AN ACTION RESEARCH STUDY INTO THE USE OF GROUPWARE IN A HEALTH CARE SETTING

Dr. Amrit Pal Singh Takhar

Information Systems Research Institute
University of Salford
Salford, UK

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## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>II</td>
</tr>
<tr>
<td>GLOSSARY</td>
<td>VI</td>
</tr>
<tr>
<td><strong>1.0 INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td>1.1 Research Motivation</td>
<td>1</td>
</tr>
<tr>
<td>1.2 The Peterborough Fundholders Group</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Aims Of The Research</td>
<td>3</td>
</tr>
<tr>
<td>1.4 Main Research Phases</td>
<td>4</td>
</tr>
<tr>
<td><strong>2.0 BACKGROUND AND LITERATURE REVIEW</strong></td>
<td>5</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>5</td>
</tr>
<tr>
<td><strong>2.2 THE NHS AND PRIMARY CARE</strong></td>
<td>6</td>
</tr>
<tr>
<td>2.2.1 THE 1990 REORGANISATION: WORKING FOR PATIENTS</td>
<td>7</td>
</tr>
<tr>
<td>- Trusts</td>
<td>7</td>
</tr>
<tr>
<td>- Fund-Holding General Practitionans</td>
<td>8</td>
</tr>
<tr>
<td>- The Purchaser/Provider Split</td>
<td>9</td>
</tr>
<tr>
<td>2.2.2 THE 1999 REORGANISATION: 'THE NEW NHS'</td>
<td>11</td>
</tr>
<tr>
<td><strong>2.3 GROUPWARE</strong></td>
<td>14</td>
</tr>
<tr>
<td>2.3.1 Groupware Classification Diagram</td>
<td>15</td>
</tr>
<tr>
<td><strong>3.0 RESEARCH METHODOLOGY</strong></td>
<td>18</td>
</tr>
<tr>
<td>3.1 Research philosophy</td>
<td>19</td>
</tr>
<tr>
<td>3.2 Action research</td>
<td>20</td>
</tr>
<tr>
<td>3.3 The Action Research cycle</td>
<td>22</td>
</tr>
<tr>
<td>3.4 Research design</td>
<td>24</td>
</tr>
<tr>
<td><strong>4.0 1ST ITERATION OF ACTION RESEARCH CYCLE</strong></td>
<td>25</td>
</tr>
<tr>
<td>4.1 Diagnosing</td>
<td>25</td>
</tr>
<tr>
<td>4.2 Planning action</td>
<td>26</td>
</tr>
</tbody>
</table>

4.3 Taking action ................................................................. 27
4.4 Evaluating ........................................................................ 28
   Results of initial survey ...................................................... 28
4.5 Specifying learning .......................................................... 31
   4.5.1 Properties of group members ...................................... 32
   4.5.2 Properties of the standing group (group structure): ...... 32
   4.5.3 Properties of the task/situation – examples of tasks and aims: .................................................................................. 33
   4.5.4 Properties of the surrounding environment: The Fundholding scheme .......................................................... 33
   4.5.5 Project review ............................................................ 34
5.0 2ND ITERATION OF THE ACTION RESEARCH CYCLE ......... 35
5.1 Diagnosing ........................................................................ 35
   5.1.1 Workshop follow up actions ........................................ 40
   5.1.2 How Do We Improve Communications? ...................... 40
5.2 Planning action ................................................................. 43
5.3 Action taking ..................................................................... 43
5.4 Evaluating .......................................................................... 44
5.5 Specifying learning ........................................................... 48
   5.5.1 Properties of group members ....................................... 48
   5.5.2 Properties of the standing group (group structure): ...... 48
   5.5.3 Properties of the task/situation – examples of tasks and aims: .................................................................................. 49
   5.5.4 Group development .................................................... 50
   Figure 5.6 adapted from Desanctis (1993) The foundations of Group support system research .................. 51
   Figure 5.6 Opposing perspectives of technology and organisational change (Desanctis 1993) .................. 53
   Figure 5.7 Research model (adapted from Nunamaker 1993) .................................................................................. 54
6.0 THIRD ITERATION OF THE ACTION RESEARCH CYCLE........ 58
6.1 Diagnosing ....................................................................... 58
6.2 Planning action .................................................................. 59
6.3 Taking action .................................................................... 60
   Diagram 6.1 : Peterborough Medical communications network 1998 and connections to NHSnet .................. 61
6.4 Evaluating ......................................................................... 62
   6.4.1 Properties of the group ............................................... 62
   6.4.2 Results from survey instrument: ................................. 63
      General views of groupwork ............................................... 64
I, Amrit Pal Singh Takhar hereby declare that this dissertation is my own original work and that all source material used has been clearly identified and acknowledged. No part of this dissertation contains material previously submitted to the examiners of this or any other University, or any material previously submitted for any other examination.

Signed this 12th day of December 2003
## GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR</td>
<td>Action research</td>
</tr>
<tr>
<td>DOH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner, General Medical Practitioner (Family Doctor)</td>
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<td>NHS</td>
<td>National Health Service</td>
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<td>PCG</td>
<td>Primary Care Groups</td>
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<td>PCHT</td>
<td>Primary Healthcare Team</td>
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<tr>
<td>ICT</td>
<td>Information and Communications technology</td>
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<td>IS</td>
<td>Information Science</td>
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<td>PAR</td>
<td>Participatory action research</td>
</tr>
<tr>
<td>PCO</td>
<td>Primary Care Organisation</td>
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<td>PCT</td>
<td>Primary Care Trust</td>
</tr>
<tr>
<td>PFHG</td>
<td>Peterborough Fundholders group</td>
</tr>
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<td>PMCN</td>
<td>Peterborough Medical communications network</td>
</tr>
</tbody>
</table>
ABSTRACT

Aim
This study set out to evaluate the critical success factors for implementing a new groupware technology to improve communications and support group functioning within a group of GP practices working together commissioning healthcare.

Method
An iterative participatory action research methodology was adopted to evaluate the implementation of groupware within a group of Fundholding practices over a period of four years. A series of action research cycles were undertaken comprising initial observation, planning action, taking action, evaluating and then specifying learning using critical reflection. The researcher was a key participant within the Fundholders group and the narrative was based on records of group activities and analysis from a series of user interviews.

Results
The initial AR cycle demonstrated the need for improved communications and early implementation of groupware within the group. The groupware implementation and group structure was then further developed in a second cycle which demonstrated the interplay between the group and the technology. This second cycle saw the group self reflecting and defining its purpose and goals more overtly alongside adopting groupware as a supportive tool. The final iteration showed the group maturing and linking to more practices within a changing NHS. User interviews highlighted the perceived advantages and areas for improvement.

Conclusions
The study has helped to demonstrate that groupware can support group performance both by enhancing the gains inherent in effective group working and also by attempting to minimize losses from working in groups. The complex and emergent process where the provision of technology may itself influence group process and development is highlighted as well as the technology reflecting the aspirations and activities of group members. The iterative action research methodology used could be used in wider settings to help ensure the successful implementation of ICT projects.
1.0 INTRODUCTION

1.1 Research Motivation

This research was initially motivated by my interest in how communications between General Practices could be improved using the newly emerging type of computer software known as groupware. My own practice, Wansford surgery, had been an early adopter of ICT and used paperless systems for medical records in 1991. The practice installed a computer network in 1995 allowing us to start communication internally by email and I wanted the explore the possible benefits of this type of communication amongst a wider network of practices within my locality.

My interest in the adoption of technology to improve performance of everyday tasks led me to explore the possibility of introducing email and groupware as a communications method for the local Fundholders group of which I had been a founder member. In 1995 I met Bob Wood who was a Lecturer in Information systems at Salford University at that time and he encouraged me to consider recording and reporting on the effects of this possible implementation as a research project. My academic interest in the process grew from there and I registered as an MSc student to be able to devote sufficient time and resources to the project. This included three periods of extended study leave of three months each to carry out the research and to write up my notes into this full thesis.
1.2 The Peterborough Fundholders Group

The Peterborough Fundholders Group (PFHG) was initially formed in 1992 when five fundholding practices decided to work together for mutual benefit. It was expanded to cover eleven practices (55 GPs serving a population of 120,000 patients) in 1996 as these practices joined the Fundholding scheme. Each practice had a nominated full time or part time Fund manager who played a key coordination role within the scheme and acted as the primary route for communications within the practice.

The group met regularly from 1992 to March 1999 when the Fundholding scheme ended and was replaced by Primary Care groups as outlined in the Government white paper, The New NHS, 1997.

I worked as Fundholding lead GP within one of the practices represented on the Peterborough Fundholders group since 1987. The practice joined the fundholders group at its inception in 1992.

This dissertation explores the adoption and role of an asynchronous groupware product, Lotus Notes, by General Practitioners in a locality using Action research methodology.
1.3 Aims Of The Research

This study set out to evaluate the key success factors in the implementation of the Peterborough Medical Communications Network (PMCN). The Communications Network was originally created in 1995 to use email and groupware as a routine communication method for the member practices of the Peterborough Fundholders group.

The main phases of the research process are outlined in the timeline on the following page.
1.4 Main Research Phases

**STAGES**

1. **Formation of Fundholders group**
   - 1992

2. **Groupware installation**
   - 1995

3. **Groupware Development**
   - 1996

4. **Groupware network expansion**
   - 1997

5. **Fundholding ended**
   - 1998

6. **Development of PCTs**
   - 1999

7. **2000/2003**
2.0 BACKGROUND AND LITERATURE REVIEW

2.1 Introduction

This section covers the background and organisational context of the study focussing on the NHS reforms of 1990 and 1999 with particular reference to the Fundholding scheme and then reviews the literature about the use of Groupware and Action research methodology which led to the research design.

The last thirty years have seen major changes in our usage of Information and Communication Technologies due to the widening usage of Personal computers and the internet.

Paradoxically, this same period of time has witnessed a constant stream of criticism as far as the contribution made by computers has been concerned. Much contemporary research into Information Systems has concerned itself with this sense of 'failure' and with seeking explanations as to why such 'failure' has occurred. Although it is clearly important to understand how and why particular technological interventions have not worked, the overall tone of this kind of research is often extremely negative. Despite some notable exceptions, there is a lack of detailed studies of the complex interactions that take place between purposeful human activity and the introduction of new ICTs into the workplace. In particular there are very few accounts provided by the actual 'actors' in the situation itself, since an academic researcher in the name of some assumed sense of objectivity or neutrality more often than not takes on the role of 'author'.

The research described in this thesis set out to rectify these two perceived shortcomings whilst recognising various other limitations that necessarily result from the attempt to study real people undertaking their day-to-day activities at a considerable
distance, both geographically and intellectually. Understandably, perhaps, much IS research concerns itself with the activities of a single, large (and usually commercial) organisation. There is no doubt that an understanding of how such organisations both adopt and exploit information technologies is extremely important, but these studies often neglect the additional complexity that arises when a wide variety of individuals have to come together in order to fashion a way of working rather than simply agree on the best way to produce a given commodity or service.

This thesis describes a context in which a disparate group of people sought to organise themselves into a coherent and effective ‘team’ that was capable of undertaking a range of activities that they themselves had to fashion, rather than simply being provided with a set of tasks by some hierarchical management structure.

2.2 The NHS and Primary Care

The National Health Service (NHS) has undergone major structural reforms in the 16 years I have been a General Practitioner and these changes form the backdrop to the research described. The organisational changes and themes are described to better understand the external factors affecting the group of Fundholders studied.

The organisational changes related to the NHS reforms in 1990 and then in 1999 are described below.
2.2.1 THE 1990 REORGANISATION: WORKING FOR PATIENTS

The Government White Paper of 1989, entitled 'Working for Patients', (Secretaries of State, 1999) was the precursor to the radical changes that have taken place in the NHS in recent years. The introduction of some form of market forces into health care provision was the key driver. The fundamental changes introduced by the White Paper were embodied in the concepts of Trust Hospitals, Fund-Holding General Practices and the Purchaser/Provider Split:

- **Trusts**

Individual hospitals, and also individual providers of care in the community, were given the option to become self-governing. This meant that such units could decide for themselves what services they would provide, negotiate the price of those services to their various customers, and thereby generate income within the constraints of the Health and Medicines Act 1988. In addition to being able to determine their own management structures independent of any Health Authority or Central control, they were able to hire and fire whatever staff they felt necessary and determine their own levels of pay and conditions of service. This included the right to issue Consultants with local contracts, in place of their Regionally held contracts. They also gained the power to acquire, own and dispose of assets. They could also retain operating profits, maintain surpluses and, subject to an annual financing limit, borrow money. Trusts were answerable directly to the Secretary of State for Health.

