

3. METHODOLOGY

3.1. Introduction

In this chapter, the ontology and epistemology of the study are explored, along with associated methodological considerations. An explanation is given of the approaches adopted for the empirical work including a description of the operationalisation of variables to be measured. Issues of design of both the quantitative and qualitative measurement tools are discussed, plus details of the pilot study carried out. The final strategy for the collection of both the quantitative and qualitative data is then described. To conclude, the limitations of the methodology and ethical issues are considered.

3.2. Philosophical approach

There are multiple ways of seeing the world around us. What one person may perceive as a factual reality, another may perceive as a social construction. It is therefore important to confirm the viewpoint from which any piece of research is being undertaken to establish the parameters of the study. This viewpoint also has implications for methodology with in-depth contextual studies requiring probing techniques of data collection, whilst studies intended to produce highly generalisable results more likely adopting large-scale survey techniques. The purpose of the following sections is thus to set the epistemological framework for this study, from which flows a description of the chosen methodology.

3.3. Ontology and epistemology

The dominant sociological paradigm of studies concerned with the Personnel department's powerbase is functionalist (Gowler & Legge, 1986: 234). Adopting the functionalist paradigm involves taking an objective approach to searching for rational explanations based on order and regulation, and a belief in an underlying unity and

cohesiveness of society (Burrell & Morgan, 1979). The researcher's aim is to understand and describe society rather than change it.

The functionalist paradigm is thus set at surface level (Bradshaw-Camball & Murray, 1991). It either focuses on pluralist power relations, looking for emergent coalitions based on the control of the bases of power, or on rational structures such as formal authority and the possession of valued expertise or information. Strategic contingencies theory also derives from the pluralist functionalist roots. As discussed earlier, it combines systems theory and contingency theory, both emerging from the scientific management fields of sociological research. Functionalism supports contingency theory, in that it *“assumes that organisations are systems with a need to survive and adjust to ‘real’ contingencies in the ‘real’ environment”* (Gowler & Legge, 1986: 229). The corresponding aim of HRM for example is therefore to aid this process of survival: *“to facilitate the adaptation of the organisation to internal and external contingencies, in order to achieve organisational effectiveness”* (ibid.: 229).

Functionalism is based on a realist perspective: the world exists as a reality external to the individual. It is thus argued that as a paradigm it ignores conflict, change and meanings ascribed by individuals within the social system (Legge, 1996). These deeper levels of social reality can be addressed through other sociological paradigms (Burrell & Morgan, 1979). The interpretivist paradigm assumes that reality is socially constructed through the management of meaning (Bradshaw-Camball & Murray, 1991). This is more akin to the paradigm of neo-institutional theory, which considers the symbols and rituals of organisational life below the surface of observed behaviour. The deepest level for approaching the study of power is through the radical structuralist paradigm, which views organisations as instruments of domination. Social construction has been created by those who already have power embedded in the structure of society. Research in this vein is oriented towards changing current power domination at the level of society.

Based on this background, this study keeps with the functionalist paradigm, but also starts to go beyond the issue of power as control and considers power as symbol and routine through the process of institutionalisation. The study is anchored in the realist

tradition with the aim of uncovering patterns of reality with regard to issues of power in organisations. The ontology of structural realism states that social reality exists independently of the observer and is ordered whereby uniformities can be explained (Bhaskar, 1978). Research conducted according to the realist philosophy develops theory based on causal outcomes that are the result of mechanisms working within contexts. Based on this theory hypotheses are proposed which are looking for regularities in society. Following multiple methods of data collection, observations are made which enable the specification of what works in what circumstances. These uniformities appear in three domains of reality: the empirical, the actual and the real. The empirical is that which can be observed. The actual is that which is occurring whether or not it is observed. And the real is the underlying mechanisms that result in events in the empirical and actual domains (Blaikie, 1993).

The three levels of reality proposed in structural realism can be mapped on to the three dimensions of studying power suggested by Lukes (1974) discussed earlier, and three of the sociological paradigms suggested by Burrell and Morgan (1979) (see Table 2).

Table 2: The three domains of power and reality

	1D: Empirical	2D: Actual	3D: Real
Objects of analysis	Behaviour	Interpretive understanding of intentional action	Evaluative theorization of interests in action
	Concrete decisions	Non-decisions	Political agenda
	Overt issues	Potential issues	Issues and potential issues
Indicators of power	Overt conflict	Covert conflict	Latent conflict
Sources of power	Resources	Processes	Meaning
Sociological paradigms	Functionalist	Interpretivist	Radical structuralist

Source: Burrell & Morgan (1979), Clegg (1989), Hardy (1996).

In the 1D approach, power is seen as being able to get others to do things you want them to do usually by having control over resources (Hardy, 1996). It focuses on people's behaviour and overt decision-making on concrete issues. It indicates a clear situation of conflict between units competing for scarce resources. The literature associated with this approach includes Crozier (1964) and Hickson and colleagues (1971), which helps identify the sources of power.

2D power studies recognise that not all interests are articulated: existing biased decision-making processes allow dominant groups to control participation (Hardy, 1996). Action that is observed is interpreted through a wider exploration of potential issues and non-decisions. It is assumed that a certain amount of conflict between actors is not being displayed overtly, but must be detected in more cultural elements of decision-making as it is assumed that "*only behaviour consistent with the norms and values of the underlying system will endure*" (Hardy, 1996: S8). The work within the field of neo-institutional theory in the interpretivist mode is often carried out at this level of reality.

Power studies taking a 3D approach consider that open conflict is not necessarily manifest in power situations: existing power may be used to stop conflict from arising. Power must be observed through the political agenda which is operating, from which theorisation of intentions can be evaluated. Meaning (in the sense of the perception of an action as either legitimate, rational, desirable or unavoidable) is thus used to legitimate certain powerful groups over others (Hardy, 1996). Ethnographic studies in the radical structuralist paradigm are most associated with this level of research. This approach looks beyond existing dominant values to explore how these agendas are set at societal level. This is the most complex level of research to conduct due to the many hidden aspects of reality (March, 1994: 144): "*as the model [of power] becomes increasingly realistic, it becomes more difficult to use empirically.*"

There is also a fourth dimension to studying power offered by Hardy (1996) that focuses on the system. She suggests that the power of the system lies in the "*unconscious acceptance of the values, traditions, cultures and structures of a given*

institution” (*ibid.*: S8). Although this appears to overlap with Lukes’ third dimension, the system is an important factor to highlight individually. This represents the underlying meaning behind the institutionalised dimension of an organisation, emphasised in the work of Foucault (1979a, 1979b, 1983).

One of the aims of this present study is to extend the original pluralist functionalist study of strategic contingencies theory to go beyond that which is directly observable in the empirical sphere of reality. The aim is to bring it in line with the 2D approach to studying power, considering both the overt and covert issues in the power arena that are part of both the observed and constructed reality. To go to the third level of reality and a 3D approach to studying power would require a more ethnographic study, which this research has not been designed to address. The epistemological framework provided by structural realism supports developing theory through propositions to explore the first two levels of reality. The approach for this study has thus been to build a theoretical model and then to test it. This is achieved by exploring extant literature and from this deriving propositions that can be explored once empirical data has been collected. The role of the researcher thus takes a traditional model approach, with the expert researcher doing research upon the informants (Miles & Huberman, 1994: 47).

In summary, the aim of this current study is to understand how the power of the Personnel department is perceived relative to other administrative subunits in HEIs, and to compare the power of the Personnel department between HEIs to see how this varies and how it is modified by institutionalised elements of the organisational environment. The 1D approach demands the recording of that which is visible to the outsider. In other words, a 1D study of power ranks subunits according to their ratings for issues such as control of resources, expert knowledge and involvement in key decision-making critical to the survival of the organisation. This will enable a perceived and actual power level to be established. In the 2D approach to studying power, additional questions are raised regarding the environment in which the subunits are operating. For example, what are the ‘rules of the game’; what is the history of the organisation; who or what defines what are important issues in a given context; what systems are in place to maintain this power structure? These questions start to gather information about the actual reality,

beyond the empirical reality, that makes up the underlying assumptions with which subunits are operating.

Having established here the philosophical paradigms behind the current study and their implications for the methodology, further detail of the actual approach to the empirical work is provided in the following sections.

