the frequency with which such connections were made. By excluding interactions that occur less frequently and including only those that occurred at least quarterly, network centralization increased to 88% for sending ties, but decreased to 9.8% for receiving ties.

Table 7. Mean and standard deviation for frequency of contact initiated between PVCs-R. The table also shows the number of sent ties and how those sent ties are distributed.

	Mean	Standard deviation	Sent Ties	Number of ties received
Muguga	0.8	1.22	6	7
Breda	0	0	0	4
Katumani[1]	0	0	0	6
Pakuwa[1]	0	0	0	6
Dordor Gaun	0.67	1.247	4	7
Tel Hadya	3.13	0.34	15	4
Lumle[1]	0	0	0	4
Dordor Tar	0.4	1.02	2	5
Hurley[1]	0	0	0	3
Kiboko	3.13	0.957	14	7
Sutton Bonington[1]	0	0	0	6
Kikuyu	0.47	0.806	4	5
Chambas	1.13	1.628	5	6
Sindhuwa	1.47	0.884	15	6
Kholitar	2	0	15	3
Pakhribas	0.33	0.596	4	5

[1]Non-respondent

Another measure of centrality can be based on the extent to which an individual actor lies on the path between two other actors. This may change with the frequency of the contact. If less frequent connections were removed, then the pathways of connection may disappear and so the values for betweenness centrality will change.

Table 8. How betweenness centrality for ties sent between individual PVCs-R changes as the threshold for communication frequency increases

	All data	Annual communication or more often	More often than Annually	Monthly or more often
Muguga	4.73	4.0	1.0	5.0
Breda				
Katumani[1]				
Pakuwa[1]				
Dordor Gaun	3.58	2.16	0.5	5.0
Tel Hadya	3.93	12.83	15.0	11.0
Lumle[1]				
Dordor Tar	0.5			
Hurley[1]				
Kiboko	23.2	39.3	33.0	19.0
Sutton Bonington[1]				
Kikuyu	0.45			
Chambas	1.2	1.67	3.5	1.0
Sindhuwa	26.6			
Kholitar	0.7	2.0		
Pakhribas	13.0	1.0		
Centralization %	11.03	17.98	15.08	8.35
Mean	4.88	3.94	3.31	2.56
Standard Deviation	8.26	9.66	8.49	5.17

[1]Non-respondent

Table 8 shows how the betweenness centrality for PVCs-R changes according to the frequency of contact in their relationship towards each other. Evidently, there is considerable variation in betweenness. Those PVCs-R that did not respond have a zero betweenness, while the PVC-R at Sindhuwa had a betweenness of 26.6. Overall, the mean betweenness was 4.88, but the standard deviation was 8.26. However, if the betweenness values are calculated according to the frequency of communication, then the relative power of the different PVCs-R changes. Notably the PVCs-R at Sindhuwa and Pakhribas were no longer important nodes in the connection between PVCs-R in the 1994 Group. If connections were made more frequently than annually, then only 5 PVCs-R (from Muguga, Dordor Gaun, Tel Hadya, Kiboko and Chambas) were found on paths between other PVCs-R in the 1994 Group. Of these 5, the PVCs-R at Kiboko and Tel Hadya were obviously the more important.

4.1.3.2 Who talks to you ?

Figure 13 shows which PVCs-R in the 1994 Group talk to any particular PVC-R in the 1994 Group. The total number of ties present was 77. Of these, 14 connections occurred less frequently than once per year. 39 connections were made at least quarterly and 11 occurred on a monthly basis. Overall, 28% of ties were reciprocated. The density of the dichotomized map was 0.32±0.467.

Only 2 PVCs-R received communication from all of the other PVCs in the 1994 Group (Figure 13; Table 9). These were the PVCs-R at Kholitar and Tel Hadya, although the PVC-R at Kiboko received communication from all except the PVC-R at Hurley. Nevertheless, there was a considerable variation amongst the 10 respondents (Table 9). The PVC-R at Dordor Tar only received communications from the PVC-R at Pakhribas. For the others, the number of received ties ranged from 3 to 9, for the PVCs-R at Kikuyu and Sindhuwa respectively. Table 9 also shows the average frequency of incoming communication to each PVC-R. For some PVCs-R (*e.g.* at Kiboko and Tel Hadya) communications were received at least quarterly (mean values > 3) from all, or almost all, of the other PVCs-R who responded to the questionnaire. For most of the others, the mean frequency of incoming communication was less than annually (mean score <1). However, there was considerable variation, so that for any single PVC-R

incoming communications from some other PVC-R may be more (or less) frequent than for others. For example Figure 13 shows that the PVC-R at Dordor Gaun received monthly communication from the PVC-R at Pakuwa, quarterly communication from the PVC-R at Kiboko, annual contact from the PVC-R at Muguga and still less frequent communication from the PVC-R at Lumle and Chambas.

Table 9. Mean and standard deviation for frequency of contact received from PVCs-R. The table also shows the number of received ties and who sent the received ties.

	Mean	Standard deviation	Number of received Ties	Number of received ties sent by this PVC
Muguga	0.8	1.22	6	7
Breda	0	0	0	3
Katumani[1]	0	0	0	5
Pakuwa[1]	0	0	0	6
Dordor Gaun	0.73	1.24	5	7
Tel Hadya	3.13	0.34	15	4
Lumle[1]	0	0	0	4
Dordor Tar	0.07	0.25	1	5
Hurley[1]	0	0	0	2
Kiboko	3.0	0.89	14	7
Sutton Bonington[1]	0	0	0	5
Kikuyu	0.4	0.8	3	4
Chambas	1.27	1.81	5	6
Sindhuwa	0.93	0.93	9	6
Kholitar	2.0	0	15	2
Pakhribas	0.33	0.596	4	4

[1]Non-respondent
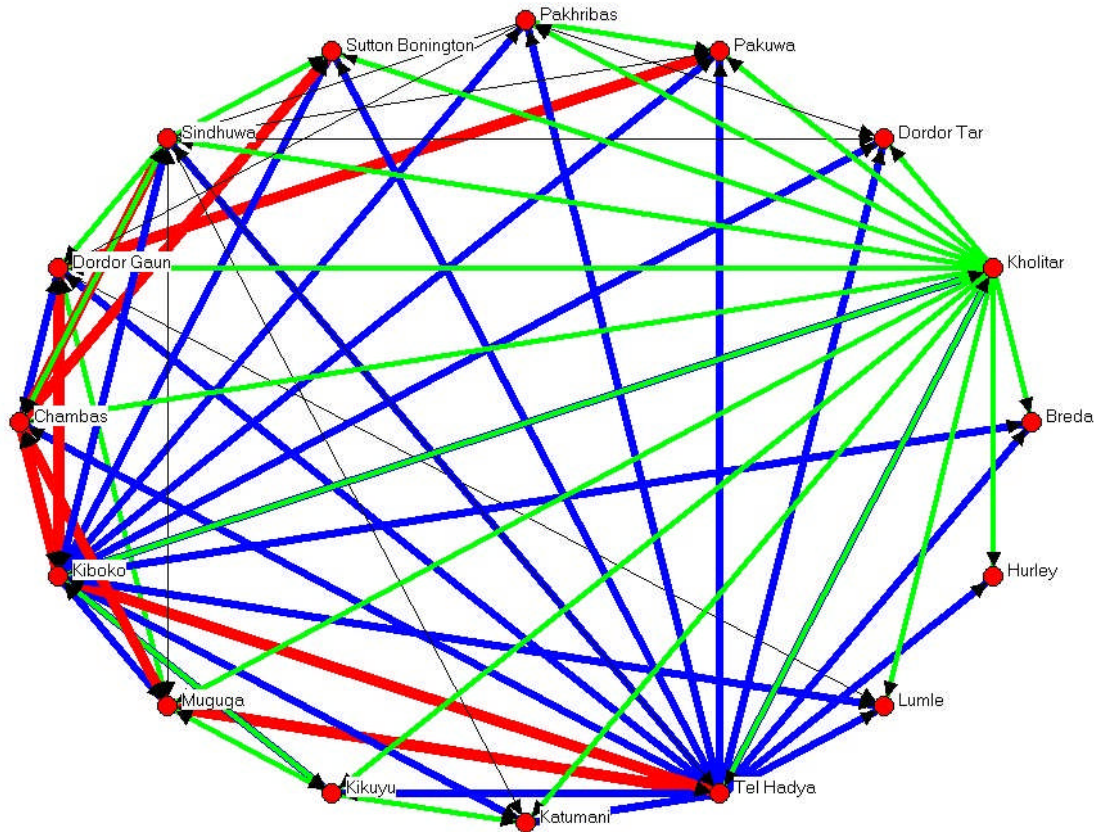
Figure 13. Frequency of connection (received ties) from other PVCs-R to each PVC-R in the 1994 Group. (Black lines represent less than annual contact, Green lines represent annual contact, Blues lines represent quarterly contact and Red lines represent monthly contact).

If data were dichotomized according to the presence or absence of a tie (irrespective of the frequency of contact for that tie), then, on average, each PVC-R received communication from 4.8 (±5.41) other PVCs-R in the 1994 Group. The standard deviation suggests considerable variation and a high degree of centralization of the network structure (72.4%). The PVCs-R at Kiboko and Tel Hadya were clearly prominent in this grouping. While the mean in-degree was also 4.81 (*i.e.* each PVC-R received communication from 4.8 other PVCs-R on average) the variation was considerably smaller (s.d. = 1.59), ranging from 2 to 7 ties from other PVCs-R (Table 9).

Table 10. How betweenness centrality for ties received from individual PVCs-R changes as the threshold for communication frequency increases.

	All data	Annual communication or more often	More often than Annually	Monthly or more often
Muguga	6.22	4.0	1.0	0.5
Breda				
Katumani[1]				
Pakuwa[1]				
Dordor Gaun	8.88	2.16	0.5	4.0
Tel Hadya	13.23	12.83	15.0	6.5
Lumle[1]				
Dordor Tar	0.33			
Hurley[1]				
Kiboko	31.72	39.3	35.5	12.5
Sutton Bonington[1]				
Kikuyu	0.25			
Chambas	1.08	1.67	2.0	6.5
Sindhuwa	17.87			
Kholitar	1.42	2.0		
Pakhribas	10.00			
Centralization %	13.09	18.01	16.32	5.4
Mean	5.94	3.87	3.37	1.88
Standard Deviation	8.45	9.68	9.04	3.54

[1]Non-respondent

Table 10 shows the betweenness of individual PVCs-R in the 1994 Group. The PVC-R at Kiboko had the greatest betweenness centrality (31.7), and of the PVCs-R

who responded to the questionnaire, the PVC-R at Kikuyu had the lowest value (0.25). Overall, the mean betweenness was 5.94, but the standard deviation was 8.85 indicating considerable variation. By removing less frequent communication the number of PVCs-R which were positioned between other PVCs-R fell to 5 (Muguga, Dordor Gaun, Tel Hadya, Kiboko and Chambas). Throughout, the PVC-R at Kiboko remained the most important gate-keeper of information for others.

4.1.3.3   Changes to measures of centrality as frequency of interaction increases.

Table 11 shows how the various parameters that indicate centrality calculated on valued networks change as the frequency of interaction changes.

Table 11. How the mean measures of centrality between PVCs-R change as the frequency of interaction between them changes. Standard deviations are in parenthesis.

Who do I talk to ?	All data	At least annually	Quarterly or monthly	Monthly
Out-degree[a]	5.25 (5.83)	4.06 (5.33)	2.63 (4.69)	0.75 (1.30)
In-degree[b]	5.25 (1.30)	4.06 (1.35)	2.63 (0.78)	0.75 (0.83)
Betweenness	4.87 (8.26)	3.94 (9.66)	3.31 (8.49)	2.56 (5.17)
Who talks to me ?				
Out-degree[a]	4.81 (5.41)	3.94 (5.40)	2.44 (4.74)	0.69 (1.21)
In-degree[b]	4.81 (1.59)	3.94 (1.35)	2.44 (0.70)	0.69 (0.77)
Betweenness	5.94 (8.85)	3.87 (9.68)	3.37 (9.04)	1.88 (3.54)

[a]Measure of connections to others   [b]Measure of connections from others

The average density of the dichotomized maps for the PVCs-R talking to others at different frequencies was always slightly larger than the average density for maps showing how often they were sought out (data not shown). The mean densities declined from 0.34 to 0.05 as communication frequency increased from less than annually to monthly. As the number of contacts declined with the increasing frequency of interaction, so the average degree fell from approximately 5 to 0.7. It should be noted

that the standard deviation for out-degree was always greater than for in-degree, suggesting that there was much more variation in who people report talking to (out-degree) than in people's perceptions of who talks to them (in-degree). Individuals claimed greater prominence (out-degree) in the 1994 Group than their influence (in-degree) warranted.

Similarly, as the number of links in the network declined, so the betweenness centrality fell. There were fewer people to link together.

4.1.3.4 Effect of attributes on communication and structure

To whom a PVC talks, or who talks to them, may be influenced by the possession of similar attributes. By restricting the analysis to only those PVCs who replied to the questionnaire, Table 12 shows that none of the following attributes (gender, subject specialism or FT/PT status) affected which PVC-R talks to which other PVC-R. Age significantly ($p<0.05$) influenced who talked to whom. This however was because more than 50% of the respondents were aged between 55-59 years, and the actions of this category dominated the interactions of the whole group. The previous role of the PVC significantly ($p<0.05$) affected whom they talked to. Ex-Deans were more likely to talk to others than former Heads of School.

Table 12. Effect of different attributes on whom PVCs-R talk to and upon who talks to PVCs-R.

Attribute	To whom a PVC talks		Who talks to a PVC	
	χ^2	Probability	χ^2	Probability
Age	19.59	0.014	21.17	0.012
Gender	0.057	1.00	0.0	1.00
Subject Specialism	0.774	1.00	1.0	1.00
FT/PT	2.131	0.982	1.786	0.971
Previous Role	12.007	0.042	9.25	0.171

Table 13. Effect of attribute on measures of centrality of whom a PVC-R talks to and upon who talks to them.

To whom a PVC talks	In-Degree[a]		Out-Degree[b]	
Attribute	F-Stat	Probability	F-Stat	Probability
Age	1.233	0.341	6.161	0.022
Gender	0.407	0.551	0.119	0.848
Subject Specialism	0.773	0.489	3.039	0.069
FT/PT	0.275	0.762	2.839	0.081
Previous Role	1.787	0.206	4.353	0.025
Who talks to a PVC	In-Degree[a]		Out-Degree[b]	
Age	1.394	0.279	5.679	0.023
Gender	0.286	0.612	0.136	0.832
Subject Specialism	0.766	0.503	2.757	0.082
FT/PT	0.534	0.596	2.484	0.117
Previous Role	2.364	0.128	3.914	0.039
	Betweenness			
Age	1.993	0.219		
Gender	0.407	0.795		
Subject Specialism	1.801	0.152		
FT/PT	1.223	0.307		
Previous Role	7.136	0.007		

[a]Measure of connection from others   [b]Measure of connection to others

These attributes may also affect the structure of the network by influencing the connectivity between different individuals. Table 13 shows that none of the attributes

influenced in-degree (*i.e.* receipt of ties), whether in response to another initiating the conversation or the focal actor beginning the conversation. However, Table 13 does show that out-degree (*i.e.* sending of ties) was influenced significantly (p<0.05) by age and by previous role. Betweenness was also affected significantly (p<0.01) by the previous role, although none of the other attributes affected this measure of structure. Ex-Deans talked to many others and therefore acted as links to others in the network.

4.1.3.5   Impact of distance on frequency of interaction

Distances between any single university in the 1994 Group and all of the other universities in the group were obtained from the Automobile Association website and are shown in Appendix 4. Individuals from universities in South and Central England (particularly in London) have less total distance to travel to all of the other universities in the 1994 Group, whereas those individuals from universities in the North of England had much further to travel to reach all of the other universities. Members of St Andrews university had the furthest to travel to reach counterparts in all of the other 1994 Group universities.

Frequency of communication may be expected to be inversely related to geographical separation, so that communication becomes less frequent as distance between individuals increases. Figure 14 and Figure 15 show this relationship respectively for communication that is initiated (who do you talk to) and communication that is received (who talks to you). There was considerable scatter in both relationships and the coefficient of determination (r^2) was less than 0.1 for each. Nevertheless, the slope was negative showing an inverse relationship as predicted. The intercepts lay between 2 and 3, corresponding to a communication frequency of between annually and quarterly.
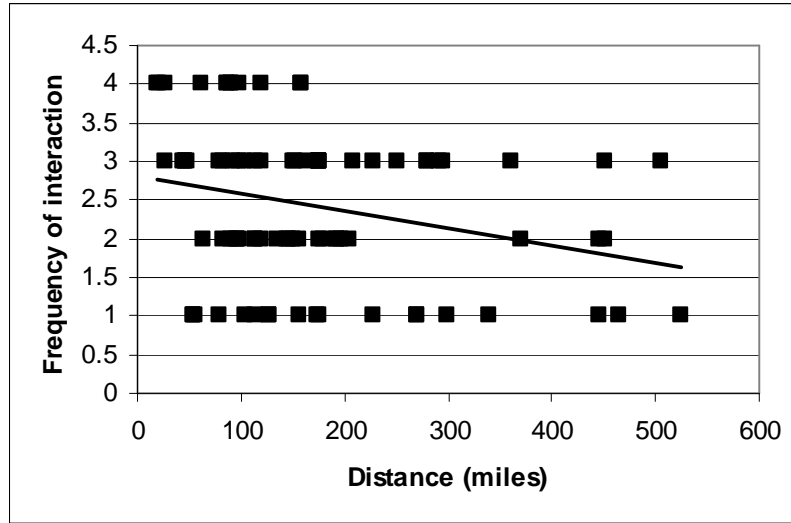
Figure 14. Effect of distance (miles) upon the frequency with which PVCs-R initiate conversations with other PVCs from the 1994 Group. (y=-0.0022x+2.802; r^2=0.072)
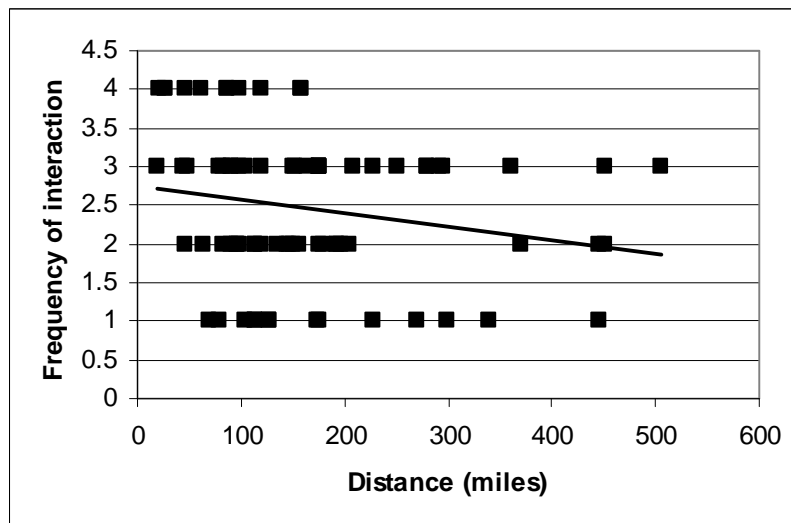
Figure 15. Effect of distance upon the frequency with which PVCs-R are spoken to by other PVCs in the 1994 Group (y=-0.0018x+2.762; r^2=0.042).