This freedom compared with the situation prior to this wherein the management structure of a hospital and the services it provided were determined by the DHA, which also handed the hospital a fixed sum of money at the start of the financial year with
which to provide those services. Any surpluses were clawed back (and often led to reduced funding in subsequent years) and borrowing of money was not possible. Any significant capital expenditure (e.g. for a new building) required a competitive bid for the money to be made to the Regional Health Authority. Whilst the numbers of staff employed were not dictated, their levels of pay and Terms of Service were agreed nationally by the Whitley Council.

- **Fund-Holding General Practitioners**

  At the same time as Trusts were given the ability to become independent providers of Health Care, General Practitioners (GPs) were given the opportunity to become independent purchasers of Health Care. By giving them a budget of their own, they became free to negotiate the provision of certain services wherever they wished, including from the Private (Non-NHS) Hospitals. Services covered by the Fund included Elective Surgery, Pathology, Out Patients and Community Nursing. Services not covered by the Fund include Accident and Emergency and maternity services. Fund holders were also given a separate budget with which to pay for prescribing of drugs generated by the practice itself. Any savings from either budget at the end of the year could be used to pay for improvements 'for the benefit of patients' within the practice itself. Between 1990-95 the scheme was gradually widened to allow smaller practices to take part and larger Fundholders or groups of fundholders (Multi-funds) became pilot sites for 'Total Fundholding', where the GPs control the budget for all service for their patients.

  In practical terms, GP Fund holders did not receive money from the Fund into their
Bank Accounts but instead agreed invoices to be paid by the Health authority.

Fundholders negotiated with Hospitals to provide various services within a contractual framework, either on:

- **Block Contracts:**- a fixed sum for the whole year paid to the hospital, in return for which the hospital will perform operations on however many patients the practice happens to send, subject to a maximum.

OR

- **Cost per Case:**- in which the hospital bills the practice each and every time operation X is carried out on one of the practice's patients.

Underspends from the Fund could be used to employ, for example, a Physiotherapist or a Dietician within the practice or to purchase new equipment. Underspends could not be paid to the GPs running the fund directly, but there were financial incentives as some of the spending could be allocated to capital projects such as buildings which then became a partnership asset.

Fund overspends of up to 5% could be deducted from the following years Fund, and overspends more than 5% could result in the withdrawal of Fund holding status. The level of budgets set was always a subject of continuing debate and there was a gradual move from historically set budgets to budgets partially or wholly based on capitation adjusted by formulae such as the Resource allocation formula from the University of York (Sheldon 1994)

- **The Purchaser/Provider Split**

This concept drew a distinction between those who provide Health Care (e.g. Hospitals
and Community Care Providers) and those who purchase it (e.g. District Health Authorities and Fund holding GPs). The most important point was that providers would no longer receive monies as of right, but compete with all the other providers to sell their services competitively to the purchasers. GP Fundholders purchased care on behalf of their patients only, whilst Health authorities purchase care on behalf of all non-Fund holding GPs in the district. Services not covered by the Funds, e.g. A&E, were purchased on behalf of all by the DHA. The political aim of this division and empowerment of the purchasers was that it would give patients more choice as to when and where they could receive treatment and this was popularly described as 'The money would follow the patient'.

This split had the effect that Non-Trust Hospitals found themselves in the invidious position of being obliged to compete for custom, negotiate prices and invoice purchasers for services rendered, but were unable to directly use any profits they might make. Unsurprisingly, almost all hospitals became Trusts.

Implicit in the split was the possibility that an uncompetitive Provider might become non-viable (i.e. Bankrupt) but it is unclear whether the government would have been prepared to let rationalisation by the market place actually occur. They appeared to be cautiously in favour of it in general terms, but no hospital was allowed to close in this way.
2.2.2 THE 1999 REORGANISATION: 'THE NEW NHS'

In May of 1997 the Conservative government was defeated in a landslide victory to the Labour Party. The manifesto on which this election had been won included affirmation that their policy on health would include abolition of GP Fundholder status, on the grounds that the two-tier system it engendered was unfair. However, they stated that they believed that the Purchaser-Provider split had been useful, especially combined with a greater input from GPs in a contracting role.

Exactly what structure the new government envisaged to replace the 1990 Changes remained unclear through the election and for some months afterwards. They recognised that a further, major upheaval would not be popular amongst healthcare workers, who had only just got used to the last changes. They were also keen to avoid accusations from the Conservatives that they were simply trying to turn back the clock.

Late in 1997, the Labour Party policy was crystallised into a new white paper for England called 'The New NHS' (Secretary of State 1997)

The government wished to see six principles upheld. The NHS should be:

- a national service providing consistently high quality, prompt and accessible services
- driven by local doctors and nurses
- characterised by partnership, not competition
- efficient
- focused on excellence and quality
- a public service, accountable to patients and shaped by their views

To achieve this, the total NHS budget would be divided among Health Authorities who
in turn would pass the money to primary care groups (PCG) each made up of around 50 GPs. Annual contracts between purchasers and providers were replaced with three- to five- year agreements.

The social and clinical services were encouraged to work together, instead of using the boundary between each other to resist referrals and thereby contain costs. Measures including common budgets will be considered, and ideas are to piloted in a number of 'Health Action Zones'.

As promised, Fundholding was stopped from April 1999 and replaced entirely by PCGs. Hospital and Community Trusts continued as before, but they were strongly encouraged to devolve budgetary responsibility to clinical teams, and to involve senior professionals more in management. Contract negotiations between purchasing and providing bodies should increasingly take on the form of a dialogue between primary and secondary care clinicians rather than between managers.

A major part of the white paper was given to quality initiatives. A number of new national bodies came into existence from April 1999 as part of these:

**Commission for health improvement:** (CHIMP) government appointed, charged with ensuring that local systems are implemented to 'monitor, assure and improve clinical quality'.

**National Institute for Clinical Excellence** (NICE). body of patient representatives, managers, economists, academics and health professionals giving 'new coherence and prominence to information about clinical and cost-effectiveness'.

The aims of NICE are:
to speed up the pace at which good-value treatments are used across the NHS

to address variations in treatment access, based on different interpretations of
evidence of benefit

to reduce the use of treatments 'outside the range of circumstances in which they
are clinically cost-effective'

**Health Improvement Programmes**: these are locally produced strategies for
improving health and healthcare, drawn up in consultation with hospital and community
trusts, patients, primary care groups etc. Must be updated annually, and GPs must ensure
that the care they provide - as well as the care they purchase - fits within the overall
local plan.

**NHS Information Authority** was formed out of a restructuring of the old NHS
Information Management Executive. The Authority is responsible for ensuring that the
NHS IT strategy is followed, with the aim of providing an information infrastructure to
support the activities and aims of, for example, NICE. The Authority subsumed bodies
such as the National Casemix Office and the NHS Centre for Coding and Classification.

The current phase of Government health policy was introduced with the document, The
New NHS - Modern and Dependable (Secretary of State 1997). This paper sets out a
ten year strategy for the NHS which includes the formalisation of the quality agenda.
2.3 Groupware

This section explains the concept of groupware and summarises some of the research in this field. The term groupware became popular in the early 1990s to describe the application of information technology for group work in business settings. A more traditional term would be computer-supported cooperative work (CSCW). Groupware could be seen as a subclass of CSCW as it concentrates on the impact of information technology on improving efficiency and effectiveness group work within organisation rather than being focussed pure study of technology (Wilson 1991).

While there is no generally accepted definition of groupware, I adopted the definition proposed by Ellis, Gibbs & Rein, 1991.

"Groupware is a computer-based system that supports groups of people engaged in a common task (or having a common goal) and that provides an interface to a shared environment."

Gibbs also classified groupware into three types according to the temporal and spatial distribution of the users of the groupware system while acting as a group:-

- **Same-time and same place.** Supports face-to-face interaction. Typically this involves interactions within the same room at the same time such as in shared workspace and group decision support systems

- **Same-time and different places.** Supports synchronous distributed interaction. Typically this involves applications such as shared media space systems and computer conferencing

- **Different-times and different places.** Supports asynchronous and distributed interaction in applications such as electronic mail, asynchronous computer
conferencing and workflow control. This third group are referred to as asynchronous groupware systems


2.3.1 GROUPWARE CLASSIFICATION DIAGRAM
The two oldest and widely used groupware applications have been email and computer conferencing. Email in particular is often the first computer system used with the aim of supporting communication between individuals (Easterbrook 1993). Reports of improvements from the use of email include reductions of time in processes involving intense communication and reduced postal and stationary costs (Toffler 1991). Computer conferencing allows users to exchange messages around a single topic and users can participate by being connected at different times such as in Usenet newsgroups. Kock 1995 reported savings in senior executive time using computer conferencing. By the mid 1990s there was little reported empirical research on the use of groupware in the area of Knowledge and Information sharing (Ackerman, 1994) as researchers tended to focus on the role of groupware in replacing or extending face to face communication in groups. There had been some work referring to the function of factual sharing of information, knowledge of organisational processes and previous learning (Schatz 1993).

The research I carried out explored the introduction and use of one of the prominent asynchronous groupware packages available in the mid 1990s, Lotus Notes. In choosing this course of action I considered the potential benefits of groupware and of Lotus notes in particular. The suggested advantages over no groupware support in supporting group interaction include faster communications and reduction of paper flow. It should also allow for more open member communication and reduce repetition of tasks.
Sproull and Kiesler (1991) found that individuals connected to wide area networks tended to respond to knowledge and information requests. They suggested this was likely to be due to a combination of a low cost of responding and a sense that sharing knowledge in this way produces a richer knowledge environment. Organisations also saw advantages in terms of economy and time compared with paper mail.

Paper flow reduction can be attained by using workflow control features where, using electronic forms, computers coordinate and process activities rather than traditional paper based forms (Sprague 1995). Asynchronous groupware can potentially reduce paper flow in many areas where documents such as memos, agendas and minutes need distribution (Opper 1992).

The efficiency of business process information recording and retrieval can be improved as messages are easily stored and retrieved with electronic searching capabilities (Brothers 1992). Central databases can store documents with access controls in place to ensure only authorised users can view sensitive data.

Asynchronous groupware has the potential to help organisational group communicate in a more democratic way allowing groups to adapt and develop (Clement 1994, Finholt and Sproull 1993). Kiesler 1988 reported that group members tended to be more open with their personal opinions and ideas when interacting through asynchronous groupware systems even if this conflicted with others. While this has the potential to lead to more creativity and innovation there is also a greater tendency to uninhibited behaviours such as “flaming” in email than in face to face communications. Asynchronous groupware also allows members to contribute without competing for “speaking time” which helps avoid particular members exerting undue influence on a group (Nunamaker 1991).
Asynchronous groupware allows users to interact in ways that are less disruptive to their own schedules and are generally less expensive than synchronous systems as there is a smaller bandwidth requirement.

Reported obstacles to introducing groupware include the need for a critical mass of users with access to the system (Markus 1990) which can require a high upfront investment in hardware, software and training (Kock 1994) at a time when the benefits may not have been identified. There is also a risk of information overload and a risk of complaints of loss of personal contact if meetings are replaced with virtual equivalents (Ellis 1991).

Asynchronous systems have built in delays before responses are received which makes them an unsuitable medium for urgent tasks.

3.0 Research methodology

"People see what they expect to see. The problem is, they never learn what they have overlooked" Weick 1984

As a novice researcher in the Information systems field with a background in positivist scientific research one of the major issues I had to navigate was understanding the potential role of Action research in undertaking the study described in this thesis.

The methods used within the study led me to review my own research philosophy and I shall summarise here the information I reviewed to help me make sense of the available research methods.
3.1 Research philosophy

A research philosophy is a belief about the way a phenomenon should be gathered, analysed and used. The purpose of science could be described as the process of transforming things believed to be true (doxology) into things known to be true (epistemology). Two major research philosophies have been identified in Western scientific tradition, namely positivist (sometimes called scientific) and interpretivist (Gallers 1991)

Positivists believe that reality is stable and can be described from an objective viewpoint, i.e., without interfering with the phenomena being studied. They contend that phenomena should be isolated and that observations should be repeatable. "Predictions can be made on the basis of previously observed and explained realities and their relationships".

Orlikowski’s review (1991) of IS research literature found that the positivist perspective had been dominant in the field for many years. There have been periods of conflict between communities of researchers who have taken one side or another, as regards their main research orientation, and form research communities where either the word "AR" or "positivism" is seen as associated with "inappropriate" forms of inquiry (Heller, 1993). As a result Action research has accounted for less than 1% of all published IS research in North American journals (Orlikowski and Baroudi, 1991). This supported the view of Hirscheim 1995 in stating "Positivism has a long and rich historical tradition. It is so embedded in our society that knowledge claims not grounded in positivist thought are simply dismissed as unscientific and therefore invalid. However many difficulties in IS research, such as the apparent inconsistency of results may be
attributed to the positivist paradigm for the domain. Similarly some areas which positivism may regard as unmeasurable may have been disregarded for research (Galliers 1991)

Interpretism contends that only through the subjective interpretation of and intervention in reality can that reality be fully understood. The study of phenomena in their natural environment is key to this research philosophy together with the acknowledgement that scientists cannot avoid affecting these phenomena they study. They admit there may be many interpretations of reality but maintain that these interpretations are in themselves a part of the scientific knowledge they are pursuing.

