THE UNIVERSITY OF HULL

Increasing the use of research findings in four allied health professions

being a Thesis submitted for the Degree of Doctor of Philosophy

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by

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ABSTRACT

The research-practice gap persists in the allied health professions because they perceive or experience barriers to research utilisation. The focus of this work was on overcoming these barriers to increase research utilisation in four allied health professions: nutrition and dietetics, occupational therapy, physiotherapy, and speech and language therapy. There were two aspects to this: the development of an intervention and a critical review of measurement in the field.

An action research project, involving interviews, focus groups, a critical review of manuals and a peer review process, identified a seven-step process to enable therapy managers to increase research utilisation. The seven steps of this process were the therapy manager, lead therapist, consultation process, action plan, making it happen, monitoring and evaluating and revising the action plan. This process was used to form the structure of the Turnkey manual. Forty-eight measures of research utilisation were identified for critical review and, with a few exceptions, there was a lack of rigour in the development of these tools. The conceptual framework developed suggested a profile of measures was needed to assess research utilisation. The Bannigan Utilisation of Research Profile is proposed as a basis for further research. As there were no sufficiently robust measures available to evaluate the effectiveness of the Turnkey manual a single case study was used to assess its utility. This identified that the model of manager and lead therapist was viable and that the Turnkey manual, with modification, is a potentially useful intervention.

This work has demonstrated that research utilisation is still a nascent subject; there is a lack of definition, interdisciplinary research and coherence in the field. Systems thinking has been explored as a means of researching this complex concept, providing a way forward for interdisciplinary work and perhaps establishing this emerging subject.

DEDICATION

This work is dedicated to my brothers Anthony, Andrew and Michael Martin.

ACKNOWLEDGEMENTS

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"The old fashioned concept of knowledge transfer went something like this:

"Build a better mousetrap and the world will beat a path to your door" In other

words, the dissemination and use of research was supposed to depend

primarily on the goodness or intrinsic worth of the research itself. Only gradually

over the last generation have we begun to realise that such an attitude almost

guarantees nonutilisation of most research."

(Havelock in Rothman 1980: 11)

1.   INTRODUCTION

Research is not a new activity in health and social care. Considerable resources

have and continue to be invested in research into healthcare by a range of

groups and organisations. Research is important because it is used primarily to:

- ensure that healthcare professionals are doing more good than harm,

- reduce variation in practice so that all patients get care based on the best

  evidence rather than local custom and practice, and

- promote more effective use of resources (Bury 1998).

Healthcare professionals believe their clinical practice to be a research based

endeavour (Kirk 1998). For example it is claimed that research-based practice

has been promoted in nursing for the last 25 years (Mulhall and Le May 1999).

However, research findings are not used frequently in everyday clinical practice

(Thomson 1998) or, if used, this usually takes place a long time after their

generation (Greer 1998, Grimshaw and Thomson 1998). This has led to a focus

in health and social care on the research practice gap and how it can be

overcome through research utilisation. The focus of this thesis is on the process

of research utilisation in four allied health professions: nutrition and dietetics, occupational therapy, physiotherapy and speech and language therapy. This chapter provides an overview of the impetus for this study, considers the research-practice gap, outlines the thesis search strategy, policy developments related to research utilisation, the implications of the policy agenda for healthcare professionals, the aims of the thesis and a thesis outline.

1.1. The impetus for the thesis

In 1997 Hull and East Yorkshire Hospitals NHS Trust[1] appointed two research and development therapists, one each in occupational therapy and physiotherapy. The overall aim of these appointments was to increase research capacity in the allied health professions. There were two elements to this ambition. Firstly, to train the post holder in research and, secondly, to use the post holder to facilitate the appropriate use of research findings by those therapists working in their department (See job description in Appendix 1).

I took up post as research and development occupational therapist in November 1997. From the outset it was obvious to me that the occupational therapy manager had a central role to play in facilitating an evaluative culture in which the use of research findings could thrive (Therapy Professions Research Group 1994, Eakin 1997, Pearson 1998). This level of support was required because a cultural change was needed for occupational therapists to shift from using custom and practice to using research findings in their clinical decision-making (Eakin 1997). Any change, by its very nature, is challenging (Mulhall 1999) and

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[1] The trust merged in 1999. It was called Royal Hull Hospitals NHS Trust at the start of this thesis

changing the working culture in this way was unlikely to succeed without management support (Humphris et al 2000).

The difficulty with this was that most occupational therapy managers did not learn about research or conduct a study as part of the syllabus during their training and feel inadequately prepared to facilitate research utilisation. As it was unlikely that the appointment of research and development therapists would be widely replicated in the health and social care it implied there was a need for an intervention to support occupational therapy managers to facilitate an evaluative culture. The author discussed these ideas informally with her manager who confirmed that without the support of a research and development occupational therapist she did not feel sufficiently skilled to be able to facilitate an evaluative culture in her department. This discussion was the catalyst for this study. Subsequent encounters with other therapy managers suggest my manager's experience was not unique. The initial work was undertaken solely with occupational therapists. It soon became apparent that this work had a wider application and was extended to three other allied health professions, collectively known as the therapies, in the trust (at that time), i.e. nutrition and dietetics, physiotherapy and speech and language therapy.

1.2. The research practice gap

The gap identified between the generation of research findings and their use has been called the research-practice gap. "Examples include interventions in the management of cardiac failure, secondary prevention of heart disease, atrial fibrillation, menorrhagia, and pregnancy and childbirth" (Haines and Donald

1998: 72). This signifies that doing and using research are not coterminous activities. It is now understood that doing research does not necessarily lead to the use of research as was once believed (Grimshaw and Thomson 1998). It was thought that researchers conduct research, publish their findings, and healthcare professionals at the other end of this linear process use these findings in their everyday clinical practice. Apart from the fact that there is increasing awareness that researchers do not always publish their findings (Gaite 1987), it is now acknowledged that this linear model does not describe what happens in the reality of clinical practice (NHS CRD 1999).

There is, therefore, a research-practice gap in health and social care, e.g. research findings get lost or there is a time lag between the publication of research findings and their routine use in clinical practice. This gap could be construed as a waste of valuable resources. For example, The NHS R&D Programme spends in excess of £400 million on research and development every year and the NHS R&D programme is only one of many major funding streams for clinical research. An example of the time lag in mental health practice is assertive outreach. Assertive outreach was mooted as a theoretical proposition in the 1960s/70s (Orford 1999, Feaver 2001) based on 25 years of research. It took until 1990s for there to be widespread interest in the UK and its implementation is still patchy across the country.

By not using the findings from research it may be that the academic community is done a disservice. This is perhaps of little concern. It may also be that healthcare professionals are doing themselves a disservice, which may provoke some concern. But most of all it may be that patients are denied the best

possible care, which should be a serious concern. Having set the scene, 'How is the problem of the research practice gap overcome?' Three approaches have evolved in response to this problem – diffusion, dissemination and implementation.

1.2.1. Diffusion

The linear process described above (Section 1.2) is an approach to research utilisation called 'diffusion', "it is largely unplanned and uncontrolled" (Lomas 1993: 226). Lomas (1993) has also described it as a passive process. It is predicated on the belief of 'publish and it will be used'. The ideal diffusion scenario is that researchers publish their findings and/or present them at a conference, as is the convention. Healthcare professionals read and/or hear of findings relevant to their practice and it is assumed that their practice is influenced. In reality serendipity, "the faculty of making happy and unexpected discoveries by accident" (Allen 1990: 1105), better describes what actually happens in the process of diffusion (see figure 1.1).

Figure 1.1: The process of diffusion

| Researcher publishes or presents their research findings | Serendipity | Healthcare professional |
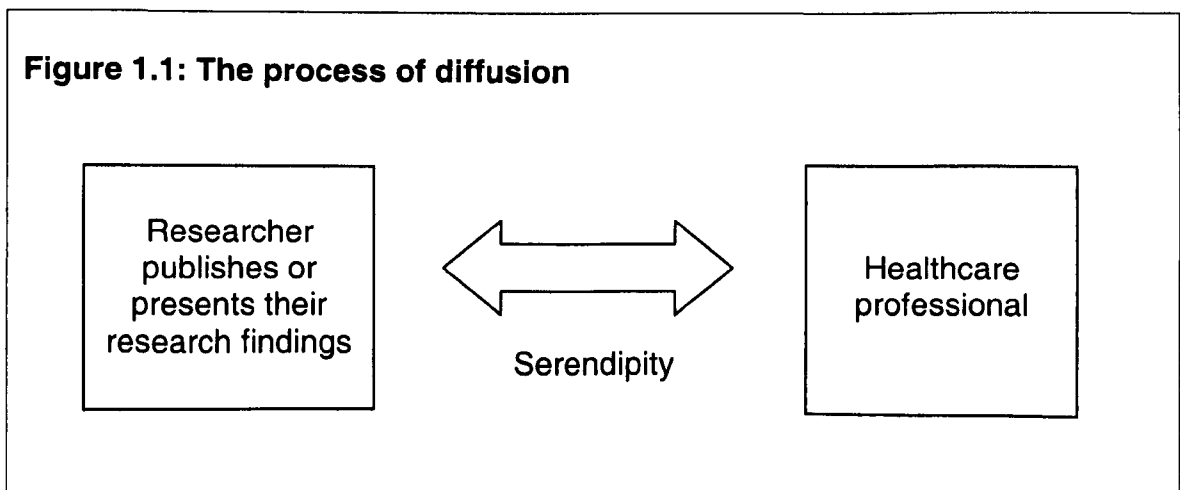
This serendipitous approach is weakened further by publication practices. This is because researchers' credibility is contingent on their publication record (Bland and Schmitz 1986). The number of publications and the impact factors of those publications are used to judge a publication record in the UK. An impact factor is a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period (Garfield 1994) and is used to evaluate a journal's relative importance (Leeds University Library 2003). This naturally influences where researchers choose to publish. Unfortunately for healthcare professionals the journals with high impact factors, in which researchers are most likely to publish, are not necessarily the ones that are most widely read or accessible to healthcare professionals. The journals they publish in may also not be listed in the databases likely to be accessible to a healthcare professional. For example, not all journals in the allied health professions are indexed by CINAHL and Medline, which are the most widely available electronic databases in healthcare. Even if a particular journal is listed the chances of identifying the information being searched for can depend on the skills, experience and tenacity of the healthcare professional searching for the information. It can be like searching for a needle in a haystack. For example searching on key terms such as cancer or depression identifies hundreds of thousands of references. Some research is never published and has to be tracked down through the 'grey' literature, such as conference proceedings.

Even if a healthcare professional does find a paper with relevant research findings there is no guarantee that they will then be acted upon to change or verify clinical practice. Evidence suggests that change in practice as a result of written materials or attending conferences just does not happen (NHS CRD

1999). It is appears that serendipity governs whether (a) a healthcare professional hears about the research findings in the first place and (b) what happens next. This was the predicament that faced the national health service at the time of writing the first NHS R&D strategy in 1991 (DH 1991).

1.2.2. Dissemination

The NHS responded to the dilemma posed by a 'diffusion' approach by using 'dissemination' as an approach to increasing the use of research findings. Dissemination is a targeted approach (NHS CRD 2001). It is a more active process that is predicated on the belief that if research findings are presented in accessible formats, such as guidelines to key stakeholders, they will be used. Ideally, the researcher uses a dissemination strategy as a guide to how they share their research findings. This involves targeting and tailoring information to all relevant healthcare professionals, who receive or are alerted to research findings without having to search actively for them themselves (see figure 1.2). If researchers disseminate their own work, what this means in practice is a researcher will publish their findings in a high impact journal, if possible, to maintain their credibility as a researcher but will also ensure that summaries of the findings with key messages are distributed to relevant target audience(s) such as:

- professional bodies,
- special interest groups (for example, the Association of Occupational Therapists in Mental Health (AOTMH),
- user groups (for example the National Schizophrenia Fellowship or Mind), and

- a wide range of publications including patient information and non-peer reviewed publications (for example, Therapy Weekly).

Sometimes others will conduct the dissemination, e.g. the NHS Centre for Reviews and Dissemination or clinical effectiveness groups. A typical example of a dissemination strategy developed by others is the research findings of the systematic reviews into 'Psychosocial Interventions for Schizophrenia'. These have been summarised in an accessible format in the form of an Effective Health Care Bulletin (NHS CRD 2000). This information was targeted at the AOTMH (a key target audience), who in turn cascaded this information via the news column of their publication, Mental Health OT (Feaver 2000).

Figure 1.2: The process of dissemination

| Researcher publishes or presents their research findings | ⟺ Targeting/ tailoring | Healthcare professional |
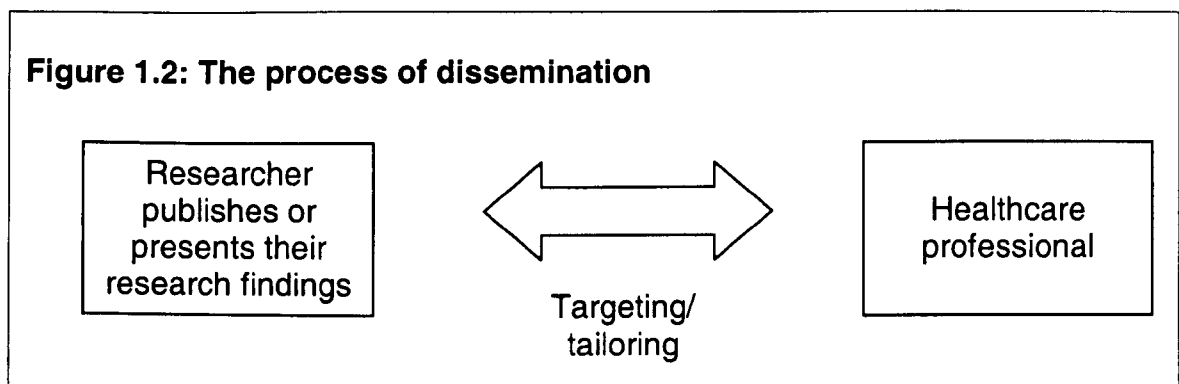
What is not known is how those healthcare professionals who fall outside a dissemination strategy find out about research findings. Do they read about it in their professional news or daily newspapers? or Does their professional or employing organisation pass it on to them? Even if research findings reach the relevant target audience, there is no guarantee that anything other than increased awareness of the research has taken place. This suggests that dissemination is limited by:

- the researcher's knowledge and understanding of the target audiences.