4.1.3.6   An examination of the impact of scope and scale of operation and distance on the intensity of communication

According to the law of universal gravitation (Newton, 1687) all matter attracts all other matter with a force proportional to the product of their masses and inversely proportional to the square of the distances between them. Thus,

$$F = g(m_1 . m_2)/ r^2$$

Where, m_1 and m_2 are the masses of each body, r is the distance between the two bodies, g is the gravitational constant and F is the magnitude of the force between two points.

In this study, the mass of a university could be represented by the size of its academic or student body, or by the value of its research income. The intensity of communication could represent the magnitude of the force (F) between two individual PVCs and was calculated from the product of the stated frequency of initiated interactions between any two PVCs. This intensity can be plotted as the dependent variable against the different estimates of the quotient of multiplied masses and the square of the distance, as the independent variable. The hypothesis was that as the mass-distance quotient increased so the intensity of interaction would increase.

Figures 16-18 show the relationship between mass and intensity, where mass is based respectively on total research income, academic FTE, and student FTE. There was no significant relationship in any of these cases. None of these elements of university activity alone seemed to stimulate connections between PVCs-R. Both more and less frequent connections occurred when the mass distance quotient was low. In each Figure the obvious outliers were relationships between the PVCs at the universities of (i) Kiboko and Chambas (intensity of communication = 12), (ii) Chambas and Sindhuwa (intensity of communication = 9), and (iii) Kiboko and Kholitar (intensity of communication = 6).
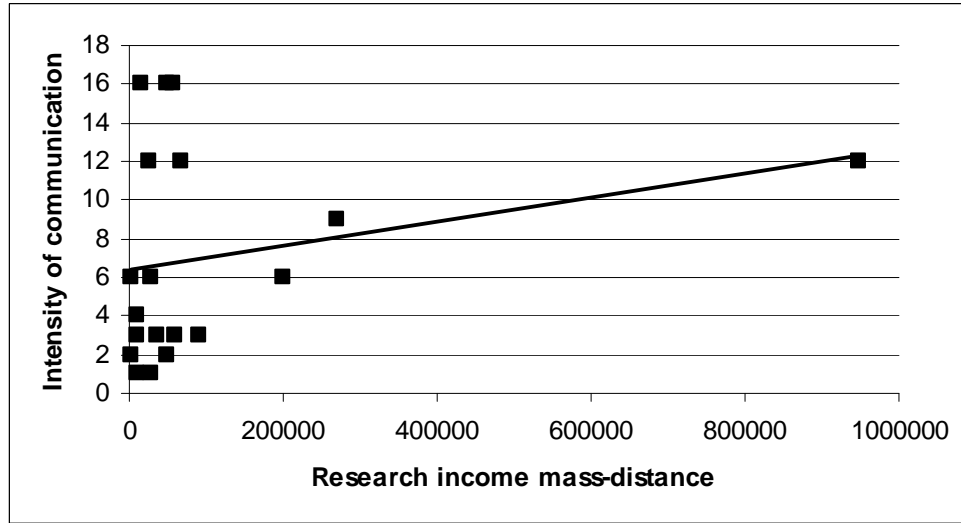
Figure 16. Relationship between intensity of communication and research income-mass distance ratio for PVCs in the 1994 Group (y=0.000006x+6.35; r^2 = 0.064).
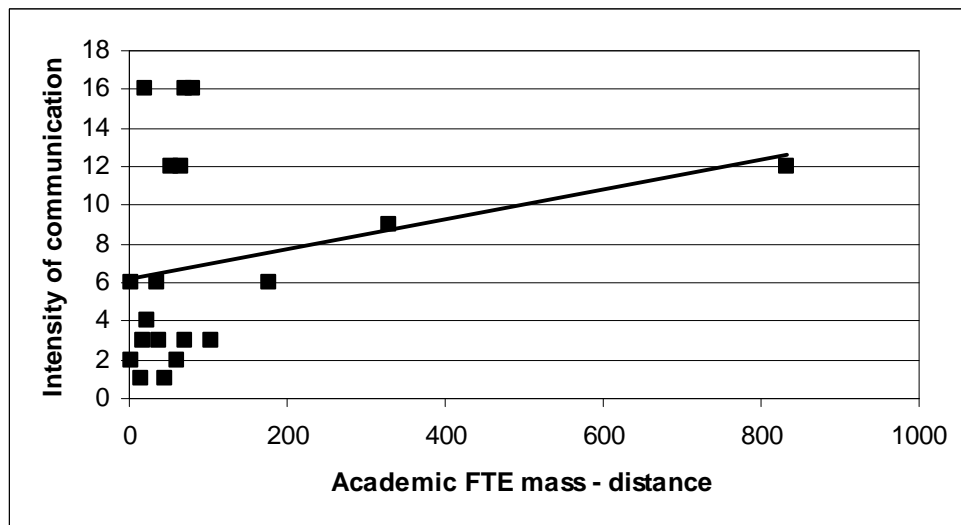
Figure 17. Relationship between intensity of communication and academic FTE-mass distance ratio for PVCs in the 1994 Group (y=0.0077x+6.17; r^2 = 0.076).
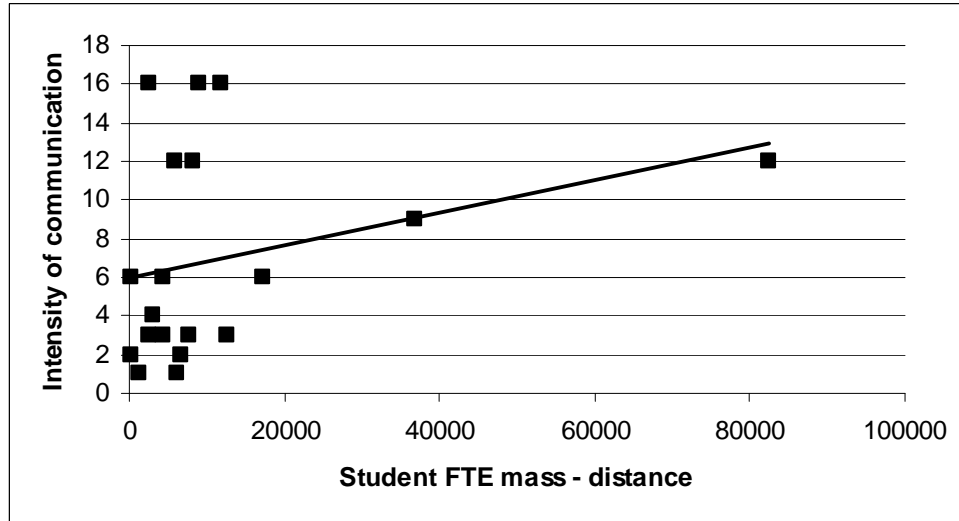
Figure 18. Relationship between intensity of communication and student FTE-mass distance ratio for PVCs in the 1994 Group (y=0.00008x+6.01; $r^2 = 0.087$).

4.1.3.7 An examination of the relationship between time in post and initiation of conversation

Figure 19 shows the relationship between the amount of time the post-holder has been in office and the number of PVCs-R within the 1994 Group that he/she was in communication with, either to initiate or receive from (both sets of data were combined on the same figure). Initially contacts with other 1994 Group members were limited. The number of contacts then increased to a maximum, in this case by inspection after approximately 5.5 years, and then declined perhaps because of the turnover of PVCs which meant that it was unlikely that PVCs would remain in post for an extensive period. It also may reflect that beyond 5 years there is perhaps little to be learned by more experienced PVCs from contact with other more recent recruits to the position of PVC.
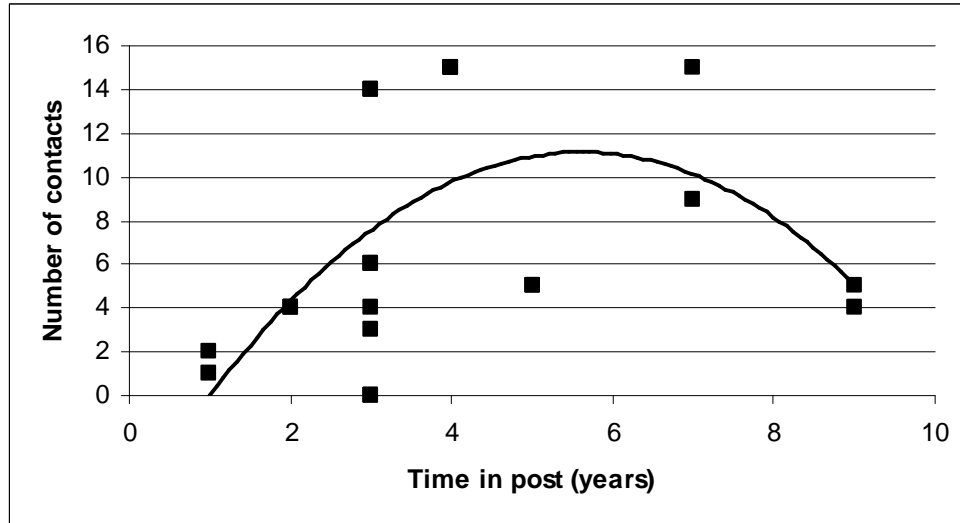
Figure 19. Relationship between time in post and number of contacts between PVCs-R in the 1994 group (y=-0.52x^2+5.87x-5.32; r^2=0.559).

The correlation coefficient demonstrates that time in post significantly affects the number of individual PVCs within the 1994 Group who will seek information or who will be sought to provide information.

4.1.4 Links to others both inside and outside of the 1994 Group

PVCs in the 1994 Group had widely differing contact with other members of the group (Table 14). In most cases they also had contact with others outside the group (Table 14). Commonly this was with PVCs from other universities, although some other senior academics were also contacted in a few cases (data not shown).

In the case of Kholitar University both PVCs were extensively linked to PVCs from other universities, notably from the Russell Group. This is perhaps a consequence of Kholitar's membership of both groupings of universities, but it may also indicate a preferred institutional practice that senior members are networked widely. In some cases PVCs indicated connections to Government Agencies, including funding bodies (Table 14). PVCs-R had a more extensive network of contacts both within the 1994 Group and also outside the 1994 Group, than the PVCs-T (Table 14). Excluding the two PVCs from Kholitar, the number of contacts outside the 1994 Group for PVCs-R ranged from 3-8, but from 1-3 for PVCs-T (if the PVC-T at Tel Hadya is also excluded).

Table 14. Number of contacts between PVCs from the 1994 Group and others.

University	1994 Group PVCs		Other PVCs		Govt. Agencies		Total Other		Total contacts	
	PVC-R	*PVC-T*	*PVC-R*	*PVC-T*	*PVC-R*	*PVC-T*	*PVC-R*	*PVC-T*	*PVC-R*	*PVC-T*
Muguga	6	5	3	3	1	0	8	3	14	8
Breda	0	0	n/d	n/d	n/d	n/d	n/d	n/d	0	0
Katumani										
Pakuwa										
Dordor Gaun	4	1	n/d	1	n/d	0	n/d	1	4	2
Tel Hadya	15	1	0	7	4	1	4	8	19	9
Lumle		0		n/d		n/d		n/d		1
Dordor Tar	1		5		0		5		6	
Hurley										
Kiboko	14		n/d		n/d		n/d		14	
Sutton Bonington		2		2		0		2		4
Kikuyu	4		6		1		7		11	
Chambas	5	3	3	2	0	0	3	2	8	5
Sindhuwa	15	0	4	1	0	0	4	1	19	1
Kholitar	15	3	>18	19	0	1	>18	20	>33	23
Pakhribas	4	15	0	0	3	1	3	1	7	16

n/d = no response from respondents; blanks = participants did not reply.

The number of contacts outside the 1994 Group relative to the number within the 1994 Group for any particular PVC may indicate the relative importance of one group over another to that particular individual. Table 14 shows that with the exception of

those PVCs who talked to everyone (or nearly everyone) within the 1994 Group, an equivalent or greater number of contacts were made to individuals outside of the 1994 Group than to individuals within it. This suggests that contacts to other 1994 Group members were no more significant to individuals in performing their role than other contacts outside this group.

4.2 Questionnaire responses to interaction

While the questionnaire probed for factors that encouraged or inhibited interaction amongst PVCs with differing responsibilities from member universities of the 1994 Group, the combined responses from both sets of PVCs can perhaps be better structured into four different categories, namely (i) interactions in different groups, (ii) purposes fulfilled by interactions, (iii) modes of interaction, and (iv) factors influencing interactions. (See Appendix 5 for listing of responses from PVCs-R and from PVCs-T).

4.2.1 Interactions in different groups

Although the focus of the questionnaire was on intra-1994 Group interactions it was clear in a variety of ways from many different sources that membership of the 1994 Group was only one, albeit an important one, of a number of alternative possible groupings of PVCs. With overlapping institutional membership of the Russell Group of Universities, PVCs at Warwick University had divided loyalties. The Russell Group was a more significant grouping for these individuals. However, other PVCs from different institutions found particular regional groupings more relevant and useful, for example, *links with PVCs at a regional level therefore tend to be more prominent*. Those from Sussex interacted with universities in the "Gatwick Diamond", while PVCs at Bath and Exeter emphasized connections between PVCs at universities in the South West of England.

The importance of a regional focus to the interconnectivity of PVCs was most strikingly acknowledged by a PVC at St Andrews: *on many issues I find it more useful interacting with PVCs at other Scottish HEI's than the 94 Group.* Clearly, the institutional context of St Andrews isolates it from meaningful dialogue with English universities on a wide range of issues.

Individuals seemingly therefore have to decide which group or groups are more important to them or their institution and why.

4.2.2 Purposes fulfilled by interactions

The comments offered a number of different explanations for why PVCs might interact. Interactions between PVCs might be stimulated by the need for institutions to respond strategically and collectively either to national initiatives or to an action affecting the whole HE sector (*e.g.* Full Economic Costing (FEC) for research). The PVC at Dordor Gaun noted that *common strategic interests* were factors encouraging interaction amongst members.

Other interactions between PVCs may also be a strategic response for a university to funding opportunities offered collectively at a local or regional level. Two examples were evident from the comments. The first was the SETsquared initiative, which involves the universities of Bath, Bristol, Surrey and Southampton, and the second was Great Western Research (GWR), which involves the Universities of Bath, Exeter and Bristol. Both of these examples permit the institutions involved to access additional research funding, and so more resources. Universities must respond strategically to opportunities that allow them to gain access to more resources.

Access to physical assets provided another obvious reason for shared interaction, particularly between PVCs-R. The PVC at the University of Muguga noted the *joint use of a scanner with Kiboko and Sutton Bonington*. Research that requires substantial investment in equipment may be more efficiently conducted on a collaborative basis between institutions that have complementary assets. Indeed this complementarity may be (or may become) an important source of competitive advantage for accessing specific funds. Such complementarity may stimulate interaction.

A final motivation for interaction between PVCs evident from the comments in the questionnaire data may be the need to seek advice. In some cases a particular PVC *contacted individual members to gain views on particular subject areas to seek advice* (Kiboko). But at an individual level such interactions were *a function of people who I feel I 'know' and who I can share things with* (Muguga). Evidently, there is a

personal dimension to interactions that should not be overlooked. Individuals need to trust each other.

However, interaction may also be for learning support rather than simple information seeking. It was evident that a number of the PVCs were involved with the Leadership Foundation for Higher Education's Top Management Programme, and so were involved in shared learning about their leadership roles as PVCs. This helped to *breed closer links* between PVCs (Dordor Gaun).

4.2.3 Modes of interaction

Although a variety of different modes of communication exist, and a number of them may be inferred from the content and context of the quotations, only two were explicitly mentioned; email and face-to-face meetings. Electronic communication facilitates communication from an individual to the whole group, either as separate individuals or collectively. This was especially important for the Chair of each group: *As Chair of the Group, I have to contact members to gain views on particular matters outside of formal meetings*.

Nevertheless, the most frequently mentioned mode of interaction was the regular 1994 Group meetings. As noted by the PVC at Breda, *interaction at the regular meetings is sufficient*. However, there were a number of factors that hampered these face-to-face interactions.

4.2.4 Factors hindering interaction

Time was noted by many as an impediment to interaction. More specifically, it was noted that *getting all the diaries lined up for meetings* (Tel Hadya), so that all members could attend the group meetings was difficult. Moreover, the timings of these meetings were such that they did not *encourage more general interaction* (Dordor Tar).

Some, for example the PVCs at Kikuyu, noted that *the 94 Group PVC group should encourage interaction, but it has not really worked in this fashion so far*. While this was a peculiar case, others noted that a *lack of response* (Kiboko) from other members of the 1994 Group inhibited interaction. This lack of enthusiasm for interacting with other PVCs from the 1994 Group may result from an ignorance of *who the correct counterparts are* (Pakhribas). Obviously this inhibits interaction. This lack of

knowledge was caused partly by *the difficulty of managing to attend meetings and therefore get[ting] to know the 1994 group members* (Breda), or partly by a recent appointment to the position of PVC: *I have only been in post for one year, so I am still building up contacts, I have not yet met all of the 1994 group PVCs* (Dordor Gaun).

Despite the difficulties of interacting meaningfully with other PVCs, there was *value in regular meetings of PVCs* (Lumle) and a *sense of collegiality within the 94g* (Dordor Gaun), which suggest that impediments to interaction were not insurmountable.

5   Chapter 5 – Interview Results

5.1 Introduction

Although a number of different questions were asked of the eight interviewees (see Chapter 3), the Nvivo coding structure arising from the transcripts (see Appendix 6) can be categorized into 3 clusters, which relate to:

    i. The general aspects of the role;

    ii. Interactions between Pro-Vice Chancellors; and

    iii. Differences and similarities between research and teaching and the roles that PVCs play in these two important aspects of university life.

5.2 General aspects of the role

Appendix 6 shows the NVivo tree nodes that relate to the general aspects of the PVC role, and illustrate what a PVC does. The primary division relates to the separation between modes of operating, *i.e.* the processes or activities by which PVCs may conduct their duties, and the functions that they perform. The latter are further sub-divided into those with an internal focus and those with an external orientation.

It seems that PVCs engage explicitly in four different activities. The dominant activity is meetings. Ram at Pakhribas stated that *meetings, meetings and more meetings* were the way in which he conducted his role. However, it was clear that at different times PVCs played different roles at these meetings. In many cases they were called to chair meetings. Rose at Kiboko commented that her counterpart Wambua was responsible for chairing a large number of university committee meetings; *He probably has more nitty gritty meetings than I have, sub committees of this and that and whatever, is my impression unless he has managed to shed some. He hasn't been in the role that long but certainly when [name of predecessor] did it, he certainly had a lot more of his time spent down in the drains committees. That I would not have done actually, I would have had them chaired by somebody else. I think he probably spends a bit more time in the drains than I do.* Similarly, Ali at Tel Hadya chaired a number of external meetings. For example, he *chair[ed] the strategy and management board on which [university x] and Muguga PVCs sit together with*

science and industry council people, but this was not always so for other PVCs. For most PVCs however, their position ensured that they were responsible for chairing a number of university committee meetings (*e.g.* Kenneth at Muguga noted that *[I] chair a number of committees which then relate to my overall role; the Chair of University Research Committee, I chair the University Research Student Committee. I have engagement and currently chairing the Information Services Planning Committee which is a broader responsibility but clearly has links through into research*), and so the opportunity to simply "attend" a meeting was rare, at least within the university. This opportunity to attend was more common for external meetings. At other times, particularly in the context of the senior management team meetings, an individual PVC took a leading role presenting material to others for discussion (*e.g. so if there was a research issue I would lead on it and then we would all [discuss it]* – Ali at Tel Hadya), or a supportive role (*e.g. if we've got particular decisions to make in relation to a particular area we would probably want to air it in the Vice Chancellor's Exec. and get the weight of its support* – Ali at Tel Hadya) giving advice or critique to the actions under discussion. *I tend to present less papers than most others [because of my brief] so I am just engaged in discussions about where are we going as a university, our expansion, internationalisation, financial stuff and so on* – Dil at Pakhribas. Meetings evidently had a range of frequency depending upon the context. Typically, senior management team meetings at both Muguga and Tel Hadya occured weekly on a Monday. Other meetings may occur less frequently. For example, the meetings of the 1994 Group Student Experience Policy group occurred every 4 months or so (Marshall, *pers. comm.*). The nature and purpose of the meetings also varied.