3.2 Action research.

The origins of this research approach rest on socio-psychological studies of social and worklife issues. AR is often uniquely identified by its dual goal of both improving the organisation participating in the research project, usually referred to as client organisation, and at the same time generating knowledge. Although typically applying very little, if any, control on the environment being studied, the AR practitioner is expected to apply intervention on this environment. Typical instances are the study of asynchronous groupware support effects on process improvement groups conducted in a service organisation by Kock and McQueen (1995); and the research on the participatory development and introduction of an expert system in a welding plant conducted by Candlin and Wright (1991).

One main characteristic, and strength, of AR is clear: it suggests intervention carried out in a way that may be beneficial to the organisation
participating in the research study. AR recognises that even casual observation affects a system and therefore takes this effect inside its scope (Lincoln and Guba, 1985) rather than attempting to remain detached from the changes in progress.

Action research has been considered a distinctive form of research since the early 1940s. Kurt Lewin is generally regarded as one of its pioneers (Checkland, 1999) and the first person to use the term "action research" to refer to a specific research approach in which the researcher generates new social knowledge about a social system, while at the same time attempts to change it (Lewin, 1946). A distinctive thrust of AR has also developed after World War II in Great Britain at the Tavistock Institute of Human Relations in London as a ground-breaking method to deal with sociological and psychological disorders arising from prison camps and war battlefields (Rapoport, 1970).

One of the reasons for the emergence of AR and its consequent use in the IS field is the recognition that a social system can be more deeply understood if the researcher is part of the socio-technical system being studied, which can be achieved through applying positive intervention on the system. This involvement is also believed to foster cooperation between researcher and those who are being studied, information exchange, and commitment towards both research quality and organisational development.

Controlled experiments, even if this control is minimal, would often be inappropriate as unilateral control of some variables by the researcher would prevent conclusions based on a "natural" process. The AR purpose in contrast attempts to
discovering correlations and/or causal couplings between variables in situations where learning and change flow naturally from the research interventions.

Sample surveys and controlled experiments are often pointed to by positivists as the preferred types of research and inferential statistics the method to discover causal laws. However, even though survey research and controlled experiments are seen as providing a rigorous basis for the statements that are made, AR practitioners point out that these methods cut the researcher off from the discovery of non-deterministic and reciprocal relations in social systems (Jonsonn, 1991).

3.3 The Action Research cycle

Susman and Evered (1978) viewed a Action Research project as a cyclical process carried out through what these authors refer to as the Action Research cycle, comprising five stages: diagnosing, action planning, action taking, evaluating, and specifying learning. The diagnosing stage involves the identification and definition of an improvement opportunity or a general problem to be solved in the client organisation. The following stage, action planning, involves the consideration of alternative courses of action to attain the improvement or solve the problem identified. The action taking stage involves the selection and realisation of one of the courses of action considered in the previous stage. The evaluating stage involves the gathering and classification of relevant research evidence based on the implementation of the selected course of action. Finally, the specifying learning stage involves the study of the evidence obtained in the evaluating stage and, based on this study, knowledge building in the form of models.
describing the situation under study. These models are initially expected to be only
descriptive, rather than predictive, since the deep involvement of the researcher with the
environment being studied leads, due to time constraints, to the study of a small number
of instances of particular events. However, as more studies are published this can lead to
the development of descriptive models which can be developed into more general and
predictive models and eventually lead to "grand theories" (Strauss and Corbin, 1990)

Gummesson (2000) describes action research as "the most demanding and far-reaching
method of case study research". He found the following general characteristics of action
research from reviewing several studies and focussed them within a management
perspective.

1. Action researchers take action
2. Action research always involves two goals: solve a problem for the client and
   contribute to science
3. Action research is interactive; it requires cooperation between researchers and
   client personnel and continuous adjustment to new information and new events
4. The understanding developed during an action research program aims at being
   holistic and recognising complexity
5. Action research is applicable to the understanding, planning implementation of
   change in organisations
6. It is essential to understand the ethical framework and values and norms within
   which action research is used in a particular context
7. Action research can include all types of data gathering methods, but requires the total involvement of the researcher.

8. Constructively applied preunderstanding of the corporate environment and of the conditions of business is essential.

9. Management action research should be conducted in real time, though retrospective action research is also acceptable.

10. The management action research paradigm requires its own quality criteria.

3.4 Research design

The most appropriate method to use for enhancing understanding of the complex problem under review was to aim for a rigorous Action research methodology and use iterative cycles to review the longitudinal progression of the effects of introducing the research intervention. My own position as an active participant within the Fundholders group under study would allow detailed knowledge of the workings of the group and access to all group activities. The following three chapters describe the progress of the three iterations of the AR cycle undertaken during the course of this project.
4.0 1st iteration of Action research cycle

4.1 Diagnosing

The first iteration reviews the initial period where groupware was introduced and the Peterborough Medical Communications Network created. I was a founder member of the fundholders group and wanted to examine the potential benefits of introducing email and more advanced groupware functions to aid communications within the context of the local health community.

Since the NHS reforms of 1990 there had been an increasing need for those involved in both the purchasing and provision of health care to communicate with each other in order to provide an effective service. This led to an increasing flow of data and sharing of information such that practices were finding that the volume of paper data flow and the time taken up with bureaucracy and meetings was acting as a block to change.

The NHS Executive paper “Patients not paper” identified several areas in which information technology could play a significant part in alleviating the problems. The paper highlighted the need to improve the data flows between GP practices and providers and also sought ways to try to improve the quality and reduce the quantity of documents flowing into practices. Its analysis made clear that most practices were receiving an enormous number of documents and reports including Departmental circulars, guidance from the NHS executive, educational guidelines and guides to the developments in local services. However GP practices were finding it difficult to keep track of this volume of documents and to know which documents actually needed action
and which were for reference. Few practices had been able to find efficient ways of storing and quickly being able to retrieve the relevant information.

Efficient systems for handling documents and communications would depend on data arriving in electronic format into practices and this was recognised in the wish lists for future facilities reported in the last comprehensive survey of Computerisation in GP practices (published by Department of Health 1993). A majority of GPs wished to be linked to FHSAs, hospital and community provider units. Many also expressed a wish to link to other GPs and electronic databases (either within or outside the practice).

4.2 Planning action

In the commercial world of the mid 1990s many large multi-national corporations had looked at the problems they faced with information handling and decision making and many were turning to specific applications which make use of computer networking technology such as groupware (see section 2.4) defined by Ellis (1991) as “a computer-based system that supports groups of people engaged in a common task (or having a common goal) and that provides an interface to a shared environment.”

My own experience of using email for 4 years at home and for a few months within my surgery also contributed to considering introducing email as a means of communication for the fundholding practices.
Discussions followed with a corporate sponsor to provide software licenses and support allowing the introduction of Lotus Notes groupware to the constituent practices in 1995 at minimal cost to the practices themselves. Lotus Notes was seen to have the following strengths in its favour as a possible solution:

- Email was an integral part of the software
- It was able to act as an Information store
- Synchronisation of remote sites was possible with only brief dial up connections
- Track record – it had already been widely used in industry
- Security – messages could be sent securely with built in encryption

The proposal was put to the constituent practices at a group meeting and was readily accepted.

4.3 Taking action

The Peterborough medical communications network was first set up in November 1995 when Lotus Notes software was installed at Wansford surgery and clients at five fundholding practices. The central server for the network was located at the Wansford surgery and each practice had a PC installed on-site with a modem dial in facility to this server. During each connection, mail could be exchanged and various databases synchronised and brought up to date.

As each connection was installed brief training in the use of the software to send emails was given. Followup onsite training and telephone support was also made available to each practice.
4.4 Evaluating

At this early stage of introducing Lotus Notes to the group a semi-structured interview was carried out by to establish baseline background of the users in relation to their use of computers and their views of the fundholders group. The nature of these interviews and questions were discussed between myself and Bob Wood and incorporated into the survey instrument used (see appendix 1). I introduced Bob Wood as a researcher from the University of Salford to the Fundholders group at a group meeting so that the purpose of the interviews was made clear. We explained that as well introducing the technology we wished to evaluate the effects of its introduction and seek user views in how it would be best used to help address the issues we faced as a Fundholders group.

Both the fund manager and GP fundholding lead were interviewed in the five initial member practices to be connected using the survey instrument I reviewed the written notes form these interviews and discussed these with Bob Wood who actually carried out the interviews at that time.

Results of initial survey

As the numbers of participant practices was only five at this early stage the results of this survey are necessarily qualitative and are described below. Although this is a small sample it still nevertheless includes all of the practices involved with the Fundholders group at this time so in this sense it is a more complete picture.

Due to the nature of their roles in practice, all users interviewed were routine users of computers using both medical software and also word processing and
spreadsheet applications. All users also professed to enjoying using computers and the majority of the group had a computer at home. All users had had the initial training at installation and then one further on-site training session and were able to use Lotus Notes for sending emails to other practices within the group. The responses of users are shown below under the headings asked in the survey instrument.

**Benefits of Fundholder group meetings**

A range of responses were recorded including how the meetings help with communication.

User quotes included: "Keeping up with what is going on", "Keeping the group together and not working in isolation", "To see how other Fundholders are being treated by the main provider – to avoid being played off one against the other".

Users clearly felt the meetings were important to keep abreast of issues relevant to the group and to ensure they as individual practices were not being disadvantaged.

"Maintaining relationships with consultants" was mentioned as the group meetings included some meetings with consultants to discuss clinical issues.

Some users wanted to emphasise the potential benefits to the group of having coherent policies applied across the group and also the potential to leverage relationships with our co-commissioners, the Health Authority:

"Unifying thoughts on policy – having a group rather than individual policy"

"Opportunities to cooperate with Health authority for commissioning issues"

**Social benefits of the group meetings** were described as

"Longstanding knowledge of each other, cooperation and friendship"
“Lack of rivalry, Knowing each other as people”

This was seen to be an important area and a benefit of direct contact in meetings.

**What are the chief disadvantages of the meetings**

In response to this question the main concerns highlighted included

“Increasing size of group will make the meeting harder to run efficiently and large agenda often means limited time for discussion of issues”

The concern about increasing size of the group and its efficiency is

“Lack of focus “ was mentioned by one participant as a possible weakness.

There were concerns of possible inhibition of the group of thoughts, ideas and decisions

Hospital provider may just respond to the group and not to the individual practice.

**Key issues under consideration by the group**

Most responses related to aspects of the groups purpose (purchasing healthcare from hospital providers such as the need for a coherent and cohesive policy on contractual issues. Concern was expressed at the limited level of resources and responding to pressures.

Quality issues from hospital and concern about the hospital management were mentioned.

Improving communication with the provider and developing new services were also mentioned.

**What issues would you like to see addressed?**

Users mentioned the future of fundholding, Quality issues with the provider, Co-purchasing and Waiting list management.
How much influence do individuals have within the group

Mostly the feedback was that members generally felt able to contribute.

There seemed to be no split between Fund managers and clinicians according to one member

4.5 Specifying learning

The successful technical introduction of the Lotus Notes software into the group practices and establishing that users were computer literate and happy to try new technology to improve communications gave a sound base to proceed further with the project. It was felt important not to be divisive—avoiding “haves” and “have-nots” and ensure all practices who wanted to be involved to be included in the Lotus Notes project.

The group clearly wanted to continue with meetings as a mode of functioning as they valued the personal contact and support from the meetings but at the same time they identified concerns with the meetings in terms of possible lack of focus and lack of sufficient time within meetings to cover the major issues in sufficient depth.

In this context it is worth considering further the nature of the Fundholders group and I have done this in relation to McGrath’s work (McGrath 1984) who described four major classes of input relevant to the majority of groups:

- Properties of group members
- Properties of the standing group (group structure)
- Properties of the task/situation—examples of tasks and aims
- Properties of the surrounding environment
These properties help to define the group and aid comparison or to contrast with other groups which might be studied.

### 4.5.1 Properties of group members

Each practice nominated a lead clinician for Fundholding and using a management allowance given to each practice either appointed a dedicated Fund manager full or part time or an existing practice manager took on the responsibilities of Fund manager.

The following table gives brief information about the type of manager employed in the constituent practices of the Fundholding group during this phase.