3.4. Research Strategy

This section contains a broad discussion and justification for the research strategy adopted for this study. Much of the discussion in this section is derived from three main sources that consider the design of both quantitative and qualitative studies: Black, (1999), Kervin (1992), and Miles and Huberman (1994). References to these or other works are therefore only included where specific items are referred to.

3.4.1. Choice of particular approach

As the review of the philosophical underpinnings of this study has shown, there are choices to be made, and justified, regarding how a study is undertaken. Such a discussion is presented in this section before continuing on to explain in more detail aspects of the research design.

As the focus of this study lies in exploring the current perceived power of a department, rather than charting the process of exercising power, a cross-sectional approach has been adopted. This allows for a snapshot of the current situation and perceptions related to intra-organisational power in HEIs today.

To gain a generalisable picture of Personnel department power across the whole of the HE sector, which is important as so little research has been carried out in this arena before, a quantitative survey approach has been adopted predominantly, supported by the collection of qualitative contextual data. This largely matches previous methodologies implemented in this field. Only one extant study based on the strategic

contingencies model does not adopt at least a partial quantitative approach: this is an interpretive, longitudinal single case study carried out by Cavaye and Christiansen (1996). All other studies of which the author is aware have adopted statistical analysis procedures from questionnaire data supported by interview evidence. As the current study builds on previous work, advancing the theoretical and empirical findings, similar techniques are also applied in this study.

Most of the data can thus be collected through questionnaires, supplemented by secondary sources such as websites and government agency sources. For example, the Higher Education Statistics Authority (HESA) in the UK provided background information for all UK HEIs on size and funding arrangements. The websites and annual reports of institutions also provided additional details about organisational characteristics.

The primary method chosen for collecting the quantitative survey data was by a postal questionnaire. This is a relatively low cost method of surveying that can be carried out by one individual, but equally can have a low response rate and therefore measures must be taken to avoid this. Supplementary data of a more detailed contextual nature was then collected through face-to-face and telephone interviews. The interview method is likely to give higher response rates, but with substantially higher costs and a lengthy timeframe.

A more detailed discussion of the advantages and disadvantages of these methods and their combination is presented in the context of the current study in the following sections of this chapter. First, the unit of analysis and the related respondents for the study are explained in further detail.

3.4.2. Unit of analysis

The unit of analysis for a study is the kind of case to which the research questions relate and about which data are gathered (Kervin, 1992). The unit of analysis for this study is thus the organisational subunit, the Personnel department in Higher Education

institutions in the UK. The Personnel department is defined as including staff training and development units, and is sometimes also known as Human Resources. The data collected consists of attributes for each case (such as, perceived power, number of staff in department, etc.). Subunits of analysis are the individual members of the department, whereby data is gathered on certain points such as professional grade and computing skill in order to draw aggregates at the departmental level.

The study incorporates a large-scale survey of heads of Personnel departments in HEIs in the UK. In addition, a shorter version of the survey is used for comparative analyses with the heads of other administrative departments in the same institutions. The selection of departments in addition to Personnel represents a range of centralised administrative tasks within HEIs: Estates (including Bursar's Office, Site Services, Purchasing, Facilities, Health & Safety, Security, Residential Services, Catering, Conferences, Events), Finance (including Payroll, Research and Contracts, Enterprise) and Registry (including Student Accommodation, Student Services, Student Admissions, Alumni, Examinations, Student Liaison, International Office). These heads were asked for their answers to the same questions about relative power levels to compare with the reports received from the Personnel respondent in the same institution and across institutions.

The final stage of the fieldwork involved interviewing members of the senior management team in institutions to gain an alternative, broader perspective on the data already gathered. This again ensures triangulation, this time through a multi-respondent approach (Enz, 1989) and is a useful way of exploring further the organisational context as a key element of the patterns of power (Yin, 1994).

It was decided to survey Personnel and other support department heads because it was felt that these people would have the best day-to-day understanding of how their own department and other administrative departments operate. (There is of course a managerial assumption being made that the head knows most about the activities and level of power of the administration departments in their institution.) In order to broaden the perspective for the qualitative data collection, members of the senior management team of institutions were involved, such as Principals, Pro Vice

Chancellors and equivalents. It was perceived that these people whilst not necessarily knowing all the detail of how each department operates, would have a good overview of the role the administrative departments play in their institution.

Although trade unions are significant players in the HE field, representatives were not included because it was not felt that their overview of an individual institution would be sufficient to gather the data necessary for the design of the study. Members of academic departments were also not included in the study, other than those who also held senior management positions. Firstly, it was deemed inappropriate to do a comparative study of the power of departments including both academic and administrative departments. It can be assumed that academic departments are more powerful in academic institutions than administrative departments, as they are, of course, the reason for an institution's existence (see also Glover, 2001). Also, the number of academic departments in most institutions is large, thus a large number of people would have to be surveyed per institution before a representative analysis could be carried out. As academic departments have only sporadic contact with administrative departments, it was felt that their view of the administrative departments' roles in the institution would be limited, and hence senior management would be more appropriate to talk to in this respect.

The study thus covers a range of potential stakeholders in the work of the Personnel department, but not all. In short, if the approach of this study had been to carry out one or more in-depth case studies to explore organisational power, then it is more likely that a wider range of respondents would have been involved to get as rich a contextual picture as possible. As this is not one of the priorities of this thesis, the range of respondents was more limited within individual institutions, but broader over the whole of the sector to increase generalisability.

Having established the range of respondents for the study, the next stage is to go into a more detailed analysis of the design of the measurement tools – the questionnaires and interview schedules. The first stage of this process is described in the following section.

3.4.3. Exploratory interviews

An important element of focusing this study includes being fully up-to-date with the issues facing the units of analysis for the study, the Personnel departments. Exploratory interviews were held at the start of the study with heads of Personnel departments in five universities across the UK to understand more about their perspectives on the issues that the study is designed to address. In addition, attendance at the annual Universities Personnel Association (UPA) conferences in 2001 and 2002 allowed for a fuller understanding of the current HEI context and Personnel's role within it.

The exploratory interviews undertaken were semi-structured, designed to test out the terminology of the study using words such as power, credibility and influence related to the Personnel department, and exploring people's perceptions particularly on the role of information systems. (The schedule for the interviews is included in the *Appendix*, section A, to this thesis.) Interviewees were selected based on the type of institution, its location and ability to gain access to the head of department. Out of nine people contacted, five agreed to be interviewed. Interviews were carried out with heads of Personnel departments in four universities. An additional interview was also held with the Director of Management Systems Development at another university. (This person had one-year previously been the Head of Personnel, and had worked in Personnel there for over twenty years.) The interviews were recorded where permitted, although not transcribed in full. The summaries were sent to the participants for any amendments.

The notes from the interviews highlighted the following broad issues for the further development of the study:

- The head of Personnel role involves three elements: managing the Personnel department, providing professional advice, and providing strategic input into the university's decision-making structures.
- The heads of department have made a career in Personnel and have not moved across functional boundaries.
- The credibility of the Personnel department is seen as being generally low ("*an unnecessary overhead*" as described by one interviewee), especially where

people only use the department as a source of placing job advertisements. Credibility increases when the department is able to help with issues that need professional advice or where correct and relevant information can be provided. One person described credibility as coming from the provision of accurate information and following legal requirements, whereas power is about being able to change things: “*and the HR department does not have power*”. Only one person did not see their department as gradually moving from an operational to a strategic role - they saw the limited strategic input as being a constant factor.

- Perceived potential sources of power for the Personnel department include policing power at the operational level, top-team membership, professional competence, interpersonal skills, provision of reliable information, and to be seen to be helping to achieve organisational goals. One comment was that having a Vice Chancellor who recognises the importance of the Personnel function to the university facilitates the process of power. The academic background of Personnel practitioners is considered important when dealing with academics as clients for issues of credibility.
- The current issues facing HEIs focus primarily on the strategic positioning of the institution, and gaining essential financial and human resources.
- The Personnel information systems are generally simple databases for looking up information and printing out reports. In some cases they are described as holding out-of-date information, and people do not know how to use them. Most say the systems are in the process of or are about to undergo development. One described their system as fully integrated, with managers and employees being given access to the system in the next phase of development. Equally, the computing skills of the Personnel department members are described as varying from complete novices to competent users and experts, with a reliance on the skills of the latter.
- The general issues raised regarding information technology include: the massive expansion in the use of email and its impact on speed and efficiency of communication; the demand for more detailed, correct information in appropriate formats; and the need for common databases throughout the university so that all departments are working from the same basic data. There

was generally a lack of interest in IT, not seeing its relevance to the performance of the Personnel department.