One of the purposes of the meetings was to make decisions. Some PVCs commented on this explicitly, suggesting that it was not only an integral part of their role, but perhaps also distinct from participating in meetings. In these latter cases the decisions were often of a disciplinary nature; for example Wambua at Kiboko commented that *issues that are difficult to resolve through our normal procedures usually end up on my desk for making recommendations, so often it will be adjudications and final deliberations, it will be about disciplinary matters within my role so I am the person who invariably decides on disciplinary matters, investigates and explores disciplinary matters that relate to obviously academic misconduct*. Less

overt, but perhaps a more important circumstance where PVCs made decisions was in the senior management team meetings. The consequences of these decisions had significant impact upon the institution; for example, a number of interviewees referred to specific decisions to close particular departments. More positively others referred to decisions to collaborate with other universities on large scale research projects, *e.g.* GWR and SETsquared. These had considerable impact on the research activities of a large number of staff and students in these institutions. So decision making is a second activity for PVCs.

In some situations, and recognizing the multiple demands on their time, PVCs delegated responsibilities, a third activity. For some this meant relinquishing the chairing of meetings that were perceived to be less important (see earlier quote for Rose). In other cases day to day responsibility for particularly significant projects was handed over to others; although general oversight of the project was retained (*e.g.* Kenneth at Muguga). However, such behaviour was not widely remarked upon, perhaps indicating that PVCs were generally attentive to their duties. Although it may be that they felt unable (or possibly even unwilling) to shed responsibilities; the role demands a "long-hours" culture.

Interestingly and unusually, Kenneth at Muguga saw facilitation (a fourth activity) as part of his role. He saw that it was important to bring different parties together and to allow ideas and activities to emerge from the interaction between these individuals and groups in an undirected manner. Referring to a launch event Kenneth stated that *I went along to kick the thing off, I went along to the dinner in the evening with the usual 'delighted to see you here etc etc….' So this was very much in the role of the face of the University and trying to encourage this collaboration*. Clearly, this may have a stimulating and empowering influence on those individuals involved. Dil at Pakhribas observed that this was part of *being a senior player within the institution* to *go around and … help sort problems out and help things to happen*.

Fundamental to all of these activities is the need to communicate appropriately to a wide variety of stakeholders, ranging from students and academic colleagues to business leaders and politicians, and from local community leaders to Heads of national funding agencies and distinguished international visitors. For example, Rose at Kiboko

noted that *particularly on the research side a lot of the activities are to do with interfacing with the external world, so when they either come here you do the wit, style and charm bit, so you get the heads of research council coming quite frequently or I'll go and see them.* On a more mundane, but no less important issue, Njenga at Muguga *went to meet the local councillors about student housing and behaviour in the city*. Many different ways for communicating were evident from the interviews. Broadcasts, press releases, and keynote presentations were contrasted with informal face-to-face meetings with fellow PVCs and students. Wambua at Kiboko said that *in a number of areas in the whole area of teaching and learning, particularly students, I will generally be asked to prepare copy for the communications department and I will give interviews whenever requested and if it is my area, I feel we ought to, which we will discuss amongst ourselves very often to TV and radio.* Sonia at Tel Hadya observed that *we [Sonia and Ali] have to share information so we do make sure that we meet regularly* – regularly between each other or regularly with the schools? – *between each other so we have recently implemented, really at the beginning of this academic year we meet for 45 minutes before every VC Executive Group to share information because we used to go out for lunch once a month but decided that wasn't frequent enough*.

Three functions with an internal orientation emerged from the data. For many PVCs a significant function of the role was to set an institutional level strategy, *to provide strategic leadership, direction, vision, ideas for the teaching and learning area* – Dil at Pakhribas, and then to monitor progress towards realising the intended strategic outcomes. Rose at Kiboko felt that *there are 2 main aspects to my role, one is because I am pro-vice chancellor for research, it is leading and managing everything to do with research within the university, so that involves planning a strategy for research.* Similarly, Sonia at Tel Hadya stated that *I have written our education strategy, I am responsible for that element of education in our corporate plan and I also am obviously the risk owner of a number elements of the education strategy*. It also seems that each individual PVC needed to define her or his own institutional level strategy, irrespective of whether one already existed. For example, Wambua at Kiboko, who had been in post for only a few months was busy writing a strategy for Teaching and Learning (*I am actually working now on a strategy for teaching and learning*), implying either that one had not previously existed, or if it had,

that it was no longer viable. Similar actions were reported by Sonia at Tel Hadya. A vital element of generating strategy is the need to gather information; Wambua at Kiboko was keen to encourage *people [throughout the university] to get out more, basically to find out what's going on, and that's the other issue is actually to learn more so I feel that I have the opportunity to go out and meet people and learn more about what's going on*. In monitoring the strategic performance of an individual university it is also necessary to benchmark the performance of other universities. Both PVCs at Tel Hadya independently indicated that they and their university monitored the performance of a range of other institutions using a variety of indicators (*we have a set of competitor metrics so we have 15 competitor institutions for whom we perceive ourselves as competing and they don't necessarily correspond with those* – Sonia at Tel Hadya; *I think in terms of benchmarking performance, we used to and still do reference ourselves against the 94 Group simply because there is a similarity with smallish universities, mostly campus universities* – Ali at Tel Hadya). While in this case monitoring appeared to be done formally and systematically, monitoring was also done at other institutions, for example Muguga, albeit in more informal or targeted ways (*Kholitar is the place that everyone looks at particularly in research terms, even in learning and teaching I have to say we always have an eye on what Kholitar does.* - Njenga at Muguga).

In addition to setting the strategic direction of the university, individual PVCs commented also on the need to be involved in a second function - operational issues (*I guess I have an operational role in managing the undergraduate faculty with our Dean of the undergraduate faculty and also the postgraduate faculty in as far as that relates to post graduate taught* – Sonia at Tel Hadya, or, *helping to run the structures and processes that relate to those areas, like chairing teaching committee and so on, because a lot of that isn't very strategic, a lot of it is pretty QA stuff – teaching and learning is very process driven, so it is partly making sure that those processes are running properly* – Dil at Pakhribas). For some like Rose at Kiboko this meant planning, monitoring and evaluating (*coming up with ways in which [the research strategy] would be implemented and then checking that it is being implemented as we go along, according to various sort of indicators, milestones*), for others it meant seeking out information that would inform institutional practices for both teaching and research (*I feel that I have the opportunity to go out and meet people*

and learn more about what's going on, bring that good practice and experience back to Kiboko and I think that is a very important role – Wambua at Kiboko). Njenga at Muguga was instructive at this point, suggesting a variety of other policy issues upon which individuals from outside the university might have been able and willing to share information to develop practices, for example *the TRAC exercises, TRAC(T) – how are we responding to HEFCE on TRAC(T), what do we think those post 92s are up to? How shall we oppose funding by credit? Are you having trouble with your Christian Union and your students union? Social media – have you got any students using face book to slag off members of staff – is that covered by your regulations? What does your regulation look like? What are you doing about social media?*

Some PVCs had as a third function direct line management responsibility for a number of staff, who may be either non-academic ones in supporting roles (Muguga) or academics (Tel Hadya). But this was not so for all PVCs, for example Ram at Pakhribas in describing his role noted that *it certainly isn't management as I have no staff so its not certainly management of people anyway and its an unusual role in that sense.* Similarly, Dil noted, *by the way at Pakhribas we have no line management responsibility.* However, all of the PVCs appeared to have direct contact with Deans and/or Heads of School or Departments depending upon the organizational structure of the university. It was clearly imperative for PVCs to work with these senior colleagues to ensure that the institution delivered its expected plans (*e.g. Rose would have told you that she is quite hands on, i.e. goes out and meets people, goes out and talks to schools and tries to get across the message that underlies the strategy and likewise receive opinions and views, so I think Rose is interested in both sides, in other words the bottom up and the top down and how they obviously plan, and I am very similar* – Wambua at Kiboko). Well-developed people management skills were felt by some to be vital to succeeding in the role (*e.g. People's personalities and their other related skills, you know, for good or ill I am thought of as being someone who is good with people, so if there are particular difficult sorts of things to do which involve trying to calm people down or to talk reason to them, I get sent out to do that* – Njenga at Muguga).

Leadership may have an internal orientation insofar as leaders must communicate direction to those within the organization but the leader has to observe and respond to the external world also. By virtue of each engaging in a number of external

bodies (such as the Royal Society, HEFCE, and RDAs) all PVCs had the capacity to be aware of external trends and so to provide direction to their university. Some, like Wambua at Kiboko, explicitly commented that leadership was part of their role (*Well, I think the real key is leadership, it has to be about leadership and strategy – it's really a key thing for me - obviously leadership in the area of teaching and learning*).

Finally, PVCs have a representational role. In many cases they represented their university in external groups. Often these were with other universities (*e.g.* 1994 Group, N8) but they were also in groups which included policy makers (*e.g.* HEFCE research committee) or funding agencies (*e.g.* BBSRC, MRC, NERC). Obviously these provided the university with access to information that may have been competitively advantageous. This representational role was not always in relation to their assigned PVC remit, it might have been for general university duties at a high level. Rose at Kiboko commented on the need to perform, by doing the *wit, style and charm* bit in different circumstances with different audiences. Sometimes this audience was the alumni of the university (*e.g. So when the development office runs an event for alumni in London we go on the train and go up there and do the meet and greet and be part of it* - Ali at Tel Hadya). At other times PVCs may be called upon to deputise for the VC, for example making speeches, attending meetings or welcoming visitors (*[the VC] will quite often say that I am down to do a speech to so and so, I can't now do it, can you do it? No one else gets asked to do those sorts of things except me - because I have been here a long time, so if [the VC] said do a speech to so and so, I could probably do that without a huge problem!* – Njenga at Muguga).

5.3 Interactions between PVCs

There seemed to be three obvious dimensions to this particular cluster, which answer the questions of:

a.   Who a PVC interacts with, either within the university or outside the university?

b.   How the interaction occurs? (*i.e.* what are the conditions that facilitate or constrain interaction); and

c.   Why PVCs might interact?

5.3.1 Who do PVCs interact with?

5.3.1.1   Internally

The interviews suggested that there were three specific groups within the university that a PVC interacts with. The first group was the other PVCs. Njenga at Muguga commented on their importance, "*In terms of the everyday job, the PVCs are much more useful. Its no good talking to a Vice Chancellor about reforming the assessment system, etc, so in terms of the sort of particular problems/issues I have reforming the appraisal system, reforming the assessment system, getting hold of the notion of what constitutes social space, how to deal with the national student survey. That has to be PVCs or PVC like people. It's hopeless otherwise*." Such interactions between PVC-T and PVC-R appeared to be more formalized in some institutions like Tel Hadya, where the configuration of the organization and the assignment of duties required close cooperation between the PVC-R and the PVC-T (see earlier comment). In other institutions the link between the PVC-R and the PVC-T was more *ad hoc*, and perhaps (unhelpfully) too infrequent (*I have much less to do with Wambua [PVC-T], in fact we went and had a drink just before Christmas so, for the first time since we got the chance just to talk about overlap between teaching and research* – Rose at Kiboko). Interactions with other PVCs responsible for resources or for enterprise were found, but these interactions too seemed to be issue specific and not routinely timetabled, for example again Rose stated that *I probably have most connectivity reason to talk to, as apart from social chit chat which I don't have much time for, I have to say, the PVC for resource – a lot of things seem to come up and there are issues to do with resource*.

The second group was the senior management team, sometimes referred to as the VC Executive. Rose at Kiboko in describing her role noted that *the other part [of her role] is contributing, in equal ways with the other PVCs and the VC to run the university. We run it very much as a 5 person team.   We have a senior management board which is bigger and that includes the deans and divisional directors but really the main leadership and management of the university is done*

by the VC and the 4 PVCs. Obviously the senior management team involved the Vice-Chancellor, but in some cases also included other senior University figures, for example the Registrar and Finance Director. Such meetings occurred regularly, probably weekly although this was not recorded for all institutions.

The third group comprised "manager-academics" in the tier below the senior management team, mainly Deans and/ or Heads of School. Wambua at Kiboko commented that *I have met the head of school and the school director for teaching and learning to find out what they want, and that is what I will do every year – with about 18 schools it is about as much as I can fit in.* While meetings with this group were sometimes on an individual basis, for example through a departmental visit, interactions were more commonly through university level committees such as research or teaching, which the PVC chaired. For example, Kenneth at Muguga commented on, *a number of committees which then relate to my overall role, the Chair of University Research Committee, I chair the University Research Student Committee. I have engagement and currently chairing the Information Services Planning Committee which is a broader responsibility but clearly has links through into research*. In some cases these served a strategic function and considered resource-allocation issues (*e.g.* Directors of Research Committee at Kiboko), but this was not always the case, even in the same university; *the Directors of Research … make quite difficult decisions, who will review the RAE and who will make decisions about resource. So my equivalent then is my link and relationship with the faculty directors of teaching and learning and they don't have a position as powerful as the Deans because the Deans sit on senior management and the Deans have an influence on resource –* Wambua at Kiboko. An alternative model provided by the University of Tel Hadya showed PVCs with line management responsibility for a number of Schools, *perhaps something which is distinctive or perhaps semi distinctive for Tel Hadya is that PVCs have line management responsibilities for a sector of the University's academic activity and so I have line management responsibilities for our schools of arts, languages and literatures and humanities and social sciences –* Ali and *I manage education, that's my brief, that's my executive portfolio, but I also line manage the science schools, those being physics, engineering, computer science and maths, bio sciences and support and health sciences –* Sonia. In some respects this complicated the interaction between PVC and Head of Department because the relationships were not then solely

about either teaching or research, but both. Consequently, the PVCs needed to be aware of the detail of the other's brief in order to effectively discharge these line management duties.

5.3.1.2 Externally

Externally, the PVCs interacted with a wide variety of different stakeholders. Within the context of this study an obvious external group was the equivalent PVCs at the other 1994 Group universities. Meetings for the PVCs-R had been more regular and sustained over a longer period (since early 2005) in the Research and Enterprise Policy group under the chair of the PVC-R at Kiboko, than the meetings for the PVCs with responsibility for Teaching. The latter had begun to meet as the Student Experience Policy group in mid 2006 with meetings at very irregular intervals (Marshall, *pers. comm.*) chaired by the PVC-T from the University of Tel Hadya. This may be an important difference in the context of this study and reasons for it together with their implications will be discussed later.

Most interviewees indicated significant links to other PVCs in other universities outside the 1994 Group. In many cases these interactions were stimulated by regional initiatives, for example the White Rose Consortium, involving the University of York, with the Universities of Leeds and Sheffield, or Great Western Research, involving both the Universities of Bath and Exeter together with the University of Bristol. Proximity is clearly a factor in encouraging these interactions between PVCs at different universities. Another example is the link between the Universities of Lancaster and York in the N8 group. Besides the regional and national foci, PVCs also had international connections. For example, again as a consequence of funding opportunities, connections were made by PVCs at universities in the SETsquared initiative to universities in the USA, *That partnership has now got a good name in Government … we were invited as a consortium rather than a single university, so … . We put in a bid for that and we were successful and awarded a further £1.5m … to encourage some collaborative activity with Southern California as it turned out, so we have got links with University of California, San Diego and Irvine so that's moving forward*.

Links also extended to other academic leaders who were not necessarily PVCs. Njenga at Muguga commenting on the a regional Universities Teaching and Learning

group, noted that it *has lots of people who are incredibly valuable, most of whom are not PVCs, but they have senior positions in their institutions, they might be Deans of learning and teaching for example, but they might not be PVCs, so the [university x] person who happens to be [person z], I have found her quite useful.* Some links may be to ex-colleagues or to senior colleagues with a similar academic interest (*e.g.* Ram at Pakhribas noted that *to some extent these links are because I know people well, so that [person x] at UEA and [person y] at Lancaster … are both people I know quite well anyway and therefore may talk to outside about things*). Some of these contacts had been established through involvement with other academics in professional societies or through sitting on funding bodies or other committees; again Ram at Pakhribas noted that "*[person x] and I are both on the [research council] Council for example and I meet [person x] far more often through that than through any of the 94 Group*". Establishing such links was felt to be of strategic importance for the particular institution. Sometimes these external contacts were to post-92 universities. The latter was characteristic of PVCs-T (*e.g. So I would talk to a number of PVCs in the post 92 universities, I would consult with them about teaching and learning procedures about how they deal for example, in some cases with huge class numbers, so just things like that, that are policy practical issues* – Wambua at Kiboko).

Another common group of external contacts was to the sources of funding. Some PVCs mentioned particular research councils (*e.g.* NERC and BBSRC). All referred generally to the HEFCE and many referred to the Regional Development Agencies.

A final group of contacts noted by some was business and industry. Sometimes these interactions were to support local development of the city. For example, Ali at Tel Hadya noted that *there is within the region a relationship building role with the City Council and things like that where we are a big employer and a big presence and have a big influence on the local city, likewise with the region*. At other times these were to provide resource for the activities of the university, which often meant research. For example, Kenneth at Muguga noted the *setting up [of] strategic partnerships [with industry]. We have already an agreed strategic partnership involving [company x] and we are in the process of forming a strategic partnership with [Aerospace Company].*

5.3.2 How do interactions occur?

As noted in the previous section a wide range of personal contacts was common to all PVCs, *i.e.* they were widely networked. Interactions with other PVCs within the 1994 Group however may be facilitated or constrained by a variety of influencing factors.

Connections are encouraged by opportunity. Geographic proximity of one 1994 Group university to another makes it more likely that the PVCs could or would interact. For example the PVCs at Kiboko interacted with the PVCs at Chambas, and also at Sutton Bonington; *we [the PVCs at Kiboko] also meet fairly regularly, at least a couple of times a year with the PVCs from Sutton Bonington and Chambas and that's again a PVC resource and research from those institutions*. Similarly, *because we are part of the [small cluster of universities] … all the groups of PVCs in their separate briefs meet I think about once a term or twice a year so we do meet as PVCs and we chat about things – Dil at Pakhribas*.

Opportunity to interact with others is also created by involvement in other networks which overlap (and extend beyond) the 1994 Group. Such networks as noted above often arose from the activities of the Regional Development Agencies (RDAs). But alternative independent networks of universities, constructed to achieve other objectives, promoted connectivity between the PVCs within (and beyond) the 1994 Group (*e.g. So in terms of collaboration with other universities, we are a member of [a consortium of Russell Group and 1994 Group Universities]*).

History also influenced the prospect of interactions. Future interactions between PVCs are more likely with former contacts. Individuals, who have known each other in the past because of subject interests or involvement in professional societies, interact with each other as PVCs. For example, Njenga at Muguga observed, *I talk to the [Russell Group University] woman quite a lot because I happen to know her and we are the same intellectual background*. Similarly, Ali at Tel Hadya said *I also have a relationship with the PVC who has just come to the end of his office at Kiboko because both he and I were on the Council of the British Academy*.