<table>
<thead>
<tr>
<th>Employed managers</th>
<th>Employer/practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund manager</td>
<td>10 partner city centre practice</td>
</tr>
<tr>
<td>Fund and Practice manager</td>
<td>5 partners city practice</td>
</tr>
<tr>
<td>Fund and Practice manager</td>
<td>6 partners semi-rural practice</td>
</tr>
<tr>
<td>Fund and Practice manager</td>
<td>3 partners rural practice, on two sites</td>
</tr>
<tr>
<td>Fund and Practice manager</td>
<td>2 partners city centre and rural practice on two sites</td>
</tr>
</tbody>
</table>

The meeting were generally attended by both the lead clinician and the Fund manager.

### 4.5.2 Properties of the standing group (group structure):

The Peterborough Fundholders group consisted of all the Fundholding practices in the Peterborough district - 5 practices in 1995. GP practices are all run independently as standalone businesses - they vary considerably in size from single handed practices to larger practices with locally up to ten partners. The average practice list size is 1800 patients per partner.

The group developed its formal structure in 1995 with an elected chairman, secretary and treasurer. The officers were appointed on an annual basis. Each practice paid a subscription based upon its practice list size which was used to reimburse those doing work on behalf of the group (mainly paid time and travel costs for attending meetings.
on behalf of the group). Main meetings of the group were generally held on a monthly basis.

4.5.3 Properties of the task/situation – examples of tasks and aims:

Example – Regular meetings held to share experiences and problems in our roles as Health care commissioners. During this phase meetings with Health authority and Hospital providers were done on an individual basis not as a group.

Aims – in this phase of the group working the aims were not so precisely defined and certainly not documented as there was no formal terms of reference. The group had started informally based on the beliefs mentioned in the advantages of the group meetings that it was beneficial to meet to share knowledge and aim to work more coherently. However a formal structure for this work was not laid out and evolved over time.

4.5.4 Properties of the surrounding environment: The Fundholding scheme

Full details of the Fundholding scheme have already been given earlier so just a short summary follows:

The twin aims of introducing Fundholding were to promote better value for money and to improve consumer choice. It was hoped that better value for money could be secured by GPs monitoring their prescribing and referral patterns and shopping around between competing providers. Individual or groups of practices could opt to hold a budget to pay for specific hospital care; drugs; staffing in the practice; and community services so-called standard fundholding. Fundholders were free to choose the type, volume, and location of care to be purchased, although they are obliged to indicate in their purchasing plans how they will address national policies such as the goals in the Health.
of the Nation and the patient's charter. Fundholders were monitored by Family Health services authorities and regional health authorities, although the focus was on the financial management of the fund.

Each of these managers was interviewed in this study as they were the hub of communications within the practice and the main users of the Lotus Notes groupware.

4.5.5 Project review

The next phase of the project occurred in parallel with a review of the groups functioning and purpose as it gained new members with the expansion of the Fundholding scheme to include more practices.

The interviews carried out may well have had significant effects on the group as this would have been the first occasion that the group was being asked question specific questions about the issues as individuals saw them with the opportunity to respond on a one-to-one basis and without the need to compete for "speaking space". The very fact of these questions being asked would also trigger further questions and reflection about the purpose and strategy of the Fundholders group. As is often the case in this kind of observation it is not possible to submit "proof" of any causality but the groups development was moving ahead alongside the increasing use of Lotus Notes groupware to support the changes by improving communications. The following phases of the AR cycles further explore the nature of the group and its functioning with particular reference to the use of groupware.
5.0 2nd iteration of the Action research cycle

5.1 Diagnosing

As the group expanded to include more members in April 1996 it was agreed we needed define the workings of the group. Group members fed back that while the group meetings were generally well conducted there often insufficient time to discuss issues in depth. The group agreed it would be useful to run a full day workshop to allow a full review of the important issues to the group. This was run with the help of an external facilitator as a residential workshop in June 1996. The outcomes of this workshop serve as a useful description of the groups perceptions of its purpose and benefits. The minutes of the workshop were produced and have been used as the source documents of the following information. The workshop included discussions and small group working with feedback to help define the following areas:

- What are the benefits of working together?
- What is the purpose of the Peterborough Fundholders group?
- Define the vision of the Peterborough Fundholders group
- What are the possible obstacles to this vision?
- How do we improve communications?

These outcomes of these discussions are summarised in figures 5.1 to 5.4 on the following pages. They are included as they serve to document the evolution of the groups thinking and focus. The documents highlight the major areas of concern to the group.
Figure 5.1 Group workshop document:

BENEFITS OF WORKING TOGETHER

The following items were put forward as areas where members felt being part of the Fundholders group was or was likely to be a benefit:

- Influencing price negotiations with hospital providers
- Shared responsibilities
  - Representatives from the group can act as negotiators.
- Joining commissioning - supra group contracts.
- Clinical strategic goals.
- Information - sharing.
- Support network.
- Self education.
- Communication IT wise.
- Ironing out the bumps of the future.
- Innovation.
- Identifying the common thread throughout the group and strengthening them.
- Co-operation.
- Commercial.
- Power.
- Educational – helping each other learn.
- Co-purchasing.
- Through getting to know people better we may get better support.
The purpose of the group was defined as follows:

By utilising support and negotiation within a defined and recognised structure, the ultimate output of the group in a changing environment should be focused and effective to produce health gains.

- Control over purchasing.
- Regain control from the Health Authority.
- Primary-Care led NHS.
- Clout.
- Communication with each other/providers/Health Authority.

Facilitate and support the work of GPFHs in improving the effective provision of health care, based on the needs of our population, within the resources available.

This was the first formal statement of the groups purpose although we had been meeting for some three years. The group then further stated three aims for the group:

1. To achieve best care for our Patients by encouraging co-operation and support between GPFHs.
2. To develop and implement group strategies to achieve the above aim.
3. To function and negotiate effectively as a group.
The vision of the Peterborough Fundholders groups was stated as follows:

A proactive and influential group members moving forward in parallel to deliver agreed objectives. This will require:-

- Focus
- Cooporative Funding
- Influencing Policy
- Sharing Information
- Evolving Clinical Development
- Creation of Task Forces

The following themes were also used to describe the changes needed within the group and its functioning:

- From a club to a group.
- Lead and not be lead.
- Enhance and develop the role of primary care in purchasing of health services.
- Create a body that will work together, learn together and stand together, in order to provide the best possible services for our patients.
- To facilitate and fulfil our mutually agreed strategic vision.
There were various obstacles which were identified as being possible impediments to achieving our stated vision. They were summarised as follows:

- Group effectiveness - How to improve the effectiveness of the group?
- How do we improve the relations with the Health Authority?
- How to deal with the increasing pressures/doctors/fund managers/all?
- How to establish a formal group structure?
- How do we ensure tasks are completed?
- How to deal with political uncertainty?
- How to deal with the size of the group?
- How to ensure that members of the group know what the group does or what commitments they need to make?
- How do we improve trust within the group?
- How do we deal with individual members concern for autonomy?
- How do we absorb new members?
- How do we improve communication?
- How do we minimise practice rivalry?
- How do we deal with different members agendas?
5.1.1 Workshop follow up actions

As a follow-up to the residential workshop subgroups were identified and asked to report back to the main group meeting having considered the obstacles and to suggest possible solutions. I won’t go into the details of all these deliberations but focus on those where I was closely involved. The relevance of sharing this information is not so much to show that all of these obstacles or issues could be solved but more the importance of highlighting these important shared group issues as that would be a necessary first step to possible solutions.

I was one of the members of the subgroup looking at improving communications and along with two other members we came up the following summary of the issues

5.1.2 HOW DO WE IMPROVE COMMUNICATIONS?

We considered a number of areas within the subgroup: we wished to define what we are communicating and also discussed issues such as how the group structure may be relevant to the communications process. We felt the formal reasons to communicate were to gain agreement, help develop systems and also to set rules and policies. We identified the types of communication currently as being meetings, letters/fax, telephone and email using Lotus Notes.

We believed that the potential obstacles to effective communication were identified as: adequate time, access to the communication methods and the availability of appropriate training. External systems links to X400 addresses within the NHS net were felt to be desirable but technically difficult to implement.
Following discussion our communications sub-group proposed the following:

The most effective way to communicate appeared to be using Lotus Notes which was being made available to all members of the group. For this to be maximally effective we to "sign-up" to a communications contract where we would agree to follow procedures to ensure effective use of the technology. The agreed procedures are shown in Figure 5.5.
1 Log in to Lotus notes at least once per working day (ideally twice)

2. Notify others when on holiday

3. Have a deputy to take over responsibility for logging in when on holiday

4. Documents requiring reply should be replied to within two working days

5. No reply would indicate agreement/acquiescence to proposals

6. Group minutes would only be available via Lotus Notes (to those that are connected)

7. Information providers e.g. hospitals and Health authorities will be encouraged to post all information currently sent in hard copy form (e.g. Executive Letters, Price lists, waiting times, guidelines etc.)

8. Fundholders group subgroups would be offered option of individual discussion databases

9. All new members of the Fundholders group would be offered installation and training of the Lotus Notes software.
5.2 Planning action

As the Lotus Notes software was accepted as a primary method of communicating between meetings this necessitated planning the installation of the software into the newer member practices. The draft proposals for communicating effectively were put to a Group meeting in July 1996 and accepted as part of group procedures. It was also decided to be beneficial to put in a link at the main hospital provider and also one at the health authority as this would widen the scope of the communication and also mirror our communication needs as we needed to be able to communicate outside the group as well as within it. The process of agreeing to these developments was indicative of the "group" acting as a formal group and requiring members to take responsibility for actions to gain the best benefit for the combined groups potential strengths.

5.3 Action taking

The extra Lotus Notes installations were put in place in the new practices in the late summer of 1996 bringing member practices to 11 along with links at the hospital provider and local Health authority. By 1997 the group had expanded to 12 practices who were all linked up with Lotus Notes. To ensure all involved could get full benefit from the software a one-hour training session by a Lotus Notes trainer was arranged and well received from the written feedback on the course. Supplementary training materials in the form of training manuals (Lotus Notes in 24 hrs) were made available to all practices.
5.4 Evaluating

The Fundholders group showed signs of evolving and maturing during the period of 1996-7 where following the residential workshop there was a better defined strategy and purpose for the group. The workshop outputs which have been summarised above and the followup subgroup meetings helped to crystallise group thoughts. A more formalised structure evolved which acted as an aid to decision making. An executive committee was elected consisting of two GPs and two Fund managers as well as Subgroups included a Contracting committee, Strategy subgroup, Communications subgroup, Cardiac contracting consortium.

The group moved from simply meeting to setting agendas, clear actions being agreed and reporting back and feedback from subgroups.

I was one of the members of the executive committee and also had a role with the strategy subgroup and the communications subgroup.

The Fundholders group was being more proactive and gained increasing self belief, self confidence and maturity. This was reflected in the technology side by setting up email links with “external parties” eg hospital managers and Health authorities, and also installing Notes clients for them. Discussion databases were setup which allowed information sharing and debate between the fundholders and hospital providers and between fundholders and the Health authority.
It is worth reflecting here on my own personal involvement which included being both an active participant in the changes that were evolving and also acting as a lead in introducing the technology. While in some senses it could be argued this was almost a unique situation in terms of the details of an IT literate practitioner gaining funding to implement an advanced groupware product to a group of fundholding GPs, the lessons and learning which are relevant extend much wider than that. It can certainly be framed within Schons work as a "reflective practitioner" in action. Schon suggested reframing problems seen in terms of the following questions

*Can I solve the problem I have set?*

*Do I like what I get when I solve this problem?*

*Have I made the situation coherent?*

*Have I made it congruent with my fundamental values and theories?*

*Have I kept inquiry moving?*

My role within the research study can be viewed within these questions as in introducing the technology I had hoped to help solve the communication issues apparent between practices. These issues to me appeared solvable as the practices wished to communicate but did not have a ready means of doing so. In my role as a member of the group I was able to guide and prepare the group for the use of the technology and hear their feedback at key points in its implementation. Also, by adopting the action research methodology I was discovering through my supervisor, I was able to keep the lines of enquiry moving. The modelling this provided may also have been an assistance for the group itself to "self-reflect" as it did in setting up a workshop for precisely this purpose. This period of self – reflection for the group then put the group in a much sounder and
firm footing for proceeding as a commissioning group. By self reflection the group was trying to improve its effectiveness.

Fundholder practices were also becoming more willing to be involved in greater sharing of information to support activities (eg drug and staff budgets). The group was gradually moving to a more “challenging role”.

The groupware technology acted as a “support” to these developments as the improved speed and convenience of communication and its availability to all involved in the group added to the sense of cohesion. Group members were able to build on their existing relationships and meetings held could be more focussed on issues where some of the relevant factors had already been discussed in prior email communications and on the discussion boards within Lotus Notes.