- resources, both financial and time,

- a lack of incentive. If researchers are rewarded for publishing in high impact journals what incentive do they have to disseminate more widely other than their personal motivation? Equally what incentive do those people targeted in a dissemination strategy have to pass the findings on to other relevant healthcare professionals? and

- a focus on raising awareness, rather than using research findings.

Although a targeted approach increases the probability of the research findings being shared there is still an element of serendipity. And the question remains 'Does it change practice?' Evidence suggests that dissemination alone does not impact on clinical practice (NHS CRD 1999).

In the light of this knowledge, dissemination, as it has been understood, is dying. The national strategy towards dissemination as a means of changing practice has been found wanting (Grimshaw and Thomson 1998). Although dissemination may have a role to play in raising research awareness (NHS CRD 1999). For example, the use of tailored marketing strategies for each audience may be an essential element of research awareness as part of a wider approach to research utilisation. However, it would appear that the NHS had too high expectations of a simplistic approach to the problem of the research-practice gap. A problem which Mulhall and Le May (1999) have described as "fraught with difficulties" (p9).

1.2.3. Implementation

Implementation is an approach that uses research findings to change practice (Mulhall and LeMay 1999).

> "Implementation implies that the goal of the communication is, however, to do more than increase awareness…it is a more active process, which uses not only the message itself, but also organisational and behavioural tools that are sensitive to the constraints and opportunities identified by [healthcare professionals] in identified settings" (Lomas 1993: 227).

Ideally, the researcher publishes their research findings and suggests a local implementation strategy or in some instances the researcher may work alongside healthcare professionals to bring about a change in practice (figure 1.3).
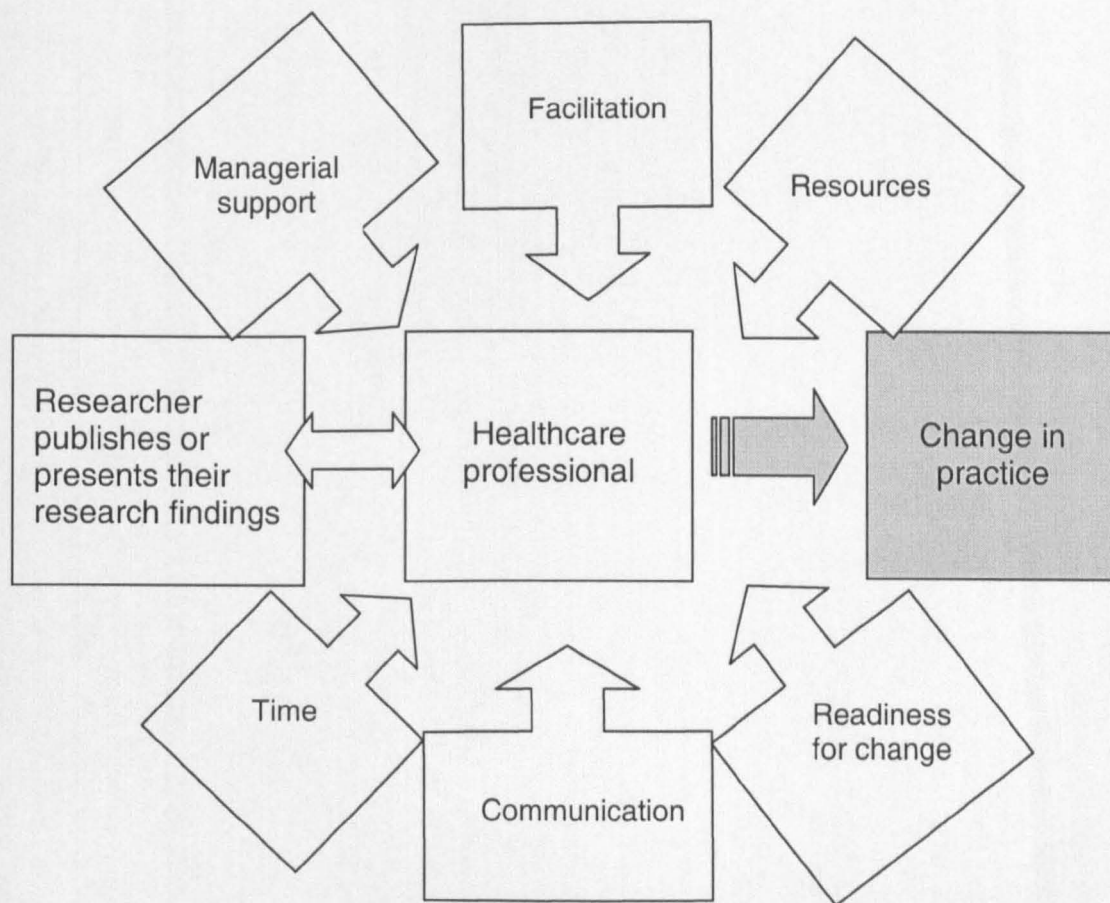
Figure 1.3: The process of implementation (Bryar and Bannigan 2003: 69)

The reality is that implementation is 'easier said than done' because "it requires not only a means to translate knowledge from a variety of sources into the language and action of practice, but also the opportunity to elicit sustained change" (Mulhall & Le May 1999: 9). Individual effort is often insufficient to bring about sustained change, as such implementation often requires organisational action. This is one of the reasons why 'clinical governance' and 'best value' have been introduced into health and social care. It is recognised that a research conscious workforce and a supportive culture are needed to facilitate implementation (James 2000).

1.3. Research utilisation

Despite the fact that implementation was not a simple approach and needed to take into account complexity of the healthcare setting, of the three approaches, it had the most potential to overcome the research-practice gap. The language used in the literature is not always clear. For example, in sociology, diffusion is used as a catchall term to refer to the general process of changing practice on the basis of innovations (Lomas 1993). Diffusion, dissemination and implementation are sometimes used interchangeably but, as Lomas (1993) points out, "diffusion, dissemination and implementation are not interchangeable terms, they are phases in a process of increasingly active and more focussed intents" (p227). Various terms are also used to describe 'implementation'. These include:

- development (as in research and development),
- using research findings,
- research use,

- transfer of research knowledge,

- research uptake,

- technology transfer (Souder et al 1990),

- translating evidence into practice,

- innovation diffusion,

- evidence based practice, and

- research utilisation .

As there is not one generally accepted term 'research utilisation' has been selected for use in this thesis and, as research utilisation was the focus, it was used to shape the overall search strategy.

1.3.1. Search strategy

A search strategy was formulated based on the guidance provided by CINAHL (1993), Muir (1993), Anon (1998), Colville-Stewart S (1998), and the University of Hull (2000). A broad search strategy was developed to cover the search topic 'research utilisation' based on the keywords listed in table 1.1. However, in developing the search it was noted that "Studies within EPOC's scope are hard to identify because they are poorly indexed in bibliographic databases, and relevant articles are found in a wide range of journals" (EPOC 1999: 39). This is because there is no standard nomenclature, which means the related research is described in many different ways. In the light of this observation and on the advice of a librarian the broad strategy was then linked with specific searches related to topics of interest under the broad heading of research utilisation, i.e. policy background, barriers to research utilisation, facilitation of research utilisation and evaluation of research utilisation, based on the keywords listed in

tables 1.1 and 1.2. Key authors, including Closs, Estabrooks, Funk, Hicks and

Marsh were identified and specific searches of these authors' names were also

conducted.

Table 1.1: A list of the key words used to develop a broad search strategy for research utilisation (Appendix 2)

Keywords
Acting on the evidence Clinical effectiveness Development Evidence Evidence based medicine Evidence based practice Evidence based care Evidence based health care Evidence based clinical practice Implementation Innovation diffusion Research Research findings Research awareness Research practice gap Research uptake Research involvement Research mindedness Research based practice Research support Transfer of research knowledge Translating evidence into practice Technology transfer Using research findings Utili?ation (utilisation/utilization)

Table 1.2: A list of the keywords used in the specific searches related to research utilisation

Allied Health Professions	Policy background	Barriers to research utilisation	Facilitation of research utilisation	Evaluation of research utilisation
Allied health/allied health professions Dietet*/ Nutrition and dietetics Occupational therap* Physiotherap*, physical therapy Speech and Language Therap*	Policy Research* (research, researcher) Research and development R&D United Kingdom Great Britain	Barriers BARRIERS scale BARRIERS scale to Research Utilisation Barriers to using research instrument BARRIERS: The barriers research utilisation scale The barriers research utilisation scale Funk and Champagne Barriers Tool Barriers to Research Utilisation Scale Facilitators scale Obstacles	Change Change management Management of change Change behaviour/ Behavior Knowledge management Facilitation Facilitators Diffusion of innovation Organisational culture Organisational change	Evaluation Outcome measures Research instruments Scales Surveys Measuring research utilisation Questionnaires Factor analysis

The literature review was on-going throughout the thesis so the search

strategies date parameters are 1990 -31st October 2001. The start date was

selected because the first national R&D strategy was developed in UK in the

early 1990s, if the databases had an earlier start date the date of the database

was used. Their cataloguing dates varied from 1861 for Dissertation Abstracts

to 1991 for EBM Reviews. Only English language literature was sought because

no translation facilities were available. The databases searched are listed in

table 1.3 and examples of the search strategies used are recorded in appendix 2. As well as searching electronic databases the following searching activities were used:

- hand searching (turning page by page through each journal edition) (Table 1.4)

- citation searching focussing on references, keywords, and authors

- Internet searching

- personal resources (such as personal networks)

- search strategy checked by librarians (with extensive experience of creating and using search strategies)

The search strategy was also constrained by the electronic databases and journals available.

Table 1.3: A list of the databases searched

Databases searched
AMED Allied and Alternative Medicine *OVID* [1985 - 09/2001]
Chartered Society of Physiotherapists Dissertation and Thesis List [2002]
CINAHL OVID [1982 - 09/2001]
Cochrane Library (inc. EPOC/methodology database) *OVID/NELH* [2001/3]
College of Occupational Therapists Thesis Collection [1999]
Dissertation Abstracts *Proquest* [1861-09/2001]
Evidence based medicine reviews *OVID* [1991-09/2002]
Health Management Information Consortium (HMIC) (including HMIC DH data, HMIC Kings Fund database, HMIC HELMIS) *Webspirs from Silver platter* [2001]
Index to theses (Aslib Index) *Expert Information Ltd* [1970-09/2001]
Medline *OVID* [1966-09/2001]
National Research Register *Update Software on behalf of DH* [1997-2001]
REGARD ESRC
Web of science [The Social Science Citation Index] *MIMAS* [1981-09/2001]
Library catalogues
Hull University Library catalogue (inc. Hull Theses) [Library class number for keywords]
Riding 239.50 Gateway to Yorkshire Libraries Riding Project

Table 1.4: A list of the journals hand searched

Journals
Audit Trends (1994-1999 incomplete)
ACP Journal club (1998-1999)
Bandolier (1996-2001)
British Journal of Clinical Governance (previously known as Journal of Clinical Effectiveness (1999-2001)
British Journal of Occupational Therapy (1990-2001)
British Journal of Therapy and Rehabilitation [1994-2001]
Clinical Effectiveness in Nursing (1997- 2001)
Dietetics Today (1998-2001)
European Journal of Disorders of Communication (1998-2001)
Evidence based health policy and management 1998 only
Evidence based medicine (1996- 2001)
Evidence based nursing (1996- 2001)
Journal of Advanced Nursing [1990-2001]
Journal of Clinical Effectiveness now British Journal of Clinical Governance (1998- 2001)
Knowledge: creation, diffusion, utilisation [Sept 1991 13 (1)-15(4)] Science Communication [16(1)-22(4) June 2001]
Management skills and development (1997- 2001)
NT Research (1997- 2001)
Nurse Researcher (1994 – 2001)
Occupational Therapy Journal of Research [1990-2001]
Physiotherapy (1990-2001)
Quality in Health Care (1992-2001)

1.3.2. An obligation

A recurrent theme in the policy literature was the expectation that all health care professionals should use research findings. This means that whilst all healthcare professionals will not necessarily be involved in conducting research they have an obligation to be involved in research utilisation. It also means the ability to interpret and implement research findings will be a fundamental skill for all healthcare professionals (Williams 1992). This is a change of emphasis within the NHS, where traditionally health care professionals have used custom and practice as a basis for decision-making in health care (Eakin 1997). There

are a number of drivers for this including government policy, professional responsibility and patient expectations. Each of these drivers is now examined.

1.3.3. A policy obligation

Health research and research utilisation in health and social care have come increasingly into the policy arena. The milestones of the policy developments related to health research are summarised in Table 1.5. The initial focus was on research *per se* and prior to 1991 there had been no national R&D strategy. The research and development strategy, *Research for Health* published in 1991 with a second edition in 1993, reiterated the importance of development, i.e. the transfer of knowledge to practice (DH 1991, DH 1993a). This is because the generation of knowledge is of little value to the NHS unless it is applied in clinical practice to the benefit of patients or clients (NHS CRD 1999). However, research utilisation had not really been on the agenda until the House of Lords Select Committee on Science and Technology in 1988.