While a number of factors make interactions between members of the 1994 Group more likely, encouragement to interact is also required. For some PVCs, especially those at Tel Hadya, there was a clear signal from the VC to be involved with other PVCs in the 1994 Group; *I think that we are all encouraged to take on roles outside of the - and that is a consequence of the VC coming or? – it is in consequence of the VC coming in, as much as I certainly think if you know you are wanting a simple short term catalyst, that was it* – Ali at Tel Hadya. For others, where the VC was ambivalent towards the 1994 Group and its collective action, the encouragement to interact with other PVCs in the 1994 Group was less strong. At Muguga, Njenga *go[es] to 94 Group board meetings, that's because the VC does not like going to those board meetings, [the VC] seems to think they are a boys' club and the board meetings are largely about co-operative endeavours and [the VC] is not a naturally co-operative person*. Moreover, the enthusiasm of other PVCs in the institution for engaging with the PVCs in the 1994 Group, or PVCs generally, has encouraged other PVCs in the same institution to become equally enthusiastic. An obvious example is the PVC-T at Kiboko who has responded to the lead shown by Rose. Wambua said, *I think I would be looking to try and get a role in some of those processes to chip in, effectively for the 94 Group and the views and values that we have and I think that is important in just the way that if you like, Rose will be portraying the views of the 94 Group in relation to future policy for the RAE and metrics and all those various questions and decisions*.

Although from the transcripts there were a number of discernable factors that encouraged the interaction of PVCs within the 1994 Group, none of these would be influential unless there was a recognized (or perceived) need for interaction.

5.3.3 Why might PVCs interact?

Each of the interviewees explained their reasons for interacting with other PVCs, and more particularly with those from outside of the 1994 Group, in many different ways. However, they may be broadly categorized into three groups.

The first, and perhaps least commonly expressed set of reasons, was related to personal development. For some, interaction with other PVCs (and more often with

those from the 1994 Group) was caused by a common membership of the Leadership Foundation for Higher Education's Top Management Programme (TMP). Rose at Kiboko *met several PVCs there and a couple of those I have kept in close contact with ….. so [PVC] from [university T], for example, is the one who I probably have the most contact with because he was also in my small working group, so we had other meetings as well and he was the one I have kept in touch with and we have occasionally had coffee in London*. The TMP was designed to support the development of individual PVCs in their role and to provide a network of mutual contacts. Kenneth at Muguga *put in an application to the Leadership Foundation for Higher Education to go on their top management programme. So I am an alumni of TMP[number]*. Others sought out mentors who could give critical career guidance. For example, *the Leadership Foundation did sort out a mentor for me [*Sonia at Tel Hadya*] and have asked me to become a mentor, which is good. I think mentors are great, really important for senior management*.

A second category of reasons is stimulated by the need to undertake the duties of a PVC within a specific university and to affect the internal activities of the university. In some circumstances it is appropriate to seek advice from PVCs in other institutions. This may be possible because the universities face similar issues, for example *lots of universities like Muguga are dealing with the complexities of assessment, the modular structure. How do you get a consistent set of undergraduate assessment regulations when you have 18 departments who are constantly saying "well chemistry is not the same as sociology so why should we …" we are all facing that so exchanging ways of conceptualising the problem, ways in which the problem has been solved elsewhere, short-cuts, tricks –* Njenga. Another example relates to the evaluation of a particular subject, *you might want to sound somebody out about a particular thing where you would not want to go to the group so actually I led our review of physics last year and I wanted to have some advice about physics and 2 PVCs were physics people so I sent them an email and got some comments from them about physics –* Rose at Kiboko. While these interactions may relate to individual institutional responses to policy drivers, or to questions regarding the routine and more general agenda of teaching and research, they may also relate to very specific questions of an unusual nature. For example, *Have you had a visit from Special Branch recently asking about the Islamic Society because we have – what did you say to Special*

Branch? Have you got a protocol for Special Branch coming on campus? What does your protocol say? – Njenga at Muguga. However, there is more to this type of interaction than merely acquiring information about routine or uncommon circumstances that will affect a university's policy or practices. As one experienced PVC noted, it is not only reassuring to know that others are thinking about issues in a similar fashion, it also saves time and effort. *Talking to other people who are in very similar institutions is incredibly useful. I won't say I wouldn't know where to start with some of those problems but I don't see why I should start from ground zero all the time, when I have got that group of people who I can say, "hey what are you doing". So I think that is incredibly - its sort of personally reassuring, its psychologically comforting, it's a wider base of how to do things, all of those things I think are quite useful –* Njenga at Muguga*.* While another (Dil at Pakhribas) agrees with this in principle, he was less keen in practice, *I can fully understand why there is another reason for these networks … it gives people a sense of support and so on. And I think that's the emotional gap thing. I haven't really felt a particular need for that partly I think because I am less of a social animal in that way.* Although this individual, *could understand its [connections to other PVCs] more important because you know you get ideas and you see where the sectors are moving, you might pick up on things which make you think 'oh that's something that we should be doing', it helps you with interpretation of policy documents and sorts of things like that.*

Interacting with other PVCs may be motivated by the need to exchange information. It may also be motivated by the need to learn about what other institutions are doing. In this sense PVCs were gathering information about rival institutions, monitoring the activities of the other institutions, in order to help the individual PVC to influence the strategic directions of her/his own university. PVC-R at [university] was quite explicit about this, *we were intending to continue to be a research intensive institution it is clear that we are quite a way behind both [university x] and [university y] which are the other 2 research intensives …, so we quite unashamedly thought that well we must have more contact with and get collaborative activity going with [university x] and [university y].*

A third category of reasons for PVCs to interact with their peers is when they are representing their university externally, *i.e.* they are acting on behalf of their university. Like the second category which identified reasons why a PVC may interact with others

in order to enhance her/his performance as an individual PVC within their institution, so the third category of reasons points to interaction with individual PVCs and with groups of PVC in order to enhance the performance of the institution which he/she represents.

Individual dyadic interactions between particular PVCs are one way in which an individual PVC may fulfil her or his duties within the institution. In the setting of this study it was also apparent that PVCs may interact with other PVCs on a collective basis. These collective interactions within the 1994 Group also provided the opportunity to discuss ideas more widely. For example, PVCs-R have talked in general terms about institutional plans for the RAE (*I think there is probably quite a lot of calibration going on informally – what do you think that means; are you excluding people, I doubt there is much communication about actual content of RAE – Dil at Pakhribas),* and about FEC for research. *When the full economic costing came in we needed to decide how we were going to implement this, I [*Ram at Pakhribas*] thought it would be a good idea to get the 94 Group to talk about this*. Such discussions inevitably contribute towards shared learning and the development of best practices through the sharing of institutional practice. A specific example of this relates to the development of policies in respect of the RAE, where Rose noted, *I think in terms of sometimes you can share institutional sort of practice examples so one of the things we had to do last year was write codes of practice for equal opportunities for RAE purposes and I suggested that we first of all had a 94 Group meeting where we got somebody from the Equality Challenge Unit (or whatever it is called) to come and talk to us and we asked them lots of questions about what we really had to do as opposed to what it said in the book we had to do and then we shared examples round of our equal opportunity draft codes around each other*. The importance of this collective interaction was particularly the case when responding to government consultations on HE policy initiatives. In these circumstances it was felt that a collective response of a number of similar institutions (in this case 1994 Group Universities) would carry more weight than individual responses. For example Kenneth at Muguga commented that *we get consultations on what is going to replace the RAE. There was a 94 Group response to that which was a composite of the responses from the individual members, so we shared that information, it was almost public domain so why not share it and just reinforce the argument through the group*. In this sense the lobbying power of the single university was enhanced by collaborating with similar others,

ensuring perhaps that an outcome more agreeable to the particular university would be achieved than if it acted independently. Sonia at Tel Hadya noted *the need for lobbying in terms of what is going to happen across the different subject groups post RAE*.

Individual PVCs may interact with other PVCs to establish collaborative activities or joint ventures. Often these initiatives enable the university to gain access to additional resources, which enables the university to establish itself in a new area or to establish more firmly an existing activity. According to [PVC x] at [university y], *in terms of collaboration with other universities, we are a member of [a consortium of Russell Group and 1994 Group universities]. That came about in terms of our work in the area of enterprise, knowledge transfer, entrepreneurship, spin out companies, that end of the spectrum and with the Government's higher education innovation fund we put in a collaborative bid across those 4 universities and succeeded in getting very substantial funding – something in the order of £13m*.

5.4 Similarities and differences in role of PVCs with responsibility for either T or R

Clearly, the general elements of the PVC role noted above apply to both sets of PVCs. However, the interviewees were encouraged specifically to report similarities and differences in the two roles.

5.4.1 Similarities

The interviewees noted a number of generic responsibilities. *Actually they [the roles] are pretty parallel, so we do very similar things …. We sit on panels, we help solve issues, go and open things, we all go to the induction of new staff, new students etc., and then we specialize – Dil at Pakhribas*. Perhaps most obviously it was pointed out that each has a specific (although clearly different) brief. One is responsible for Teaching and Learning and the other is responsible for Research. Succinctly described by Ram at Pakhribas, *He covers teaching and learning, I cover research. What else do you mean?* Both sets of PVCs also were part of the senior management team of the university and shared in the duties and responsibilities that such

a position demanded. Often this meant formulating and implementing a specific part of the University's strategy, *e.g. the similarities [in roles] certainly relate to first of all the main strategic role and I think both of us [here at Kiboko] have been involved in developing and I am actually working now on a strategy for teaching and learning, and Rose has certainly been involved in developing that. So that is I think, the main role is actually setting up the strategy for the next 5 years* – Wambua at Kiboko, and then monitoring progress towards fulfilment of that strategy. Similarly, at Tel Hadya both PVCs *drive a strategy -* Ali*.* Ram at Pakhribas was clear that quality control was a vital part of both roles, *Quality control is a much bigger part of his [PVC-T] job than mine, but that is not to say that quality issues are not a problem to me, they clearly are*. While part of the senior management teams, it was also apparent that both sets of PVCs acted on delegated powers from the VC. The extent of this however was variable. For some like the PVC-T at Muguga it was a more regular occurrence than for others.

Meetings were the most common mode of operating. Through them decisions were made, advice given and received, and communication assured. Ram at Pakhribas commented that *meetings, meetings and more meetings* were the way in which he did his job.

Two particular external stakeholders were common to the activities of both PVC-Rs and PVC-Ts in this study. First, and unsurprisingly, the 1994 Group featured in most conversations, although it may be simply one of a number of groupings of universities to which the PVC belonged. Ram seems to suggest that particular affiliations of universities to which these others were linked was less important than the strategic significance for Pakhribas of the specific institutional relationship, *with other universities where we are developing interactions, who may or may not be part of the 94 Group, the fact that they are 94 Group is interesting and sometimes its useful for us to get together because we are rather similar sorts of universities, we tend to have common views on quite a few things but its just one of the various networks in which we operate – that's all. It isn't our major focus.* Secondly, RDA's were another influential stakeholder. They seemed to encourage interaction with other HEIs in the local region, particularly through different funding initiatives which demanded integration across institutions. Consequently, PVCs needed to engage with these other institutions in order to access the RDA funds.

5.4.2 Differences

5.4.2.1   Nature of the environment

Although there were many similarities in their roles, nevertheless PVCs-R and PVCs-T acknowledged a number of differences. These seem to stem from institutional, or even sectoral, differences in the perception of the two activities. While this perception may be changing, teaching has been historically considered to be the "Cinderella" activity compared with research; *if you were to wind the clock back maybe 6-8 years, probably the learning and teaching would have been the sort of Cinderella area and research would have been where the action is type of thing* – Ali at Tel Hadya. This apparent lack of importance was acknowledged directly (does *that means research is more important? well yeah, I suppose that is what categorises us [here at Tel Hadya], but the student experience and education is probably of increasing and I would say equivalent importance* – Ali), but also manifested itself through interviewees' comments in a variety of ways. For some, research was a global activity while teaching was at best regional, more often local, (*of course research is global anyway and teaching is much more local and regional* – Wambua at Kiboko), and in some cases it failed to escape the boundaries of the institution; it was entirely domesticated (*Learning and teaching is a much more domestic sort of event* – Njenga at Muguga). Scale meant not only extent or reach, but also interconnectivity. Research was perceived to be a more collaborative activity than teaching, [the] *research odyssey is generally much more collaborate between universities and the main aspects as to why there would be collaborations involved* – Wambua at Kiboko. *There is less [interaction] in the area of teaching collaboration, it's a less collaborative venture on the whole* – Dil at Pakhribas.

These differences in the perception of research and of teaching seem to have been reinforced by differences in their respective characteristics within the HE environment in the UK. Research was considered by Ram to be an intensely competitive free-market. Individuals and institutions were in competition with each other for resources, so that the scale of the research activity at any particular university was a function of its strategic decisions and subsequent ability to attract resources. Not so with

teaching, this was a "managed-economy" where there was limited scope for affecting student numbers or subsequent coverage; *I think the issue here is that the student line of teaching, the higher education market in a sense is stricter, is an extraordinarily managed economy. We can't just say we are going to double the number of our English students, because HEFCE won't let us, you can take them on if you want but you won't get any money for it, so its not economical, whereas in research that is not the case. We are able to competitively double our research income, we can do it and HEFCE will pay the QR consequences and so on, so in that sense, it is a fixed pot and we compete freely against everybody else, that's not true for students, you can't do it* – Ram at Pakhribas. These differences in environmental importance were reinforced by the apparently greater volume of government consultation occurring in respect to research than to teaching. One PVC commented on the range and frequency of consultation exercises that PVCs-R had to respond to relative to the number requiring action by the PVC-T; *in teaching and learning … we probably don't see quite so many consultations in that area as we [in Research] have* – Kenneth at Muguga. Accepting that there might not be as many consultations, nevertheless one PVC (Dil at Pakhribas) noted that *there are tonnes of national things (for example the QAA regulations, the engagement with employers agenda, the foundation degree agenda, the widening participation agenda, the national student survey) which in a sense all institutions are having to deal with and therefore in a sense we are having to tackle common issues … there is a lot of commonality there.* He went on to note that commonality did not necessarily demand connectivity, *if they have a lot of things in common but actually it's obvious what you have got to do about this and then you don't need to talk to others*.

Institutions also reinforced this perceived difference between teaching and research by creating structures for research that had more power than those for teaching. For example, at Kiboko the research committee which involved Deans had resource allocating powers, while the teaching committee which involved only Heads of Department did not, *So in Rose's case that would be the Directors of Research and that group for Rose, as I know, because they are all the Deans so she and the Deans form if you like, an inner group who make quite difficult decisions, who will review the RAE and who will make decisions about resource. So my equivalent then is my link and relationship with the faculty directors of teaching and learning*

and they don't have a position as powerful as the Deans because the Deans sit on senior management and the Deans have an influence on resource, but the fact that the directors of teaching and learning are very much involved in programme development, in recruitment and those sorts of thing – Wambua.

Such perceived differences between research and teaching are, however, surprising when the economic reality of most institutions shows that most income is generated by student numbers (*i.e.* teaching) and not by research. A point that was explicitly made by more than one PVC. Sonia at Tel Hadya observed this paradox; *I bet if you asked these institutions about whether they have had a research strategy or whether they have an education strategy and when they constructed it, that you will have got the research strategies before the education strategies, basically because of the RAE and research, research drivers, which is paradoxical given that you are getting the majority of funding through education*.

Finally the research environment, unlike the teaching environment, was seen to be much more influenced by policy drivers. The RAE clearly dominated the research landscape in the UK, *I think the RAE is a hugely important event which requires lots and lots of consultation and discussion to make sure that Muguga is on the right lines, in a way that learning and teaching does not do to nearly the same extent* – Njenga. But there have been other important UK policy initiatives that have influenced research activities in universities, for example FEC. Teaching, however, seems to have been much less influenced by UK policy initiatives. There was no mention of QAA or NSS or widening participation, although some suggested that the NSS might come to have the same influence for teaching as the RAE does for research. Even the Bologna Process was not considered to be a significant policy instrument affecting teaching, *I think that what lots of people have realised is that Bologna is a myth, because there is a Bologna panic out there which I think has now just about been rumbled. Actually, Bologna is not rolling towards us* - Njenga at Muguga.

5.4.2.2 Nature of roles

Irrespective of whether these perceptions about the environment for research and teaching are justified, PVCs were clear that the nature of the two roles were distinctive. For many, the requirements of the research brief were remarkably clear, for example, *I*

think that in some senses research PVCs have a clearer brief, I don't know whether clearer is the right qualifier there, they're principally working towards RAE 2008 and more recently they have been working towards what is going to happen in a post 2008 world, what's happening with metrics – Sonia at Tel Hadya. This contrasted with a hotchpotch of activities that were encompassed by the teaching and learning brief; *I have a much more ram-shackled, shambling all inclusive brief –*Njenga at Muguga, *the education brief seems to be really diffuse so I am spending my time doing so many different things. So today, there is a meeting on welcome week and induction. Last weeks it's kind of employability, admissions I am doing, the VC's excellence scholarships tomorrow, there is loads of different things –* Sonia at Tel Hadya. While it may be abundantly clear whether a PVC-R has discharged her or his duties effectively, perhaps because of the focus provided by the RAE, it is much less obvious whether a PVC-T has been effective.

5.4.2.3 Orientation of role

Others commented on the orientation of the two roles. PVCs with responsibility for research had much less to do with students, except for post-graduate research students, who are anyway much less numerous than undergraduates or post-graduates on taught courses. Rose at Kiboko noted that *Wambua [PVC-T] obviously has far, far, far more to do with students, I have nothing, only the reason I have anything to do with undergraduates is because I chair one of the major disciplinary committees, just in my general share of the senior management role, otherwise I would never see a student.* Similarly, Ram at Pakhribas observed that *student matters are a much bigger part of his job [PVC-T] than mine, although I am responsible for graduate students.* The student-centric orientation of the PVC-T also supports the view that PVCs-T are much less externally focussed than their PVC-R colleagues. The PVC-T at Kiboko commented *what we are asked to do I think, are different in the sense that Rose [PVC-R] has obviously a greater engagement with the external world and her role in the greater policy making relation to RAE and the Panel and things like that, whereas it is not as equivalent I think in the teaching and learning world.* Similarly, the PVC-T at Muguga noted *he [PVC-R] is probably more outward facing than I am.* For PVC-Rs the question was more likely to be whether to focus on national or international collaborative partnerships, whereas for the PVC-T the question was

whether to look outside of the institution or not; as noted above teaching was seen to be a domestic, or domesticated, activity. Although this internal/external difference is changing, for example, with the introduction of CETL's which may be collaborative in nature, teaching still has a more parochial feel to it. Partnerships in teaching tended to have a local or regional focus. Some PVCs-T commented on the importance of local Further Education (FE) Colleges or nearby post-92 universities as potential collaborating partners. For example, Wambua at Kiboko commented, *I think the other area of course is the collaboration with further education colleges through life long learning networks. I expect to be involved in the 92 universities much more because clearly, and the various different bodies where teaching and learning is represented, the 92 group of universities – teaching led universities – are extremely influential and significant*. It was also noted that PVC-T would more readily engage with post-92 universities because of their acknowledged general expertise in teaching compared to many pre-92 universities. The converse would be more likely for PVC-R. For PVC-R the comparisons were always made with research intensive universities either in the Russell group or the 1994 Group. This reinforces the observation that the two activities are different in terms of the external stakeholders with whom they interact. It is unlikely that PVC-R would have any reason to communicate with FE-Colleges, and it is unlikely that PVC-T would engage with industry (although this might change following the Leitch report), *it is probably unlikely that PVC-T is going to have a great deal of contact with business and industry* – Kenneth at Muguga.