The more strategic focus for the PFHG group is illustrated by the development of aims and a Vision statement: for the group “To create and maintain a recognised, influential and proactive group working and learning together to achieve the highest standards of patient care.”

Aims were stated as - to support and facilitate the work of GP fundholding practices in the effective provision of health care based on the needs of the population and within the resources available. The work of the PFHG was seen by the individual practices as an important contribution in the move towards a primary care led NHS. More specifically, the group felt that the benefits of working together included:

- the ability to influence price negotiations
- the setting of clinical strategic goals
- the sharing of responsibilities
- the use of representatives of the group to act as negotiators
In addition, the group acted as a support network which facilitated co-operation, self-education, innovation, and information sharing. There were signs of increased openness between e.g. asking questions of other practices in emails and discussion databases and getting responses on a wide range of issues. Practices were sharing experiences for mutual benefit.

Practices also needed to adapt and accept the move from historic to needs based budgets. The needs based budgets were derived from economic models such as the Resources allocation formula developed at York University (Sheldon 1994). A move to greater equality was the aim in these changes.
5.5 Specifying learning

The key lessons from this phase of the research relate to way the group itself was evolving as well as my own development and reflection. In structural terms I will first review the changes framed according to McGrath's framework (McGrath 1984) for "properties of a group" and then review the group development and lessons to be learnt from that.

5.5.1 Properties of group members

The group expanded during this phase to include the personnel shown below

<table>
<thead>
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</tr>
<tr>
<td>Fund and Practice manager</td>
<td>2 partners city centre and rural practice on two sites</td>
</tr>
<tr>
<td>Fund manager</td>
<td>5 partner city centre practice</td>
</tr>
<tr>
<td>Fund manager</td>
<td>2 partner city centre practice, also doing consultancy for 2 other practices</td>
</tr>
<tr>
<td>Fund manager</td>
<td>5 partners city centre practice</td>
</tr>
<tr>
<td>Fund manager</td>
<td>8 partner suburban practice, on two sites</td>
</tr>
<tr>
<td>Fund manager</td>
<td>6 partner practice, city centre on two sites</td>
</tr>
<tr>
<td>Fund and Practice manager</td>
<td>3 partner city practice</td>
</tr>
</tbody>
</table>

5.5.2 Properties of the standing group (group structure):

The Peterborough Fundholders group consisted of all the Fundholding practices in the Peterborough district 5 practices in 1995, 11 practices in 1996 until Fundholding ended in 1999. GP practices are all run independently as standalone businesses – they vary considerably in size from single handed practices to larger practices with locally up to ten partners. The average practice list size was 1800 patients per partner.
The group developed its formal structure in 1995 with an elected chairman, secretary and treasurer. The officers were appointed on an annual basis. Each practice paid a subscription based upon its practice list size which was used to reimburse those doing work on behalf of the group (mainly paid time and travel costs for attending meetings on behalf of the group). Main meetings of the group were generally held on a monthly basis.

5.5.3 Properties of the task/situation – examples of tasks and aims:

Example 1

Joint contracting for cardiac surgery – In 1996 the Fundholding group appointed 4 members to form a Contracting committee to try and contract more efficiently with Papworth hospital. A series of meetings were held with managers from local Specialist Cardiac surgery hospital with regular feedback to the main group through the Group meetings and by email. By combining the purchasing power of all the practices a more favourable contract was achieved with a greater level of activity delivered at the same cost as previous year. This model proved very successful and indeed by 1997 the Health authority also merged their contract negotiations with this group creating an even bigger group for effective contracting.

This project illustrates the type of activity which the group could undertake supported by regular communication with all practices both in actual meetings and with email. These communications with the group were important to ensure that there was ownership of the contracts achieved and that practices would then readily agree to sign up to the contract.

Example 2
Joint negotiating with local General Hospital

A negotiating team was setup in 1996 to agree the basis for the contracts with local practices. Practices were given the advantage of a basic set of terms and quality standards which were agreed across the district. Again the communications for the activity were based on the regular monthly meetings of the main Fundholding group and by email distribution.

5.5.4 Properties of the surrounding environment: The Fundholding scheme did not change in this iteration

5.5.5 Group development

This phase of the research saw major changes in the way the group functioned and perceived itself through its own process of self reflection. The questions being raised and the fact they were being raised in itself led to the development of a much more proactive and self assertive group as demonstrated in the evaluation of the changes in this AR cycle. In terms of the research the linkage is that the presence of the groupware technology and its practical real world usage were co-related while there is no "proof of causality". I might also reflect that my own "expertise" in introducing groupware to the perceived benefit of the group was contributory to being elected Chairman of the Fundholders group.

To further my understanding of the processes and dynamics involved I examined some of the traditional theory of groups and technology to use this to help understand the context of this particular group. This understanding will also then help inform the lessons for other groups.
When we are studying groups and group processes there are usually assumptions we make in terms of framing our questions and in the sense-making that follows. I found Desanctis (1993) described the root of these assumptions as being based on our assumptions about organisations themselves.

Figure 5.6 adapted from Desanctis (1993) The foundations of Group support system research

Assumptions about the role of organisations in society

Assumptions about the purpose of management

Assumptions about the purpose of technology including groupware

Technology designs and methods of evaluation

Interpretation of research findings and implications for practice

Desanctis took the view was that the interest of this area of research lies in its potential to study old questions about the role of technology in organisations. She also tended to believe that most of us are fairly optimistic in our presumptions about the role of technology. She described two opposing normative viewpoints of organisations in western culture: individualism and collectivism. These reflect the tension between individual versus the social good. Economists and psychologists have traditionally viewed organisations as an assembly of individuals where the assembly shares the same
goal as that of the individual: maximisation of personal gain. This view is consistent with the classical assumption of capitalism that success of the organisation brings benefit to the individual. Within this view the role of technology is to aid management in its pursuit of efficiency and maximisation of gain and technology is a tool to be applied to enhance individual power and overcome human limitations.

These assumptions lead to the idea of group support systems as instruments for individual gain and the theories which are then applied attempt to identify weaknesses in group decision making and then perhaps to technology being used to remedy and improve on these deficiencies. The measures of success for the technology are seen as the ways in which the group might make decisions more efficiently, perhaps with more democratic participation and greater satisfaction ratings.

The alternative viewpoint is collectivism where the organisation is a social structure in its own right and not merely a collection of individuals and that they arise out of a cultural need to have order and meaning. The collectivist would be interested in the social meaning of technology and its symbolism and would see the support technology as the product of social evolution of the organisation. The differences are summarised in Figure 5.2 overleaf and are relevant as within the kind of group studied here there are tensions occurring between what might benefit the individual and what might be for the "common good". Within a "caring" organisation such as the NHS there will be more willingness to consider doing certain things for the good of the group rather than just for the individual but the "individual" forces at play would still be powerful and these issues will be at play in many groups where different groups or individuals meet for a particular purposeful activity.
Leading on from this the next area to learn from is the how this research fits with theories of group process. Nunamaker (1993) described a high level view depicted below.
Nunamaker's group suggested that the effects of groupware use are dependent on a combination of group, task, context and technology factors which will vary from situation to situation. The group characteristics which could affect outcomes include group size, group proximity, group composition (peers or hierarchical) and group cohesiveness. Task characteristics which could be relevant include task complexity and activities needed to complete the task. Context characteristics include organisational culture, time pressure, reward structure and evaluative tone (critical or supportive). Other characteristics could also come into play. Any technology in use such as groupware would then exert its effect within this situation.
This can be analysed in greater detail by considering the aspects of the group process which improve outcomes in contrast to other features which may in fact worsen outcome compared to conducting the same task as individuals or without exposure to a particular characteristic or feature.

Nunamaker further described potential sources of group gains and losses which are tabulated below and the relevance of these to groupware as these areas can be used to assess or infer where groupware might play a role in either enhancing group process gains or minimising group process losses.

<table>
<thead>
<tr>
<th>Common Process gains</th>
<th>Sources of group gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>More information</td>
<td>A group has more information than any one member</td>
</tr>
<tr>
<td>Synergy</td>
<td>Each member uses information in a way that is different from the way every other member does because each member has different information or skills</td>
</tr>
<tr>
<td>Stimulation</td>
<td>Working as part of a group may stimulate or encourage individuals to perform better</td>
</tr>
<tr>
<td>Learning</td>
<td>Members may learn from and imitate more skilled members to improve performance</td>
</tr>
</tbody>
</table>

Groupware usage within the study acted as a support to these process gains by areas such a process support – Lotus Notes could act as group memory, provide the opportunity to be more anonymous and less personal in contribution. It provided the opportunity for wider debate and democracy in decision making. Important new information could be distributed to members quicker through the system and make the
running of meetings easier as members were already aware of relevant issues and had
time to assimilate and perhaps gather views from colleagues in their practices where
relevant.

Conversely groupware supported the groups development by reducing potential process
losses in the areas of airtime, production blocking, failure to remember, attention
blocking, Figure 5.5 overleaf the potential areas for group losses as summarised by
Nunamaker.

As there was no absolute anonymity there would be no reduction in conformance
pressure and evaluation apprehension and also the potential for information overload is
greater with the presence of electronic mail and document circulation. In this study it
was not feasible to study areas such as detailed task analysis and incomplete use of
information.

In terms of this research this whole area of analysis and learning confirmed the
complexity of the situations we deal and try to make sense of. There is no one
overriding factor but multiple variables many of which may not be predictable at the
beginning of a period of study. This strengthened and confirmed the case for using an
action research methodology within this domain of research.
### Figure 5.9 Important sources of group process losses (Nunamaker 1993)

<table>
<thead>
<tr>
<th>Common Process Losses</th>
<th>Sources of group process losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air time</td>
<td>The group must partition available speaking time</td>
</tr>
<tr>
<td>Production blocking</td>
<td>Only one person can communicate at a time. This may result in forgetting ideas, not sharing ideas, or not thinking of new ideas (because of listening to the comments of others)</td>
</tr>
<tr>
<td>Failure to remember</td>
<td>Members lack focus on communication, missing or forgetting the contribution of others</td>
</tr>
<tr>
<td>Conformance pressure</td>
<td>Members are reluctant to criticize the comments of others due to politeness or fear of reprisals.</td>
</tr>
<tr>
<td>Evaluation Apprehension</td>
<td>Fear of negative evaluation causes members to withhold ideas and comments.</td>
</tr>
<tr>
<td>Free Riding</td>
<td>Members rely on others to accomplish goals, due to cognitive loafing, the need to compete for air time, or because they perceive their input to be unneeded.</td>
</tr>
<tr>
<td>Cognitive Inertia</td>
<td>Discussion moves along one train of thought without deviating, because group members refrain from contributing comments that are not directly related to the current discussion.</td>
</tr>
<tr>
<td>Socialising</td>
<td>Nontask discussion reduces task performance, although some socialising is necessary for effective functioning.</td>
</tr>
<tr>
<td>Domination</td>
<td>Some group member(s) exercise undue influence or monopolise the group's time in an unproductive manner</td>
</tr>
<tr>
<td>Information Overload</td>
<td>Information is presented faster than it can be processed.</td>
</tr>
<tr>
<td>Coordination Problems</td>
<td>Difficulty integrating members' contributions because the group does not have an appropriate strategy which can lead to dysfunctional cycling or incomplete discussions resulting in premature decisions.</td>
</tr>
<tr>
<td>Incomplete use of Information</td>
<td>Incomplete access to and use of information necessary for the successful task completion.</td>
</tr>
<tr>
<td>Incomplete Task Analysis</td>
<td>Incomplete analysis and understanding of task resulting in superficial discussions.</td>
</tr>
</tbody>
</table>
6.0 Third iteration of the Action research cycle

6.1 Diagnosing

The election of the Labour Government in May 1997 signalled major changes ahead for the Fundholders group as one of their election manifesto commitments was to end Fundholding. The nature of the changes and the move towards the creation of Primary Care groups was outlined in the NHS white paper "The New NHS" later in 1997. This established the agenda for primary care over the next few years and it seemed that successful groups would need to find effective methods of collaborative working.

The group responded to the evolving agenda by arranging workshops and meetings across a wider range of practices and invited non-fundholders to join its strategy group to enable a wider consensus of views to emerge.

The strategy group identified the following areas for debate

Concern with the future:

- of the group
- of the NHS
- end of Fundholding
- political change
- of individuals (employment)
This led to the development of a group business plan for discussion with the Health authority and hospital providers.

My own role within the group was enhanced as in November 1997 the officers of the group were subject to re-election. I applied for the post of chairman of the group and was elected. I remained chairman until the end of the Fundholding in April 1999.