- The perceived impact of IT on the Personnel department's role generally includes depersonalising work, resulting in easier or more boring work and being potentially damaging to working relationships with other departments due to reduced face-to-face contact. Where new systems are being introduced, the impact is described as planned, but with possible difficulties of getting people to accept the new systems. Other impacts include speeding up administration, and the ability to use more information to back up arguments.

In summary, the people at the head of these Higher Education Personnel departments are generally dedicated Personnel professionals, who have often always worked in the HE sector and are thus largely familiar with the HEI context. They are aware of issues of credibility surrounding the department, but in general not particularly aware of or interested in the use of IT in running the department. There is a strong sense of identity to the profession as supported by the existence of a professional body for the sector, the UPA, with individuals also being a member of the CIPD. Individuals have been in post for in excess of five years, some even over ten or twenty years, having spent their entire career in Personnel.

This is important information when designing the survey for the further fieldwork, as the questionnaire needs to be of interest and be relevant to the respondents in order to improve response rates (Enz, 1989). Further issues of essential survey design are discussed in the following section.

3.4.4. Research validity and reliability

Research validity relates to the extent to which a measure correctly represents the concept being studied; it is concerned with *what* is being measured. There are four levels of research validity:

- construct validity which is concerned with the operationalisation of variables;
- internal validity which is concerned with causality;

- external validity which is concerned with generalisability;
- and statistical conclusion validity which is concerned with the use of appropriate statistical tests and meeting their assumptions (Cook & Campbell, 1976).

Research reliability relates to the extent to which a variable is consistent in what it is intended to measure and hence its replicability; it is concerned with *how* things are measured. These issues of validity and reliability are explored below to see the implications for this study. Some of these issues are addressed at the research design stage, others are addressed during the data collection and data analysis stages.

In survey-based research, good question wording helps to accomplish measurement validity (the question measures what you want it to measure); minimises measurement error (bias and unreliability); and minimises item non-response (skipping a question or answering 'don't know'). Certain types of questions have known advantages and disadvantages in this respect. Attitudinal questions about beliefs and feelings have low validity and reliability, but a low risk of bias and non-response. Factual questions about characteristics, behaviour, events and experience have high validity and reliability, but run a high risk of bias and non-response (Kervin, 1992). This study combines both types of questions to address the research questions, but attempts to minimise any negative aspects by ensuring the survey tools are clear and specific, simple and brief, and adopt the appropriate language and relevance for the audience with no leading questions.

By using closed format questions in the questionnaires, this has helped to ensure respondents are using the researcher's frame of reference. It is important that the researcher and the respondent are using the same frame of reference for questions especially for questions of perception that require interpretation. This was one of the reasons for holding the initial exploratory interviews with heads of Personnel departments to test the use of appropriate terminology for this study. Closed format questions reduce some of the detail and richness of responses, and also assume the respondent sees the question the same way as the researcher. However, the responses are easier to code, are quicker for the respondent to complete, and provide a standardised set of comparable responses, which is important for statistical analysis.

Measurement error can result from problems with respondent memory, knowledge or state of mind when completing the questionnaire. This risk has been minimised by reducing the number of questions asking about events or facts from the past rather than the current state of affairs. The pre-pilot interviews as well as the literature review were used to gauge the range of potential categories for many responses, hence reducing the reliance on the respondent's memory, imagination or mindset at the time.

In addition to considering issues of measurement error, sampling error must also be taken into account. This type of error is known to be lowest for the largest sample sizes, such as in mailed surveys, but sample bias in surveys can be high, such as more responses from those interested in the topic or with a loyalty to the sponsor (Sudman, 1976). Issues of reliability can be addressed by analysing the control variables for respondent bias. The questionnaire data for this study is analysed to check its representativeness in the next chapter. Although there are also methods for checking whether non-response error is an issue, such as making special efforts to increase response rates from a randomly chosen group (Homburg, *et al.*, 1999), no such action was taken in this study due to the limited size of the population as will be discussed.

If dependent variables are not very reliable due to respondent error or missing data, the independent variables will not be able to make good predictions. Likewise independent variables can suffer from specification error, in as much as the wrong variables are selected, whereas other variables better able to predict the dependent variables are missed. Conceptual and theoretical arguments must therefore be presented to support the choice of variables and the way in which the data is gathered for these variables. Such arguments have been started in the *Literature Review* chapter of this thesis and are continued in further detail in the following sections on the operationalisation of variables and research instrument design.

The external validity of the study in terms of generalisability will be limited. The research was designed to address the issues of a particular subunit, the Personnel department, within a particular industry context, HEIs in the UK. The possibility to generalise findings from the sample to the population should be high, due to the

specificity of the population, however, generalisations beyond the population will be less appropriate.

Having established a sound framework for designing measurement tools, the following stage is to clarify exactly what needs to be measured to ensure internal construct validity. This involves a review of the research questions and the operationalisation of the indicator variables. A detailed discussion of this process is included in the following section.

3.4.5. Operationalisation of variables

The operationalisation of such ambiguous and complex constructs as power and the determinants of power relies heavily on theoretical justification and the refinement of previous studies. It is therefore critical to explore the methodologies used in previous research carried out in the same field. However, this highlights that there is no definitive operationalisation of the constructs of strategic contingencies theory: each study justifies the appropriate operationalisation which meets the needs of the study in hand, but which also takes into account the work already undertaken by others. This section explores some of the methodological issues faced, the key findings of previous empirical studies of strategic contingencies theory, and explains the reasoning behind the inclusion of the variables and their operationalisation for this study.

The first methodological point to note is the reliance on perceptions of individuals when studying power. Power itself has no empirical indicators (Burt, 1977: 15); only the sources, manifestations and outcomes of power can be measured. It is thus a latent variable that relies on the observation of a range of theoretically-derived indicator variables for its measurement. These cannot all be directly observed hence the need for perceptual data (Astley & Zajac, 1990: 487): “*power-dependence relations are inherently shaped by situational perceptions.*” There is thus inevitably a degree of socially-constructed reality to any study of power (Katz & Kahn, 1978). Power only exists if people allow it and support it either consciously or subconsciously (Lukes, 1974: 28): “*power is never the property of an individual; it belongs to a group and*

remains in existence only so long as the group keeps together.” Drawing also from role theory, the role played by subunits is contingent on the expectations that others within the subunit’s role set have about the rights and duties associated with that role (Lichtman & Hunt, 1975: 223-4), hence any judgement made will be subjective.

Perceptions are a way of tackling what may be a discrepancy between formally stated power relationships, such as those in an organisation hierarchy chart, and the reality of day-to-day activity. By collecting a combination of both factual and perceptual data, a more complete picture of intra-organisational power can thus be constructed at the empirical and actual levels of reality (Beyer, 1982). However, objective and perceptual measures are not expected necessarily to be highly correlated as perceptions vary as a function of contextual factors and individual attributes (Milliken, 1987: 135). Likewise the perception of one’s own power is often different to another’s perception (Fiol, *et al.*, 2001). Despite these issues, the most frequent way of measuring power subjectively is to ask respondents how much power one party has over another party or event (Provan, *et al.*, 1980). Such an approach is adopted here in this study.

The importance of perceptions in the Personnel context is high as this is its primary route to power and influence (Caldwell, 2003: 1003): *“the hard lesson of the past is that the changing roles of personnel managers are the mirror images of shifting managerial perceptions, judgement and actions, over which personnel practitioners may have only limited influence.”* It was also a finding of Schuler’s (1990: 57) that expertise must be supported by perceived credibility to gain power: *“what appears necessary, however, is for the HR manager and the HR department to be connected to and knowledgeable about the business, and to be perceived as credible by line managers.”*

The first test of the strategic contingencies theoretical model was by Hinings and colleagues (1974), which resulted in refinement of the original theory rather than proof of its validity and reliability. Nevertheless, the theory has largely been accepted since this stage, based on the multiple replications and developments of the work since (the Social Sciences Citation Index records Hickson, *et al.* {1971} as being cited over 350 times, and Hinings, *et al.* {1974} over 120 times since 1981).