6 Chapter 6 - Discussion

6.1 Introduction

Commonly managers in organizations are concerned with the routines of coordination and control and the issues of efficiency and productivity. These, however, are not the primary concerns of many employees in professionally-based organizations, such as universities. Here the historic focus has been the pursuit of knowledge for its own sake. While this view has been challenged in more recent times by a range of influential stakeholders, not least government, nevertheless the view still persists, being strongly held by many within the academy. It is not surprising therefore that the managerialist agenda sits uneasily within the traditional academic environment in the UK.

This unease is perhaps less acute in the post-92 universities (former polytechnics). Historically their governance structure was different from that of the pre-92 universities because they were under local government control and not autonomous. Consequently, decision-making in these institutions has been, and continues to be, restricted to a small number of influential individuals at the top of the university. This contrasts with the extensive committee structure found in pre-92 universities, where historically decision-making was devolved and collegial, and continues to be so in many circumstances. In these circumstances Smith *et al*. (2007) observed that the PVC must work through the committee structures, chairing committees, controlling agendas and working with people in the spaces between meetings in order to achieve change or to prevent things happening if this is a perceived or real danger to standards and reputation.

One expression of the managerial agenda in traditional universities (such as those in the 94 Group) is the creation of a small senior management team with responsibility to run the organization. Their formation was particularly encouraged by the Jarratt Report in 1985 (CVCP, 1985), the Dearing Report in 1997 (National Committee of Inquiry into Higher Education, 1997) and more recently by the Lambert Review (2003). These teams often comprise the Vice Chancellor, the Director of Finance, the Registrar

and a number of PVCs, each with responsibility for one of several different aspects of academic life for example teaching or research, and increasingly resources or enterprise.

This thesis addresses the question, "How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs?". In other words it explores the reciprocal relationship between the PVC role and the connectedness to other PVCs. At a broad level, this requires a consideration first of the role of the PVC and secondly of her/his connections to others, although this separation may be problematic because the two are inter-linked.

6.2 Nature of the Role

6.2.1 Managerial Work

PVCs from the 1994 Group identified a number of functions that were integral to their role. Two, leadership and representation, had an external orientation, while three were focussed within the university, namely line management responsibility, managing operational issues and setting strategy. These functions were supported by different activities, such as meetings, decision-making, delegating and facilitating; all of which are predicated upon communication.

Mintzberg (1980), in his study of managerial work concluded that there were three types of role (interpersonal, informational and decisional). Each of these was sub-divided to provide ten different roles, which when integrated comprehensively described the activities of a manager. This study appears to emphasize only a few of these ten, although closer inspection suggests that most roles can be discerned to a greater or lesser extent. An exact match is perhaps unlikely because this study examined the role of a PVC in a UK university, while Mintzberg's data came from interviews with CEO's in private organizations. Indeed, Mintzberg notes that the ten roles were 'an arbitrary partitioning [of activities] into affinity groups' (*ibid.*, pg. 55), so obtaining a precise match is perhaps unnecessary.

The interpersonal role type was divided into figurehead (representational), liaison and leadership roles. PVCs evidently saw themselves as fitting this role type. Most noted their authority to represent the university to external audiences. Similarly,

they often described themselves as leaders, but without fully defining what was meant by this term. In fact many of the attributes of leadership that they used perhaps better fit the monitoring dimension within the informational role type. Nevertheless, PVCs are leaders by virtue of their relationship to others both inside and outside of the university. In Mintzberg's terms they motivate others and provide direction.

Communication with both internal and external stakeholders was a key activity for all PVCs. This underpins the informational role identified by Mintzberg (1980) which incorporates the roles of monitor, disseminator and spokesman. A monitor gathers information from both internal and external sources. This is then either disseminated internally, in this case within the university, or communicated to external stakeholders. Within the context of setting institutional strategy it was evident that PVCs were behaving as monitors. However, they also sought information from others in order to effectively discharge internal operational duties too. The dominance of meetings within the daily routine of a PVC also implies a dissemination role.

Information is vital for decisional roles. Although PVCs acknowledged that they were responsible for decision making, they did not immediately differentiate between classes of decisions that they make, and the usefulness of particular categories of information in making these decisions. Mintzberg noted four roles within this category, namely, entrepreneur, disturbance-handler, resource allocator and negotiator. While each of these may be inferred from the descriptions of specific activities undertaken by an individual PVC, none was overtly mentioned. For example, a number of PVCs mentioned departmental closures, which constitutes a controlled change, or an entrepreneurial activity. Some PVCs talked of the need to intervene both within and outside the university, for example when student behaviour demanded such action (*i.e.* to handle disturbances). Others were actively involved in negotiating access to resources, particularly for research, and most controlled the allocation of resources, either individually or collectively often within the senior management team

Interestingly, PVCs within the 1994 Group drew more attention to the interpersonal and informational roles than to the decisional role. The former perhaps carry greater kudos and so are worthy of mention in an interview, although the latter may be as important in terms of effectively discharging the role. Alternatively, following

Stewart's (1982) argument, the decisional elements of the PVCs role may be requirements of the job, whereas the interpersonal and informational roles may provide the PVCs with an opportunity to exercise discretion in what they do. Consequently, these latter roles may be more interesting, and so more memorable and thus more likely to emerge in discussion. Furthermore, as noted above, the collegial nature of the 1994 Group universities may mean that PVCs do not in fact make many decisions, but rather influence, persuade and cajole others to achieve the desired outcomes. It is therefore quite difficult to judge from the data in this study whether the balance of roles is the same for PVCs-R as for PVCs-T or whether it differs. Many of the representational roles seemed to arise simply because the PVCs were part of the senior management team, rather than through their particular brief. Similarly, the leadership role seems not to be differentiated between PVC-R and PVC-T. However, the wider research environment seems to be more turbulent than the teaching environment, and so it is possible that PVCs-R may be more involved in monitoring externally and dissemination within the institution than those PVCs-T. Furthermore, the need to access external resources for research seems to encourage PVCs-R to negotiate more with external agencies (*e.g.* RDAs) than their counterparts with responsibility for teaching. A larger sample of interviews with PVCs and a different interview protocol focussed more precisely on the details of the role would be needed to explore the similarities and differences more effectively. Nevertheless, it is clear that PVCs have a managerial role which requires them to deal with unpredictability both within and outside the university.

6.2.2 Boundary Spanning

One of the defining characteristics of an organization is the existence of a boundary (Aldrich and Herker, 1977) which separates a relatively heterogeneous environment external to the organization from a relatively more homogeneous environment within the organization. Clearly organizations cannot be completely isolated from their environment but require individuals (or units) to span this organizational boundary in order to ensure that the organization meets and adapts to environmental contingencies (Thompson, 1967). Such 'boundary spanning jobs vary in the types of action spheres they afford' (Thompson, 1967, pg. 110). In some cases they

may be routinized if the environment is stable. In more dynamic circumstances individuals require discretionary power in order to permit the organization to respond appropriately to the environment. Such roles clearly have considerable power and status within the organization. The main functions of this boundary spanning role are to process information (*i.e.* to obtain it from outside the organization and to disseminate it internally) and to represent the organization externally (Aldrich and Herker, 1977; Tushman and Scanlan, 1981*a*). These correspond to the three roles within Mintzberg's informational role which have been shown to be part of the PVC's role in a university. Furthermore, according to Tushman and Scanlan, in a study of an R&D laboratory in a corporation, 'boundary spanning individuals are those who are internal communication stars … and who have substantial communication with areas outside their unit' (Tushman and Scanlan, 1981*b*, pg. 84). Internal communication stars are high ranked, experienced individuals, who have an external orientation (*i.e.* they read widely and present externally), and are often mobile (Tushman and Scanlan, 1981*a*). PVCs normally fulfil all of these criteria because they have had substantial research experience in their previous positions. Moreover, the data from this study also show that PVCs communicate both intensively (*i.e.* for much of their time) and extensively (*i.e.* with many people) in their role (Dollinger, 1984).

Although not acknowledged by PVCs in this study, PVCs clearly play a vital boundary spanning role for their university. This requires them to have the ability to access and understand information available in the environment outside of the university and also to be able to interpret it and then disseminate it appropriately within the university (Tushman and Scanlan, 1981*b*). Of course this assumes that the environment within the university is more homogeneous than the external environment. This may not be so. The culture within one administrative unit (*e.g.* department or school) within their university may be very different from that in another unit (Becher, 1989). So in addition to the external boundary spanning role PVCs may need to play an internal boundary spanning role between units within their university, taking information from one department and interpreting it to another, thereby acting as a translator (or even a referee!).

As Mintzberg (1980) noted, much of the information required in managerial roles is obtained informally through unofficial sources. Tushman and Scanlan (1981*a*) concurred with this view. Boundary spanning is essentially an informal process requiring an extensive network of contacts. Before discussing the characteristics and purposes of these connections it is necessary to consider their impact on the perception of the requirements of the PVC.

6.2.3 Role Senders

According to figure 2 (see chapter 2) the particular role of the PVC may be determined by the processes of role sending and role receiving, which are mediated by the attributes of the focal actor and by the interpersonal relations between the focal actor and the role senders. From this study it is clear that PVCs from within the 1994 Group of universities were all behaving in a similar way. All of them engaged in broadly similar sets of activities, although of course the balance of activities for any particular individual PVC varied from that of another. This suggests that the general norms for the role have become institutionalized, even though it is a relatively new role. Goodman (1974) noted that one of the referent groups for a role was the "system", which may allow norms to be established formally, perhaps through written codes of practice. The existence of the Top Management Programme (TMP), run by the Leadership Foundation for Higher Education, may also encourage the institutionalization of the PVC role. The institutionalizing influence of this programme may be particularly evident in this study because a number of the interviewees had been on the programme. It is also possible that the universities in the 1994 Group themselves are so similar that each demands that the incumbent PVCs perform the same sort of activities in more or less the same way. This may be a function of membership of the 1994 Group of universities, which has several defining characteristics in common, such as a research-intensity, flat collegial structures, campus base, and student-centric orientation. As a consequence the scope for discretionary behaviour, which is characteristic of managerial roles (Stewart, 1982) may be less than might be expected.

Another referent group, according to Goodman (1974), is 'others'. In the context of this study, this primarily refers to other PVCs. The extent to which other PVCs acted as role senders is unclear. The maps indicating the connectivity between PVCs show that PVCs-T were largely disconnected from PVCs at other universities in the 1994 Group. This was not so for most PVCs-R within the 1994 Group. From the maps it is unclear whether PVCs from other universities within the 1994 Group will act as role senders for a specific PVC from any particular university in the group. Conversely, the data from the interviews show that within a 1994 Group university the behaviour of one PVC may have a real influence on the behaviour of another. A shared understanding of the roles of the PVC may be obtained within a 1994 Group university by the interaction of each of the PVCs at the frequent (often weekly) senior management team meetings. Of course there were many other informal contacts between a focal PVC and others, but each of these interactions were of a personal nature and peculiar to the individuals concerned. No consistent grouping of these informal contacts could be identified.

The final referent group identified by Goodman (1974) was "self", *i.e.* the individual uses past experience in other roles to determine the appropriate actions to take in the new role. Deem *et al.*, (2001) confirmed that "manager-academics" often rely on their prior experiences to assist them in more senior positions. The absence of a consistent grouping of other PVCs, except perhaps the few from within the same institution, to act as a referent group for the focal PVCs in the study suggests that prior experience is a vital referent for individual PVCs. Consequently, the nature of that prior experience is likely to be critical for determining the success (or failure) of any individual in the early days of their appointment to the role of the PVC.

6.3 Nature of connections

The maps of connectivity between the two groups of PVCs within the 1994 Group are clearly very different. The PVCs-R were knit together more cohesively than those with responsibility for teaching. The latter were more or less completely disconnected from other PVCs in the 1994 Group. Before coming to consider reasons that might explain why this might be so, it is necessary to establish why individual PVCs

might interact with some PVCs and not others, and then to consider what might be exchanged in any particular relationship (and in the network as a whole). Knowing what is exchanged makes it easier then to discuss how these things are exchanged and what purposes the exchange relationship may have, particularly in the light of the different roles performed by a PVC.

6.3.1 With whom are PVCs connected?

Homophily theory (McPherson *et al.,* 2001) suggests that individuals tend to form relationships with people that resemble themselves, and are less likely to form relationships with dissimilar others. While some of the demographic factors in this study appear to explain the patterns of connectivity between PVCs in the 1994 Group, it is likely that this will be an artefact of the small population size. For example, the dominance of one particular age category relative to all of the others substantially distorted the results. It is more likely that these populations of PVCs are relatively homogeneous; most members are males in their late 50's. Assuming PVCs continue to be recruited from within the university sector, then the prospects for greater diversity, and so a more heterogeneous population of PVCs, are limited in the medium term. Interestingly, there was apparently no greater affinity between those with the same academic background than between those with different backgrounds. Becher (1989) showed that different disciplines have different cultures, which may be expressed in the values held and the language used and the interpretations and meanings attached to events and actions. So PVCs who share a common disciplinary background might be expected to more easily communicate with each other than with others from a different disciplinary background. It is possible that the distinction between natural sciences, social sciences and arts-humanities, used in this study is too coarse; there may be as much variation within each of these three categories as there is between them. Unless the individuals shared exactly the same academic background it may make no difference in terms of ease of communication, whether they fall within the same or different categories. Alternatively, the topics that PVCs need to discuss within their role may be non-disciplinary. In other words, the disciplines provide no particular perspective for

understanding the issues, and so disciplinary differences in prior experience do not create barriers for communication between PVCs.

Of course connectivity may not only be influenced by demographic factors but by spatial and temporal factors instead. Individual PVCs in universities that are located closer together might be expected to communicate with each other more *ceteris paribus*. This was not evident in this study, partly because individual PVCs in universities located close to each other (for example those in and around London) were just as unlikely to talk to each other as those separated by much greater distances.

Time too might influence the degree of connectivity of individuals to each other. In the case of PVCs-R it seemed that both newly appointed individuals and those who had held office for a long period, had fewer connections than those who had been in post for an intermediate number of years (see fig. 19). Recently appointed PVCs have had little time to develop contacts with other PVCs from the 1994 Group, while those having long experience may find little benefit from dialogue with less experienced colleagues. Moreover, it is possible that those PVCs with whom they had made contact will have retired from their post, either through promotion or through the rotation of the post. Many PVC positions seem to be for a fixed period of time. The observations of the long-serving PVCs hint at a further influence on the degree of connectivity between PVCs, namely the cost of sustaining the ties (Ahuja, 2000). Time and energy need to be invested to maintain any relationship. When both are constrained, the number of relationships that can be maintained diminishes accordingly, and so individuals necessarily choose some relationships over others, for reasons that will be explored later. In being able to interact with only a few individuals rather than many there is an opportunity cost attached to those that are rejected (Ahuja, 2000; Ibarra *et al*., 2005). These relationships may have been the ones that are significant for future action. For similar reasons one might also expect those with a full-time PVC post to be more connected than individuals with a part-time PVC position. The maps of connectivity do not seem to support this. Those in part-time PVC positions may be just as connected to others as those who are full-time. Conversely, full-time PVCs may be as disconnected as part-time PVCs.

Time, in an historical sense, also influenced the connectivity between PVCs. It was clear that PVCs in the 1994 Group also interacted with other PVCs from outside the 1994 Group. These connections were made often on the basis of previous contact. The individuals concerned had been colleagues in the same department, for example.

6.3.2 What is exchanged?

In order that an exchange might occur one actor must value some skill, possession, or attribute that another actor possesses (Cook, 1977). Resources that are exchanged between two individuals commonly fall into one of two categories, either instrumental resources or expressive resources (Galaskiewicz and Zaheer, 1999; Kilduff and Tsai, 2003). Instrumental resources are those resources which have immediate value for performing a (particular) task or meeting a specified goal. Often, they have an information content. It was clear from this study that suggestions for developing practices, either through collective discussion or through conversation with particular individuals, were based on information gathering. Similarly, the development of institutional strategy and the informal and formal monitoring of others required an exchange of information. While most, if not all, conversations involve an information exchange, there were occasions when personal support was solicited and received. Sometimes this was explicit, perhaps for example in conversations around career development. More often it seemed to be implicitly obtained through conversations that confirmed intended actions; some PVCs noted that it was comforting to discover others were acting or intending to act in a similar way. In addition to the exchange of information and emotional support, Fombrun (1982) noted that goods and power could also be exchanged in a network. There seems to be little evidence for either of these in this particular study.

6.3.3 How is it exchanged?

For exchange to occur between any two actors there needs to be a connection between them. In his seminal paper, Granovetter (1973) observed that ties between actors may be either weak or strong, and that the strength of the ties can influence what

can be exchanged. He suggested that strong ties create small locally cohesive clusters, while weak ties create opportunities by joining otherwise fragmented communities. Hansen (1999), elaborating on this last point in a study of knowledge transfer to support new product development in a large electronics company, found that weak ties were adequate for the transfer of simple or codified knowledge, but complex or tacit knowledge could only be transferred through strong ties.

It is common in network studies for the frequency of interaction to act as a proxy measure for the strength of ties (*e.g.* Nelson, 1989; Shah, 1998; Reagans and Zuckerman, 2001); frequent interactions represent strong ties, while infrequent interactions represent weak ties. In this study many of the interactions may be considered to be infrequent. Most of them occurred on an annual basis, or less often. One might conclude that the information exchange between PVCs generally was not especially complex. This seems to be borne out by the nature of the discussions referred to in the interviews, which were mainly around fulfilling particular tasks. More frequent exchanges occurred often between PVCs who were engaged in collaborative activities to secure additional resources for their institutions. Completing the proposal documentation and establishing the contractual details may require the exchange of more sophisticated information and the process itself demands more frequent interaction.

While infrequent interaction, or weak ties, might be sufficient for the exchange of simple information, it is unlikely that personal support could satisfactorily be gained through such exchanges. Stronger ties, or more frequent interactions, would be necessary for ties to have expressive value. Ties of this nature mentioned in the interviews (*e.g.* between the PVCs-T at Muguga and Tel Hadya) were found also to occur frequently (see fig. 10).

The strength of a tie between two actors might be indicated also by the range and variety of exchanges that occur between the two actors, *i.e.* tie multiplexity (*e.g.* Kenis and Knoke, 2002). Ties used for the exchange of one type of information may also be used to exchange other sorts of information, or even to provide emotional support. Ties used for multiple purposes are stronger that those used for a single purpose. Unfortunately, the data in this study provides no real indication of the different types of information that were exchanged. These could be advice, technical information or

evaluative information. Moreover, the use of the ties to exchange other things such as resources or friendship was not explored.

Besides the ties between pairs of actors, exchanges can be influenced by the overall structure of the network (*e.g.* Balkundi and Harrison, 2006). Individuals who are directly connected can easily and readily exchange information. The ease and speed of transmission diminishes as individuals are disconnected from each other, and have to access a focal actor through others. These intermediaries have control over the information flow, and consequently exercise considerable power over the network (*e.g.* Brass, 1984; Obstfeld, 2005). Betweenness centrality measures suggested that some PVCs in the networks of PVCs from 1994 Group universities have more power than others (*e.g.* the PVC-R at Kiboko had the highest betweenness centrality, perhaps as a consequence of chairing the Research and Enterprise Policy Group). These connecting positions are extremely important in networks containing structural holes (Burt, 1997), where there are gaps in connectivity between two or more, otherwise connected clusters of individuals. The maps for the PVC-R do not contain structural holes, so that there were no opportunities for brokerage. Conversely, the map for the PVCs-T also shows no opportunity for brokerage, because the individual PVCs are mainly isolated.