Table 1.5: A summary of the milestones of policy developments related to research into health [adapted from Russell (1996) and Mulhall and LeMay (1999)]

1920	Medical Research Council (MRC) established 'with widest possible freedom to make new discoveries'
1948	National Health Service (NHS) created 'with powers to support research on the causation, prevention, diagnosis or treatment of illness'
1964	Ministry of Health received funds for 'operations research in the hospital service, general practice and local health services'
1972	Briggs Report (Briggs 1972)
1981	Concordat agreed between Government Health Departments and MRC 'jointly to address the promotion, funding and management of research to meet the needs of the NHS.'
1988	House of Lords Select Committee on Science and Technology reported on Priorities in Medical Research. (House of Lords: Select Committee on Science and Technology 1988)
1989	Government accepted most of the recommendations of the House of Lords Select Committee
1990	Professor Michael Peckham appointed Director of R&D, and to the NHS Management Executive
1990	Taking Research Seriously (Richardson et al 1990)
1991	R&D strategy published as Research for Health (DH 1991)
1991	A strategy for Nursing Research in Scotland (Scottish Home and Health Department 1991)
1993	Research for Health (second version) (DH 1993a)
1993	Report of the taskforce on the strategy for Research in Nursing, Midwifery and Health visiting (DH 1993b)
1993	A vision for the future (DH 1993c)
1994	Supporting research and development in the NHS – The Culyer report (Culyer 1994)
1994	Research and Development in Occupational Therapy, Physiotherapy and Speech and Language Therapy (Therapy Professions Research Group 1994)
1995	Methods to promote the implementation of research findings in the NHS (DH 1995a)
1995	Consumers and research in the NHS (DH 1995b)
1996	Promoting clinical effectiveness (Mann 1996)
1996	Research and development: towards and evidence based health service (DH 1996)
1997	The new NHS: Modern, Dependable (Secretary of State for Health 1997)
1997	The Strategic Framework for of the use of the NHS R&D Levy (DH 1997)
2000	Research and Development for a First Class Service R&D funding in the new NHS (DH 2000a)
2001	Research governance framework for Health and Social Care (DH 2001a)
2001	Research and Development in the Professions Allied to Medicine within Northern Ireland: A position statement (Hannigan 2001)
2001	NHS Priorities and Needs for R&D Funding (DH 2001b)
2002	NHS Support for Science (DH 2002)

It was the report from this select committee *Priorities in Medical Research* that signalled a move toward effort being directed at the utilisation as well as generation of research. It suggested that to achieve greater dissemination and implementation it would be necessary to "foster among practitioners and managers a culture receptive to research findings" (House of Lords Select Committee on Science and Technology 1998: para1.18). The subsequent *NHS Research and Development Strategy* (DH 1991) had the explicit aim that research and development "...becomes an integral part of health care so that practitioners, managers and other staff find it natural to rely on the results of research in their day to day decision making and longer term strategic planning" (cited by Bury 1998: 3).

The link between research and development in healthcare has since been reinforced in subsequent health policy statements. In the drive for clinical effectiveness before the 1997 election the underlying aim was an evidence-based health service which provides the best quality health care for the population (Mann 1996). This aim acknowledged that the NHS is driven by decentralised decision making. Clinicians make many of the decisions, thereby determining service provision and expenditure. If the NHS is to be an evidence based service it is of paramount importance that those who make decisions about healthcare base these decisions on good evidence (Gray 1997). The current Labour administration has continued to champion evidence based practice in their modernisation agenda.

1.3.3.1.   The modernisation agenda

The modernisation agenda has research and implementation at its centre. The key publications that have explicated the modernisation agenda in the National Health Service are *A new NHS, modern, dependable* (Secretary of State for Health 1997), *A First Class Service* (DH 1998), and *The NHS Plan* (DH 2000b).

A new NHS, modern, dependable (Secretary of State for Health 1997) was the white paper that outlined the future direction of the NHS under the then new Labour administration. *A First Class Service* (DH 1998b) introduced the concept of clinical governance. Clinical governance is a phrase used to describe:

> "...a framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish" (DH 1998b: 33)

Clinical governance is not 'a thing' but an idea, "an organisational concept" (Donaldson 2000: 4). The aspects of clinical practice it encompasses are risk avoidance, poor performance, quality methods, culture, infrastructure and coherence. This requires research-based knowledge to be valued, accessible, and used in clinical decision-making as part of an integrated approach to quality, i.e. research utilisation should not be a peripheral activity. Other policy documents, such as *Information for Health* (NHS Executive 1998) and the subsequent *Building the Information Core – Implementing the NHS Plan* (DH 2001c), support this view. The intention is that information technology will be harnessed to fit in with everyday practice so that healthcare professionals can access and use research based knowledge more easily.

The sense of obligation to using research findings in practice is reinforced by the fact that alongside clinical governance the Commission for Health Improvement has been established. It was set up to conduct a rolling programme of reviews by visiting NHS organisations every four years to "look for evidence that clinical governance arrangements are working" (DH 1998b: 53). These plans were reinforced in *The NHS Plan* (DH 2000b).

1.3.3.2.   Local policy initiatives

The policy initiatives described so far outline high level aims for a modern NHS. The fact that they are being translated at a lower level; suggests there is a serious commitment to achieving research utilisation. An example at regional level is the Northern and Yorkshire programme to bring about *Building a research conscious workforce* (James 2000). This is a framework for identifying training needs in relation to research and development. They have described the ways in which healthcare professionals can engage with research and development in terms of levels (Figure 1.4) This translation of national policy at a regional level suggests use of research is not an oblique ambition with no substance in reality.

Figure 1.4: Building a research conscious workforce (James 2000).

Funded by	Universities Infrastructure support		HA/Trust/ Primary Care R&D Training Strategies to incorporate a spectrum of:-
Education Level		Beginners	**Basic Level**
E&T Consortia (NMET/MADEL)	Off the shelf courses provided by (groups of) universities		⇐ Research awareness
			⇐ Use of research evidence
Training level 1			⇐ Critical appraisal skills
NYRO R&D	Contracts with "localised" collaborations of Universities and Trusts/ Primary Care – for generalist advice and specific training		⇐ Research methods training
			⇐ Training clinics
			⇐ Local training initiatives
			⇐ Training trainers
Training Level 2 "R&D DIRECT"			**Intermediate Level**
NYRO R&D + Trusts/Primary Care/ HEFCE	Customised advice to individuals or research teams following triage		⇐ TRIAGE
			⇐ Fellowships (NYRO & other funders)
			⇐ Small projects (NYRO)
			⇐ Larger projects (NYRO)
Training Level 3			⇐ Larger grants (other funders)
NYRO R&D + grant giving bodies/ HEFCE/ Research councils, etc...	Specialist methodological advice leading to joint applications (5/6 unit only in NYRO)		⇐ Post-doctoral opportunities
			⇐ External grants/programmes
		Experienced researchers and teams	**Advanced Level**

1.3.4. A professional obligation

The professional bodies have a similar expectation to the government that healthcare professionals will use research findings in their clinical practice. The statements from the professional bodies of therapists in this country that spell out this expectation are summarised in table 1.6. This expectation is neither peculiar to the therapy professions worldwide nor to the UK therapy professions. There is a similar expectation of nurses in the UK (Table 1.6) and an objective of the American Physical Therapy Association is "to meet the needs of people through development and improvement of physical therapy education, practice and research" (Ballin 1980: 888). These statements demonstrate that healthcare professionals have a professional obligation to use research findings in their everyday clinical practice.

Table 1.6: A summary of the expectations of professional bodies related to research utilisation

Professional body	Expectation of professional behaviour in relation to research utilisation
British Dietetic Association	**National Professional Standards for Dietitians** Standard 3 (BDA 1997: 9) states *"Dietitians generate and interpret research to enhance and develop dietetic practice"* with the rationale: - "The dietetic service should be resourced and developed within a framework which supports reflective practice and research capabilities. - Dietitians should generate, interpret and use research to enhance and develop dietetic practice. - Dietitians should take on the role of appraising controversial **[cont.']**

	information, without bias, based on research and are able to apply and evaluate new theories that challenge dietetic practice. - Dietitians should add to the pool of knowledge that supports and strengthens the profession and they need to share expertise on a multi-professional basis." (BDA 1998: 9) "Research and audit are the cornerstones of good clinical practice. We cannot ensure that our practice is evidence based or effective if we do not gather supporting information" (Dobson 1998: Foreword).
Chartered Society of Physiotherapy	**Rules of Professional Conduct** "...physiotherapists have a duty to keep up to date with evidence-based developments in their area of practise and expertise. This evidence may be in the form of clinical guidelines, evidence-based care pathways or research findings which, following review are robust enough to inform practice." (Ethical and Regulatory Issues Committee 1999: 25).
College of Occupational Therapists	All occupational therapists are expected to be research consumers some will be participants in research and a few will be proactive researchers (Eakin et al 1997, Ilott and White 2001). **Code of ethics and professional responsibility** states that occupational therapists • "...personally responsible for actively maintaining and developing their personal professional competence and shall base service delivery on accurate and current information in the interests of high quality care" (COT 2000: 13). • "...have a duty to ensure that wherever possible their professional practice is evidence based and consistent with established research findings" (COT 2000: 13).　　　　**[cont.']**

Royal College of Speech and Language Therapists	"a research-led profession" (RCSLT 2002) **Communicating quality** "The college ensures the advancement of the profession of speech and language therapy by requiring members to continue their professional development through training and research" (van de Gaag 1996: 15) "The college is committed to the development of high standard of clinical practice through the systematic evaluation of therapeutic approaches and outcomes and the development of evidence based practice" (van de Gaag 1996: 252)
United Kingdom Central Council for Nursing, Midwifery and Health Visiting	**Code of professional practice/Scope of professional practice** • "maintain and improve your professional knowledge and competence" (UKCC 1992a: 1) • "..change and development may results from advances in research leading to improvements in treatment and care" (UKCC 1992b: 1)

1.3.4.1.   A personal obligation

The obligation of government and professional bodies can be considered draconian in that there are consequences for the healthcare professional in terms of performance management if they do not meet these obligations. However, the literature suggests that healthcare professionals are by and large enthusiastic about using research findings (e.g. Ballin 1980 and Upton 1999). The enthusiasm of therapists may reflect that they have made the connection between using research findings and delivering better patient care. Another explanation may be that they fear their professional growth or survival depends on it (Hines 1950 and Twomey 1996). Whatever the explanation it suggests that

healthcare professionals have a sense of personal obligation to use research findings in their clinical practice.

1.3.5. Public expectations

The public's expectations of public services has changed. This is influenced by the fact that "Over the past decade or so, most of us have experienced sizeable leaps in the quality, choice and accessibility of services we take for granted as part of our daily lives" (Audit Commission 2001: 8). Patients expect healthcare professionals to use evidence based practice when treating them. For example, a leading proponent of evidence based practice, the late Chris Silagy, is said to have "...felt 'increasingly irate' at some of the debate about the merits of EBM: 'When I am faced with a life threatening decision, I want the best evidence about whether it will increase my chances, what the side effects are'." (Sweet 2002: 53). As we live in an increasingly litigious society failure to use best evidence "...can result in increased complaints or, at worst, litigation" (Benton 1999: 92). This increase in expectations and the increasing recourse to legislation is also driving evidence based practice in health and social care.

1.3.6. 'Why don't healthcare professionals use research findings?'

Despite these powerful drivers and a positive attitude towards research utilisation most healthcare professionals do not use research findings. This is why a research practice gap persists. Healthcare professionals struggle with research utilisation, despite their enthusiasm. This appears to be because they experience a number of barriers to using research findings. Therefore it would

seem to be important to understand the barriers they experience before trying to devise strategies that managers can use to increase the use of research utilisation.

1.4. Aims

The original aims of this thesis were to:

1. understand the barriers experienced by healthcare professionals in using research findings

2. use this understanding to develop an intervention to enable therapy managers to increase the use of research findings, and to

3. evaluate the intervention developed to assess whether or not it is effective in increasing research utilisation amongst therapists.

However, it was not possible to achieve the third aim because there were no tools available to evaluate the intervention developed. This meant that the aims of the thesis had to be modified. Aim three became:

3. To develop a reliable and valid measure of research utilisation.

1.5. Thesis outline

It was necessary to understand why it is difficult for health care professionals to use research findings in clinical practice, consequently chapter two is a literature review of the barriers to research utilisation. The literature covers all healthcare professionals and not just the four allied health professions focused

on in this thesis. The remainder of the thesis summarises the three studies conducted.

Study one reports a qualitative study that was conducted to develop an intervention, the Turnkey Manual, to enable therapy managers to increase the use of research findings. As it was not possible to conduct an evaluation of effectiveness, because there was no reliable or valid measure of research utilisation available, study two reports a case study to assess the utility of the Turnkey manual. The focus of the case study was 'process' rather than 'outcome' with the aim of understanding whether therapy managers are able to use the manual or not.

Study three critically reviews current measures and the Bannigan Utilisation of Research Profile, a profile of measures of research utilisation, is proposed as a basis for further research. In the concluding discussion systems theory has been used to draw together the three studies included in this thesis. This outline has been summarised in figure 1.5.