Hinings and colleagues' (1974) cross-sectional study includes interviews and a questionnaire survey in seven manufacturing organisations based in the USA and Canada. The small sample was justified by arguing that the aim of the research was to show how combinations of the independent variables affected power, rather than testing the stated hypothesis of strategic contingencies theory as presented by Hickson and colleagues (1971). The study defined the multiplicative combination of the determinants of power identified by strategic contingencies theory, weighting coping with uncertainty as being most crucial to power, followed by immediacy, non-substitutability and finally pervasiveness (immediacy and pervasiveness being two elements of the variable 'centrality'). The measures of power adopted for the study included participation power (the stage at which a department is involved in key decisions and its perceived level of influence over these decisions), position power (which departments have formal responsibility for key decision areas) and preferred power (how much influence a department thinks it should have over key decisions).

One issue with the sampling in the study by Hinings and colleagues (1974) is that the sample was selected based on relative levels of uncertainty in the environment, for which the indicators were stated as being public regulation and market conditions. There is no explanation of the way in which these indicators were measured, so it is difficult to judge the degree of uncertainty in the environment included in the study and hence the appropriateness of the sample. There is no discussion in the paper of the possible effect of the study having been carried out in two different countries: USA and Canada. There is also an additional concern that although 'centrality' is one of the determinant independent variables proposed by strategic contingencies theory, this particular variable is not tested for: it remains divided into two separate components – pervasiveness and immediacy – thus altering the determinant variables of strategic contingencies theory. In their conclusions, Hinings and colleagues (1974) suggest that far more extensive samples are needed to show how much power different kinds of subunits have in organisations, and to check the pattern of combinations of the independent variables defined in the theory. This set the tone for future studies of strategic contingencies theory.

Some studies, such as that of the IS department by Huff (1991) have followed the original strategic contingencies theory methodology. Others have adopted a different methodological approach, such as the single case study by Cavaye and Christiansen (1996). In many cases, additional variables or concepts have been added to the original strategic contingencies theory model. For example, the context of organisations has received particular attention and patterns of determinants of power have been shown to vary between industries (Astley & Zajac, 1990; Giroux, *et al.*, 1986; Saunders & Scamell, 1982). Saunders and Scamell (1982) replicated the testing of strategic contingencies theory in universities, finding that although the results upheld the theory in general, the ability to cope with uncertainty did not have the strongest relationship with power as in the manufacturing environments. Centrality was found to be more crucial. They suggest that this is a result of the informational workflow of universities compared to the product-related workflow in the breweries where the theory was originally tested. Given the apparent importance of organisational context, for this study based in the HE sector, considerable analysis of the context has been undertaken, and the first stage of data analysis was to explore how well the strategic contingencies theory model fits this sector.

Lucas (1984) found support for strategic contingencies theory in his questionnaire-based study of 136 manufacturing firms. However, he emphasised that in a cross-sectional study, causality could not be demonstrated. Lucas (1984) also argued for the need for an additional moderating variable – subunit centrality – rather than the split variable of immediacy and pervasiveness. This notion of centrality, translated by Saunders (1981) as criticalness, the extent to which a department's activities are closely related to the mission of the organisation, is later defined by Saunders and Scamell (1986) as the control of strategic contingencies. This concept is empirically tested by Saunders (1990): it was found that the 'control of strategic contingencies' is not a composite of the determinants of power, but a moderating variable in the relationship between the determinants of power and power levels.

This is an important distinction in the definition of 'centrality' to make at this point. In the Hinings and colleagues (1974) study, centrality was defined as the degree to which a unit's activities are linked to the workflow of other units, through immediacy and pervasiveness concepts. Saunders (1990) defines centrality as the extent to which a unit's activities are closely related to the mission of the organisation. The latter definition is also used by Hackman (1985) in her case studies of resource allocation based on subunit power. These are subtle but important differences in definition of which one should be aware. For this study, it has been decided to adopt the second definition of the concept, considering how the role of the department and how it is carried out is perceived by others as contributing to the overall goals of an institution.

Coping strategies can be measured in terms of the extent to which a department helps another department cope with uncertainty by reducing variability of inputs, provides information to forewarn of problems, and reduces output variability (Pfeffer & Salancik, 1974). Saunders (1990) suggests that the measure for coping with uncertainty should focus on such coping mechanisms adopted in high uncertainty circumstances, rather than focusing on the extent of uncertainty faced by a subunit as in the study by Hinings and colleagues (1974). The ability to cope with uncertainty variable adopted for this study is defined as a combination of the perceived degree of uncertainty that exists and the perceived extent that a department is able to cope with this uncertainty to the benefit of the organisation. Uncertainty is thus interpreted as contextual uncertainty, such as events or relationships within and external to the organisation about which the organisation cannot be sure without the advice of appropriate functional expertise.

Homburg and colleagues (1999) add a new dimension to the strategic contingency model of subunit power: the effect of institutional theory. This new dimension continues to focus on situational determinants of power, excluding characteristics of individuals as in strategic contingencies theory. They found that institutional determinants account for variance in subunit power beyond that explained by contingency determinants. This will also be explored in the current study in terms of the historical status of institutions, seeing if this relates to variance in levels of power of the Personnel department.

Developing the theory in further new directions, Cohen and Lachman (1988) added professionalism as a predictor variable to the strategic contingencies model. However, their findings show that professionalism does not have a significant effect on power in the healthcare context in which their study was based. The professionalism theme is continued in the present study, looking at the extent to which the professional grading of staff and membership of the relevant professional body reveal patterns in power levels.

Lachman's (1989) repeat of their original study after a two-year interval, questioned the notion of causality in the strategic contingencies model which had to date only been tested in cross-sectional studies. By carrying out a longitudinal study, Lachman argues that the determinants of power are manifestations of power, and that the bases of power are aspects such as routinisation, structure, task and personal leadership. No further studies of which the author is aware have explored this assertion further. This discussion of what are determinants and what are manifestations of power can itself be cyclical if the institutional theory argument is followed. As powerbases become institutionalised in the organisation they provide indications of the past and present power of departments. These indications are thus also manifestations of power.

Jobber and Watts (1987) make a different modification to strategic contingencies theory, finding that information systems form part of the power base of an organisational subunit in their study of marketing departments. Also testing the addition of technology to the strategic contingencies model, Crawford and Rice (1997) find significant canonical correlations between the technology and environment set of variables and power levels and bases variables. However, running the analysis on a reduced sample size, there were no significant findings for causal relationships using path analysis between all four concepts (Crawford, 1998). This current study explores further the impact of information systems on power structures.

In exploring IS as a moderator however, it is acknowledged that its use is not just an issue of strategic corporate choice. The impact of IS on power may be influenced by factors such as senior management IT literacy affecting strategic choice capacity; management discretion; outsourcing arrangements for IT provision; and the hard-sell of

IS vendors influencing the extent of systems purchased. This issue is addressed in the current study by looking at what information systems are actually in place and how they are currently being used, and then by relating this to current power levels. By taking a static approach it is possible to see the current extent of association between the concepts, without trying to see whether the role of IS in power relationships changes over time, when both concepts may change due to many internal and external factors.

Summarising these previous applications of the strategic contingencies model and related power studies, the operationalisation of the variables used in each study is collated in the *Appendix* (section B) to show the range of indicators that has previously been used. One recurrent issue in the cross-sectional studies is the question of causality in the strategic contingencies theory model. In multivariate statistical analysis, causation can be asserted provided four criteria are met: (1) sufficient association between the two variables, (2) temporal antecedence of the cause versus the effect, (3) lack of alternative causal variables, and (4) a theoretical basis for the relationship (Hair, *et al.*, 1998). Although in a cross-sectional study there is no temporal variation, point 1 can be achieved through correlation techniques and points 3 and 4 through rigorous theoretical justification. Proving causality is therefore difficult, but steps have previously been made towards theoretical justification and are continued in this study.

Having discussed previous relevant studies, the choice of variables to be included in this present study can be considered. Firstly, the number of variables to include in the study must be determined. Due to the requirements of adequate sample sizes for multivariate statistical analysis (ranging from a desired ratio of between 5 to 20 cases to each variable included in the study), and to the actual size of the population being studied (around 180 HEIs based on the government website: www.hero.ac.uk accessed on 25 February 2002), it is not possible to include all variables that may be desirable and interesting to explore. Some estimation therefore needs to be made to facilitate the research design. Assuming a response rate of 40% (based on careful questionnaire design and following-up of initial non-response), and a desirable ratio of 5:1 cases to variables for multivariate analyses, this limits the maximum number of independent variables to 15. This will help ensure the generalisability of the results within the

population if the sample is found to be representative. Due to these statistical limitations, there must therefore be very careful selection of the variables most able to provide data to answer the research questions. As a result of these considerations, Table 3 shows the variables selected for inclusion in this study.