6.3.4 How is it controlled?

Where exchanges are not of an economic nature, other forms of coordination and control must be found to govern or safe-guard the interactions between participants (Jones *et al.* 1997). Two classes of social mechanisms for protecting the exchange relationships or the coordination of the exchange were identified by Portes (1998) as either instrumental or consummatory.

Instrumental mechanisms include reciprocal exchange and enforced trust. In both of these cases, although the exchange may occur in a social context where others may be aware of the interaction, individual actors exchange resources with another actor in individual dyadic relations. Interviewees mentioned the freedom they felt in talking to another PVC, on the understanding that if information were given now in one direction then such an exchange would be reciprocated later at an unspecified time. Ali at Tel

Hadya noted of such exchanges, *that sort of thing – it doesn't happen that often but when you do need it, it is extraordinarily valuable to be able to do that, knowing it is on a reciprocal basis*. While no specific examples of enforced trust were given, it was implied that in collective discussions individual PVCs needed to trust their colleagues in the 1994 Group not to disclose (or otherwise abuse) confidential information. Kenneth at Muguga commented that *the sharing of the information … has to be done with care because … it may well be helpful [to others]* and that *somehow or other [information] got leaked to the Times Higher and that creates a serious breach of trust and recovery from that does take a little [time]. … if I reveal this in this venue can I be sure that it is going to stay within these four walls or not, and so I think there are some important issues with regard to trust*. So individual PVCs in the 1994 Group, in both specific dyadic exchanges and in more general discussions, drew upon instrumental mechanisms for governing behaviour in exchanges.

Consummatory mechanisms draw on socialization and shared destiny (Adler and Kwon, 2002) to influence behaviours. While instrumental motives seem to operate at the level of the individual, consummatory mechanisms would appear to exert their effects at the level of the group. In the former case individual interactions are the primary focus and it may (or may not) be important that these individual interactions are situated in a social context, whereas in the case of consummatory mechanisms the existence of a group is critical. This provides the setting within which the exchange can occur. The group provides the context within which shared norms develop, so that without the group setting no exchange is possible. In this study, the 1994 Group of universities provides a structure within which PVCs can interact. The common characteristics of these universities (see chapter 3) create a shared identity which allows PVCs within either of the policy groups to develop a set of norms which govern their behaviour and their exchange practices. The cohesiveness generated by these shared norms permit individuals to allow the ambitions for their particular institution to be subsumed in the ambitions of the whole group. It was clear that some of the interviewed PVCs felt that the aims of their institutions could be better served and represented more powerfully to government by the 1994 Group acting in concert, rather than by their particular institution acting individually and in isolation from the others. The power of collective lobbying is a clear example of individuals (in this case PVCs) drawing upon the social

capital held within the social network. This may be viewed as the positive side of social capital. Unfortunately, as Portes (1998) noted, social capital may also have negative consequences. In particular at an aggregate level, social capital can exclude others who do not have access. It was obvious from several discussions that the 1994 Group of universities is an exclusive grouping of universities which pays particular attention to the applications for non-members who wish to join. Many are rejected because they "are not like us".

Different social mechanisms for controlling exchange relations seem to operate differentially depending upon the nature of the exchange. Exchanges that serve an individual's need are controlled by instrumental mechanisms operating on the particular dyad, which may or may not be in a closed system. Conversely, consummatory measures can only operate in a closed network (Coleman, 1988) where the exchanges that occur afford benefit to all of the network members.

6.3.5 What is the purpose of exchange?

The results suggest that exchanges may fulfil three different needs of the PVCs. For some PVCs the exchanges enable the individuals to develop themselves, for example through discussions about career development. The enduring connections created between PVCs who have attended the TMP at different times show that some have a commitment to continuing personal development in their role. In the context of the interviews in this study these connections seemed to serve the purpose of sharing information. Nevertheless, it is possible that they might also serve a personal support function. Some PVCs, notably those who had <u>not</u> been on the TMP, commented on the need for personal support, for example through the affirmation received by discovering that others were thinking in the same way and pursuing a similar strategy. For these PVCs the 1994 Group may provide a network of contacts who can provide support, while for those PVCs, who had another network of contacts generated by attendance in the TMP the 1994 Group may have had less salience in terms of personal support. They obtained their personal support through the TMP network and so did not mention the 1994 Group in this regard.

A more common purpose for the exchanges was to ensure that the PVC could more effectively discharge her/his duties within the university. Often the exchanges provided information which permitted the PVCs to discharge decision-making roles (Mintzberg, 1980). In unusual or peculiar circumstances information was sought in order to orientate an appropriate response to these unique or novel circumstances, such as the use by students of electronic media to slander or insult members of academic staff. In addition to supporting the disturbance handling element of the decisional role, interactions with other PVCs were also useful for informing the negotiation role. The position adopted by PVCs at other universities on particular issues acted as a useful guide to the focal PVC. While exchanges were more overt in order to fulfil the decisional roles, they were more covert in the informational role (Mintzberg, 1980), especially the monitoring role. While general information was shared, particularly when acting as a spokesman at 1994 Group meetings more competitively sensitive information was guarded jealously.

A third category of exchanges equates to the actions associated with the interpersonal role type (Mintzberg, 1980), particularly the representational role. Bourdieu (1986) noted that social capital increases towards the apex of an organization, those individuals at higher levels in an organization are endowed with the social capital of those in the lower ranks of the organization. PVCs clearly carry much of the social capital of a university and consequently have the authority to represent the university and to make decisions on its behalf. Exchanges in this third category support the PVC in performing her/his, duties as a representative of the university. Often there are exchanges that commit an entire university to a particular course of action, for example the exchanges may allow the university, in collaboration with other universities, to access funds from atypical sources. In other circumstances, in their capacity as the representative of the university, the PVC by joining with similar representatives of other universities, can create a powerful alliance - the 1994 Group of universities in this case. Exchanges at this level occur for and on behalf of the university unlike the exchanges in the previous two categories which affected the individual either in the performance of their role or through their own personal development.

These three different categories of exchange purpose seem to operate at different levels and require different contexts. The exchanges that permit an effective discharge of duties seem to occur between particular pairs of PVCs who can be independent of any other pair, *i.e.* there is no obvious or necessary social context required for the exchange to occur. Other exchanges that promote self-development again occur between particular individuals, but these dyads appear to be set in a formalized social setting (*e.g.* the TMP or 1994 Group). In other words, PVCs may seek information from any other appropriate source, irrespective of connection, whereas they seek personal support only from amongst those who are connected to each other in some way. The existence of such a closed group ensures that sanctions can be effectively administered if individuals abuse the trust required in such personal exchanges. Moreover, those particular groups can develop their own behavioural norms which facilitate exchange. The institutional level exchanges also require a cohesive social context, but unlike the exchanges for personal support do not operate necessarily at the dyadic level. Often more than two PVCs are involved in these exchanges that alter the direction of the university. Such exchanges are governed by "consummatory" mechanisms (see earlier discussion).

6.4 Mapping connectivity

It is evident that the map of connectivity between PVCs-T in the 1994 Group is very different from the one showing the connections between PVCs-R. PVCs-T are almost completely independent of each other, while a majority of those with responsibility for research and who responded to the questionnaire, are generally very well connected to at least two others, and normally many more. Some explanation is required for this stark difference, and a number were suggested in the interviews.

Many of the reasons may be subsumed in the ascribed differences between research and teaching. Research was perceived to be a global activity that demanded links to other organizations, whereas teaching was primarily a local activity that had no need to stray beyond the boundaries of the particular university. Furthermore, if any links were to develop beyond the institution to support teaching, it is possible that they might be to other teaching-led institutions, rather than to research-intensive universities.

In other words the contacts, such as they were, would not be with 1994 Group institutions and hence they would not appear in this study, which focussed on the interactions between PVCs from within the 1994 Group. By contrast, research that is typically large-scale and conducted by teams of researchers in UK universities is concentrated predominantly in the Russell Group of universities and in the 1994 Group of universities. Consequently, connections relating to this type of research are likely to be amongst these 1994 Group universities. Of course there are other models of research (*e.g.* lone scholar) but these require little or no collaboration. Some PVCs suggested that the policy environment in the UK pertaining to research had been more turbulent compared with that for teaching. Evidently, the RAE and discussions over the introduction of FEC for research have been significant policy instruments in the UK research environment and may have required considerable discussion between institutions to consider implementation procedures. While the policy environment for teaching may have been less dynamic, nevertheless it was subject to some significant policy interventions, *e.g.* QAA processes and the Bologna Process. Moreover, with the prospect of removing the cap on tuition fees in 2010 and the consequent impact of the annual national student survey league tables on the attractiveness of any particular institution to prospective students, the policy environment for teaching and learning is likely to become more turbulent. Therefore, the maps of connectivity may simply reflect a specific moment in time attributable to the particular dynamics of the policy environment for research and teaching.

Another suite of reasons to explain the differences in connectivity between the two maps can be found in the context of the study. The brief of the PVC-R was much more clearly defined than that of the PVC-T. It is easier to communicate with others if one is confident that the other has similar interests and can offer relevant advice. While this may be so for PVCs-R, it is by no means certain for the PVCs-T who had a wide variety of titles and may therefore have had very different roles and management interests.

It is also important to note the relative development of these two policy groups within the 1994 Group of universities. The Research and Enterprise policy group to which the PVCs-R belong had begun meeting 2005 and meet approximately quarterly

under the leadership of the PVC at Kiboko. In contrast the Student Experience policy group at the time of this study had only met once. Consequently, the two groups had had very different social experiences. With these prior experiences the PVCs-R were more likely to be aware of each other than the PVCs-T would be of their peers.

Of course it is possible that the observed connections particularly for the PVCs-R are an artefact of other connections. It was clear that PVCs generally, but especially PVCs-R, were connected to others. Such connections may be the primary focus of the 16 individuals in this study and it is of secondary importance, and coincidental, that these same 16 individuals are also the PVCs-R in the 1994 Group of universities. In this way the map of the PVCs-R in the 1994 Group may appear to be coherent, but it is actually comprised of clusters of PVCs who are connected to each other by virtue of belonging to networks other than the 1994 Group.

In the context of the PVC role, connectivity both in terms of the persistence of the connections and the number of connections will be influenced by the tendency for PVCs to have limited tenure in their position. This turnover will mean that new incumbents have to establish new contacts, while incumbents at other universities will lose a contact. As a consequence it is likely that the networks will never be dense. Not everyone in the population will have the opportunity to create connections with all of the other members of the population. Moreover, most ties will never be strong. The transient nature of the incumbency will ensure that enduring ties do not form.

6.5 A mechanism for explaining variance in connectivity

While each of the foregoing reasons may account for some of the difference in connectivity between PVCs in the 1994 Group of universities responsible for research and those with responsibility for teaching, none provides a satisfactory explanatory mechanism. A resource dependence perspective (Pfeffer and Salancik, 1978), however, may provide one.

In order to survive, an organization must be able to acquire and maintain resources and normally this means that the focal organization is dependent upon other organizations. It is therefore vulnerable to their actions and possibly subject to control

by them, if they are more powerful. Pfeffer and Salancik (1978, pg. 260) specify eight conditions which ensure that organizations are able to exert control over a focal organization:

- The possession of some resource by the social actor;

- The importance of the resource to the focal organization; its criticality for the organization's activities and survival;

- The inability of the focal organization to obtain the resource elsewhere;

- The visibility of the behaviour or activity being controlled;

- The social actor's discretion in the allocation, access, and use of the critical resource;

- The focal organization's discretion and capability to take the desired action;

- The focal organization's lack of control over resource critical to the social actor; and

- The ability of the social actor to make its preferences known to the focal organization.

In this study, HEFCE may be considered to be the social actor, controlling the bulk of the funding available to most universities in the 1994 Group (the focal actors). In the context of teaching in a university, which the interviewees noted was a "controlled environment" or "a managed economy", the funding of student numbers provides a critical resource for the focal organization. The income to a university is proportional to the size of its student body, and most of this in England comes from HEFCE. The scope for securing additional funds is limited, although post-graduate and overseas student fees do make a significant although relatively small contribution. Student numbers are monitored annually, and penalties applied for deviating by more than 5% from a previously agreed contract range. In this way HEFCE has complete control over the allocation of financial resources to these universities, and the universities do not have much (if any) influence over the resources that HEFCE receives, or on how it decides to allocate them. For the most part the resources available for teaching are fixed, and institutions have little scope for changing this.

By contrast research, as noted by the interviewees, is a "competitive market". HEFCE distributes the QR funding (and the QR-B or "Lambert money") which universities in the UK receive to support their research. However, universities are able to access alternative sources of research funding (*e.g.* research council, industry, government departments, European Union) and these provide a greater measure of discretion over their activities and somewhat less control by HEFCE. However, as with teaching, universities have limited influence over the resources HEFCE receives and how it influences them.

Often these alternative sources of funding require individuals, or more pertinent to this study, organizations to collaborate. At an organizational level research collaboration can only be agreed by members of a top team. In the case of the university, this is likely to be a member of the senior management team (or its equivalent), and the PVC-R is the most obvious candidate to make such decisions. Being imbued with the social capital of the organization (Bourdieu, 1986) and operating as a figure-head in an interpersonal role (Mintzberg, 1980), the PVC-R of a university is able to represent the research interests of that university, and is able to establish collaborative links with other universities via their PVCs-R. Galaskiewicz and Zaheer (1999) also noted that personnel of higher status in organizations had the capability to create and foster interorganizational networks from their networks of personal contacts in other organizations.

These slight differences in contextual circumstances between HEFCE and the research and teaching activities of the university may provide the basis for differences in behaviour of PVCs-T and PVCs-R. The ability to pursue alternative sources of funding collaboratively influences connectivity. When additional funding can be accessed connections are made, whereas no connection occurs when these opportunities are unavailable. Aldrich noted that 'administrators' efforts at resources acquisition may lead to the formation of interorganizational coalitions and collectivities, and are likely to lead to supplementary, as well as complementary relations with other organizations' (Aldrich, 1976, pg. 425).

Moreover, it is possible that in the context of this study, the 1994 Group of universities is not entirely without influence over the UK government, and so HEFCE.

In this way the focal organizations may be able to influence the resources critical to the social actor, and especially its discretion over the allocation and use these resources. This type of influence requires lobbying. But lobbying on behalf of individual universities can only be done effectively by institutional representatives. Again these are members of the senior management team, acting in a representational role. Many of the interviewed PVCs noted that this was more effectively done collaboratively and this necessarily demands connectivity. In principle, there is no reason why PVCs-R should be more inclined towards this type of activity than PVCs-T. However, the dominant topic in the UK Higher Education environment was the RAE2008 and what type of assessment method (if any) might replace it. Given this driver, it is perhaps unsurprising that connectivity was evident. The current absence of a similar policy issue in the teaching and learning arena perhaps explains the lack of connectivity between PVCs-T. As noted above, this is likely to change. The "value for money" discourse amongst current and prospective students will continue, fuelled by the National Student Survey league tables. Furthermore, competition between institutions based on teaching and the student experience will intensify as the demographics in the 18+ age category decline beyond 2012.

While the connections between particular pairs of PVCs, arising from the need to discharge decisional and/or representational roles (Mintzberg, 1980) within their respective universities, were stimulated by environmental circumstances both within and outside the university, these dyadic relationships did not seem from the interviewee data to explain the widespread connectivity amongst PVCs-R and the absence of similar connectivity between PVCs-T. Environmental factors seem only to stimulate more wide-spread connectivity between PVCs in the 1994 Group when these factors operate on the representational (or more generally the interpersonal) role of the PVC. This leads to the suggestion that the extent of the connectivity between PVCs is determined by the priority any particular PVC gives to each of the particular roles that he or she performs. Connectivity will be more focussed and directed towards specific others for individual PVCs with a dominance of decisional or informational roles in their portfolio of actions, while a dominance of representational roles will encourage individual PVCs to develop

a set of more extensive and generalized connections, in addition to the more personal and focussed dyadic relationships.

6.6 Limitations of the study

The study clearly showed differences between PVCs-T and PVCs-R in the extent of their connectivity to other PVCs with similar responsibilities from within the same formal network of universities (*i.e.* 1994 Group). Furthermore, the study identified different aspects of the role of PVC, and also described some differences between the activities of Teaching and Research. In the preceding discussion, it has been argued that these differences between Teaching and Research emphasize different elements of the PVC role, which in turn influence the degree of connectivity to other PVCs and the nature of these connections required to discharge the PVC role. However, the robustness of this argument can be challenged in a number of different ways.

First, the study was a small one. The total population within either category of PVC was limited to 16 individuals. While this had the advantage of providing a coherence to the boundary of the network, it does restrict the generalizability of the findings. This is exacerbated when not all members of the network responded to the questionnaire. The presented network maps indicate a minimum level of connection between PVCs. What is unknown is whether the non-respondents would be connected to others, and if they were, to what extent. For example, it is possible that the PVCs-T (who did not respond) could be so well connected to all of the other PVCs-T in the 1994 Group that the observed difference between the two maps disappears. Although possible, it is improbable because of the reciprocal nature of the questioning. Asking "who do you talk to ?" and "who talks to you?" forces individuals to acknowledge connections both to and from every other individual in the network. Even when only one actor in a specific dyad responds, some information about that particular linkage is obtained. In both networks there were sufficient respondents to get an indication of the nature of connectivity between most pairs of individuals. The only unknowable connections were between individuals in those dyads where neither party responded to the questionnaire. These were relatively few in number, and so were unlikely to change the configuration

of the maps substantially, even if there were actually very frequent interactions between these two individuals. Therefore the maps would appear to be more or less reliable indicators of differences in connectivity between PVCs-T and PVCs-R.

While eight interviews is a small number, it does represent 25% of the whole population, and from that point of view may provide sufficient insight into the particular networks found in this study. Indeed, the greater degree centrality of several of the interviewed PVCs relative to their un-interviewed peers, makes them better qualified to talk about why connectivity may be important to the PVCs role. Of course those who were not particularly well connected, or indeed those who were completely disconnected might describe why connection is <u>un</u>important to the PVC role. Some of these too were interviewed, so that both points of view were covered. However, it is important to acknowledge that eight interviews are insufficient to definitively describe the PVC role in general. This would require a sample of interviews with a number of other categories of PVC. Remaining inside the 1994 Group, it would be possible to interview those PVCs with responsibility for resources. Their perspectives on connectivity and the nature of the PVC role are not known. One could argue that resource allocation is primarily an internal facing role with little need for external connection, yet the acquisition of resources may require extensive external linkage. Thus the map of connectivity of these PVCs could resemble either of the two maps in this study, or perhaps neither. PVCs in other groupings of universities, *e.g.* Russell Group or Million+ (Million plus formerly Coalition of Modern Universities) might also have different degrees of connectivity, perhaps reflecting the importance of research or teaching, or indeed other activities in these different types of universities. These different connections may influence, and be influenced by, the individual understanding of the role requirements of each of the PVCs in these different institutions and this may (or may not) differ from those held by PVCs in the 1994 Group.