Figure 1.5: An outline of the thesis

CHAPTER 1: INTRODUCTION
RESEARCH UTILISATION: THE POLICY CONTEXT

⬇

CHAPTER 2: BARRIERS TO RESEARCH UTILISATION
LITERATURE REVIEW

⬇

STUDY 1: DEVELOPMENT OF THE TURNKEY MANUAL

| Interviews | Focus groups | Review of manuals | Peer review |

⬇

STUDY 2: A CASE STUDY TO ASSESS THE UTILITY OF THE TURNKEY MANUAL

| Interviews | Reflective diary | Documents | Review manual |

⬇

STUDY 3: DEVELOPMENT OF THE BANNIGAN UTILISATION of RESEARCH PROFILE (BURP)

| Reliability & validity | Conceptual framework | Critical review of measures | Development of measure |

⬇

CHAPTER 6: CONCLUDING DISCUSSION
USING SYSTEMS THINKING TO MAKE SENSE OF THE WHOLE

2. BARRIERS TO RESEARCH UTILISATION

2.1. Introduction

The inconsistency between the policy drive for evidence based practice, the enthusiasm of healthcare professionals for evidence based practice and the actual use of research findings in everyday clinical practice needs to be understood. The inconsistency appears to be related to the fact that use of research findings usually involves change (Mulhall 1996: 166). Healthcare professionals operate within a social system and "within any social system, there are forces that promote stability and oppose change as well as forces that promote change" (Burns and Grove 1987: 635). The forces that oppose change in terms of research utilisation have been described in the literature as

- 'barriers to research utilisation' (e.g. Funk et al 1991a, 1991b, 1995a, Shaffer 1994 and Meah et al 1996),

- factors that inhibit (e.g. Philips 1986),

- Impediments (e.g. Hicks 1993, 1995),

- factors discouraging (e.g. Pettengill et al 1994) and

- obstacles (e.g. Miller and Messenger 1978, Hicks 1995 and Lekander et al 1994).

In recent literature the word 'barriers' appeared to be the term used most frequently and so was adopted in this thesis.

The literature about the barriers to research utilisation is wide ranging. The aim of this literature review is to understand the barriers experienced by healthcare professionals in using research findings (section 1.3.6). The search strategy

used for this literature review is outlined in section 1.3.1 and a sample electronic search strategy has been provided in appendix 2. An overview of the literature is presented, followed by a review of the research and non-research literature. A definition and the conceptual basis of barriers to research utilisation is explored. This exercise is set in the context of the current understanding of barriers, there is an attempt to quantify the barriers to research utilisation and a discussion of facilitators, i.e. how to overcome the barriers. Finally the meaning of the literature for this thesis is considered.

2.2. Overview of the literature

The literature on barriers to research utilisation is widely dispersed in terms of publications and fields (Section 1.3.1). Anecdotally librarians will acknowledge that even those who are experts in searching for literature will miss some of the literature available. As such, some literature may not have been identified but a thorough search strategy was used to identify as much of the literature as possible. The literature about barriers to conducting research, e.g. Grabois and Fuhrer (1998) and Ballin et al (1980), or clinical audit, e.g. Tobin (1998) and Tobin and Judd (1999), was excluded from this review because the focus of this thesis was research utilisation rather than conducting research. Of the literature identified most was research based but there was a large proportion of non-research literature. For example, conference summaries (e.g. Mulhall 1996 and Normand 1998), discussion papers (e.g. Beyea and Nicoll 1997), literature reviews (e.g. Funk et al 1995b) and editorials (e.g. Hunt 1996) (See section 2.4). This material was also included in the review because it formed a substantial proportion of the literature in the field.

One formal literature review of the barriers to research utilisation, by Funk and colleagues (Funk et al 1995b), was identified. These authors observed that there had been considerable discussion of the potential barriers to research utilisation and that "The number of barriers identified are great, and the consistency of the reports is striking" (p396). They related their review to Rogers' (1983) work *Diffusion of Innovations*. They found

> "Barriers to research use broadly cluster in areas that parallel these major themes, i.e. issues related to the adopter, the innovation itself, how it is communicated, and the social system or organisation in which the individual works. Time is a dimension that appears to cut across all four of these areas" (Funk et al 1995b: 396).

However, Funk et al (1995b) predominantly refer to their own work and suggest "over the years many others have noted these same barriers to research" (p398). A number of issues were identified when critiquing this review:

- The papers reviewed were not appraised, so all were used equally in the review regardless of research rigour.

- The review had a broad focus so papers about research utilisation were considered as well as barriers, which diluted the focus on barriers.

- Papers that were literature based and research based were not delineated, and so were treated with equal weight.

- It appeared that the authors were trying to fit their findings into a predetermined theory, i.e. Rogers' (1983) theory of 'Diffusion of Innovations',

- There was no search strategy, so it is not possible to ascertain how they identified the papers to review. (It is recognised that the prerequisite for describing the search strategy used when reporting a literature review is a more recent phenomenon).

- There has been substantial research published since, and so this paper is now dated.

- They were reviewing the field as the leading researchers in the field but did not acknowledge this. This may have biased the review.

Other researchers have reviewed the literature on barriers to research utilisation as part of another study. For example, Humphris (1999) provided a schema for understanding the barriers to the use of evidence, as part of her PhD thesis that explored the use of research evidence by doctors, nurses and therapists. She summarised barriers under the headings time, accessibility and organisational factors. Although she refers to the factor structure developed by Funk and colleagues (1991a) she does not explain how her schema fits with this (See section 2.4) and it has not been tested. She does not explain which studies or papers fed into this analysis nor her inclusion and exclusion criteria. As with Funk and colleagues' review (Funk at al 1995b) more research has been published since so the review is now dated. However the key finding from her thesis, i.e.

> "there are a number of studies that have identified what inhibits the use of research evidence, often from the perspective of a single professional group. However, there appears a lack of attempts to understand what enables the use of research and whether these issues are similar across professional groups" (Humphris 1999: 3),

will be considered in the discussion (see section 2.5)

Although these reviews were useful their methods of analysis were not explicated and so it is difficult to identify which data they used to support their statements. For example, Funk et al (1995b) and Humphris (1999) make

overarching statements but do not explicitly link them to references, or explain how they conducted their analysis, so that the reader can judge the validity of these statements. This means the reader has to go back to the original papers to understand the literature on barriers to research utilisation. This indicated a need for a thorough overview.

Humphris (1999) found that more research had been conducted in some professions than others and there had been little interdisciplinary research. This observation accords with what was observed in this review (Table 2.1). It could be argued that the research about the allied health professions covers more than one profession, and so could be considered interdisciplinary. However, the allied health professions are generally smaller professions that are regarded as a single entity in organisational and political matters so this is a spurious argument.

Table 2.1: A matrix of the literature identified about barriers to research utilisation

Professional background	Literature related to barriers to research utilisation	
	Research[i]	Non Research
Nursing professions	26	20
Allied Health Professions	3	0
Medicine	3	2
Other	2 (stroke rehabilitation professionals, multi disciplinary)	2 (health promotion/ multi disciplinary)
Total	34	24

2.3.   Research literature

The research literature is the main focus of this literature review although the non-research literature has been considered. In terms of research the seminal work was conducted by Funk and colleagues, at the University of North Carolina, who developed the BARRIERS scale. This is a reliable and valid scale that has been used by research groups in several studies as well as by researchers who have reported using it in one study. Most of these studies attempt to replicate Funk et al's (1991b and 1995a) study with different populations. Until recently (Closs and Bryar 2001) there has been little effort to take stock and explore the contribution of these studies to the field. A group of therapists in Northern and Yorkshire, previously an NHS region in the UK, have developed the BARRIERS scale into the Barriers and Attitudes to Research in the Therapies (BART) scale (Metcalfe et al 2001). The BART scale requires further development and testing. There has also been stand-alone research into barriers to research utilisation that has not made use of the BARRIERS scale. The key research studies have been reviewed in terms of methodological rigour (below) and a sample of the findings has been provided in appendix 3.

2.3.1. Seminal work – Funk and colleagues

The work of Funk and colleagues can be considered seminal because they developed the BARRIERS scale (Funk et al 1991a, 1991b, 1995a) that has been utilised by a number of other researchers in the field world-wide (sections 2.3.2 and 2.3.3). The development and application of the BARRIERS scale

forms a part of a larger body of work about research utilisation by Funk and colleagues. They have also developed, applied and evaluated 'A model for improving the dissemination of nursing research' (Funk et al 1989a, 1989b), reviewed the literature on barriers and facilitators (Funk et al 1995b) and explored research and practice in research utilisation (Tornquist et al 1989, Tornquist and Funk 1993, Funk et al 1995a, Tornquist et al 1995).

2.3.1.1.   BARRIERS: the barriers to research utilisation scale

BARRIERS: the barriers to research utilisation scale is "an instrument for the assessment of clinicians, administrators and academicians perceptions of barriers to the utilisation of research findings in practice" (Funk et al 1991a: 40). The development of the tool involved five stages: item development, pilot testing, testing of the tool, reliability testing and psychometric analyses. Items were derived from literature on research utilisation, the Conduct and Utilisation of Research in Nursing project questionnaire (Crane et al 1977 and Conduct and Utilisation of Research in Nursing project 1983), and informal data gathered from nurses. The pool of items developed was then subjected to expert review to establish face and content validity. The theoretical basis was drawn from Rogers (1983) who had observed that "diffusion is the process by which (a) an innovation (b) is communicated through certain channels (c) over time (d) among the members of a social system" (p10)

After piloting with graduate nursing students the instrument was distributed to 5000 nurses. The response rate was 1989 (i.e. 40%). In the factor analysis four factors accounted for 43.4% of variance. Items with loadings greater than .40

were retained on a factor. The four factors identified and their Cronbach's alphas were:

(1) Characteristics of the adopter (0.8)

(2) Characteristics of the organisation (0.8)

(3) Characteristics of the innovation (0.72)

(4) Characteristics of the communication (0.65)

Funk et al (1991a) found that "The factors identified within the BARRIERS tool closely parallel four of the major concepts in Rogers' model of innovation diffusion: characteristics of the adopter, the organisation, the innovation and the communication" (p44).

Overall, the development of the BARRIERS scale was fairly rigorous. The tool is reliable as demonstrated in the test-retest reliability study of 17 students where the scores ranged from 0.68 to 0.83. The internal consistency of the tool was demonstrated by acceptable Cronbach's alphas for each of the four factors identified. Although one factor, the fourth factor communication, was lower than the other three. In terms of validity a factor analysis supported four independent factors consistent with Rogers' theory using principal components and principal axis factor analyses (Marsh et al 2001). In terms of analysis, there were five responses available per item (including the no response option) and more than 10 subjects per variable were used in the study. The full range of scores was used and Funk et al (1991a) also presented data about the mean rating. However, the relevance of providing means for ordinal data can be questioned because the scores 2.78, 2.87, 2.35, and 2.74 are meaningless in terms of an

ordinal scale. A mode or median may have been more meaningful. It is interesting to note that the data for clinical nurses (Funk et al 1991b) and nurse administrators (Funk et al 1995b) has been published but, more than ten years on, the data about nurse academics have never been published.

If Funk and colleagues were to be criticised about their development of the BARRIERS scale it would have to be about the item development. Although they say what sources they consulted they do not provide detail for the reader to identify why they ended up with the pool of items they did. They did not define a barrier to research utilisation. Perhaps the assumption was that this is a term that is widely understood? Funk and colleagues (1991a) make the point that a barrier may be perceived or actual in their statement:

> "Whether they have actually been experienced by the individual or are only perceived to be a problem, these barriers could hinder attempts to put innovations into practice or keep the adopter from even initiating the adoption process" (p44).

They do not turn this observation into a formal definition in their publications. These criticisms are relatively minor points. The major point of contention is the direct link made by Funk and colleagues to Rogers' (1983) theory on 'Diffusion of innovations'. There are a number of questions that can be posed in relation to this. For example, What was the reasoning for using Rogers' model? Was this an obvious link? Is there more than a tenuous connection between Funk and colleagues data and this theory? and Was this an *a priori* or *post hoc* observation? These questions have been considered in more detail in the discussion (see section 2.5).

The BARRIERS scale has been widely used. There have also been research studies that have not used the BARRIERS scale, which are referred in this thesis to as stand-alone barriers research (Table 2.2). These studies are now reviewed with a consideration of what each study has contributed to the field.

Table 2.2: An overview of the research into barriers to research utilisation (excluding Funk and colleagues)

BARRIERS Scale		Stand-alone barriers research
Nursing Professions	**Allied Health Professions**	
Yorkshire nursing Professions • Closs et al (2000) • Griffiths et al (2001) • Closs and Bryar (2001) [Methodology paper] • Bryar et al (2003) **Swedish nursing professions** • Nilsson Kajermo et al (1998) • Nilsson Kajermo et al (2000) **Walsh papers** • Walsh (1997a, 1997b, 1997c) **Australian nursing professions** • Retsas and Nolan (1999) • Retsas (2000) **Sheffield nursing professions** • Marsh (2000) • Marsh et al (2001) **One-off studies in the nursing professions** • Barta (1992, 1995) • Shaffer (1994) • Carrol et al (1997) • Dunn et al (1998) • Lewis et al (1998) • Rutledge et al (1998) • Parahoo (2000)	**Northern and Yorkshire therapy professions** • Closs and Lewin (1998) • Metcalfe et al (2001) **North West speech and language therapists** • Pennington (2001)	• Miller and Messenger (1978) • Hefferin et al (1982) • Linde (1989) • Pettengill et al (1994) • Walczak et al (1994) • Meah et al (1996) • Newman et al (1998) • LeMay et al (1998) • Weijden et al (1998) • Cranney et al (1999) • Pollock et al (2000) • Freeman and Sweeney (2001)

2.3.2. Application of the BARRIERS scale in the nursing professions

2.3.2.1.   Yorkshire nursing professions

Four papers summarise the use of the BARRIERS scale with the nursing professions in Yorkshire, a geographical region in the UK (Closs et al 2000, Griffiths et al 2001, Closs and Bryar 2001, Bryar et al 2003). The aim was to produce "a general picture of the underlying types of barrier to the implementation of research findings" (Closs and Bryar 2001: 853). Two of the published papers focused on particular groups of nurses - i.e. hospital nurses (Closs et al 2000) and community nurses (Griffiths et al 2001). A methodology paper (Closs and Bryar 2001) examined the factor structure and Bryar et al (2003) provided an overview (diagnostic analysis) of the whole study. The method used was a survey using the BARRIERS scale; the authors attempted to replicate the survey in Funk et al (1991a).