Table 3: Variables to include in the study

Concept	Indicators	Variable name	Measurement scale
Power	Position		
	1. % of university budget allocated to subunit	BUDGET	metric
	2. proportion of Personnel department members to total employee headcount	RESOURCE	metric
	3. hierarchy position	HIERARCHY	dichotomous
	Participation		
4. stage of involvement in decision-making on nine key issues (total score)	INVOLVEMENT	metric	
Perceived			
	5. overall perceived level of influence	INFLUENCE	ordinal (5-level)
Determinants of power	Ability to cope with uncertainty		
	6. perceived amount of uncertainty faced	UNCERTAINTY	ordinal (5-level)
	7. coping strategy adopted	STRATEGY ¹	ordinal (5-level)
	8. frequency of HRIS report requests	REPORTS	ordinal (5-level)
	Centrality		
9. perceived extent to which each subunit's activities are closely related to the mission of the organisation	CENTRALITY	ordinal (5-level)	
Non-substitutability			
	10. of the subunit primary task (perceived)	NON-SUB	ordinal (5-level)
Institutionalisation	History		
	11. pre-92 or post-92 university or college	STATUS	categorical (3-level)
	Professionalism		
	12. proportion of professional staff in the Personnel department	PROPORTION	metric
	13. respondent membership of professional body	CIPD	dichotomous
Use of IS			
	14. functionality of HRIS	HRIS	metric
15. IT skill levels	IT SKILL ²	ordinal (5-level)	
Context			
	• total FTE number of students	HESA1	metric
	• total FTE number of academic staff	HESA2	metric
	• student:staff ratio	HESA3	metric
	• % funded by funding councils	HESA4	metric
• member of UPA professional body	UPA	dichotomous	
Respondent details			
	• Job title	TITLE	categorical
	• Number of years in current position	POSTYRS	metric
	• Number of years at institution	INSTYRS	metric
• Number of years in specialism	SPECYRS	metric	

¹ The product of STRATEGY and UNCERTAINTY is used to give an overall metric COPING variable to measure a department's ability to cope with uncertainty.

² The product of HRIS and IT SKILL is used to give an overall metric IS SOPHISTICATION variable to measure the sophistication of use of IS within a department.

Source: analysis of literature and development of research questions.

Having established the foundations on which the study is based, the next step tests the initial operationalisation of variables and design of the research instrument in a pilot study within the HE context. The results of this study are reported in the following section.

3.4.6. Pilot study

In order to test the questionnaire design for the main study, a pilot study was carried out in May 2002. Before the pilot study took place, an initial pre-test of the draft questionnaire was carried out with five people (fellow academics and PhD students) in which respondents were invited to comment on the questions, instrument and procedure. This resulted in the redrafting of the questionnaire, particularly with a significant reduction in length. The next stage was to pilot the revised questionnaire to gather data for exploratory analysis. The aim of the pilot was to test the questionnaire form and content, the instrument as a whole, and the survey and analysis procedures as closely as possible to the conditions and respondents the researcher expected to find in the field.

Initially, twenty deputy heads of Personnel departments or equivalent level Personnel Managers in UK universities were contacted, including an equal mix of pre- and post-1992 universities. Deputy heads were contacted so as not to reduce the potential number of respondents for the main study, but as people who should be able to answer the questions set. The questionnaire was worded accordingly for the pilot study, and was later revised for the respondents in the main study. The questionnaire used is attached in the *Appendix*, section C. The sample to be contacted was selected at random from a list of all universities in the UK on the government website: www.hero.ac.uk. The pilot questionnaire was posted to twenty institutions.

Ten responses were received from Personnel departments, giving a response rate of 50%. Following receipt of these responses, a second shorter version of the questionnaire was sent to the deputy heads of the Estates, Finance and Registry departments of the universities that had responded. 30 questionnaires were sent out, and 12 responses were

received, giving a response rate of 40%. In each case, the questionnaire was sent by post with a reply paid envelope enclosed, asking respondents to reply within two weeks of receipt. It is suggested that for pilot samples, 20 to 50 cases are usually sufficient for testing a questionnaire (Sudman, 1976). The 22 responses received in total therefore suggest a suitable degree of piloting given the unit of analysis population.

Tests for response bias were carried out on the pilot data from the ten Personnel departments. No significant differences were found in the responses based on institutional size and funding arrangements. Comparing responses based on respondent details, a small number of significant differences were found. This was not surprising given the small sample. However, in the main study attention was paid particularly to any effects of bias in terms of respondent criteria. In all cases, the appropriate person, the deputy head of the department, had completed the questionnaire.

3.4.6.1. Implications for main study

As the pilot data is limited in terms of statistical reliability due to the number of cases, the discussion here is focussed on considering the implications of the preliminary findings for the main study, rather than as findings in their own right. The wording of the propositions explored in the pilot study is not identical to the wording of the main study propositions as adaptations were made following the pilot study outcomes and further analysis of the extant literature. The main change in wording was from 'university support departments' to 'HEI administrative departments' to suit the broader sample of the main study. This point is discussed further below.

The two rounds of data collection used for the pilot study returned response rates of 50% from Personnel departments and 40% from other departments. It is perhaps surprising that the response rates are similar, given the effort that was made with the Personnel departments to ensure questionnaires were addressed personally to the desired respondents, a reminder email being sent after the first week, and all non-respondents being telephoned after the closing date. For the other departments, the questionnaires were not personally addressed, and no follow-up of responses was made.

The high response rates suggested that there was interest in the questionnaire in the sector, and that hopefully reasonable response rates could also be expected from the main study.

In the analysis of the data, significant differences between the responses of departments on various variables indicated the value of having a wider respondent base other than just Personnel department heads. Significant correlations were also found between the determinant of power and level of power indicator variables, which indicated that the strategic contingency theory model was being supported in the study and was worth pursuing. Although little support was found for the propositions at this stage, variables were generally proving to be useful predictors of the phenomena being explored.

The analysis of the pilot data raised some questions regarding the formulation of variables in the questionnaire design and the coding of responses. The following paragraphs highlight the necessary changes identified.

INVOLVEMENT. Looking at the questionnaires returned, the question asking about involvement in nine key issues needed to be clear that all options that apply should be ticked, rather than just one option per issue. It appeared that some respondents had only ticked the highest response and not subsequent lower scored responses that were also applicable. The wording of the nine key issues also needed to address the fact that the issues referred to activities affecting the whole university, i.e. computer systems refer to all computer systems across the university, rather than just a computer system relevant to the department responding. It was again evident that this was not clear to respondents from comments written on returned questionnaires.

COPING. In the pilot study, the scale for this variable was the reverse to the scale for all other ordinal variables: a high score indicated a low ability to cope with uncertainty. Statistical analysis is simpler if all variables have the same directional scale, therefore appropriate amendments were made for the questionnaire used in the main study. The definition of this variable has also been revised following the pilot study. The ability of the department to cope with uncertainty was originally defined in the pilot study as ‘the

extent to which the work of each department follows defined procedures with little scope for variation', seeing the ability to cope with uncertainty as a facet of routinisation. Routinisation can have two effects with regard to coping with uncertainty in the environment. It can prevent uncertainty by the existence of rules, or the routines can be applied to counteract the uncertainty of the environment as or after it arises (the coping strategies identified by Hickson and colleagues {1971}). Departments with a high degree of routinisation were classed as having a high ability to cope with uncertainty. However, it is also argued that as things become more routinised, the power of the departments implementing the procedures is diminished due to a lack of exclusivity of expertise. The routinisation concept is thus too ambiguous for useful inclusion in the study. A similar conclusion due to a lack of data was also reached by Hinings and colleagues (1974). The definition of COPING adopted in the main study is closer to that suggested in the original study by Hinings and colleagues (1974) as discussed earlier: a combination of the amount of uncertainty faced by a department and its ability to adopt strategies to cope with this uncertainty as perceived by others.

CENTRALITY. In the pilot study, the extent of centrality scale assumed a progression from indirect to direct contribution, although the two are not mutually exclusive. Therefore, the scale used for this variable in the main study was revised to cover the degree of direct contribution only.