A second limitation has to do with the specificity of the study, which focused wholly on PVCs. While they are important members of the senior management team of a university, they are not the only members of these teams. The connectivity between PVCs from different universities in the 1994 Group may or may not contribute to our understanding of a map of connectivity for other members of the senior management

team in these, or perhaps other, groupings of universities. Within the 1994 Group of universities there are networks for Directors of Finance, Human Resources and Librarians, for example. It is unclear whether this study would illuminate our understanding of these networks of individuals. Evidently, it would provide a set of maps against which these other networks could be compared, but the suggested explanation of connectivity in this context may not apply to other members of the senior management team of a university if the particular mixture of the roles the individuals play differs substantially from the mixtures of roles performed by a PVC, or if the context within which they operate has a fundamentally different set of drivers than those that affect the PVC. For example the student-centric nature of the PVC-T role suggests that these individuals may respond to different issues, and in different ways, than most other members of the senior management team who have little or no contact with the student body.

Thirdly, the study is cross-sectional in nature, illustrating a particular moment in time. A number of interviewees suggested that the maps (particularly for PVC-T) had changed in the 4-6 months between collecting the data and conducting the interview. For example, Sonia at Tel Hadya commented, *I would say [the map of connections between PVC-T] probably [has] changed a bit because of the Student Experience policy group*. Clearly, there is no way of verifying this. The point, however, is that changes in connectivity between PVCs in the 1994 Group may occur in response to a variety of different factors, so that networks are not fixed but dynamic. It was suggested that changes in the policy environment may encourage more or less connectivity. For example concern over the RAE may have enhanced connectivity between PVC-R immediately prior to the time of data collection, but subsequently this may have waned. Consequently, the interpretation given in this study, which relates different degrees of connectivity to varying role functions, may be entirely spurious, the maps simply reflecting the demands of the policy environment at the point of analysis. This, however, seems unlikely. Research has been, and remains, a resource intensive activity. Safeguarding existing resources and accessing new sources is a clearly identifiable part of the PVC-R brief. In some cases this requires the formation of linkages with other universities, and so connections are to be expected. Such collaboration is an enduring

characteristic of research and is largely unaffected by policy changes. It seems likely, therefore, that the observed connectivities between PVCs-R in this study are common, and thus in need of explanation. Teaching, as noted by several PVCs is an internally facing activity, which requires little connection to groups of other PVCs to sustain resource availability. Those connections that are made seem to fulfil a specific informational purpose. Again changes in the policy environment cannot reduce the degree of connectivity, since there is almost none already. Change might increase connection but such changes would require further monitoring and investigation.

6.7 Directions for future work

The closing comments in the last section point to an interesting set of future studies, namely mapping and explaining the evolution of these networks of PVCs in the 1994 Group. There are very few longitudinal studies charting the evolution of networks despite the frequent calls for more work in this area (*e.g.* Kenis and Knoke, 2002; Ebers, 1999; Podolony and Page, 1998).

In the context of the 1994 Group of universities there are three studies of potential interest. A number of universities have recently joined the 1994 Group and one has left. Using the current data set as a benchmark, it would be possible to monitor the integration of PVCs from these new member universities into the existing networks of PVCs. This would seem to be more challenging for PVCs-R than for PVCs-T, although the latter have the potential to act as a catalyst for stimulating interaction if this is deemed necessary by the PVCs-T. Simultaneously, it may be worthwhile exploring whether connectivity is perceived to be an important part of the role of these newly connected PVCs. At the same time such a study would allow the possibility of exploring the diffusion of practices into new environments through network membership if practices within the original 1994 Group member universities were different (in some way) from those in the new members, and these subsequently changed to conform to the practices among the original members (*e.g.* Burt, 1987).

A second study might explore the progressive development of connectivity as a new person takes on the PVC role at any of the member universities in the 1994 Group.

Appointments at PVC level are rarely permanent, and in this study individual PVCs had been in post for different lengths of time. How and when these new appointees engage with others at different universities, and why they choose to interact with particular individuals rather than others, could help to inform our understanding of how networks act to facilitate or constrain the actions of focal actors (*e.g.* Podolny and Page, 1998).

A third study could simply investigate the evolution of the existing networks in response to changes in the external (policy) environment. It was noted that the Student Experience policy group, comprising the PVCs-T, had not really met when the data for the map was collected. How these connections have changed as meetings have accumulated and how this has influenced the perceptions of the need to connect could be investigated by repeating the study. Similarly, as RAE2008 passes, one of the commonly presumed drivers for connectivity is removed. How this change in the research landscape affects connectivity could be explored in a replication of this study. Studying the evolution in the network might more clearly reveal the impact of the external environment on individual behaviours, especially where the individuals hold a significant representational role.

This particular study suggests that PVCs in the 1994 Group have a significant representational role and that in some circumstances, notably of resources dependence, they act in concert with others to influence resource availability, either by lobbying to protect existing income streams, or by securing access to resources from new or different sources. These propositions could be usefully explored in the context of other networks of universities. PVC's at Russell Group universities which are also research intensive may display similar behaviours where PVCs-R are extensively connected and PVCs-T are relatively disconnected from each other. Conversely, PVCs at post-92 universities may display very different behaviour, reflecting the lesser emphasis on research, and a stronger focus on teaching. There may perhaps be no connectivity between PVCs-R from these universities, but a greater connection between PVCs-T. Although even in these teaching oriented institutions the external environment may not demand connection in order to secure resources.

Following Ibarra *et al*. (2005), who noted that networks have an influence at both the macro and the micro level, a final study could explore not only the perceptions of the

network by network members, but also investigate how these perceptions then influence individual behaviours within the network. There was a study similar to this conducted by Krackhardt (1990) in a small entrepreneurial firm comprising 36 people. Such a cognitive approach asks individuals to indicate what they think the network is. Their perceptions can then be compared with the actual network. It also explores how individuals adjust their behaviour in response to these perceptions of the network.

7   Chapter 7 – Conclusions

7.1 Introduction

The review of the literature in this study identified a primary question: How, and in what ways, is the role of a PVC influenced by the existence of a network of other PVCs ? This was underpinned by three subsidiary questions, namely, is there a network of PVCs? what is the basis of their interactions ? and what does a PVC do ?, which needed to be addressed in reverse sequence in order to answer the main question of interest. By means of these questions I shall summarize the key findings of this study. These naturally have implications for practice, policy and research which will each be addressed in turn. Finally, I will present what I believe is the contribution to knowledge of this study by addressing the questions: what has been confirmed ? what has been refuted ? what has been amended ? and what has been discovered ?, both empirically and theoretically.

7.2 Summary of key findings

7.2.1 Role

Although limited in number, the interviews provided an insight into how PVCs perceive their role, and this facilitated the identification of several distinctive aspects of their role. Leadership, both in terms of setting strategic direction within the university, and also by influencing a diverse range of external stakeholders, was a vital component of the PVC role. Allied to this was a clear representation role. By virtue of their position towards the apex of the university hierarchy, PVCs were asked to represent their university in a wide variety of fora, *e.g.* in discussions with local regional development agencies, with local businesses, and with the media. These two aspects of their role, comprising Mintzberg's (1980) interpersonal role, are oriented principally towards the external environment within which the university is set. In contrast, the other aspects of the PVC role are principally internally facing. PVCs monitored the performance of the

institution towards achieving its strategic objectives, and also its performance against the benchmark of other institutions provided by a host of league tables. Acquiring information is evidently a vital component of this monitoring role, but the other informational roles (Mintzberg's (1980) second category of managerial roles of disseminator and spokesman) also require information if they are to be discharged effectively. A PVC seems to undertake both of these roles, speaking on behalf of different constituencies within the university to other internal groupings and necessarily disseminating information through the numerous meetings that they attend (and chair). Although PVCs were found to be involved in very significant decisions within the university, aspects of roles falling within Mintzberg's third category of decisional roles were not clearly and distinctively described. This may be because they were felt to be more routine and part of the non-discretionary element of the PVC role (Stewart, 1982). However, it may also be because, within the context of the 1994 Group, decision making within these universities is still relatively collegial.

Having identified a number of both internally and externally facing aspects of the PVC role, it becomes obvious that PVCs play a significant boundary spanning role within their institution. On the one hand they engage with other key stakeholders in the external environment in order to obtain information that might provide some competitive edge to the university, while on the other they are immersed in the many issues (both mundane and novel) that beset the internal operations of a university and which requires them to be visible and accessible to academic and support staff within their institution. Perhaps the idea of boundary spanning (Thompson, 1967) provides a better, or at least a more parsimonious, conceptualization of the PVC role than the categories and dimensions of managerial role provided by Mintzberg (1980).

7.2.2 Purpose of interactions and networks

Communication with others was a crucial function for a PVC to perform. In many cases this required the exchange of information to inform subsequent decision-making and determine courses of action. However, in other circumstances, the connectivity to others permitted the exchange of emotional and psychological support.

Connections therefore seemed to serve both instrumental and expressive purposes, but were not used for the exchange of goods or other resources. Most of these exchanges occurred through dyadic relationships where mutual trust was crucial to ensure reciprocity.

Such individual dyadic exchanges provide the basis for developing a social structure and serve to embed an individual in a network of relationships. These personal networks commonly do not often conform to the formal networks found within or between organizations. This was evident in this study. Although the 1994 Group of universities formally exists and this suggests that there is a link between each member university and every other one in the Group, this network of institutions was not replicated at the level of the individual PVC. In the case of PVCs-R the network was moderately cohesive, although for a variety of reasons many PVCs communicated with only a few others from within the group. Time and the cost of maintaining relationships were the primary determinants of which relationships were strongest. Here the network of personal contacts diverged somewhat from the formal institutional network. A greater divergence, tending towards a dichotomy, was found with the personal network of PVCs-T and the assumed institutional level network. PVCs-T were almost wholly disconnected from each other.

This stark difference was in part explained by the nature of the research endeavour, by the intense policy debate surrounding the RAE and its impact on research which was current at the time of the study, and by the difference in age of the two policy groupings within the 1994 Group. Research was perceived by all PVCs to be a more externally-facing, collaborative activity requiring interaction with others both nationally and internationally. Teaching was perceived very differently, being rather more parochial and inward-looking. Unlike the research environment, with clear policy drivers in the RAE and FEC which demanded consultation and discussion, the teaching environment at the time of the study had no policy levers of any real substance. Neither QAA nor the Bologna Process seemed to register as a significant driver for collective action or mutual discussion. Finally, the Research and Enterprise policy group has had a slightly longer history than the Student Experience policy group, so that connections

between PVCs-R had been made and had had time to embed, while the connections between PVCs-T were still embryonic.

7.2.3 Network influences on role

In this study the network of universities in the 1994 Group provided the context within which the exchanges between individual PVCs were situated (*i.e.* the network was an independent variable). The maps of the networks showed very clear differences in connectivity between PVCs. Generally those operating in a research environment were connected while those in a teaching environment were not. The circumstances of the network evidently influenced the behaviour of the individual PVCs. In the research environment resources are scarce, but additional resources can be bid for on a competitive basis. Significant large scale funding demands the commitment of the institution and may require joint applications from more than one institution. PVCs, in their representational role, are imbued with the social capital of the university and can commit the university to enter into these sorts of arrangement, thereby gaining access to additional resources and enhancing the performance of the institution which they represent or lead. Resources may also be scarce in the teaching environment, but opportunities to access comparably large sums of money are not available. This stifles any need for connectivity. In addition to these individual dyadic interactions that serve to garner extra resources, the network of PVCs-R has also acted collectively to lobby government to protect their resource base. In this way the network has acted both positively and negatively. By securing access to more resources the network has had a positive effect, but by lobbying government the network has acted not only to ensure a continued stream of resource for its members, but also possibly to exclude others from accessing these resources or to diminish the volume of resources available to others in favour of themselves. This collective action required that the group established an identity, which the research and enterprise policy group has, and subsequently developed behavioural norms for, and expectations of, its members. These were apparent in the discussions in the relevant interviews.

7.3 Implications for practice

As Ibarra *et al.* (2005) noted, networks are found at different levels (individual, organizational and so on) and each affects the other. It is unsurprising therefore that this study should produce findings that can impact practice at the level both of the individual and of the organization.

The study revealed a number of aspects of the PVC role. Clearly, incumbents and prospective PVCs require leadership skills and the ability to communicate effectively with a diverse range of stakeholders as well as the ability to assimilate and process large volumes of information from a wide variety of sources and to synthesize this to provide clear directions. Much of this information is obtained via networks of informal and formal contacts both within and outside the university. A vital skill for any PVC is therefore the ability to network, *i.e.* to initiate, develop and maintain fruitful relationships with others for mutual benefit. This however is a social skill and not a technical one, and one which is under-valued in the career progression of academics, where technical competence in research and teaching are rewarded. Not all academics with excellent technical skills have a corresponding facility with social skills. This is not to diminish the importance of technical skills for people at the highest levels in the university but rather to emphasize that both types of competence are needed (Ahuja, 2000).

It is important for individuals to have a resource that is attractive to others. In the context of the PVC role, typically this is information, and information that is non-redundant (*i.e.* that the exchange partner cannot access by another route). To fulfil this criterion it is likely perhaps that the PVC will hold a unique position in an influential external body (a funding agency or a policy think-tank for example) that provides 'in-side' information that is of immediate use to others because it will impact the environment of the HE sector. In addition to possessing the information, or access to the information, the individual PVC must also be willing to share the information he/she possesses in order to develop successful exchange relationships and to augment the social capital of the network within which he/she is embedded (in this case the 1994 Group).

Besides being able to create new relationships and so access new networks of contacts, PVCs, and particularly new incumbents, must also be able to manage their network of previous contacts also. Establishing and maintaining relationships is costly in terms of time (Walker *et al*., 1997) and some of these prior contacts, although important in a previous role, may have less value to the individual in her/his PVC role. Clearly, the ability to exit these relationships with grace is an important skill. Although not currently useful to the new PVC, the former contact may be important to the other person, or may regain significance if the circumstances of the other person changes, through promotion for example.

Finally, the individual PVC needs to have the capacity to feel comfortable with the tension implicit in a boundary spanning role, in which he/she facilitates the communication between two or more contrasting stakeholders. Inevitably, this may create a sense of isolation, individual PVCs may be seen to be the outsider in many situations because they normally represent the alternative position, or are perceived to be doing this. In the worst cases they may always be distrusted.

The issues facing individuals stepping into a PVC role and the skill requirements for the position are clearly important considerations for the institution. Some of the requirements of the position can be taught or coached, but perhaps that is not true of all of them. Leadership and networking skills can be learnt, whereas interpersonal skills and the willingness to share are less easily learnt. Succession planning to fill these senior roles within a university needs to take account of the social skills as well as the technical competence of prospective candidates for the PVC role. This creates a dilemma for many universities which often restrict the selection of PVCs to a pool of senior professors, with demonstrable technical skill, but not necessarily commensurable social skills. Universities may need to expand the pool of talent from which they select PVCs by considering those beyond the senior professors. Institutions also need to recognize that the major 'role' senders to a PVC seem to be prior contacts, many of whom occupy lower (or different) positions in the university hierarchy, rather than other PVCs with direct experience of the role. Training programmes like that offered by the Leadership Foundation for Higher Education provide an opportunity for PVCs to interact with and to learn from each other. Involvement in these networks provides appropriate support for

individuals who may otherwise be relatively isolated in their role, and should therefore be encouraged by the institutions (*e.g.* Collins and Clark, 2003). In this way individual PVCs may cope with the personal and psychological discomfort from playing a boundary spanning role. In addition to the personal support that accrues from these relationships, the institution may benefit from early access to information or similar competitively advantageous positioning. Powell *et al.,* (1996) noted that there is a liability of unconnectedness. Universities can ill-afford their senior managers to be relatively disconnected from a social network of peers and contacts in various policy arenas, or to be engaged in an inappropriate or less relevant network of contacts. Institutions should also seek to support PVCs in the development of their personal network providing guidance in terms of whom to access to ensure relevance for the position and the institution's needs. It may be that more experienced members of the senior management team or external mentors could facilitate appropriate introductions.

7.4 Implications for policy

Many current policy initiatives encourage the formation of partnerships and networks. Networks generally provide access to resources, opportunities to solve problems and resolve issues, and allow the acquisition and sharing of information (Grandori and Soda, 1995). All of these were observed in this study. The study also showed that a well developed network permitted access to additional resources, and the successful lobbying of government. In other words the collective performance of the network and the individual performance of each node was enhanced. Meier and O'Toole (2003) in a study of 507 superintendents of education districts in Texas demonstrated that when these individuals managed their network of contacts the performance of their district, in terms of accessing resources and alleviating constraints, was improved. The PVCs –R in this study seemed to have a similar impact.

Skills in managing a network of universities can increase the performance of each of the members as shown by Ritter (1999) in a qualitative study of key informants in clusters of engineering firms in Germany. However, the performance of the whole network is constrained by the contribution of its weakest member. Relatively

disconnected members in a network may be a liability for other network members, and the network as a whole (Powell *et al*., 1996). In the context of the 1994 Group and this study, the London School of Economics could be viewed in this way, especially as it has subsequently left the 1994 Group. Performance of a particular network may also be damaged if specific individual institutions are members of multiple networks so that their focus and energy towards any one network is diluted. Although such multiple memberships may provide access to novel information, and so add value to those other institutions with whom the focal institution has connection, it does reduce the cohesiveness of any particular network. Simply, there is a trade-off between accessing new and up-to-date information to enhance performance (*i.e.* through weak ties) and improved performance arising from the rapid transmission of information and the unity of purpose created by strong ties and a dense cohesive network. Policy agendas which multiply networks, may or may not, enhance the performance of network members, because each member is being pulled in different, and perhaps conflicting, directions.

While networks can enhance collective performance, membership can also be a risk, especially if there is no safe-guard against false confidence. If there is a strong group identity to a network, then there is a tendency to use the group as a benchmark. This can be damaging for an individual member if the overall performance of the group is declining. McDonald and Westphal (2003) demonstrated that senior figures (CEO's) in commercial organizations sought advice from their 'in' group, especially when the performance of the organization was declining. This may be a danger for a network of universities, if their collective performance was declining, with an accompanying risk to the HE sector as a whole.

Universities are faced with something of an identity crisis if they are members of a cohesive network with a strong sense of identity, such as the 1994 Group. While each university has its own history, as universities become engaged with each other through the 1994 Group, and discover the benefits of collective working, there may be a tendency for their individual identity to be subsumed by the collective identity of the wider network. This can create tension within the particular institution. In some circumstances universities compete with their counterparts in the network, but in other circumstances they collaborate. While they appear to collaborate at an institutional level

for funding large-scale research projects, individual members of academic staff compete (or collaborate) for smaller research grants. On the other hand institutions are competing directly for student numbers; a circumstance that will intensify with the recurring National Student Survey.

Effective networks between institutions arise from the establishment of trust between individuals, and this takes time to develop. Cross *et al.* (2001) identify four stages in the development of a network between individuals, in which the degree of connectedness becomes increasingly sparse. This perhaps resembles the increasing sparseness of the networks in this study as the frequency of interaction increases. The four stages begin with knowing, or being familiar with, what others in the network know. It is unlikely that a tie will form if an individual is unaware of the skills and knowledge of another. If policy agendas are to use networks, then this sort of information needs to be made available to prospective members. The next step is to gain access to this knowledge, particularly in a timely manner. If individuals do not share relevant information in a timely manner, or cannot be connected, then the value of the relationship diminishes. To be effective networks need to transmit information quickly and efficiently. In addition (and as noted earlier) individuals need to be willing to work with others. Finally, individuals need to feel safe (*i.e.* trust those with whom they are working) if the networks are to be creative and high performing. Often policy agendas demand that networks perform to a level that is not commensurate with their maturity.