The papers taken together suggest that this was a thorough piece of work. For example, they

- used a large sample size

- amended the language to make it appropriate to UK nurses, i.e. changed 'physician' to 'doctor', and

- used a reminder to increase response rate.

However, there were some methodological issues to consider. Despite distributing a teabag with the questionnaire they only achieved a low response rate, i.e. 44.6% overall, and it was lower in some groups than others, i.e. 36% hospital nurses (Closs et al 2000: 4) 51.5% community nurses (Griffiths et al 2001: 503). Whilst it is acknowledged that a high response rate is difficult to

achieve in surveys using two rather than one reminder may have increased the response rate [see, for example, Nilsson Kajermo et al (1998, 2000) and Metcalfe et al (2001)]. Closs and Bryar (2001) also suggest that "much of the discussion about barriers to research implementation has come from medicine" (p853) and then cite as their example the only reference to a discussion about barriers to research utilisation in medicine identified in the literature searching for this review (Haynes and Haines 1998a, b). It was not clear why Closs and Bryar (2001) used an exploratory factor analysis and not a confirmatory factor analysis. Dunn et al (1998), Retsas and Nolan (1999) and Retsas (2000) had not been able to replicate Funk et al's (1991a) factor structure, but it had been replicated and strengthened when tested in Sweden with nursing professions (Nilsson Kajermo et al 1998). Closs and Bryar (2001) endeavour to make the link to practice, for example it is stated that "In the trusts in which this study was carried out such strategies have been developed as a result of this diagnostic audit." (Bryar et al 2003: 83). Unfortunately they do not describe how they have moved from the research findings to developing these strategies.

In terms of their contribution collectively these papers confirm that nurses do perceive or experience barriers. However this study also identified that the use of BARRIERS scale in the UK is not clear-cut because they identified different factors (Closs and Bryar 2001). Their contribution is summed up in their observation

> "The BARRIERS scale produces reasonably useful information about nurses' reports of barriers to integrating research into practice (which may or may not reflect reality). However, the items contained in the scale do not 'fit' the current situation in the UK adequately" (Closs and Bryar 2001: 864).

Individually the papers also make a useful contribution to the field. The papers that focus on hospital and community nurses attempt to tease out the specific issues for these heterogeneous groups in relation to Funk et al's (1991b) findings and other related findings (Closs et al 2000 and Griffiths et al 2001). They also provided some direction to people working in these clinical areas for overcoming barriers to research utilisation.

2.3.2.2.   Swedish nursing professions

Two papers have focused on barriers to research utilisation in Swedish nursing professions. The first was a survey of 237 nurses using the BARRIERS scale, which was used "To describe registered nurses perceptions of the barriers and the facilitators of research utilisation at two hospitals in Sweden." (Nilsson Kajermo et al 1998: 798). For this survey the BARRIERS scale was translated into Swedish and a pilot study was used to test the translated version. This resulted in an additional item being added referring to English language. They also conducted an exploratory factor analysis and reported higher Cronbach's alpha values for the sub scales, including for communication which had a much lower value in Funk et al's (1991) data. Nilsson Kajermo et al (1998) noted that "More research is needed to elucidate the actual use of research findings" (p 806). The second paper aimed to:

- "To describe and analyse a group of nursing teachers', students', administrators' and physicians' perceptions of the barriers to and the facilitators of nurses' use of research findings in clinical practice" (Nilsson Kajermo et al 2000: 100) and

- "To compare the results with the corresponding figures for a reference group of registered nurses in clinical practice" (Nilsson Kajermo et al 2000: 100). They surveyed nursing teachers, nursing students, nursing administrators and physicians. The data from these groups were compared to the data on registered nurses in the first paper (Nilsson Kajermo et al 1998).

Both papers used relatively small sample sizes but they achieved high response rates through the use of a second reminder, i.e. 70% (n=237) for registered nurses (Nilsson Kajermo et al 1998: 800), 82% (n=37) nurse teachers, 81% (n=166) nursing students, 81% (n=33) nurse administrators and 67% (n=127) physicians (Nilsson Kajermo et al 2000: 101). The sample size in the first study was sufficient to conduct a factor analysis, working on the principle that 5 to 20 respondents per item in a scale are required for factor analysis (McDowell and Newell 1996). No justification for conducting an exploratory rather than a confirmatory factor analysis was given. A confirmatory factor analysis may have added more weight to the development of the BARRIERS scale. It was not clear what the rationale was for asking physicians about the barriers experienced by nurses, other than they work together. Not unexpectedly they found "...the physicians perceptions differed the most" (Nilsson Kajermo et al 2000: 99). It is notable that this aspect of the methodology of the Swedish studies has never been replicated.

These studies both confirm and extend the work by Funk et al (1991a). For example, in the second study a factor analysis was not conducted but Cronbach's alphas were calculated for all the participating groups. The Cronbach alpha scores ranged from 0.64-0.94, with the lowest scores for the

communication sub-scale. This confirms Funk et al's (1991a) observation. These two studies also demonstrate the transferability and utility of the BARRIERS scale (with slight modification) outside of the US. However, the different Cronbach's alpha scores in the second study also suggest that different groups respond differently to the BARRIERS scale.

2.3.2.3.   Walsh papers

Walsh conducted three studies with three different sets of nursing students, who were already qualified nurses. He piloted the BARRIERS scale on 20 registered nurses to assess whether it was relevant and understandable and reported that it was acceptable without changes. He also used the facilitators suggested by the respondents in Funk et al's (1991a) study and asked respondents to rank them. There are a number of issues to consider in relation to the rigour of the studies. Walsh's (1997a, b, c) sampling strategy was to use convenience samples that he knew to be extremely biased. He states "It could be argued, however, that nurses who attend a major three day national conference such as the RCN A&E Association annual conference are highly motivated to move their practice forward, as such, this sample is more representative of such enthusiastic A&E nurses" (Walsh 1997c: 26). This was despite having critiqued Funk et al's (1991) sampling strategy: "the response rate to a random sample of the American Nurses' Association was only 40 per cent. This raises the possibility of bias due to self selection of respondents, who may differ from non-respondents in their attitude towards, or understanding of research" (Walsh 1997b: 35). As well as having an unsophisticated sampling strategy the sample sizes were quite small. The first study had an extremely small sample even with

high response rate N = 58 (a response rate 71%) (Walsh 1997a). The other two studies had relatively small samples N = 141 (response rate 76%) (Walsh 1997b) and N = 124 (response rate 62%) (Walsh 1997c). Collectively, the contribution of these studies to the field is to add weight to observation that nurses (including a not previously observed sub-group A&E nurses) perceive and/or experience barriers to research utilisation.

2.3.2.4. Australian nursing professions

Two studies have been conducted with the nursing professions in Australia. The first study aimed "to identify barriers that Australian nurses working in the clinical setting believe inhibit their ability to integrate nursing research into their practice" (Retsas and Nolan 1999: 337). Again a survey was undertaken using the BARRIERS scale. As part of their data analysis these researchers also conducted a factor analysis. The second study (Retsas 2000) was a needs analysis project, in which the identification of barriers was only one aspect. The first study used a large sample N=600 but only achieved a small response rate of 25% (n =149) (Retsas and Nolan 1999), which only just provided enough respondents to conduct a factor analysis (see section 2.3.2.2). Again, the researchers did not mention using techniques to maximise their response rate. Nor did they mention whether they modified the scale or how closely Australian English parallels American English. There were more subjects (n=400) in the second study and it had a higher response rate than the first study, i.e. 50%, but in research terms it still a low response rate (Retsas 2000: 600). A factor analysis was also conducted as part of the data analysis.

These studies provide further confirmation of the utility of the BARRIERS scale with a different group of nurses in a different country. Retsas and Nolan (1999), however, question the factor structure underpinning the scale but do not relate this to Rogers' (1983) theory of diffusion of innovations. They do not reference the Swedish study that was published a year before. They suggested "Further studies that use this approach to understanding nurses' perceptions of barriers to their use of research should also seek to elicit qualitative information so as to help validate factor labels" (Retsas and Nolan 1999: 342). The second study does mention the Swedish studies but as one of many studies that demonstrate differences in factor structure. They account for this difference by suggesting "These differences emphasise the importance of context as a variable that mediates research results and should not be interpreted as meaning the instrument lacks internal consistency" (Retsas 2000: 604). They also suggest "Nevertheless, organisations seeking to improve nurses' use of research evidence could usefully apply this tool in the needs analysis context" (Retsas 2000: 605) implying further development is not required for it to be a useful tool.

2.3.2.5. Sheffield nursing professions

The literature on the nursing professions in Sheffield is predominantly in the grey literature (Marsh 2000). The work that has been published (Marsh et al 2001) has focussed on the secondary aims of the original study which "...were to test the revised version of the Barriers to Research Utilisation Scale...make recommendations for using the scale in the UK" (Marsh et al 2001: 66). The revisions tested were predominantly linguistic revisions. They were changing:

- 'physician' to 'doctor'

- 'administrator' to 'manager', and

- the item 'The research has not been replicated' to 'The research findings are only based on a one-off study' (p68).

They describe the psychometric properties of the revised scale. In reassessing the content validity it was identified that "...additional items may need to be constructed to index the adequacy of nurses' access to electronic information, databases and on-line journals" (Marsh et al 2001: 69). In assessing construct validity Marsh et al (2001) found "Items from all four of the sub scales loaded inconsistently across the extracted factors for both of the data sets creating a factor structure that was impossible to interpret. On the basis of data generated from this study the model proposed by Funk et al (1991a) was not supported" (p69-70). In terms of reliability they suggest that culturally sensitive language appears to be associated with reliability. They drew on the findings from Nilsson Kajermo et al's (1998) study (see section 2.3.2.2) to support this observation.

Reasonable sample sizes were used from the acute and community trusts in Sheffield (n=1400 and n=1509) but the response rates were small (27% and 38% respectively) and only 36% of returned questionnaires were suitable for analysis. It is not clear whether a reminder was sent out or not. The authors reported a change in Director of Nursing during the data collection but they were not sure if this had any impact on responses. Nonetheless they had sufficient responses to conduct a factor analysis. They used a confirmatory factor analysis to test the factor structure proposed by Funk et al (1991a). Marsh et al (2001) mentions but makes no attempt to explain how Nilsson Kajermo et al (1998) managed to replicate Funk et al's (1991a) findings, which no other researcher has managed to achieve. This may be because Marsh et al

(2001) were predominantly interested in UK and Nilsson Kajermo et al's (1998) study was conducted in Sweden but it is interesting that that this apparent anomaly has occurred. This paper's overall contribution to the field has been to question the link between Rogers' (1995) theory diffusion of innovations and the BARRIERS scale, whilst recognising that the scale is measuring what is intended, i.e. barriers to research utilisation in nursing practice.

Marsh (2000) also used the BARRIERS scale as pretest and posttest measure to assess the effectiveness of a multifaceted strategy implemented to strengthen evidence based culture in the community trust. They distributed 1439 questionnaires with a response of 427 (30%), which was lower than at pretest. A t-test of independent means was used to assess the difference. "Scores on the post test were lower than the initial pretest scores (t=3.17, p=.002). CSUH nurses and midwives perceived that the barriers to research utilisation were lower than they were two years previously" (Marsh 2002: 15). This was the only example, other than Shaffer (1994), of the BARRIERS scale being used as an outcome measure that was identified.

2.3.2.6.   One-off studies in the nursing professions

The one-off studies that used the BARRIERS scale are a mixed bag of studies, as could have been predicted. All have contributed to a varying degree to the knowledge base in the field. The sample sizes of the studies varied but all, of those who reported a response rate, had small response rates like many of the studies already reviewed,

- 213 nurses, constituting a response rate of 52%, participated in Barta's (1992, 1995) study

- 336 nurses (response rate 42%) took part in Shaffer's (1994); a national survey of critical care nurses,

- Carrol et al (1997) had a small response of 30% to provide a sample of 356 nurses

- Dunn et al (1998) did not report a response rate. Their sample was 316 nurses

- Four hundred and ninety eight nurses (response rate 34%) participated in Lewis et al's (1998) study

- Rutledge et al's (1998) study had a response rate of 38% providing a sample of 769 staff nurses. Four hundred and seven responses were secured from nurse managers/ clinical nurse specialists but a response rate could not be calculated because the researchers do not know how many questionnaires were distributed.

- One thousand three hundred and sixty eight nurses (response rate 52.6%) participated in Parahoo's (2000) study.

The sampling strategies used were fairly limited and may explain why the response rates were so poor. Barta (1992, 1995), Shaffer (1994) Lewis et al's (1998) and Rutledge et al (1998) used special interest group mailing lists. The Association of Critical Care Nurses, National League of Nursing and American Nephrology Nurses Association and the Oncology Nursing Society respectively. This is an inherently biased sampling strategy as a commentator on Lewis et al' s (1998) paper has noted (Lotas 1998). All the other studies (Carrol et al 1997,

Dunn et al, 1998 and Parahoo 2000) used convenience sampling, which is the weakest form of sampling.

Barta's (1992) study[ii], a PhD thesis used the BARRIERS scale as part of a descriptive survey design alongside two other instruments the information seeking scale and Nursing Practice Questionnaire- Education (NPQ-E). The aim of the study was "to examine information-seeking, research utilisation, and perceived barriers to research utilisation of paediatric nurse educators" (p4). The specific research questions explored in relation to barriers to research utilisation were:

- "What are the perceived barriers to research utilisation of paediatric nurse educators?