The Lotus Notes system was used for regular email communication and sharing of referral protocols, business planning documents. Discussion boards were available as well as email to allow users to discuss contracting issues with local providers, evidence-based practice, negotiating issues with providers and Health Authorities.

By this stage the Lotus Notes groupware system had become very much part of the groups regular activities and functions.

6.2 Planning action

As the Fundholders had increasingly a greater need to communicate with nonfundholders and wished to have links to others outside the network a business case was put forward to the local Health Authority to fund a major upgrade of the network during 1998 to enable all the 30 practices within Peterborough to connect to the Communications network and also for the server to be upgraded to allow wider internet email connections. I helped to write the business case and present this to the Health authority.

This was deemed helpful to future developments as this would be the coverage required for all practices who will be required to work together in a Primary care Group.
An application to the NHS information authority to support the upgrade was also well received and those practices without a suitable PC and modem to connect to the network were provided with a new PC to ensure all practices could participate.

6.3 Taking action

Lotus Notes clients were installed in a further 18 practices so that in all 30 practices were linked to the Communications network by the end of 1998. The central server at Wansford surgery was upgraded to a new NT server and fitted with two modems to cope with the extra calls connections generated by the larger number of practices. The central server for the network was successfully connected to NHSnet allowing wider communication to the Health authority and NHS providers as they themselves implement X400 email across NHSnet.
Diagram 6.1: Peterborough Medical communications network 1998 and connections to NHSnet
6.4 Evaluating

Evaluation of the views of users in relation to Lotus Notes groupware and of the Fundholders group was undertaken by means of interviews of key users of Lotus Notes. The key users of the Lotus Notes network – 11 Fundholding/Practice managers (all users apart from my own Practice manager) were interviewed personally in their practices in 1999 and the survey instrument applied (see appendix 2). A rating scale was used to assess the views of participants about group work in general, the Peterborough Fundholders group in particular and about their satisfaction with the technology used in this study - Lotus Notes.

6.4.1 Properties of the group

Initially it is worth reviewing the group again using McGrath’s criteria. There were no changes in group members or structure but there were changes in the described need to communicate and consult with more. An example of a task in this period was the setting up of a Strategy group. A subgroup met actively for several months to consider the future of the group and future developments in Health care commissioning. The Properties of the surrounding environment changed with the end of Fundholding in 1999. Fundholders were replaced as health care commissioners in April 1999 by PCGs. PCGs could act as subcommittees of the local Health Authority and would operate at 4 levels. In Peterborough the PCGs all started at level 2 in April 1999 and took over the commissioning role for local health services from Fundholders. All practices were allocated to a PCG which typically covered 100,000 patients and thus the previous Fundholding group was now split across two PCGs. In April 2000, both PCGs moved up to level 4 which made them PCTs (Primary care trusts) which are autonomous NHS
trusts with responsibility for providing community services such as District Nursing and Health Visiting as well as their commissioning role.

6.4.2 Results from survey instrument:

This sections covers the details obtained from the interviews carried in 1999 using the survey instrument shown in Appendix 2. All these interviews were undertaken by me personally and the venue was the users own practice to limit disruption to their working day. I already knew all the users interviewed personally and had worked with them for several years.

The initial questions asked established the working context in relation to use of computers within their work. All the interviewees used computers routinely in their work mainly for administrative tasks such as word processing and spreadsheets but also for audits/searches accounts and internet access. The managers worked in a variety of practices with differing medical database systems deployed. The majority of practices had a PC network in place (8/11).

The great majority of participants (10/11) reported that they enjoyed using computers and also had a computer at home (9/11). About half (6/11) had internet access at home and spent an average of about 4 hours a day working at a computer.

The managers were interviewed at a time of major organisational change with their jobs changing significantly due to the end of the Fundholding scheme. Three of the managers were moving to jobs within the local primary care group to roles such as Service development manager, Clinical governance manager and Primary care manager.
Five reported they would lose their current job and either be redeployed within the practice or, in the case of two, face unemployment. Three managers were to revert to practice manager status.

There was a spread of involvement amongst the practices regarding their planned involvement in the emerging PCGs – half of the practices had GP involvement but there was no managerial involvement unless their employment was actually switching over to full time deployment within the PCG. Appendix 3 shows the survey results in numerical and graphical results from the survey instrument.

General views of groupwork

The great majority of interviewees agreed with the statements that Groups are supportive, that group decisions are more effective and also they also self rated that they worked well within groups. All participants stated that they enjoyed working in groups. The majority also disagreed with the statements that group work is inefficient and that groups waste time.

However within the participants there was a small number who were ambivalent about whether they worked well within groups and some who were unsure whether groups do waste time and make effective decisions.

Views about the Fundholders group and meetings

A majority of interviewees were satisfied with the conduct of meetings, the decisions reached and the scope of issues covered. A significant minority though were ambivalent about the groups ability to follow up decisions and about the equality of
participation within the group. While the majority of managers were satisfied with their own involvement with the group a small number were dissatisfied or undecided about this.

All participants attended the Fundholder group meeting on a fairly regular basis and most had at some point actually held a responsible position in the group over the period of its existence. Managers reported that typical meetings which were held 8-10 times a year, took an average of 2.4 hours including travel and that preparation took an average of an hour for preparation (reported range 0.3 to 3 hours)

When asked what the chief benefits of the physical meetings a few themes emerged - for instance the advantages of a collective voice and working with others on common objectives. The meeting were felt to be useful for networking and mutual support.

"We talked, it helped to feel part of a team working together"

"It helped with my job and was invaluable as a learning tool"

"We shared information and heard different points of view"

The social benefits of regular face to face meetings were appreciated with participants commenting that the meetings helped reduce isolation and several made firm friends. Comments included:

"Enormous social benefits – I made some good friends"

"The meetings oiled the wheels of developments"
The main negative comments about physical meetings related to their timing (everyone preferred the meetings to take place in the daytime) and sometimes locations (within practice premises) were not ideal.

**Key issues dealt with by the Fundholders group**

The group helped improve communication between practices and helped setup up common standards and facilities for a number of conditions (such as joint contracting for cardiac care and for general hospital services). It was felt the group had worked together to try to improve quality standards at the local hospitals.

**Views of the Lotus Notes network**

A majority of users were satisfied with the email function within Lotus Notes and with the support available if problems were encountered. While the majority were happy with the training provided on using Lotus Notes and ease of use, a small number 2/11 were unsure about this.

The Lotus Network was deemed to be quite or extremely useful for email, sending attached files, as a reference point for guidelines, minutes and agendas of meetings. It was also deemed to be a useful tool to aid the business planning process and as an aid to improving communications with other practices. It was felt to be useful to have the discussion databases (with one exception) but of little use in its present structure and connections in improving communications with the local hospitals and health authority. (At the time of interviews there was only 2 access points for hospital contacts and there had been limited use of email at the Health authority.)
Usage of Lotus Notes

The great majority used and accessed the network at least once a day (9/11) although one manager said he only looked at it once a month. The software was reported to be useful for its practical and reliable method of sending message round a multiple number of recipients.

"A quick efficient communication system which is what you need for running an organisation"

It was reported useful for arranging meetings including setting up social “Lunch club” meetings

"It increased IT awareness and helps staff get used to the new ways of working"

Disadvantages of the Lotus Notes network

“You can’t half use it – it needs full commitment to get the best out of it.”

Most felt that the system does need using by all those involved to be effective. This was to a great extent limited by the system being on a standalone machine within the practice with only the practice manager having regular access to the system. Some managers felt they would have liked more training and support to get the best out of the system but were also alert to the risk of future overload of messages. The future of the network was felt to be dependent on the support of the local PCG using it as well.

Views of the emerging PCGs

Participants were also asked what their main hopes were for PCGs and again a number of themes emerged.
The main hopes were focused around hoping that some the good and positive developments from the days of Fundholding would be retained such as services at practice level and support for practice development and innovation. However there were many concerns about PCGs expressed, which related to fears of loss of influence and autonomy. There was concern that PCGs would be driven by Health Authority and government agenda and that there would be lack of communication with practices. There were worries that PCG commissioning capabilities were untested and that there were moving hastily to Trust status without establishing themselves as PCGs. As a result of organisational changes all of these managers had had substantial changes to their jobs following the introduction of PCGs.

6.5 Specifying learning

This third and final iteration of the AR cycle serves to summarise the group passing its peak influence then ending due to organisational change. I considered a number of ways of specifying the lessons and themes from the closing phase of the research and found some previous work by Coleman (1997) which can give us a framework within which the findings of this research can be examined. Coleman suggested a number of "rules" which his experience of introducing groupware into business organisations led him to believe were of importance for the success of a project. It is worth considering these and their relevance to the context of this study of groupware introduced into a health care setting. The "rules" or guidelines proposed by Coleman are quoted below (figure 6.2) followed by their relevance to this research.
Figure 6.2 “Rules” of groupware introduction from Coleman (1997)

Choice of project
- Choose a pilot project rather than trying to roll groupware out to the whole organisation
- Choose a bounded project with a group that is supportive of technology
- Choose a project with visibility and financial impact
- Choose a project where there is a specific problem to be solved

Technology
- No single groupware product will be adequate, don't expect it to be!
- Don't expect software vendors to offer you all the services you need for groupware. Internal people or consultants may be needed
- Try to pick software that fits with existing systems.

Culture
- Groupware changes the corporate culture. Plan for it!
- You can't change people overnight. Be prepared for resistance!
- People take time to change. Organisations take even longer!
- It takes time to change corporate culture. Applaud those who are willing to change

Economics
- Realise that training, maintenance, and support will be the majority of the cost
- Measure productivity factors before and after the project has started.
- Groupware is not a quick fix! As part of a re-engineering effort, it may take up to 4 years to see results.

Politics
- Find a groupware champion! The higher in the hierarchy the better. By getting top management involved they will see the benefits and you get a lot more support
I will now review each of these proposed rules and consider them in relation to the study findings here:

“Choose a pilot project rather than trying to roll groupware out to the whole organisation”

In this study the introduction was managed by rolling out to the key users in 5 locations and then widened to more users as they joined the Fundholders group. Introducing technology gradually does help iron out teething problems and later installations are done more smoothly from the lessons learnt in the early stages. It allows testing of the suitability and integration into the working practices of the users. However it is clear that as the software became more widely used there was a desire from users to ensure that ALL relevant users had access as otherwise the communications would be incomplete and some users would still need paper communications which would impact on the efficiencies hoping to be gained from using the technology.

“Choose a bounded project with a group that is supportive of technology”

The technology was more readily accepted in this study as the group already had a reasonable measure of computer literacy and could see the potential benefits and were therefore quite willing to try them out.

“Choose a project with visibility and financial impact”

The users in this project did not incur any significant costs in trying out the technology and the introduction was made with high visibility with the concept first introduced and explained in group meetings and followup phone calls.
“Choose a project where there is a specific problem to be solved”

The Fundholders group comprised members who were all busy professionals located on separate sites but with a need for effective communications to enable them to achieve their desired aims.

“No single groupware product will be adequate, don't expect it to be!”

This assertion may be true in some circumstances but in the present study there was not really a sense that the groupware was the rate limiting step. Lotus Notes was capable of offering the group support functions needed and the limitations were more related to the rollout of the technology to all interested users and users being fully able to make use of the functions available. It would be true however to note that dial up connections using modems would be better replaced by “always on” broadband connections.

“Don't expect software vendors to offer you all the services you need for groupware. Internal people or consultants may be needed”

During this study it was found that while the Lotus Notes vendors were interested in the project they seemed capable of only a limited role in the usage and development of the software. External consultancy was potentially available from a range of software partners but was certainly priced and aimed at the large corporate markets with large budgets to spend so would be less attractive to smaller organisations such as the group described here. The main issues with internal personnel will relate to skill mix, availability and motivation to be involved in this type of project.

“Try to pick software that fits with existing systems”

In this study we did find the software could run alongside existing systems and worked best where there was ready access availability for usage. It was impractical to expect
users to move to a different workstation to use the software as that would probably negate the expected benefits in efficiency.

“Groupware changes the corporate culture. Plan for it!”

“You can't change people overnight. Be prepared for resistance!”

“People take time to change. Organisations take even longer!”

“It takes time to change corporate culture. Applaud those who are willing to change”

The cultural changes needed are facilitated by early user involvement and a clear purpose for the technology within the users' role. It was recognised in this study and the Health authority supported the expansion of the network partly through a realisation that they needed users in health care to adopt efficient electronic communications to tackle the increasing challenges of modern healthcare. The politics of change relate not only to the willingness of people to use the technology but also to the changes in power and influence that might ensue.

Groupware may have the effect of blurring the individual contribution to a project by increasing the focus on documents, joint designs and so on. It may be more difficult to assess or measure the individual contribution. Groupware may present a threat to such a person by making previously 'private' information available to others.