Clearly, the delivery of policy through networks of universities may cause some problems for institutions. Different networks may have conflicting orientations. Network membership may conflict with institutional identity. Individual institutional performance may or may not be enhanced by network membership. Finally, expectations of network performance may out-run that which is possible in a limited time frame.

7.5 Implications for research

A number of developments of the current research project were considered in the discussion chapter. Fundamentally, these advocated comparative studies of other networks of PVCs from other groupings of universities. These empirical studies could

add to the findings from this study in two particular ways. First, many network studies are cross-sectional rather than longitudinal in nature. As a consequence we know relatively little about the evolution of networks in general. More particularly we know little about how new nodes are incorporated into an existing network, and how existing nodes are removed. In the context of the 1994 Group, four other universities (Leicester, Loughborough, Queen Mary London, and School of Oriental and African Studies) have joined the 1994 Group, and London School of Economics has left since this study began. How these changes have impacted the dynamic of the relationships in the group is not known. We also know little about how the coordination mechanisms within a network change over time. Increasing familiarity and the development of an identity would imply that trust increases and distinctive norms and values develop and deepen. This influences and perhaps constrains the behaviour of established network members, and makes it difficult for new members to join.

This study also represents a snap-shot of two of the PVC networks in the 1994 Group at a point in time. For the PVCs-R this may have represented a high point in their activity, for RAE2008 was immanent, consultations over future research assessment metrics were extensive, and FEC for research had recently been debated and introduced. These, and other policy discussions, made the research environment especially turbulent at the time of the study. Such turbulence, which demanded representation to government, may have galvanized 1994 Group members and stimulated interaction. Whether the frequency of interaction would change as the turbulence subsides is worthy of exploration. In contrast the teaching environment was relatively tranquil. However, the impact of the National Students Survey, and the increasing importance of the 'student experience' for the attractiveness of universities to prospective students may require universities to share best practice, particularly within a defined group of universities. It may not be acceptable to the 1994 Group as a whole, if one of its members were to drop dramatically in the National Student Survey league tables, thereby undermining the very coherence and claims of the grouping. Paradoxically, it may also not be acceptable to individual universities if another currently lower ranked university usurped them in the league tables following the next assessment. This is where the tension between university identity and network identity becomes apparent.

How this tension influences the nature and frequency of the exchange relations between PVCs in the network is not known, but obviously merits investigation.

A second implication for research stems from the realist approach adopted here. Many studies have explored the relationship between an intervention and an outcome, often with variable results; sometimes the intervention delivers the desired outcome and on other occasions it does not. The realist position attempts to identify the underlying mechanism that links intervention to outcome. In network studies this is often proposed to be trust and social norms (*e.g.* Uzzi, 1997; Gulati, 1998), although structural attributes such as tie strength (*e.g.* Nelson, 1989; Powell *et al.*, 1996), authority and power (Provan *et al.*, 1980; Benson, 1975) and dependency (Gulati and Singh, 1998) may also act as mechanisms. Here the intervention of connectivity between individuals who represent their institutions, probably working through the medium of trust and social norms, allows these participating institutions to access additional resources and to protect their resource base, but only in the context of research. The teaching environment does not afford these possible outcomes and so connectivity between individuals and so institutions does not occur. Pawson (2006) argues that context has an important bearing on whether the mechanism will produce the desired outcome as the result of the application of an intervention in a specific context. This study has shown that context clearly hampers the effectiveness of the intervention, although it is likely that the same mechanism will be present because of the very similar nature and characteristics of the two sets of participants. Further work might explore the effects of other contexts in the HE sector on whether connectivity in a network leads to greater resource acquisition, or some other common network outcome.

7.6 Contribution to knowledge

This study has made both empirical and theoretical contributions to knowledge. It does not presume to make a contribution to methodology.

Empirically, no study has been found that focuses specifically on examining the importance of connections to other PVCs on the role of a focal PVC. Such details identified in this study are therefore new. These details do however confirm the

particular responsibilities of the PVC role identified by Smith *et al*. (2007) in their very recent study of the evolution of, recruitment to and responsibilities of the PVC position in a sample of 13 UK universities representing a continuum of institutional types. Moreover, the details of the role conform to some of the ten managerial roles identified by Mintzberg (1980), and this suggests that Mintzberg's study applies equally to an HE setting as to a business setting, and that the PVC role is essentially a managerial one. Moreover, the study, based on the empirically demonstrated multi-faceted orientation of the PVC role, and the literature on boundary spanning, conceptualizes the PVC role as that of a 'boundary spanner'. The implications of this for recruitment and support have been considered.

The data demonstrated that information and affect were the bases of the exchanges between PVCs. This has not been shown before. It provides a more restricted list of exchange items than that generally found for networks, which normally also includes goods and power (see Fombrun, 1982).

Theoretically, common exchange mechanisms are confirmed. Trust is crucial for exchange between individual dyads. However, within the network as a whole, collective norms and values arising from a common identity and developed over time, permit and constrain actions and control exchanges.

In respect of role theory, which identifies three types of role sender, namely past experience, the system and others, only the first two seem to have any real impact on PVCs. They do not consistently and routinely talk to other PVCs about their role, but often have contact with former colleagues, or take their cues from the wider institutional environment or from contacts and experiences of training events. This suggests that some 'role senders' have more prominence and greater salience in particular contexts.

Finally, this study's unique theoretical contribution lies in taking a realist perspective and combining social capital, role, network and resource dependence theories to explain two things. First, how a network of universities (the 1994 Group) may provide a vehicle through which PVCs, individually or in small groups, can access resources for their universities or collectively can protect their resource base by lobbying government, and secondly, why this mechanism operates in one context (research) but not in another (teaching).

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Appendix 1

Questions used in the web-based survey of Pro-Vice Chancellors in the 1994 Group during the summer 2006.

1). Assuming that you communicate with your colleagues about issues relating to your duties as a Pro-Vice Chancellor, with which of the PVCs from the following list do you routinely initiate communication (e.g. by telephone, by email) outside of the formal '1994' group meetings ? and how often ? (Please mark the appropriate frequency measure beside each name or indicate that you are the respondent by ticking 'self').

Institution	Weekly	Monthly	Quarterly	Annually	Less than Annually	Never
Birkbeck						
Bath						
Sussex						
Surrey						
Essex						
Exeter						
East Anglia						
Warwick						
LSE						
Royal Holloway						
Goldsmiths						
St Andrews						
York						
Reading						
Lancaster						
Durham						

2). Assuming that your colleagues communicate with you about issues relating to their duties as Pro Vice Chancellor, which of the PVCs from the following list routinely initiate communications with you (e.g. by telephone, by email) outside of the formal '1994' group meetings ? and how often ? (Please mark the appropriate frequency measure beside each name or indicate that you are the respondent by ticking 'self').

Institution	Weekly	Monthly	Quarterly	Annually	Less than Annually	Never
Birkbeck						
Bath						
Sussex						
Surrey						
Essex						
Exeter						
East Anglia						
Warwick						
LSE						
Royal Holloway						
Goldsmiths						
St Andrews						
York						
Reading						
Lancaster						
Durham						

3). Are there any factors that particularly encourage or facilitate your interaction with '1994' group members ? (Please list)

4). Are there any factors that particularly discourage or inhibit your interaction with '1994' group members ? (Please list)

5). Outside of the list of PVCs (mentioned in the earlier tables) with which other people would you routinely and regularly communicate about your duties as a PVC ? (Please list names and institutions of all that apply. Enter None if applicable)

6). Please enter your name, institution and PVC title

7). What is your subject specialism ?

8). How long have you held your current position as PVC ? (answer to nearest whole year, if more than 12 months)

9). Is your role as PVC formally recognised as a full-time or a part-time position by your institution ?

10). What was your previous position ? and, Where was it held ?

11). Which age category do you fall into ? (Please check appropriate box)

Appendix 2

Covering email sent with questionnaire to Pro-Vice Chancellors in the 1994 Group during the summer 2006.

Dear Prof X,

I am writing to ask if you will cooperate in a research project.

Please permit me to provide some background. I am a PT doctoral research student studying at the University of Bath, School of Management under the supervision of Prof. Ian Jamieson. Prof Jamieson is PVC Teaching and Learning at Bath University, which as you know is part of the "1994 Group" of research intensive universities.

The study seeks to explore the relative influence of an informal bounded network (members of the "1994 Group") and your own personal network on your understanding of, and actions in, your role as PVC [title] (changed as appropriate) in your university.

To this end, I would ask you to complete a questionnaire via the attached web-link.

http://www.surveymonkey.com/s.asp?u=124432132800

The questionnaire should take no more than 10 minutes to complete. All responses will be treated in strict confidence, and any reported data made anonymous.

If you are not the most appropriate person to comment on the role of PVC Research/Teaching (changed as appropriate) in your institution, then please could you let me know whom I should contact.

Thank you for your assistance in this research. I look forward to receiving your response.

Yours faithfully

Colin Pilbeam

Appendix 3

Details of an email sent to Pro-Vice Chancellors in 1994 Group universities prior to interview in 2007.

Dear Prof X,

Thank you for agreeing to be interviewed on [date] 2007. This part of the research project continues the study of the connections amongst Pro-Vice Chancellors in the "1994" group that began with an on-line questionnaire distributed in the Summer of 2006, which you kindly completed.

The interview will last approximately 30 minutes and will cover *inter alia*:
- Your understanding of your role as a Pro-Vice Chancellor;
- The importance to your role of contact with other PVC's;
- Similarities and differences between the role of Pro-Vice Chancellor (Research) and the Pro-Vice Chancellor (Teaching & Learning);
- Opportunities and constraints operating on PVC's responsible for these areas;
- The "1994" Group.

It would be extremely helpful if you could reflect on some of these issues before we meet.

Consistent with normal ethical standards, the data collected from the interview will remain confidential, will be kept securely and will be anonymised in any presentations (including the DBA Thesis). You can decline to answer particular questions and can withdraw from the study at any time. (Naturally, I hope that you will not and that you will find the discussion interesting). If you would like feedback on the research findings, then I am happy to provide them at an appropriate time.

I look forward to meeting you on [day of the week].

Kind regards

Colin Pilbeam

Appendix 4

Distance in miles between 1994 Group Universities (Source: www.AA.co.uk)

	Bath	Birkbeck	Durham	UEA	Essex	Exeter	Goldsmiths	Lancaster
Bath		117.8	302.1	231.1	192	86.1	121	220.7
Birkbeck			275.6	112.8	67.8	175.9	6.6	238.9
Durham				238	285.6	361.1	273.9	91.9
UEA					61.1	295.1	114.9	280.9
Essex						250.1	69.9	289.3
Exeter							175.6	279.4
Goldsmiths								262.1
Lancaster								
LSE								
Reading								
Royal Holloway								
St Andrews								
Surrey								
Sussex								
Warwick								
York								

	LSE	Reading	Royal Holloway	St Andrews	Surrey	Sussex	Warwick	York
Bath	117	78.5	100.5	445.8	99	127.4	90.3	232.2
Birkbeck	1	45.3	24.9	464	33.4	55	97.2	205.7
Durham	276.9	278.9	281.1	197.2	297.9	339.2	204.9	77.6
UEA	112.7	164.4	144.2	431.2	161.7	174	146.2	179.2
Essex	67.7	119.3	99.1	478.9	104.8	113	150	226.9
Exeter	175.2	158.6	150.9	504.6	152.7	175.7	175	291
Goldsmiths	5.7	48.6	28.1	466.2	34.6	53.7	120.4	215.2
Lancaster	240.2	227.5	240.9	226.5	257.7	299	145	114
LSE		44.6	24.2	465.3	33.7	54.1	98.5	207
Reading			20.2	451.9	26.6	91.2	83.8	208.4
Royal Holloway				465.3	21.8	63.1	97.2	210.5
St Andrews					482.8	523.8	370.1	270.1
Surrey						45.6	114.2	227.9
Sussex							155.5	269.2
Warwick								134.8
York								

Appendix 5

Free text responses from an electronic survey of Pro-Vice Chancellors from 1994 Group universities (see appendix 1) circulated in the summer 2006.

R&D PVCs

Q. Are there any factors that particularly encourage or facilitate your interaction with '1994' group members ? (Please list)

joint membership of SET2 (with …) Sub regional group meetings Joint use of scanner (…)

I have links with … through the Great Western Research initiative; and with … (…) through the Setsquared Partnership (…)

As Chair of the Group, I have to contact members to gain views on particular matters outside of formal meetings
I have also contacted individual members with expertise in particular subject areas to seek advice in relation to developments at ….
this was helped by the fact that I developed a database of members showing information about their disciplinary backgrounds, membership of external bodies etc (…)

We have physical mtgs as well as email correspondence (…)

Have more contact with those institutions that are located around the Gatwick Diamond. (…)

The 94 Group PVC group should encourage interaction, but it has not really worked in this fashion so far. (…)

Similar nature of the 94 Group universities   sense of collegiality within the 94G (…)

The various 1994 group PVC's meetings (…)

Q. Are there any factors that particularly discourage or inhibit your interaction with '1994' group members ? (Please list)

None (…)

None (…)

Only when there is a lack of response. eg LSE has not been an active contributor to the group (…)

Getting all the diaries lined up for mtgs (…)

Interaction at the regular meetings is sufficient.(…)

Many issues discussed by 94 group PVCs relate only to HEFCE so St Andrews (as the only Scottish University within the 1994 Group) is outside this 'club'. There is clearly very little interest within this group of Scottish issues. On many issues I find it more useful interacting with PVCs at other Scottish HEIs than the 94 Group. (…)

pressure of work (…)

The 94 group meeting tend to be brief and not always at times that encourage more general interaction. Links with PVCs at a regional level therefore tend to be more prominant. (…)

Time (…)

T&L PVCs

Q. Are there any factors that particularly encourage or facilitate your interaction with '1994' group members ? (Please list)

It is all largely a function of people who I feel I 'know' and who I can share things with (…)

Difficult to answer, granted that I only communicate with … as a fellow Russell Group member, and … as a … . The creation of a 94 Group PVCs network should encourage this - it certainly did for the Russell Group when we set up our network three years ago. (…)

Attendance at some events about 4 yours ago prompted some exchanges since we go to know each other. Since then contact has been sparse (…)

If there is an exchange about a particular policy issue. or when i have organised an event to which all are invited. (…)

I have just taken over as the Chair of the new 1994 group Student Experience group and I expect to have considerably more interaction with 1994 group DVC/PVCs through this as I get to know them more individually (…)

I don't think I was in the job long enough to form any real links with other PVCs - hence lack of communication outside formal meetings (…)

1. Common strategic interests. These are not confined only to 1994 group universities. For example I have talked quite a bit at networking meetings with …, my equivalent at … (who is also an engineer like me). … are now part of 1994 group, so your survey is already out of date! 2. Action Learning Sets. These are run at 1994 group training meetings but not followed up longitudinally. They are also run as part of TMP training programmes , where I understand they are actively followed through and hence breed closer links (…).

There is value in regular meetings of PVCs (…)

Q. Are there any factors that particularly discourage or inhibit your interaction with '1994' group members ? (Please list)

If there are general issues, then I tend to use the general mailing lists available to me. I usually use the HEA list. If I have sometjhing very specific then I either contact somebody I know, or somebody I know will have the same issue. (…)

… is a member of the Russell Group. I am one of the co-organisers of the Russell Group PVCs with T&L responsibilities, and my regular interactions are with members of this group. If I did not belong to this group, then I would probably communicate more regularly with the other members of the 94 group (…).

Time pressures and simply lack of knowledge of individuals, particularly newly appointed PVCs (…)

Time and the difficulty of managing to attend meetings and therefore get to know the 1994 group members. (…)

Time, knowing who the correct counterparts are. the lack of a sense of 'community'. (…)

Workload is a factor, but this isn't particularly confined to 1994 group members (…)

I don't think I was in the job long enough to form any real links with other PVCs - hence lack of communication outside formal meetings. (…)

I have only been in post for one year, so am still building up contacts. I have not yet met all of the 1994 group PVCs at networking events (both 1994 group and other) (…)

No (…)

Appendix 6

Nvivo coding structure for eight interviews conducted with PVCs from 1994 Group Universities during 2006.

Primary Nodes	Sources	References
1). Aspects of Role	6	9
2). Comparison of Research and Teaching roles and activities	5	10
3). HE environment	1	2
4). Interaction with which others	4	9
5). Personal commentaries on connectivity in maps	4	7
6). Requirements for interaction	3	6

Primary Node	Sources	References
1). Aspects of Role	**6**	**9**

Secondary Nodes	*Sources*	*References*
a). Communication within institution	*5*	*12*
b). Decision making – arbitration	*5*	*10*
c). Delegating	*2*	*3*
d). Deputizing for VC	*1*	*3*
e). Discrete portfolios	*5*	*8*
f). Engaging with external bodies	*6*	*21*
g). Facilitation	*1*	*1*
h). Information gathering – benchmarking	*4*	*11*
i). Leadership	*3*	*5*
j). Meetings - Chairing and attending	*6*	*14*
k). Operational management	*3*	*3*

Tertiary Nodes	Sources	References
i). Planning, monitoring and reviewing	4	6
ii). Seeking	1	1

information
for practice

Secondary Nodes	**Sources**	**References**	
l). People Management	*4*	*6*	
	Tertiary Nodes	Sources	References
	i). Line management	5	5

Secondary Nodes	**Sources**	**References**
m). Personal development	*2*	*4*
n). Representing institution	*7*	*20*
o). Senior management team	*2*	*3*
p). Strategizing	*6*	*18*

Primary Node	**Sources**	**References**	
2). Comparison of Research and Teaching roles and activities	**5**	**10**	

Secondary Nodes	*Sources*	*References*
a). Similarities	*8*	*19*
b). Differences	*8*	*50*

Primary Node	**Sources**	**References**	
3). HE environment	**1**	**2**	

Secondary Nodes	*Sources*	*References*
a). Competitive	*1*	*6*
b). Political	*0*	*0*

Primary Node	**Sources**	**References**	
4). Interaction with which others	**4**	**9**	

Secondary Nodes	*Sources*	*References*
a). Internal	*4*	*7*
b). External	*8*	*27*

Primary Node	**Sources**	**References**
5). Personal commentaries on connectivity in maps	4	7

Secondary Nodes	*Sources*	*References*
a). Institutional Differences	6	9
b). Geographic proximity	4	6
c). VC Influence	3	6
d). Personal motivation or driver for group	8	11
e). Historical reasons - temporal issues	4	11
f). Personal contacts	5	10
g). Policy drivers	7	13
h). 94 Group chair or executive influence	2	2
i). Connectivity through other networks	3	8

Primary Node	Sources	References
6). Requirements for interaction	3	6

	Secondary Nodes	Sources	References
	a). Purpose of external interaction - a need	4	9

Tertiary Nodes	Sources	References
i). Information exchange - access to advice	5	17
ii). Information gathering - intelligence gathering	4	7
iii). Opportunity to discuss ideas	4	4
iv). Opportunity to learn	5	5
v). Personal development	1	2
vi). Protection through collective action	3	8
vii). Resolving local institutional issues	5	6
viii). Respond to National HE Policy Issue	6	11
ix). Sharing institutional best practice collectively	4	10
x). Specific Institutional	4	12

collaboration –
cooperation

Secondary Nodes	*Sources*	*References*
b). Personal contact	*8*	*18*
c). Opportunity to interact	*6*	*10*
d). Salience of meeting	*1*	*3*
e). Character of meetings	*3*	*4*
f). Absence of constraints	*2*	*5*