- What is the relationship between the perceived barriers to research utilisation and the reported level of research utilisation of paediatric nurse educators?

- What is the relationship between the perceived barriers to research utilisation and the type of campus of the paediatric nurse educator?" (Barta 1992: 5)

The Chronbach alphas for the factors developed by Funk et al (1991a) were calculated and a ranked list of barriers suggesting that paediatric nurse educators perceive and/or experience barriers to research utilisation. There was no significant correlation when correlating the BARRIERS scale and the mean total from the Total Innovation Adoption scores (a sub-scale of NPQ-E). No relationship was observed between BARRIERS factors and type of campus. This study provides further evidence of the perception and/or experience of barriers to research utilisation in a group of nursing professionals. It also

explored some possible relationships between barriers to research utilisation and other variables but no relationships were observed which is useful information for designing future studies.

In Shaffer's (1994) study, another PhD thesis, she used the BARRIERS scale as an outcome measure to assess whether administrator support for nursing research reduced staff nurse perceptions of barriers to research utilisation. In the permission letter to use the tool Funk refers to "a newer version that focuses on the respondent's current work environment." (Shaffer1994: 143). No reference to this newer scale has been identified in the literature. Funk also asks "In return for using the scale, we ask that you share your BARRIERS data with us for our reliability and validity data bank. We will use the data only to further evaluate the properties of the tool." (Shaffer 1994: 143). Again, reports of these data have not been identified. These pooled data could be interesting if Funk has received data from everyone who has used the scale. Shaffer (1994) was able to use the BARRIERS scale in regression analysis to show that making resources more available and decentralising decision-making reduced staff nurses' perceptions of barriers to research utilisation but that participation in research activities did not reduce perceived barriers. As with Marsh (2002) this study indicates that the BARRIERS scale may have value not only as a diagnostic tool but as an outcome measure as has been suggested by other researchers (e.g. Metcalfe et al 2001).

The studies undertaken by Carrol et al (1997), Barta (1995), Lewis et al (1998), Rutledge et al (1998) and Parahoo (2000) aimed to assess what nurses perceive to be the barriers and facilitators of using research findings in practice.

The most that can be said for these studies is they add weight to Funk et al's observation that nurses perceive barriers to research utilisation and that this observation is not confined to US nurses. Dunn et al (1998) in their study of UK nurses went further in their data analysis as they also conducted a confirmatory factor analysis. They concluded "...that the factor model proposed by Funk et al (1991b) is inappropriate for this UK data" (p1206). These findings add weight to the observation that the factor structure developed by Funk et al (1991a) does not fit *all* BARRIERS scale data.

2.3.3. Application of the BARRIERS scale in the allied health professions

The BARRIERS scale, although developed by nurses for use within the nursing professions, has also been used in the allied health professions, although not as extensively. Three studies have used the BARRIERS scale with the allied health professions. Two studies were conducted in Northern and Yorkshire and one in the North West, both were NHS regions. The Northern and Yorkshire studies achieved much higher response rates 73% (N=103) (Closs and Lewin 1998) and 80% (N=572) (Metcalfe et al 2001) but the North West study reported a response rate similar to studies already discussed i.e. 50% (N=193) (Pennington 2001). The studies by Closs and Lewin (1998) and Pennington (2001) indicate that the perception of barriers to research utilisation is not confined to the nursing professions and that the BARRIERS scale is able to detect these barriers. Metcalfe et al's (2001) study goes further than either of these studies in that it develops the BARRIERS scale by combining it with Ballin et al's (1980) scale of perceived importance of research into the 'Barriers and Attitudes to Research in the Therapies' (BART). This enabled these researchers

to assess barriers to conducting as well as using research. Metcalfe et al (2001) conducted a factor analysis on this measure. No attempt was made to explain the factor structure with reference to theory. Whilst the authors suggest the potential use of the BART as an outcome measure it requires further development in terms of reliability and validity. The lack of replication of the factor structure of the BARRIERS scale demonstrates that further work is needed; this study was the first use of the BART and there are no references to suggest that there has been previous development and testing.

2.3.4. Stand-alone barriers research

The stand-alone barriers research, i.e. the research that does not use the BARRIERS scale, spans a wide time frame, utilises quantitative, qualitative and mixed methods approaches and is of a varying quality. The quantitative research is survey research. Some studies use questionnaires with little explanation of their development or testing (e.g. Miller and Messenger 1978). Many faced similar issues to the research studies already critiqued, such as small response rates (e.g. Hefferin et al 1982) and unsophisticated sampling strategies (e.g. Pettengill et al 1994). One study (Cranney et al 1999) used an RCT to assess an intervention which included "an exploration and recording of potential barriers to change and creation of an action plan to address these issues" (p532). Cranney et al (1999) found that addressing barriers to change into an education outreach visit significantly enhances the effectiveness of medical education but a number of issues in the study suggest this finding is not reliable or valid. These include:

- Lack of reference to barriers literature,

- Assignment of practices,

- Short time scale (i.e. four weeks) that provides no indication of change being sustained over time,

- The assessment of intention rather than actual behaviour, and

- Lack of an intention to treat analysis.

In terms of qualitative studies focus groups were used (Meah et al 1996 and Freeman and Sweeney 2001), a rapid organisational appraisal design (Newman et al 1998) and Colazzi's framework (Le May et al 1998). These were interesting studies that demonstrate different methodological approaches are possible. However, many of the studies reported lacked trustworthiness because of inadequate description or rationale for their methods of analysis. For example, Freeman and Sweeney (2001) described using grounded theory rules, when their study did not use a grounded theory approach, and yet produced a straightforward thematic analysis. A commentary on one of the studies (Lyne 1998) supports this critique. Lyne (1998) noted "So while the findings are extremely interesting, I found myself constantly asking 'How can I be sure this is the case?' (p19).

Two studies used a mixed method approach:

- In Weijden et al's (1998) study barriers were investigated using semi-structured interviews as part of a wider RCT aimed at testing the feasibility of cholesterol guidelines for Dutch general practitioners (GPs).

- Pollock et al (2000) used focus groups and postal questionnaires.

Weijden et al (1998) found three factors (predisposing, enabling and reinforcing) in their analysis however it is not clear how this analysis was conducted or from

where these themes emerged. The lack of detail may reflect the fact that this aspect of the study was only a small part of a larger study. Pollock et al's (2000) study used delegates at a specialist conference as their sample and this may have biased their study, a point that they acknowledged. Their findings could be tested on the wider population of stoke specialists, but it does not appear to have been done to date.

Collectively these papers demonstrate that barriers to research utilisation are a problem that has perplexed a large number of researchers. Their findings also suggest that the samples studied, which included groups other than nursing and the allied health professions, perceived or experienced barriers to research utilisation. Often barriers were one of many issues being considered in a study and/or were not the focus of the study. For example, Linde's (1989) study, where the questions about barriers to research utilisation were open ended questions added to the end of another questionnaire, or Walczak et al's (1994) study, where barriers are one sub-scale in a larger questionnaire.

Overall the research in this field shows many similarities. The same issues with regard to the limitations of the studies recur, i.e. small sample sizes, poor sampling strategies and variable if any attempts to maximise response rates. In general there does not appear to have been much learning from one study to the next in terms of methodology. Of those that follow Funk and colleagues' methods they are not followed exactly; key omissions include the reporting of data on facilitators and the top three barriers as suggested by respondents (e.g. Walsh 1997a, 1997b, 1997c, Retsas and Nolan 1999, Marsh et al 2001). None

of the stand-alone research was of sufficient rigour to challenge Funk and colleagues' seminal work.

2.4. Non-research literature

Non-research texts were only included in this review if they were predominantly focused on barriers to research utilisation (See table 2.3). Texts that referred to barriers to research utilisation in passing were not included because it was judged that these papers would have little to contribute. This decision also helped to keep the review manageable. The non-research literature was predominantly published in nursing in the UK and US; there was not such a diversity of international contributions as there was with the research papers (see above). The range of material that has been published is shown in table 2.3. Three reports were identified two were conference reports (Mulhall 1996 and Normand 1998) and one was a report for The National Board for Nursing Midwifery and Health Visiting for Northern Ireland (McDaid 2000). This indicates that there has been considerable interest in the barriers to research utilisation in the nursing profession.

Table 2.3: An overview of the non-research literature into barriers to research utilisation (chronological order)

Type of publication	Reference	Back-ground	Country
Reports	• Mulhall (1996)	Nursing	UK
	• Normand (1998)	Nursing	UK
	• McDaid (2000)	Nursing	UK
Literature reviews	• Linde (1989)	Nursing	US
	• Barta (1992)	Nursing	US
	• Shaffer (1994)	Nursing	US
	• Funk et al (1995b)	Nursing	US
	• Humphris (1999)	Medicine/ Nursing/ Allied health professions	UK
Discussion	• MacLachlan (1986)	Nursing	US
	• Bassett (1992)	Nursing	UK
	• Mayhew (1993)	Nursing	US
	• Feldman et al (1993)	Nursing	US
	• Crosswaite and Curtice (1994)	Health promotion	UK
	• Lekander et al (1994)	Nursing	US
	• McIntosh (1995)	Nursing	UK
	• Carter (1996)	Nursing	UK
	• Blanchard (1996)	Nursing	UK
	• Haynes (1996)	Medicine	US
	• Chapman (1996)	Nursing	UK
	• Hicks (1997)	Nursing	UK
	• Beyea and Nicoll (1997)	Nursing	US
	• Pankhurst and Zainal (1998)	Nursing	UK
	• Haynes and Haines (1998a, 1998b, 2002)[iii]	Medicine	UK
Editorials	Hunt (1996)	Nursing	UK
	Mailey (1997)	Nursing	US
Theory	Brown (1995)	Nursing	UK

The literature reviews form part of PhD theses (Linde 1989, Barta 1992, Shaffer 1994 and Humprhis 1999), aside from Funk et al's (1995b) literature review, which has already been critiqued (section 2.2). The depth of analysis varies and probably reflects how core the concept of barriers to research utilisation was to the whole thesis. Barta (1992) and Shaffer (1994) acknowledge the existence of

barriers and draw on Funk and colleagues work. Linde (1989) and Humphris (1999) go further in their attempts to analyse the literature. Linde (1989) provides a summary of barriers to research utilisation drawn from the literature, e.g. method of dissemination, journals do not generally print articles that are based on nursing research and time. This may be because this work predates Funk and colleagues seminal work. Humphris (1999) develops a schema of time, accessibility and organisational factors to summarise the data. It is not clear how she arrived at these themes because it is not described in her thesis.

The discussion papers were classified as discussion rather than a literature review if they were not formally labelled as a literature review. Papers were classified as a discussion paper, even if they were labelled as a literature review, if no attempt was made in the paper to provide a through overview of the literature in the field. Most papers followed a similar format acknowledging the research-practice gap, identifying barriers as the culprit, attempt to understand the barriers and some statement that they must be overcome sometime with an indication of how they could be overcome. The editorials (Hunt 1996 and Mailey 1997) were not dissimilar, although Hunt (1996) builds on her earlier work (Hunt 1981) and sets her discussion in the context of an historical reflection of changes in health care. Brown (1995) provided a theoretical framework to the issue of barriers to research utilisation using a communication model approach.

Overall the non-research literature tended to be uncritical and to reiterate the same points (Humphris 1999). It does not add anything to the research literature in terms of new perspectives on our understanding of barriers to

research utilisation. What the non-research does add to our understanding of the barriers to research utilisation is depth. It sets the barriers in context so that the meaning of barriers to research utilisation for every day life of healthcare professions can be understood in a way that could never be learnt from an item on a measurement scale. For example, Chapman (1996) in a discussion about educational constraints explains:

> "Although many senior nurses are research-orientated and have worked hard to attain extra academic qualifications, there are still some who have not had the opportunity to undertake further study. These nurses may feel threatened by student nurses and junior staff nurses who have been encouraged to ask questions, particularly in the clinical environment. What is perceived by the junior nurse as a healthy intellectual curiosity can come across to a senior nurse as confrontational. Once this occurs, neither party is likely to see the best of the other, so change from the bottom up is potentially lengthy and painful" (p38).

2.5. Discussion

The literature clearly indicates that barriers to research utilisation are a difficult issue for healthcare professionals. A number of issues arise from the literature that require further consideration including:

- a definition of barriers to research utilisation

- summarising the findings

- the conceptual basis, particularly Rogers' (1983) theory of 'Diffusion of innovations',

- whether the BARRIERS scale is of its time

- the need to overcome barriers to research utilisation, and

- the meaning of this literature review for this thesis.

Each of these issues is discussed in turn.

2.5.1. Definition

Whilst the term 'barriers' was commonly used there did not appear to be a widely accepted definition of a barrier that was used as a basis for studies. There are some attempts at a definition in the literature, but even the seminal work in the field does not attempt to define a barrier to research utilisation (see table 2.4). It may be that the word does not need to be defined because it is in common usage and it is well known that a barrier is "anything that prevents progress or success" (Allen 1990: 89). However, a barrier can be an actual interference but it may also only be a perception. It does not seem to matter whether a barrier is an actual interference or perceived for it to prevent a health care professional from using research findings. For example, a barrier frequently described by nurses is that they do not feel they have enough authority to change patient care procedures (Funk et al 1991b). It does not matter whether this is an actual interference or not, if that is what a nurse perceives it is likely to influence their behaviour. This is because attitudes are thought to be determinants of feeling and behaviour (Sabini 1992). Consequently Linde's (1989) definition of a barrier to research utilisation as "anything that interferes with research utilisation, or is perceived as an interference" (p18) is an apposite definition and is the one used in this thesis. The lack of a widely used definition suggests that this is a nascent field. At some point a definition needs to be adopted to ensure that all studies are researching the same phenomenon.