“Realise that training, maintenance, and support will be the majority of the cost”

Training of users was very important in this study and users identified this need which was reflected by onsite training and then followup telephone support. Written training material were provided. Once user and trainer time are costed it can be seen that training
and support is an expensive aspect of the implementation which needs recognising in similar projects.

"Measure productivity factors before and after the project has started."

Formal measures of productivity were not part of this study and the emphasis was more on establishing usefulness and satisfaction with the technology from user feedback.

"Groupware is not a quick fix! As part of a re-engineering effort, it may take up to 4 years to see results."

This implementation was studied over a period of 4 years and the equilibrium between the group and its use of the technology to support group processes matured over that period of time.

"Find a groupware champion! The higher in the hierarchy the better. By getting top management involved they will see the benefits and you get a lot more support."

In this study I would have been perceived to have the role of groupware champion having been instrumental in introducing the technology. I was a founder member of the group known to have a keen interest in the use of Information technology and so was able to introduce this technology from a key position within the Fundholders group. Beyond the group it was also important to gain support from the managers within the Health authority partly because of their role in funding decisions.

In summary, I have used Coleman's framework and rules for groupware introduction to illustrate how several of the findings in the study are in line with expectations and this reinforces their relevance as discussed further in the next section on generalisability of the study. However this study did not find the groupware product to be a limiting factor in the implementation.
6.5.3 Generalisability of the study:

The study was undertaken as the Fundholding scheme came to an end and was replaced by the Primary care groups (PCGs). The Fundholders group studied was of a similar size to a typical PCG. Within the Peterborough area the PCGs have moved on to become autonomous bodies as first wave Primary care trusts. Membership of the Fundholding scheme was voluntary while PCG membership is compulsory and encompasses a wider range of health professionals. Collaborative working is certainly one of the key themes emerging from the development of PCGs and PCTs.

While there are aspects of the group which are uniquely located in the time and context in which the developments took place there are generalisable features as highlighted in the review of Colemans rules in how this group relates to others where collaborative technologies and working are being encouraged. In particular, in the NHS, these are many situations where GPs from different practices work together within PCT executive committees and there are examples within the National Collaborative. The evaluation of the significant underlying structures may also be of practical use and "resonate" with a variety of other situations. Technology such as groupware can contribute to a groups development and help the group in its purposeful activities but it clearly does not do so in isolation or as an inevitable consequence of its presence. Each group that does emerge will need to define its own purpose and way of working before the technology can fully support decision making and tasks.

The account of the process of the inquiry (the narrative of the sequence of events and strategies adopted within the course of events) will offer possible insights to groups and researchers in other situations. The action research methodology used here could be one way of helping real world practitioners and groups to adopt new tools
while ensuring that their views and wishes are heard in implementation of technology such as groupware in an iterative fashion.

6.5.4 Potential weaknesses of this type of action research study

It is worth considering the potential weaknesses of this type of study and how they have been addressed in the conduct of this research. Three main possible AR weaknesses that may emerge were stated by Orlikowski and Baroudi (1991)

Contingency of the research findings.

While AR can identify important links between variables that might not be found by use of deterministic and targeted approaches (e.g. survey research), AR is often seen as inappropriate to produce models with high external validity, i.e. that are valid outside the context of the AR project. As is common in AR projects this study looked at a single organisation in-depth with a longitudinal viewpoint (Galliers, 1992), which makes generalisability assessments across a number of organisations or industries harder to make. However, to counter this, I would state the research is intentionally context bound and the contextual learning highlighted can be used as the basis for further testing and cross method triangulation to confirm or refute any causal links suggested. I have attempted to maintain scientific rigour by following a research design over a number of iterations, with recording and evaluation being carried out at each stage.

Low control of the environment.

Lack of control is often given as one of the main reasons for AR being seen as inappropriate to test or produce strong theories, or build up research models based on solid evidence. The influence of a particular variable might take too long to be isolated
in AR studies testing or refining a causal model, where the extent to which a dependent variable is influenced by a set of independent variables needs to be carefully examined (Jonsonn, 1991).

In this study there were certainly changing pressures and variables as the NHS and the Fundholders group evolved over time. However the changing environment does appear to be a feature of modern times and professional practice so if we were to rely only on controlled experiments then useful learning could not occur for this type of context or the conclusions would arrive so late that they would not be applicable to the new environment a professional may find himself in. Therefore the counterargument is that the action research methodology used would allow more rapid and real world assessment of the rapidly evolving context.

**Personal over-involvement.**

It is sometime stated personal over-involvement of researchers with client organisations in AR projects may hinder good research by introducing personal biases in the conclusions (Francis, 1991). This is may be particularly true in situations involving a conflict of interests. With respect to this Galliers (1992 p. 152) points out that AR "... places a considerable responsibility on the researcher when objectives are at odds with other groupings."

As this has been an example of participatory action research with the main researcher in a key position within the fundholders there is certainly a risk of biased interpretation. The main ways this potential weakness has been taken account of is to ensure the narrative of what actually happened based on recordings which took place is separated from the interpretations given. It is necessarily the case that the learning and
analysis which took place are from my viewpoint but again based on recordings and interviews at the time which have been quoted within the narrative. Again the counterargument would also be that this is a report from a researcher with a key interest and involvement in the events that unfolded rather than someone adopting the role of a "neutral observer".

Rapoport (1970) discussed other possible weaknesses such as an unplanned and informal structure due to the ad-hoc approach of AR, where most of the study is done in cycles with temporary reports, methodologies and frameworks, may be considered as lacking scientific discipline and consequently regarded of low academic interest. AR may also interfere with the research environment that, while potentially beneficial to the client organisation, may bias research findings in ways that are difficult to be identified, and make them difficult to be replicated by other researchers in different settings. A third alleged weakness is the lengthy time required to conduct quality AR projects, which may not be acceptable by the research's sponsor or client. Two principles, usually followed in case research to avoid this are to perform a careful preliminary preparation of the research, and seek guidance from a structured methodology (Yin, 1989). These potential weaknesses are again counterbalanced by the benefits when applied to the appropriate domains of study of allowing emergent themes to evolve and by emphasising the personal learning and improvements which can be documented within an accepted framework.
7.0 DISCUSSION

"Decisions in organizations involve an ecology of actors trying to act rationally with limited knowledge and preference coherence; trying to discover and execute proper behaviour in ambiguous situations; and trying to discover, construct, and communicate interpretations of a confusing world."

James March, 1991

The narrative of this research describes the experiences and opinions of a group of practices working together as a group for health commissioning purposes. The research carried out to evaluate whether groupware would help improve communications within this setting. The users showed a willingness to try the technology and had positive comments to make on how ensure improved adoption of information technology.

The study needs to be reviewed within the context of the assumptions being made in demonstrating the usefulness and success factors of a technology within organisations. The dissertation has reviewed how groupware could support group performance both by enhancing the gains inherent in effective group working and also by attempting to minimize losses from working in groups. While Information technology is not a panacea to the organisational and clinical problems faced by the Healthcare community but it can provide useful tools to help more efficient working practices.

This study has reinforced the view that the way technology is implemented is critical to the eventual success and adoption of that technology. Health professionals are busy individuals with multiple tasks to perform and will more readily accept technology where there is ease of use, adequate training and support, and clear deliverable benefits.
in helping achieve their tasks and processes. Self reflection by professionals and defining aims and goals is also, I believe, a critical factor in adopting new ways of working rather than having these imposed from elsewhere.

The final point to be made is that the technology in this case was neither a determinant factor in the development of the group, nor was it a passive and related element that simply followed on from its creation. As with many technological interventions there was a complex and emergent process by which the provision of the ICT support both facilitated the Fundholder Group being developed into its eventual from and, at the same time, reflected the aspirations and activities of the set of people who comprised this particular Human Activity System. It was precisely this sense of intertwining, of the never-ending "dance" or equilibrium between technology and human action that the project set out to try and capture. This dissertation has sought to describe and to analyse the complex story that unfolded as a given set of people came to grips with a very new form of network computing together with its associated software.

Further work will be required to evaluate how new technologies are adopted by healthcare professionals in real world situations to ensure that the expected efficiencies are actually achieved in practice. The nature of the work of the future would aim to capture the importance of group organisation in terms of shared goals and desired outcomes while further defining the role that technology can play in supporting these goals. Technology itself is likely to continue to develop at a breathtaking pace with increasing broadband connections and convergence of areas such as computing and entertainment media. The underlying cultural and developmental changes may take
longer but would certainly be aided by professionals taking time to reflect on their roles and being proactive in their adaptations to the ever changing environment.
8.0 THE IMPLICATIONS OF THIS STUDY

This study has demonstrated that a number of key criteria are relevant in the successful implementation of a groupware system within the health care setting. The importance of ease of use, training, and clear goals and tasks for both the group and the technology have been shown.

This study has contributed to the body of knowledge about the use of groupware within organisations and used action research methodology to explore the complex interactions between humans and computers. The usefulness of action research as a practical research methodology within a professional setting is once again demonstrated.

The findings in this study resonate with the criteria suggested by Coleman (1997) in that

Groupware success = technology + culture + economics + politics + training

as each of these areas need consideration in successful implementation of technology.

This study will be useful to policy makers as, taking the findings in association with other similar studies, an understanding of the criteria which need to be considered in introducing technology and collaborative working within the healthcare setting. From this understanding, it is possible that workable solutions can developed and thereby the likelihood of desired outcomes improved. This is highly relevant and topical at the present time with major NHS IT projects underway to deliver improved health care delivery and improve consumer choice and interaction using technology.
9.0 REFLECTION ON THE EXPERIENCE

"Life can only be understood backwards; but it must be lived forwards."

Kierkegaard, Journals of Love

The work and learning in this area of research has occurred for over a period of nearly nine years. While working in a modern General practice with its emphasis on evidence based medicine and national focus on using evidence from randomised controlled trials it appeared to me that many of the small practical improvements we make are not based on huge studies but working effectively in small groups within our own professional contexts.

When I was introduced to the concepts of action research and came across Schon's work on "The Reflective Practitioner" I took to this quite readily and could see its powerful impact in a practical way. I was pleased to be able to use my participation within the Fundholders group and then fuse my new research links and longstanding interest in the effective adoption of technology to develop this piece of work.

In some ways the demise of Fundholding actually allowed me more space to focus on the theoretical basis of the work we had been doing and then further the possible availability of study leave to undertake full time study to extend the evaluation and eventually the extra sensemaking that comes from actually writing all this up and seeing its true context against other work in the field.

I approached the writing up phase with some trepidation and ambivalence particularly as there had been a gap between completing the practical work such as the user interviews and their write up and this "final" writing up phase. As is often the case having a final deadline for submission of the dissertation helped focus the mind and my
own partnership were very supportive and could see the importance to me of getting "completion" on this work. After the gap in reviewing the work I also wondered whether the writing up process might be a tedious task. Within days of starting my study leave for writing up I was actually quite startled by how exciting and interesting it was! I had obtained many new references through the much improved NHS library service including some books which I had previously found inaccessible. The availability of full text references via the internet had also greatly increased my ability to work from my home and negate any need to visit many libraries.

I was able to spend time reading some of the newer edition and books on action research and found those by McNiff (2002), Winter (2001) and Coghlan (2001) particularly helpful in giving structure to my research material and to further my learning based on the work I had already done. It certainly confirmed to me that the writing up phase is a critical part of the whole action research methodology where you can actually draw together the themes and ideas which have emerged over period of the research.

I have learnt techniques to aid critical reflection, for example Susan Hart's work (Hart 1995) on innovative thinking where she suggests a number of questioning moves when considering your own first interpretation of an event. These are:

- Making connections: what contextual influences are at work here?
- Contradicting: is there a contrasting way in which this could be understood?
- Taking the other person's view: what might be the logic or purpose of the other person's response from within their own frame of reference?
- "Noting the impact of feelings": how do I feel about this, and what do those
feelings tell about what is going on here?

- "suspending judgement": what else do I need to find out about before making a judgement about this

Within my own professional practice as a General Practitioner we have attempted to foster a "culture of inquiry" and aspire to become a "learning organisation". I have observed that the practice has developed and continued to thrive through many years of organisational changes by using techniques of self reflection. These reviews are carried out both informally within regular practice meetings and also by formal team meetings. On occasions we have used external facilitators versed in action learning methodology to help resolve organisational issues that have arisen. We have also started to use brief action learning cycles to evaluate changes to the way we work e.g. changes to the appointment system. We have been using clinical audit cycles in a number of disease areas for some years such as heart disease, diabetes and trying to effect changes of clinical behaviour by reviewing our delivery of health care.