NON-SUBSTITUTABILITY. The wording for one of the extremes of the options on this scale was amended from 'impossible' to 'almost impossible' to be a more realistic option for respondents to choose.

INFORMATION SYSTEMS. The original question included five potential aspects of information system functionality, all equally weighted as either available or not available to a department. However, the list presented actually showed a progression of sophistication of functionality. Therefore, in the main study the coding of the responses was weighted accordingly, depending on the position of the available functionality on the list.

STATUS. For the pilot study, the websites for each of the respondents was visited to see when the university was established to determine whether the status would be pre- or post-1992. Due to the small sample size, this method of searching was possible. However, for the main study this question was included in the questionnaire. It was also decided to increase the potential population for the study to include Higher Education colleges in addition to pre-1992 and post-1992 universities, as all institutions are part of the HEI context. When looking for patterns of variables based on the status of the institution, it was therefore decided to move away from a reference group approach whereby one type of institution is expected to have higher or lower power than another, to look more generally at differences amongst the three types of institution. Extant theory is not sufficiently developed to anticipate one particular type of institution to exhibit higher power levels than others.

PROFESSIONALISM. The ratio of professional staff in the Personnel department to the number of other staff in the Personnel department was used as the definition of the professionalisation variable in the pilot study. For the main study, the professionalisation variable is defined as the proportion of professional staff within the Personnel department (i.e. the number of professional staff divided by the total number of staff in the department) for ease of statistical analysis. The only indicator of professionalism used in the pilot study was the ratio of professional staff in the Personnel department. It was decided also to include an additional variable to measure membership of the professional body, the CIPD, to measure professional identity in the main study.

In summary, the piloting of the questionnaire to test the methodology and research instrument resulted in high response rates and the identification of some key implications for the main fieldwork for the study. These implications included the value of multiple respondent perspectives and the revision of the definition and coding of certain variables. As a result, questionnaire items and instructions were reworded to improve clarity. Rating scales were revised to ensure they were both logical and appropriate to facilitate statistical analysis. Scales were also reworded to ensure the mutual exclusivity of the options and the appropriateness of the descriptors. New

definitions were adopted for two of the indicator variables: the ability to cope with uncertainty, and the size of the professional element in the Personnel department, to address issues of ambiguity originally uncovered. Finally, certain items were recoded to represent appropriate weighting of responses.

Having undertaken the groundwork, detail of the specific design of the questionnaire for the main quantitative fieldwork for the study is presented in the following section.

3.4.7. Questionnaire design

Response options on surveys lead to the type of data created and hence the possible methods of analysis. When asking for perceptions, the options available include using: (a) choice scales for choosing among several alternative options; (b) rating scales measuring the frequency or intensity of an attitude or behaviour; (c) Likert-type scales for questions where the respondent is presented with a series of statements to which they are asked their extent of agreement; and (d) item ranking scales putting items in order of importance (Kervin, 1992).

The questionnaire for this study has been designed using rating scales for the perception-based questions, giving a scale of frequency or intensity relevant to an issue. The rating scales have been given five options. If there were only four categories, the lack of a middle option would cause problems for those with weak opinions (due either to indifference or lack of knowledge). The middle position could only be omitted to force respondents to choose one alternative or another if there are sufficient categories to represent respondents with weak opinions (at least six according to Kervin {1992}). The nature of the questions does not require more than five potential gradations of concepts or activities, e.g. very often, often, sometimes, rarely, and never, covers the scale adequately. Labels are given to all response options to make the choices clearer than having a numerical scale with only the two end points named as is often the case in more detailed scales with more than five points.

Rating options have largely been ordered from the negative (or least desirable) to the positive (or most desirable) consistently to ensure a logical sequence for the respondent, to encourage people to read all of the options progressively, and to reduce the risk of error (Sudman & Bradburn, 1982). This does however run the risk of position bias (i.e. always tending towards the positive or the negative due to the layout). It has been suggested that in order to reduce both risks, two versions of the questionnaire can be produced with opposite ordering of the statements so that order bias may be monitored (Jobber & Watts, 1987). However, this leaves the questionnaires with the order of most desirable through to least desirable options further open to bias due to social desirability. Therefore, it was decided to produce a single version of ordering in the questionnaire. It has been shown that ordering of blocks of related questions within a questionnaire does not impact on overall order effects (Sudman & Bradburn, 1982: 145).

Pre-coded questions rather than open questions have been used throughout to ensure respondents have both the topic and the dimensions in which answers are desired. Numerical codes are also included alongside the answer options for direct entry of data when questionnaires are returned. Demographic questions have been included at the end of the questionnaire to avoid the respondent feeling that the questionnaire is overly personal or threatening (Sudman & Bradburn, 1982).

The covering letter and questionnaire sent to Heads of Personnel departments is attached in the *Appendix* (section D) to this thesis. The word 'power' itself is not used directly in the questionnaire for two reasons. Firstly, power can mean different things to different people and needs further definition in order for a question about power to be interpreted appropriately by the respondent and researcher. Secondly, power often has quite negative connotations and it was felt that 'influence' was a more appropriate term to try to raise some of the relevant issues. Pfeffer (1981) suggests that although scholars have made definitional distinctions between influence and power, such distinctions may not be so prevalent in everyday usage of the words.

The questionnaire was revised for sending to heads of other administrative departments as the full range of questions asked of Personnel departments was not required. The final version of the questionnaire is attached in the *Appendix* (section E) to this thesis.

Finally, the questionnaire was reviewed for the following attributes: appropriate ordering to meet the demands of logic (questions divided into sections, moving from factual to more opinion-based questions); encouraging people to respond (by signposting, explaining relevance and concept clarification); and reducing the effect of answers to earlier questions on later ones (avoiding measurement bias due to previous frames of reference being projected onto new questions where not appropriate, and respondent attempts at consistency).

The process of data collection is covered in detail later in the following chapter in terms of the timing of questionnaire mailings and response rates. Firstly, the design of the qualitative element of the fieldwork is discussed.

3.4.8. Qualitative data strategy

The aim of this section is to clarify the role which the qualitative data plays in this current study, and the process which was followed to gather this data. A rationale for the combination of both a quantitative and qualitative approach is presented, explaining how the qualitative data collection was informed by the quantitative results, and how the qualitative results supplement the quantitative findings.

The qualitative data strategy adopted for this study is described below in a number of stages. In summary, these stages included designing an interview schedule and deciding on the sample, contacting potential interviewees and carrying out the interviews. The tape recordings of interviews were then transcribed and the transcripts coded. The quotes and ideas per code were then transcribed into sets of evidence per variable, and finally the findings incorporated into those from the quantitative study.

3.4.8.1 Combining qualitative and quantitative data

The role of qualitative data in combination with quantitative data can be to test existing findings or to gather data which it is not possible to access through questionnaire techniques. In this study, following the initial analysis of the data gathered from the postal questionnaire, a number of semi-structured interviews were carried out with senior managers from respondent institutions. The aim of these interviews was particularly to gather further information on contextual issues affecting the study. As Miles and Huberman (1994: 10) express, qualitative data is thoroughly “*embedded in its context*” and has a “*strong potential for revealing complexity*” and hence would be a useful addition to supplement and illuminate the quantitative data already gathered.

However, the implications of combining these quantitative and qualitative techniques must be considered. Triangulation in terms of multiple methods aims to build as broad an understanding as possible of the phenomena being studied to improve generalisability of findings (Scandura & Williams, 2000). The qualitative approach is seen as providing deep and rich data, whereas quantitative data has more sound and generalisable qualities. Neither technique is necessarily better than the other; this is determined by the context of the research (Sieber, 1973). It is acknowledged that by using two approaches to data collection – questionnaire and interviews – this does not eliminate the bias of each technique, but they do provide different types of data which can be used in constructing an explanation of what is being observed. The three data outcomes that can emerge from multiple methods are either converging, inconsistent or contradictory data (Mathison, 1988: 15). All three are reported here when analysing the propositions for this study to facilitate explanation.

There is also an argument that quantitative and qualitative data are difficult to combine due to each method of data gathering having a different epistemological underpinning (Bryman, 1984). Quantitative data is more readily associated with a positivist approach to research, whereas qualitative data is gathered more frequently in interpretive studies. However, elsewhere it is also argued that depending on the epistemological stance of the researcher, he or she will see different things in the same set of data than someone

with a different epistemological approach to his or her work (Miles & Huberman, 1994: 56). It is therefore possible to combine different types of data within a single research framework provided a consistent argumentation and method of analysis is employed, as has been attempted in this study. Also, the two levels of data collected will allow for a more complete response to the research questions due to the need to observe both the empirical and underlying realities.