Table 2.4: A list of definitions of barriers to research utilisation identified in the literature

Definitions of barriers to research utilisation

• "anything that interferes with research utilisation, or is perceived as an interference" (Linde 1989: 18)
 • Funk and colleagues – no specific definition posited but it can be inferred from some of their observations e.g.
  - "suggested reasons for the research-practice gap. These barriers" (Funk et al 1991a: 39)
  - "the problems nurses encountered when trying to put nursing research findings into practice" (Funk et al 1991b: 90)
  - "Whether they have actually been experienced by the individual or are only perceived to be a problem, these barriers could hinder attempts to put innovations into practice or keep the adopter from even initiating the adoption process"(Funk et al 1991a: 44)
 • "Barriers to research utilisation were the rating paediatric nurse educators gave to statements relating to four factors representing characteristics of the adopter, organisation, innovation, and communication" (Barta 1992: 6)
 • "Barriers to research utilisation are the reasons why nurses may not use the results of research to help guide their practice" (Shaffer 1994: 9)
 • "factors inhibiting the use of research in practice" (Blanchard 1996: 524)
 • "barriers are factors that hinder nurses' research utilisation" (Beyea and Nicoll 1997: 83)

2.5.2. Summarising the findings

Consideration has been given to summarising the findings from the barriers literature to assess whether there is a commonality in the findings. However, it is not possible to quantify all these findings in a meaningful way. This is because there are nuances between samples that may be important in the field that would be lost in a summary of data. For example in the four papers that refer to allied health professions (Closs and Lewin 1998, Metcalfe et al 2001, Pennington 2001 and Pollock et al 2002) nuances occur in the findings between studies and the professional groupings. These differences may influence the approach used to promote research utilisation with different groups (Table 2.5).

An example of an attempt to summarise the literature on barriers to research utilisation is the schema, using the headings 'time', 'accessibility' and 'organisational factors' to summarise the barriers literature, developed by Humphris (1999). Whilst this schema provides a general indication of the areas where barriers are likely to be experienced by allied health professionals it loses the subtlety of the findings of the BARRIERS scale. The simplicity of Humphris (1999) schema obscures the complexity of the issues, especially when the information needed to understand the issues faced by a particular population is the fine detail. It is also not apparent whether the barriers to research utilisation change over time without an intervention. Intuition would suggest that context could shift the perception of barriers experienced without any interventions targeted at specific barriers to overcome them. All of the research studies, except Marsh (2000) and Shaffer (1994), provide a snapshot of a moment in time so it is not clear how valid a summary would be for a population over time. Marsh (2000) and Shaffer (1994) conducted the only before and after studies despite the frequent suggestion that the BARRIERS scale could be used in this way (see section 2.3.2.5 and 2.3.2.6).

Table 2.5: A summary of the findings to show the differences between studies and professional groups in the research literature on barriers to research utilisation in the allied health professions.

Key Findings	Research studies			
	Closs and Lewin (1998)	Metcalfe et al (2001)	Pennington (2001)	Pollock et al (2002) (NB This study also included doctors, nurses and researchers)
Ranked barriers	1. There is insufficient time on the job to implement new ideas 2. The therapist does not have time to read research 3. Statistical analyses are not understandable	1. Statistical analyses in papers are not understandable 2. Literature not compiled in one place 3. Literature reports conflicting results	1. SLT does not have time to read research 2. Insufficient time on the job to implement new ideas 3. Research is not all compiled in one place	1. I [don't] find it easy to transfer research findings into my daily practice 2. I am [not] happy with the amount of time that I have available to keep up to date with stroke literature/research 3. Research papers are [not] always clear about the type of therapy that has been given and for how long
Suggested barriers			1. Insufficient time 2. Inability to evaluate the quality of research	

Table 2.5 (cont.): A summary of the findings to show the differences between studies and professional groups in the research literature on barriers to research utilisation in the allied health professions.

	Research studies			
	Closs and Lewin (1998)	Metcalfe et al (2001)	Pennington (2001)	Pollock et al (2002)
Differences between professional groups observed	All groups referred to time but SLTs differed in that they focussed on time to read research and the others (dietetics, occupational therapy and physiotherapy) on time on the job to implement new ideas. The authors noted a difference between nurses and therapists with regard to research values, skills and awareness. This appeared to be less of a barrier to therapists than nurses.	Significant difference between therapies – SLTs perceived more barriers than occupational and physiotherapists. **Dietitians** 1. Literature reports conflicting results 2= Statistical analyses in papers are not understandable 2= Literature not compiled in one place **Occupational therapists** 1. Statistical analyses in papers are not understandable 2. Literature not compiled in one place 3. Implications for practice not made clear **Physiotherapists** 1. Statistical analyses in papers are not understandable 2. Literature reports conflicting results 3. Literature not compiled in one place **SLTs** 1. Literature reports conflicting results 2. Insufficient time to read research 3. Statistical analyses in papers are not understandable	Only focused on SLTs Commented on the similarity of the findings but also noted that "Particular problems may be experienced by SLTs working in community settings, as research information is often held in medical libraries at hospitals sites" (p379)	Significant differences were observed between response of different professional groups to the following barriers: • [No] Confidence in ability to read and understand the literature • I get put off when I see statistics used in published research • It is difficult to see patients and keep up to date with stroke-related literature/research • The majority of stroke-related literature is [not] relevant to my practice • It is [not] easy to implement research findings within my department • Research papers are [not] always clear about the type of therapy that has been given and for how long

2.5.3. The conceptual basis

In order to understand the barriers to research utilisation it is necessary to look at the items individually (2.5.3.1 the barriers) but also the items collectively (2.5.3.2 Conceptual basis).

2.5.3.1.   The barriers

The pool of items that are considered to be barriers is fairly stable. This can be seen in the fact that much of the literature is repetitive. There have been few additions (e.g. information technology) (Marsh et al 2001) or any substantive changes to the content until recently (Closs and Bryar 2001). Griffiths et al (2001) posed the question "what are the different meaning that the respondents ascribe to the items and how do these meanings affect the findings" (p510). Some of the items in the BARRIERS scale, e.g. time, may be understood differently by different respondents. Humphris (1999) has highlighted "...whilst studies continue to reiterate a lack of time as a barrier they fail to take the next step. In order to overcome this barrier will require the discovery of how much and what the nature of the time that is needed by clinicians actually is" (p18). There are also alternative ways of conceptualising the issue of time is that clinicians do not have time or is it that they cannot prioritise their workload to make time? So whilst there is a fair idea of what items constitute barriers their underlying meaning may need further consideration.

2.5.3.2.   Conceptual basis

The conceptual basis indicates what theoretical approach was taken to understanding a topic. It provides a conceptual explanation of a phenomenon and/or the value judgements incorporated. It is important particularly when measuring a phenomenon because "linking the measurement with a body of theory means the method can be used analytically, rather than simply descriptively: studies using these methods may be able to explain, rather than merely describe" (McDowell and Newell 1996: 28). McDowell and Newell (1996) provided the example of Leavitt's Back Pain Classification Scale that has value in that it is a reliable and valid measure but it does not advance our understanding of the phenomenon because it is not linked to theory. It is therefore important to understand the theoretical underpinnings of a phenomenon.

Much of the work in the field lists or describes barriers to research utilisation without integrating this knowledge into an understanding of the whole. A criticism is that the literature has reduced the problem into unrelated units (Mulhall 1996, Pankhurst and Zainal 1998). This reduction of the barriers into unrelated units underplays the complexity involved. To date there have been two attempts to integrate the phenomenon of barriers to research utilisation into a theoretical whole, i.e. Rogers' (1983) theory of the 'Diffusion of Innovations' (see section 2.5.3.2.2) and Brown's (1995) communication model approach. Funk and colleagues have linked their work to Rogers' (1983) theory of 'Diffusion of Innovations', which has been explored in more detail and so receives greater attention here but both propositions are considered.

2.5.3.2.1.   Communication model approach

The communication model approach was outlined in a short paper that provided limited detail about the model (Brown 1995). This approach (Figure 2.1) links barriers to the stages in the process of dissemination and implementation and suggests that these barriers should be addressed as part of this whole process rather than as isolated barriers. There is little reference to this theory in the wider literature in the field but this theoretical proposition reinforces the idea that barriers have to be considered in the context of the whole rather than an isolated phenomenon
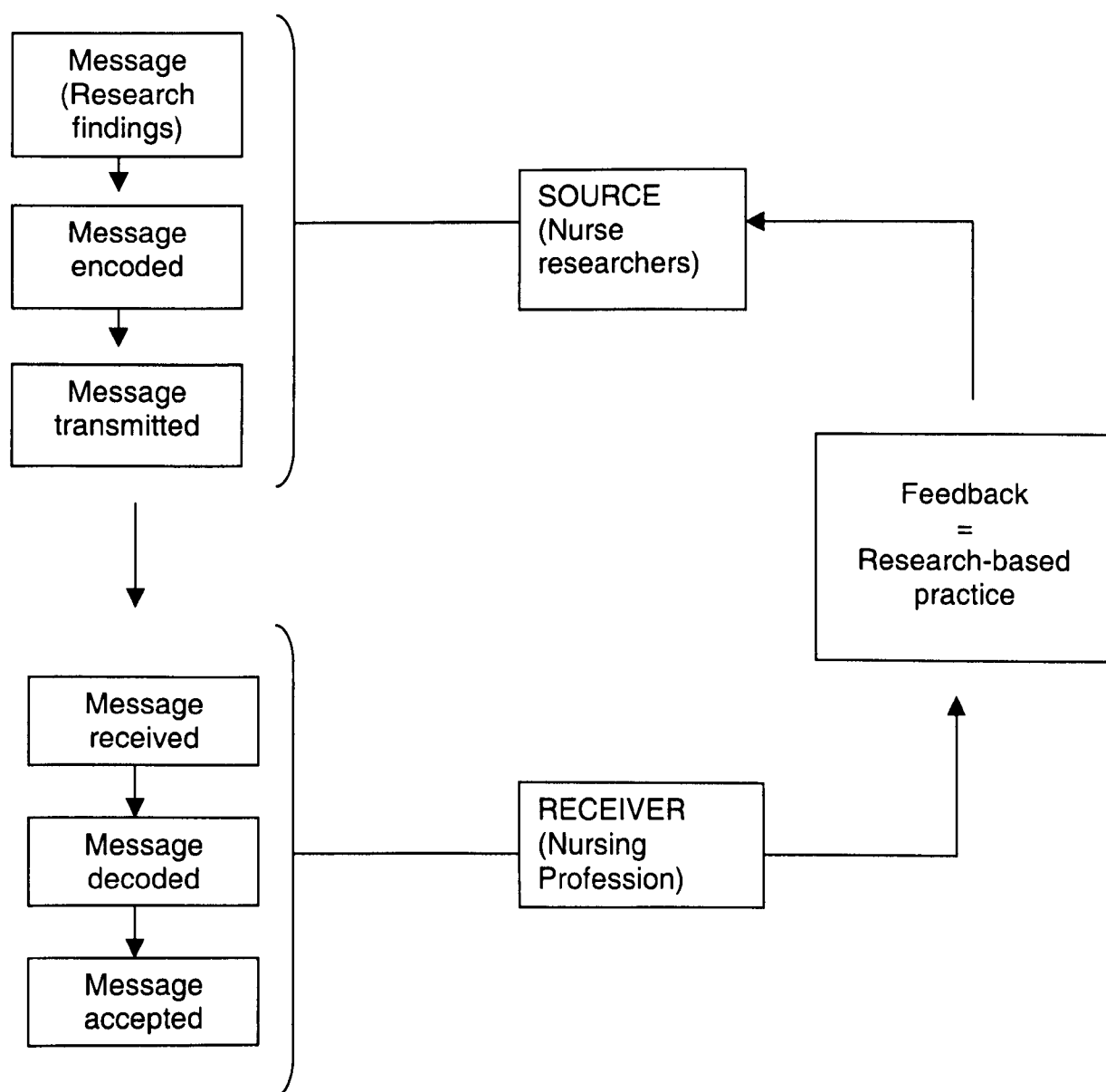
Figure 2.1: Stages in the dissemination and implementation of research findings as understood by the communication model approach (Brown 1995: 155).

2.5.3.2.2.   Rogers' theory of Diffusion of Innovations

Funk et al (1991a) observed that "Taken together, [their] analyses indicate that the BARRIERS tool has a stable structure that closely parallels critical factors in Rogers' model" (p43). Rogers is probably the leading theorist in this field. His work has influenced many aspects of research utilisation in health services research. For example, the concept of opinion leaders posited by Rogers has been used as the basis of some research into research utilisation in health services research (NHS CRD 1999). In his theory of 'Diffusion of Innovations' Rogers argues that there are four main elements, i.e. the innovation, communication channels, time and social system. Where:

* The innovation is "an idea, practice or object that is perceived as new by an individual or other unit of adoption" (Rogers 1983: 11)

* Communication is "...the process by which participants create and share information with one another in order to reach a mutual understanding" (Rogers 1983: 17) and a communication channel "is the means by which messages get from one individual to another. The nature of the information-exchange relationship between a pair of individuals determines the conditions under which a source will or will not transmit the innovation to the receiver, and the effect of the transfer" (Rogers 1983: 17),

* Time is "a fundamental concept that cannot be explained in terms of something more fundamental...time does not exist independently of events, but it is an aspect of every activity" (Rogers 1983: 20), and a

- Social system is "a set of interrelated units that are engaged in joint-problem solving to accomplish a common goal...All members co-operate at least to the extent of seeking to solve a common problem in order to reach a mutual goal" (Rogers 1983: 24)

Rogers (1983, 1995) observes that "These elements are identifiable in every diffusion research study, and in every diffusion campaign or program" (p10).