The area of clinical care is where the qualitative world of action research meets the quantitative world of positivist research as we clearly need the evidence from large randomised trials to help inform the and process measures outcomes we should be achieving. However, without practical ways of working (such as that provided by action learning and reflection together) to achieve these in our own particular professional contexts the gap between theory and practice will remain.

My plans when returning to practice shortly is make the action learning cycles we are undertaking more overt and also to involve wider members of the team to help contribute to the developments which will be needed to continue to take place in response to increasing demands and the need to be accountable.
10.0 BIBLIOGRAPHY


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PRELIMINARY INTERVIEWS – WANSFORD SURVEY

BACKGROUND

1. Do you use a computer routinely?
   Yes    No

2. For which tasks?
   Administration
   Patient Records
   Prescriptions
   Links to agencies

3. Software used
   EMIS other
   VAMP
   AHM

4. Are you familiar with
   DOS
   WINDOWS
   OS/2 UNIX
   MAC CD Rom
   E-mail

5. Have you any prior experience of groupwear products?
   Yes    No
   If so what?

6. Have you used Lotus Notes software yet?
   Yes    No
   Please describe what you have done.

7. Any initial comments?

8. Do you enjoy using computers?
   Yes    No

9. Do you have a computer at home?
   Yes    No

10. Please estimate the average time you spend each day working at a computer ....... hours
GUIDELINES

11. How do you receive information regarding such guidelines?

12. What is the first action you take with the information?

13. What are the important subsequent actions?

14. With whom do you share this information?

15. How do you prioritise these guidelines? i.e. are some more important than others, why?

16. Do you refer to the guidelines overtime?


18. How are the guidelines be improved?

19. How could your use of these guidelines be improved?

20. Any general comments?
GROUP

The following questions refer to the workings of the 'practice group'.

21. How often do you attend?
   Every meeting     Most meetings     Some meetings     Rarely

22. Do you have a specific role within this group?
    e.g. liaison with FHSA, Treasurer etc

23. How much time does a typical meeting take including travel? ......... hours
    And preparation? ......... hours

24. What are the chief benefits of the meetings?

25. Any social benefits?

26. What are the chief disadvantages of the meetings?

27. What do you consider to be the key issues under consideration by this group?

28. What additional issues would you like to see addressed?

29. Does discussion of issues take place between members outside of meetings?

30. How much influence do individuals have within the group?
31. How satisfied are you with:—

<table>
<thead>
<tr>
<th></th>
<th>extremely satisfied</th>
<th>quite satisfied</th>
<th>neither satisfied</th>
<th>quite dissatisfied</th>
<th>extremely dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>the conduct of the meetings</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>the decisions reached</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>the scope of issues covered</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>the ability of group to follow up decisions</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>your involvement in the group</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tr>
<tr>
<td>equality of participation within the group</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>other ………….</td>
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</table>

32. Please state whether you agree or not with the following:—

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>disagree</th>
<th>neither agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work is inefficient</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I enjoy working in a group</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Group waste time</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Group decisions are more effective</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I work well in groups</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Groups are supportive</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

33. Any further comments?
11.2 Appendix 2: Survey Instrument Groupware in Health care

PRACTICE NUMBER:

PARTICIPANTS:-

Doctor

.................................................................

Practice Manager

.................................................................

Practice:

Tel No: ......................................................

Date of Interview ....................................................

Follow up Action .....................................................

.................................................................
BACKGROUND

1. Do you use a computer routinely? Yes No

2. For which tasks? Prescriptions Consultations
   Administration Audit Patient leaflets Patient Records GP links
   IOS/Registration/path lab Referrals
   Internet access Other

3. Surgery medical computer system used
   EMIS VAMP / Vamp VISION with/without PC network
   Meditel/ Meditel 6000 Other?

4. Are you familiar with
   Windows NT WINDOWS 95/98 OS/2 UNIX DOS MAC CD Rom
   E-mail

5. Do you enjoy using computers? Yes No

6. Do you have a computer at home? Yes No

7. Do you have Internet access /email at home Yes No

8. Please estimate the average time you spend each day working at a computer ....... hours

9. How is your job changing with end of Fundholding?

10. Do you or practice have a specific role in new PCG?

11. What are your main hopes for PCGS?

12. What are your main concerns about PCGs?
Peterborough Fundholders GROUP

The following questions refer to the workings of the old Fundholders group.

13. How often did you attend?
   - Every meeting
   - Most meetings
   - Some meetings
   - Rarely

14. Did you have a specific role within the group?

15. How much time did a typical meeting take including travel? ...... hours
    And preparation? ......... hours

16. What were the chief benefits of the meetings?

17. Any social benefits?

18. What were the chief disadvantages of the meetings?

19. What do you consider to be the key issues dealt with by this group?

20. How satisfied were you with:-

<table>
<thead>
<tr>
<th></th>
<th>extremely satisfied</th>
<th>quite satisfied</th>
<th>neither</th>
<th>quite dissatisfied</th>
<th>extremely dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>the conduct of the meetings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>the decisions reached</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>the scope of issues covered</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>the ability of group to follow up decisions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>your involvement in the group</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>equality of participation within the group</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
21 Please state whether you agree or not with the following:

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neither</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work is inefficient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I enjoy working in a group</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Group waste time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Group decisions are more effective</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I work well in groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Groups are supportive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

LOTUS NOTES Installation date............

22. How often do you use Lotus Notes?

23. Has usage changed in past year?

24 What do feel are the main uses /advantages of Lotus Notes ?

25. What are the disadvantages of Lotus Notes?
26. How satisfied are you with Lotus Notes network:

<table>
<thead>
<tr>
<th></th>
<th>extremely satisfied</th>
<th>quite satisfied</th>
<th>neither satisfied</th>
<th>quite dissatisfied</th>
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</thead>
<tbody>
<tr>
<td>Email function</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Training on using Notes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Support if problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ease of use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

27. Please rate your opinion of the usefulness of Lotus Notes in the following areas

<table>
<thead>
<tr>
<th></th>
<th>Extremely Useful</th>
<th>Quite Useful</th>
<th>Neither Use</th>
<th>Little Use</th>
<th>Not at all useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>1</td>
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</tr>
<tr>
<td>Discussion database</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ability to send attachments</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>To help business planning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>Reference point for guidelines</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>Reference for agendas/meeting minutes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Improve communications with other practices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Improve communications with health authority</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Improve communications with hospitals</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

28. How can Lotus Notes be improved?
APPENDIX 3

Survey results

Summary of results

16. How satisfied were you with:-

<table>
<thead>
<tr>
<th></th>
<th>Extremely satisfied</th>
<th>Quite satisfied</th>
<th>Neither satisfied</th>
<th>Quite dissatisfied</th>
<th>Extremely dissatisfied</th>
</tr>
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<tbody>
<tr>
<td>the conduct of the meetings</td>
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<tr>
<td>the decisions reached</td>
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<td></td>
<td></td>
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<td>the scope of issues covered</td>
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<td>the ability of group to follow up decisions</td>
<td>2</td>
<td>6</td>
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<td></td>
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<tr>
<td>your involvement in the group</td>
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<td>1</td>
<td></td>
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<tr>
<td>equality of participation within the group</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
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</tbody>
</table>

21 Please state whether you agree or not with the following:-

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work is inefficient</td>
<td>6</td>
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<td></td>
<td></td>
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<tr>
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<td>6</td>
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<td></td>
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<tr>
<td>I enjoy working in a group</td>
<td></td>
<td></td>
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<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Group decisions are more effective</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I work well in groups</td>
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<tr>
<td>Groups are supportive</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
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</tbody>
</table>
APPENDIX 3

Survey results

26. How satisfied are you with Lotus Notes network:-

<table>
<thead>
<tr>
<th></th>
<th>extremely satisfied</th>
<th>quite satisfied</th>
<th>neither</th>
<th>quite dissatisfied</th>
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<td>Email function</td>
<td>8</td>
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<td></td>
<td></td>
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<tr>
<td>Training on using Notes</td>
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<td></td>
</tr>
<tr>
<td>Support if problem encountered</td>
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<td></td>
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<tr>
<td>Ease of use</td>
<td>5</td>
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</tbody>
</table>

27. Please rate your opinion of the usefulness of Lotus Notes in the following areas

<table>
<thead>
<tr>
<th></th>
<th>extremely useful</th>
<th>quite useful</th>
<th>neither</th>
<th>little use</th>
<th>not at all useful</th>
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</tr>
<tr>
<td>Ability to send attachments</td>
<td>9</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To help business planning</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td></td>
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<tr>
<td>Reference point for guidelines</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>Reference for agendas/meeting minutes</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve communications with other practices</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve communications with health authority</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Improve communications with hospitals</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### 16. How satisfied were you with:-

<table>
<thead>
<tr>
<th></th>
<th>Percentage response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>extremely satisfied</td>
</tr>
<tr>
<td>the conduct of the meetings</td>
<td>45%</td>
</tr>
<tr>
<td>the decisions reached</td>
<td>9%</td>
</tr>
<tr>
<td>the scope of issues covered</td>
<td>27%</td>
</tr>
<tr>
<td>the ability of group to follow up decisions</td>
<td>18%</td>
</tr>
<tr>
<td>your involvement in the group</td>
<td>45%</td>
</tr>
<tr>
<td>equality of participation within the group</td>
<td>27%</td>
</tr>
</tbody>
</table>

### 21 Please state whether you agree or not with the following:-

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>neither</th>
<th>agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work is inefficient</td>
<td>55%</td>
<td>45%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group waste time</td>
<td>27%</td>
<td>55%</td>
<td>18%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy working in a group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64% 36%</td>
</tr>
<tr>
<td>Group decisions are more effective</td>
<td>9%</td>
<td>55%</td>
<td>36%</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td>I work well in groups</td>
<td>27%</td>
<td>45%</td>
<td>27%</td>
<td></td>
<td>64% 36%</td>
</tr>
<tr>
<td>Groups are supportive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26. **How satisfied are you with Lotus Notes network:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Extremely satisfied</th>
<th>Quite satisfied</th>
<th>Neither</th>
<th>Quite dissatisfied</th>
<th>Extremely dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email function</td>
<td>73%</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training on using Notes</td>
<td>27%</td>
<td>55%</td>
<td></td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Support if problem encountered</td>
<td>45%</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of use</td>
<td>45%</td>
<td>45%</td>
<td></td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

27. **Please rate your opinion of the usefulness of Lotus Notes in the following areas**

<table>
<thead>
<tr>
<th>Category</th>
<th>Extremely useful</th>
<th>Quite useful</th>
<th>Neither</th>
<th>Little use</th>
<th>Not at all useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>82%</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion database</td>
<td>45%</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to send attachments</td>
<td>82%</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To help business planning</td>
<td>36%</td>
<td>55%</td>
<td>9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference point for guidelines</td>
<td>55%</td>
<td>36%</td>
<td>9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference for agendas/meeting minutes</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve communications with other practice</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve communications with health auth</td>
<td>27%</td>
<td>9%</td>
<td>55%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Improve communications with hospitals</td>
<td>27%</td>
<td>55%</td>
<td>9%</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>
Survey results

Views on group working

- Group work is inefficient
- Group waste time
- I enjoy working in a group
- Group decisions are more effective
- I work well in groups
- Groups are supportive

Strongly Disagree
Disagree
Neither
Agree
Strongly agree
Appendix 3

Survey results

Views of groupwork

- Group work is inefficient
- Group waste time
- I enjoy working in a group
- Group decisions are more effective
- I work well in groups
- Groups are supportive

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work is inefficient</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>I enjoy working in a group</td>
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<tr>
<td>I work well in groups</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Groups are supportive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Survey results

Satisfaction with Fundholders group

- The conduct of the meetings
- The decisions reached
- The scope of issues covered
- The ability of group to follow up decisions
- Your involvement in the group
- Equality of participation within the group

Bar chart showing satisfaction levels for different aspects of the Fundholders group meeting.
How satisfied are you with the Lotus Notes network?

- Email function
- Training on using Notes
- Support if problem encountered
- Ease of use
Rate usefulness of Lotus Notes

- Email
- Discussion database
- Ability to send attachments
- To help business planning
- Reference point for guidelines
- Reference for agendas/meeting minutes
- Improve communications with other practices
- Improve communications with health authority
- Improve communications with hospitals

Survey results
Usefulness of Lotus Notes 1

Survey results

- Email
- Discussion database
- Ability to send attachments
- To help business planning
- Reference point for guidelines

Useful
- extremely
- quite
- useful
- little
- neither
- not at all
Rate usefulness of Lotus Notes

- Email: Extremely useful
- Ability to send attachments: Quite useful
- Reference point for guidelines: Neither
- Improve communications with other practices: Not at all useful
- Improve communications with hospitals: Not at all useful