3.4.8.2 Questionnaire design and sample selection

Analysing the propositions for the study using the extant literature and the quantitative data already gathered, remaining questions and gaps in the study were identified. These outstanding questions were largely related to contextual information about institutions not gathered through the questionnaires, including:

- To what extent is the Personnel department perceived to be professional?
- How much impact is the use of information systems having on the department?
- To what extent is the positive effect of the HEFCE initiative as reported in its own evaluation in evidence in institutions?
- To what extent is trade union activity a significant aspect of the HE sector today?
- How frequently is the Personnel task outsourced, and how widespread is the devolution of personnel management activities to line managers and the decentralisation of the Personnel department to individual Schools and Faculties in HEIs?

These questions were reformulated into a draft interview schedule to access information which would help illuminate the quantitative data findings. In order to balance the opinions of the heads of departments already surveyed, it was decided to hold interviews with members of the senior management team of institutions, who were outside of the departments already surveyed but with knowledge of the work carried out by administration departments in their institution. A semi-structured approach was adopted to ensure that the data gathered could be used both to compare between institutions and to relate the findings to the existing quantitative data. This supports the

internal validity of the fieldwork as well as its generalisability and manageability (Miles & Huberman, 1994: 35).

Given the population of questionnaire respondents was 73, it was decided to hold interviews with around a quarter of this population. Unlike with statistical analysis, there are no rules guiding sample size, however considering previous studies, this would appear to be a sufficient size to supplement the quantitative data analysis.

To select the sample, the Personnel department respondents to the questionnaire in 25 institutions were contacted to arrange interviews. It was felt that 25 would be a sufficient number to contact in the first instance to try to arrange an adequate number of interviews with Pro Vice Chancellors or equivalent individuals. It was decided to attempt to get access to the desired interviewees through the Personnel department as this method increases the chance of success of gaining access rather than 'cold' contacting senior managers who may have very little direct interest in being involved in the study. Internal interest and support can thus increase the response rate (Kervin, 1992; Sudman, 1976). However, this may also bias the sample in that the Personnel department may only be able to facilitate access where there is a good relationship with senior management. This is checked for in the analysis of the interview responses.

Of the 25 institutions contacted, nine were pre-1992 universities from which six interviews were set up (plus two interviews with heads of the Personnel departments in addition), eight were post-1992 universities from which five interviews were set up, and seven were HE colleges, from which four interviews were arranged. This gives a total of seventeen interviews that were carried out in fifteen institutions (giving a response rate of 60%) in May and June 2003. The seventeen people interviewed included three Principals/Chief Executives, six Pro/Deputy Vice Chancellors, two Vice/Assistant Principals, two Pro-Wardens/Rectors, two Secretaries (heads of administration), and two heads of Personnel departments. Ten of the interviews were carried out face-to-face and seven by telephone.

There are of course advantages and disadvantages of the two techniques of interviewing. Face-to-face interviews obviously enable the interviewer and interviewee to see each other's body language during an interview, hence facilitating the flow of discussion. However, this method does require additional resources such as travel time and costs, plus finding a suitable length of time when someone is available for interview. Telephone interviews are more moderate cost and easier to schedule, but can be more difficult to carry out due to the sensitive and complex nature of the topic under discussion: power. As a structured interview schedule was being used to gather a very narrow range of data, this helped to equalise the usefulness of the two methods of interviewing.

In selecting the sample, it was essential to work with institutions that had already been involved in the questionnaire stage of the study. This ensured that the contextual data collected from the interviews was directly relevant to the sample, and did not relate to institutions not already taking part in the study. Where possible, the aim was also to interview senior peripheral individuals, such as the Pro Vice Chancellor or Assistant Principal who had responsibilities for an oversight of some aspect of the Personnel department's work to ensure a sufficiently sound knowledge of the department. However, this does mean that the interviewees have a vested interest in the department under discussion and their answers to the questions could be interpreted as a reflection on their own ability to manage. By seeking supporting evidence and posing similar questions but from different perspectives, it is possible to reduce or at least identify this type of respondent bias.

The sampling procedure adopted can thus be described as purposive. An equal spread in the number of interviews in each of the three types of institutions (pre-1992 universities, post-1992 universities and HE colleges) relative to their population sizes was desired to ensure the representativeness of the findings. To an extent there was an element of convenience also incorporated in selecting institutions. Those contacted first were those that would not be too problematic to reach when travelling from abroad (as the researcher was living in the Netherlands). As sufficient numbers of interviews were set up at locations which were easy to reach for face-to-face interviews, other institutions

were contacted who were further afield to set up telephone interviews to avoid introducing geographical bias.

Based on the preliminary survey findings, the outstanding issues identified and the desired interviewees and institutions, the interview schedule was drafted. The final version of the schedule is included in the *Appendix*, section F.

3.4.8.3 Holding interviews and managing transcripts

Once successful contacts were made and dates arranged for interviews, the detailed arrangements were sent to the interviewees including a brief statement of the content of the discussion. No further detail was deemed necessary as the interview was designed to explore opinions rather than points of fact that may have required preliminary research on the part of the interviewee.

After the first three interviews, the initial schedule was revised to ensure the correct range of data was being gathered. It was decided at this point, for example, that an additional question would be included about how substitutable the Personnel department was perceived to be, as this issue was the only determinant of power variable not being addressed and hints of its relevance in the first three transcripts had been detected. Another revision included a further clarification of the distinction between the decentralisation of the Personnel department and devolution of Personnel activities, as respondents were confusing the two issues in responses. Following this initial revision, the schedule underwent other minor revisions of wording after each interview as it became clear how best to express the different points.

The interview schedule was designed to elicit information on as many of the variables identified for the quantitative analysis as was feasible in an interview situation, plus additional contextual variables which a questionnaire was unable to address concisely. Table 4 lists the variables that were being explored, and hence the coding list used for analysing the interview transcripts. The list of questions was kept to a maximum of

eight items as it was anticipated that it would be easier to get access to respondents if the length of the interview was limited to 30 to 45 minutes.

Table 4: Variables used in the coding of interview transcripts

VARIABLE	DESCRIPTION
<i>Influence</i>	The overall perceived level of influence of a department
<i>Involvement</i>	The extent of participation of a department in corporate strategic decision-making
<i>Non-substitutability</i>	How easily replaceable a department is
<i>Centrality</i>	How much a department is seen to contribute to the organisation through carrying out its role
<i>Coping with uncertainty</i>	The extent to which a department solves problems and provides information to other departments
<i>Status</i>	Related to being a certain type of HEI
<i>Size</i>	Related to being a certain size HEI
<i>Funding</i>	Related to an HEI's financial independence
<i>Professionalism</i>	The professionalism of the Personnel department
<i>IS</i>	The use of Personnel information systems by the Personnel department
<i>Trade Unions</i>	The significance of trade union activity in an institution
<i>Outsourcing</i>	The extent of outsourcing Personnel activities in an institution
<i>Decentralisation</i>	The extent of decentralisation of the Personnel department
<i>Devolution</i>	The extent of devolution of personnel management activities to line managers
<i>HEFCE</i>	Issues related to HEFCE initiative
<i>Other</i>	Interesting comments not covered by other variables

Source: developed from Table 3 (page 90).

With the interviewee's permission, the interview was recorded to enable full transcription of the discussion. Only one recording did not work, so there were sixteen full transcripts to work from, plus notes made during one interview. The interviews by telephone on average took around 25 minutes. Face-to-face interviews took between 20 to 60 minutes, with an average of 30 minutes. Particularly following the process of transcription it was not felt that there was any loss of quality or detail of the data collected by telephone interviews compared to the face-to-face interviews. This is likely to be due to the semi-structured nature of the interviews. There also did not appear to be

any bias introduced into the study by contacting potential interviewees through the Personnel department respondents, as it was certainly not the case that the Personnel departments in the institutions interviewed all had 'positive' reputations.

It became very apparent when transcribing the tape recordings that much more information can be elicited from a conversation when there is the opportunity to listen to it for a second time; the subtleties of points become much clearer. It is also possible to be more aware of the way in which things are said, which is lost once the words have been committed to paper. It was decided for a similar reason to transcribe the recordings by hand and in full rather than typing the transcripts or only making notes from the discussions. From personal experience, the process of writing by hand improved familiarity and understanding of the data which may have been lost if the text had been word-processed. This may have extended the length of time required for this stage of the process, however it was felt that this would save time later when analysing the data due to familiarity.

Once the interviews were transcribed, each transcript was coded based on the variables in Table 4. (The relationships between the variables are as presented in the conceptual model for the study: see Figure 4, page 67.) At this point, it is important to note the subjectivity of the coding process. As Miles and Huberman (1994: 56) highlight: "*what you 'see' in a transcription is inescapably selective. A critical theorist sees different things than a deconstructivist or a symbolic interactionist does*". A discussion of the epistemological implications of this was presented at the start of this chapter. In general terms, the realist approach adopted sees the fieldworker as invisible and interpretively omnipotent (Miles & Huberman, 1994: 300). Combined with the epistemological perspective another factor of interpretation is the aim of the interview process, which in this case is confirming, disconfirming or illuminating existing quantitative data. In other words, the parameters for the analysis have already been set and specific evidence is being sought from the interview data. An example of a coded transcript is included in the *Appendix*, section G, to this thesis.

Once the transcripts were all coded, the ideas and quotations for each variable were assembled to identify patterns and themes in the data. For example, all references coded with the variable INFLUENCE were pulled together. The sub-themes could then be elicited, such as the Personnel department's profile in comparison with other administrative departments, the visibility of a department, etc. Frequencies of the number of respondents mentioning a certain issue were also counted. Finally, specific evidence was sought to confirm or disconfirm findings from the survey analysis. At this stage, the data was checked for any surprising results such as any cases that contradicted existing knowledge. For example, the profile of a Personnel department as sketched by each interviewee was compared with the profile implied by the questionnaire received from the same institution. Only three institutions differed in overall profile between the two data sources. In each case the opinion of the Personnel department respondent was that the department had higher levels of power than in the opinion of the interviewee in the same institution. Explanations were sought where possible to understand the context of such deviations and to highlight any assumptions being made.

The final stage was to explore the interview data for examples of converging or diverging evidence of the phenomena uncovered by the quantitative study, as well as for further contextual information regarding the HEI context. The data was then incorporated in the full analysis of the propositions for the study and is presented in the *Data Analysis* chapter. Firstly, however, the limitations and ethics of the research strategy adopted are considered, before moving on to describe the data collection procedure for the questionnaires in the following chapter.

3.5. Methodological limitations

It is rare to be able to enjoy the luxury of implementing the 'best' design when carrying out research. It is more likely that time and cost restraints will result in a research strategy that is professionally sound but perhaps not all encompassing. The research project is also a learning experience in itself, and it is usually quite easy at the end of the project to say how things could have been done better. This section therefore considers some of the issues of methodology that have arisen during the lifetime of this study.

The methodology is obviously limited by the epistemological stance being taken by the researcher, which in this case is a functionalist/interpretivist approach based in the realist tradition. The study is therefore only 2D and not 3D, to use Lukes' (1974) terminology. This means that the study is not ethnographic, and as such is not capable of getting to the real roots of power; it can only give a broad overview of the current situation in a given context as it is perceived. This is a limitation, although it is justifiable given the research aims of the study. The use of a questionnaire is limiting contextually, which has been addressed by carrying out supporting interviews. However, as discussed earlier, triangulation can throw up epistemological problems and issues around what to do with conflicting data from multiple sources.

The whole process of designing the research questions, propositions and operationalisation of the research variables is ultimately a subjective process, backed up by theoretical argument, which limits its usefulness to those who might adopt a different approach to a similar problem. By the nature of the phenomenon being studied, it is also difficult to gather more robust statistical data and more metric variables than has been achieved, so this does mean that the statistical analysis alone is not rigorous enough to rely upon totally, hence the addition of qualitative data. However, issues of validity and reliability in designing the research instruments have been addressed as far as possible. Limitations do remain, however, such as the study only being generalisable within HE sector. Another limitation to the study is that it is cross-sectional and not longitudinal, and this does make issues of causality problematic, although again this is addressed through theoretical argumentation.

In any study it is always nicer to have more data than less, provided it is good quality. However, this study is based in a very limited population so sample sizes cannot be large (in statistical terms). The amount of data that can be gathered is also limited by the length of questionnaire that is appropriate to achieve an acceptable response rate. Likewise, the number of variables that can be used is very restricted due to a potentially small sample size and the rigorous demands of statistical analysis. A relatively narrow range of respondents was also selected – heads of departments only and no academic

departments – as more emphasis was put on reaching a wide number of institutions rather than a wide range of individuals within a small number of institutions. This may mean that certain perspectives and attitudes have been missed at that level of detail.

Methodological limitations can be a result of constraints on time and resource, but can also be due to ethical issues the research uncovers. These issues along with a discussion of the position taken by the researcher in the study are covered in the next section.

3.6. Ethical issues and researcher bias

There are many stages of the research process at which ethical issues and questions of researcher bias can arise, starting from the conception of the research problem through to the presentation of the research results. Most issues can be addressed by following the guidelines promoted within the research community, however some issues do still need to be made explicit.

Power is an emotive concept and it would be easy to discourage respondents if questions around the issue were worded inappropriately. In designing both the questionnaire and interview schedule, threatening or embarrassing questions have thus been avoided. The term ‘power’ has not actually been used in its direct form due to its often negative connotations: terms such as influence, credibility and perceptions have been adopted instead. The term ‘power’ has been used in covering letters and emails when explaining what the research is about, but not in direct questioning. March (1994: 141) notes, however that *“people usually have no difficulty answering questions about who has power, and often they agree with each other.”*

Assurances were given in the covering letter with the questionnaire and in conversations with interviewees that all responses were confidential and would remain anonymous in the final reporting of the results. This is to reduce the impact of social desirability in responses and to ensure the informed consent of the participants. Equally when interviewing both face-to-face and by telephone, the interviewee’s permission to record the interview was sought.

In return for respondents completing the questionnaire or agreeing to be interviewed, summaries of the respective stages of the study were sent to participants to thank them for their involvement. However, when analysing the data, sometimes quite negative patterns of power were being uncovered, particularly for the Personnel department. When writing the summaries to send to respondents, the negative or harmful impact of these findings was minimised in the presentation of the data but also considering why these findings may be as they are, and what the potential remedies for negative situations could be. In other words, there was an attempt to 'soften the blow' to respondents without concealing the facts.

From a personal perspective, it is important for a researcher to have a degree of self-insight in order to be able to understand his or her own bias in designing any study (James & Vinnicombe, 2002). I have spent six years of my career working in Personnel in universities, which is from where my interest in the study stems. Through the process of extensive literature review and methodology design, many of my assumptions have been raised and queried as part of this process. The aim has therefore been to address the issue of bias due to my personal experiences and knowledge. I do not, however, believe it is possible to achieve total detachment from the study, and therefore prefer to make explicit the potential biases which I may hold in order to help others understand and engage with the study as fully as possible.

As this study pushed my own knowledge and expertise beyond my previous limits in analysing both quantitative and qualitative data, I took the opportunity for further training plus advice from my supervisors, colleagues and fellow PhD students to ensure I was approaching the analysis in an appropriate manner. I did not want my inexperience to lead to poorly collected or analysed data. Advice on best ethical practice in terms of study design, data analysis and reporting has thus been sought from both experienced individuals and appropriate literature. Notes regarding accepted research practice particularly in statistical analysis have been included in the *Data Analysis* chapter.

3.7. Summary

This chapter has explored the philosophical underpinnings of the study, placing the research in the functionalist tradition of previous studies in this field. The implications of expanding this approach have been explored for the design of a 2D study and appropriate methodology. The three stages of the research strategy, exploratory interviews, questionnaire-based survey work and supplementary interviews, have been discussed in detail. This has included a look at the operationalisation of variables in previous studies, and a clarification of which variables are to be measured in this study. It has also included issues of design in terms of validity and reliability of both the quantitative and qualitative measurement tools. Details of the quantitative pilot study have been presented along with its implications particularly in terms of questionnaire and concept design. Finally, the limitations of the chosen methodology and the ethical issues associated with the research have been discussed.

The following chapter details the process of the quantitative data collection, showing how the samples were achieved and how representative they are of the population. Tests are also carried out on the metric variables from the questionnaire data to check that the assumptions for both multivariate and univariate statistical analysis are met.