Other researchers in the field have concurred with Funk et al's (1991a) linking the factors they identified with Rogers' observation. For example Closs and Bryar (2001) observe "As Funk et al (1991) pointed out, these correspond to a considerable extent with the four major concepts in Rogers' (1983) model of diffusion of innovations, namely, the characteristics of the adopter (nurse), the organisation, the innovation and its communication" (p863). It could, however, be argued that the link between Rogers' model and Funk and colleagues' data is more tenuous. For example, Funk et al (1991a) seem to have made the observation *a posteriori*, i.e. after they had developed their factor structure. If the observation had been made *a priori* surely Funk and colleagues would have conducted a confirmatory factor analysis? It appears that Funk et al (1991a) conducted their analyses and then tried to find a theory that 'best fitted' their findings rather than what was an accurate reflection of their data. With the subsequent inability, with exception of the Swedish nursing professions, to replicate the factor structure (see section 2.3.2.2). It is important to reconsider this linking of the BARRIERS scale factor structure to Rogers' theory. It may be that Funk et al's (1991a) findings may have offered a more sophisticated insight

than that afforded by Rogers' general theorising. There are three key points to consider

- Diffusion of innovations are not necessarily research based innovations

- barriers to research utilisation increase the complexity of research utilisation, and

- there is a need to keep pace with an evolving the field.

2.5.3.2.2.1. Diffusion of innovations which are not necessarily research based

Diffusion of innovations covers the panoply of diffusion, dissemination and implementation (section 1.3). It is not the same as research utilisation. A key difference is the 'innovations', as described by Rogers (1983), are not necessarily research based. This is an important consideration because in research utilisation the innovation being implemented is research based, which brings challenges of its own. These are discrete challenges not faced when implementing other innovations. The link with Rogers' theory alone diluted the focus on the specific issues related to research, for example the need for education in order for healthcare professionals to be able to make a judgement about the rigour of the research underpinning the innovation. Health and social care is not innovation averse. It is keen on new technology, e.g. the rapid introduction of CT scanners with little evaluation. The issue is research-based practice, which may equally involve stopping routine practices as well adopting innovations.

2.5.3.2.2. The complexity of barriers to research utilisation

Rogers' theory is a generic theory, it covers all aspects of diffusion, dissemination and innovation in all fields. Whilst there is logical consistency in the theory, and it should not be dismissed, sole reliance on it may be inappropriate for focussing on specific types of innovation. Linkage of the factor structure of the BARRIERS scale to the process of diffusion of innovations may have oversimplified the issue. Alternative explanations do not appear to have been considered. For example, there has been discussion about the role of culture in the research utilisation literature generally (e.g. Closs and Cheater 1994) and in the barriers literature specifically (e.g. Closs and Lewin 1998) but this is curiously absent in the theorising about barriers to research utilisation.

Research utilisation is not a discrete one-off event it should be a part of all clinical decision making. Pringle (1999) identified 40 factors including managerial directives, research findings and control over workload that influence therapists' everyday practice. This suggests that use of research findings is only one of many influences on clinical practice. As such culture may be more of a factor than the social system because research utilisation is about adopting a behaviour that is shared across professions and is integral to all that they do.

2.5.3.2.2.3. Keeping pace with an evolving field

Much of the barriers research (e.g. Closs and Bryar 2001) still refers to the third edition of 'Diffusion of Innovations' (Rogers 1983), as Funk and colleagues did, but a fourth edition has since been published (Rogers 1995). A major change, noted by Rogers, between the third and fourth editions was the increase in the number of publications related to public health and medical sociology (Rogers 1995). This demonstrates that research utilisation is a growing field. It is important for researchers engaged in this work to be cognisant of how the field is evolving. It is interesting to note that Funk et al (1991a) whilst referring to nursing research and Rogers' theory did not refer to material from the public health and medical sociology field which may have had a bearing on barriers to research utilisation. This adds further weight to the suggestion that Funk et al (1991a) were looking for a theory that 'best fitted' rather than something that may not have been as neat but went some way to grappling with the complexities involved.

2.5.3.3. The BARRIERS scale: Is it of its time?

The questioning of the theoretical basis of the BARRIERS scale may reflect that the health and social care world has moved on since it was developed in the late 1980s. This 'moving on' can be seen in the fact we now that we now refer to health and social care not one or the other. As such "it could be that some of the questions it asks have lost their currency" (Griffiths et al 2001: 510). The BARRIERS scale may have lost currency in general. This is because is too negative. For example it sets clinicians against administrators (managers) and managers against clinicians. This can be seen in Funk et al's (1995a) finding

that "...unlike the clinicians, who overwhelmingly identified aspects of the setting as the greatest barriers...the administrators identified aspects of the nurse, the setting, and the presentation of research all as top barriers" (p45), i.e. the clinicians blamed the managers and the managers blamed the clinicians. This does not fit with the 'no blame' culture fostered with the introduction of clinical governance (DH 1998). In the era of clinical governance in the UK a more positive tool is required. Closs and Bryar (2001) concur with this observation. They have suggested: "The scale may not be suitable for use in the UK without further development: a scale which includes positive as well as negative aspects of research culture, with a greater emphasis on organisational issues may be more useful" (Closs and Bryar 2001: 853).

2.5.3.4.   Models of research utilisation

On way of conceptualising a phenomenon is to develop a model (these are often represented pictorially) to explain it. There have been a number of models developed to explain research utilisation, including the:

- 'Problem solving model'

- 'Linkage model'

- 'Coordinated implementation model'

- 'Stetlar-Marram model'

As with Rogers' theory most of these focus on the process of using a single innovation rather than the culture that produces research based behaviour as a routine behaviour. All appear to ignore the role of barriers to research utilisation. This suggests that the dialogue about barriers to research utilisation has

become separate to mainstream work on research utilisation. Other models of research utilisation do not mention barriers. Funk and colleagues' work appeared to be pointing to this complexity but perhaps by trying to fit in with the theory of the day this more sophisticated understanding was lost.

2.5.4. Overcoming the barriers

Whilst "anything that interferes with research utilisation, or is perceived as an interference" (Linde 1989: 18) is a barrier the authors in this field have also concerned themselves with facilitators, i.e. the reasons why or the factors which enable healthcare professionals to adopt research-based practices (Beyea and Nicoll 1997). This is because strategies are required to overcome these barriers if research utilisation is to be achieved. Ways to overcome barriers have been discussed either implicitly or explicitly in most studies or discussions of barriers to research utilisation (Pankhurst and Zainal 1998). The BARRIERS questionnaire includes the question 'What kind of resources would be most helpful in overcoming these barriers?' (Funk et al 1991a) The responses to this question and facilitators suggested in the literature have been summarised (see appendix 4). There are almost as many suggestions as to how to overcome the barriers, as there are descriptions of the barriers. The question has to be asked 'How useful have these suggestions been in promoting research utilisation?' because reiteration does little to resolve the issue (Humphris 1999) and the focus of this thesis is increasing research utilisation in the allied health professions.

Funk et al (1995b) were very clear in their review of the literature that "The nursing profession has not ignored these barriers to utilisation" (p399). However, there seems to be much less focus in the literature on applying and evaluating the strategies to overcome barriers to research utilisation as there has been on understanding them. It is hinted that it is possible to overcome the barriers. For example, the following reassurance has appeared in the literature:

- "The problem is difficult but not unsolvable" (Brown 1995: 156)

- "Barriers to change can be formidable but change models suggest that implementation programmes can be successful if they use interventions and activities that reduce restraining forces" (Garside 1998: 9).

- "The rationale exists that if barriers are adequately identified and measured, strategies to overcome them can be implemented in practice settings, thus improving patients care by assuring that practice is evidence based" (Marsh et al 2001: 66).

Aside from suggestions and reassurance there is very little detailed guidance for use once barriers have been diagnosed. It would be unfair to convey the idea that the need to overcome the barriers to research utilisation has been ignored in the literature but it has not received the attention that identifying the barriers has. No clear plan of how to overcome them has been offered to healthcare professionals. The paucity of literature about what happens next suggests development and evaluation of strategies is not happening and

concomitantly, despite the barriers to research utilisation literature, effecting research utilisation is still a problem.

2.5.5. The way forward

On the basis of the literature reviewed there appear to be two options available for this thesis. These are either to:

- continue to hone the understanding of barriers to research utilisation in the allied health professionals, or
- develop interventions to enable allied health professions to overcome the barriers they perceive and/or experience.

It could be argued that the field should not move forward until our understanding of the issue has been honed. Whilst more research may provide a greater insight it has already been observed that "the BARRIERS questionnaire does have utility in providing an overview of the barriers to research utilisation..." (Griffiths et al 2001: 510) and "...it has produced some information, which although it may be limited, is likely to be of considerable use in developing strategies for encouraging evidence based practice" (Bryar et al 2003: 19). What level of precision is needed or likely to be achieved, especially as the BARRIERS scale is based on perceptions rather than observations? Therefore it could be argued that the BARRIERS scale is 'good enough' and does not need further refinement.

In the light of the fact that research utilisation is still a problem and it is understood that barriers have a role to play it may be concluded that the need for an intervention to overcome these barriers is more urgent than more barriers

research (Bannigan 2001) and that the time had come to redirect energies into interventions to overcome barriers to research utilisation. Comments made recently, such as "Research is now needed on the effectiveness of individual strategies and interventions to promote the use of research in clinical practice by the allied health professions" (Pennington 2001: 379), suggest this is a continuing need.

2.6. Conclusion

Whilst research utilisation is a relatively nascent field, the literature to date indicates that healthcare professionals perceive or experience barriers to research utilisation. There is no definitive list of barriers that healthcare professionals will perceive or experience. It may be possible to refine our understanding of barriers to research utilisation. The BARRIERS scale has been a useful tool in developing an understanding of barriers to research utilisation but it needs modification. However, this literature review enabled the decision to be made that, at the time of this study, it was more important to spend time developing and evaluating suggestions made in the literature into interventions that allied health professionals could use to overcome these barriers. This is because if allied professionals can identify barriers to research utilisation they need to be able to overcome them. As Funk et al (1991b) have stated "Moving research findings into practice is crucial to [any] profession. Before this can happen, barriers to the use of research findings in practice must be removed or modified" (p94). The next stage of this thesis was to develop an intervention to achieve this.

3. Study 1: Development of the Turnkey manual

3.1. Introduction

The decision to focus on developing and evaluating an intervention evinced a symbiosis between the day to day work and the research aspects of my role as a research and development occupational therapist. This meant that this study became a substantive part of my everyday work.

3.2. Research approach

In health and social research there are two predominant paradigms; quantitative and qualitative. They both should be considered when determining a research approach. Quantitative research measures the reactions of a great many people to a limited set of questions to give a broad, generalisable set of findings (Patton 2002). A qualitative research approach involves the study of the empirical world from the perspectives of the participants under investigation (Schmid 1981). "Qualitative methods typically produce a wealth of detailed information about a much smaller number of people and cases" (Patton 2002: 14). It is the nature of qualitative research that it is not highly structured at the beginning; "the design is said to be temporally developing" (Schmid 1981: 106).

A qualitative research approach appeared to be the most appropriate approach for this study because there was a clear aim, i.e. to develop an intervention to increase the use of research findings, but no clear idea, from the existing literature, of how this could be achieved. This was because there was nothing to guide a researcher through the process of developing a new intervention other

than common sense and general research principles, which were employed to ensure the work was rigorously executed. The occupational therapy service literally had to take a leap in the dark and constantly stop and reflect on their progress before moving the work on. This process resembled Lewin's (1946) spiral cycles of action and research, with four phases: planning, acting, observing and reflecting. As such this study was an action research project, where action research is "a way of generating knowledge about a social system while, at the same time, attempting to change it" (Hart and Bond 1995: 13).

3.2.1. Action research

Action research is a style of research rather than a specific design (Meyer 2000). It has been defined as a:

> "Type of self reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understandings of these practices and the situations in which these practices are carried out" (Carr and Kemmis 1986: 165).

It is a design ideally suited to this scenario because it enables "...practitioners, managers and researchers to make sense of problems in service delivery and in promoting initiatives for change and improvement" (Hart and Bond 1995: 3). The features of action research are that it:

- Involves collaborative working, i.e. "The traditional roles of the investigator and practitioner are changed, as practitioners become co-investigators and full participants in the research for the change process" (Atwal 2002: 336).

- Is problem focussed, i.e. it was "designed specifically for bridging the gap between theory, research and practice" (Holter and Schwartz-Barcott 1993: 299)

- Involves change, i.e. an explicit aim of action research is to bring about improvements, and

- It is a cyclical process; i.e. there are spiral cycles of research and action.

Not unsurprisingly, as action research crosses the quantitative and qualitative paradigms and practice focussed, it has been strongly criticised. The key issues are:

- Rigour. It has been suggested that one way to excuse sloppy research is to call it 'action research' (Eden and Huxham (1993) cited in Hart and Bond 1995),

- The reliance on the skills of the investigator rather than the methodology (Meyer 1993), and

- Balancing the size of the project. There is a danger of it being so small it is meaningless or too large to be feasible (Winter 1989).

These issues have been addressed in this study through the use of triangulation, research supervision, reflection and documentation of methods.

3.2.1.1.   Triangulation

The nature of much postgraduate research work is that you work alone (Miles and Huberman 1994). Those who work alone, without the benefit of a research team or second reviewer, can use a variety of methods to provide more valid data than a single method. Triangulation is the use of multiple perspectives to

interpret a single set of data (Janesick 1994). Triangulation can be done from the perspective of:

- investigators

- theories

- methods

- data sources and

- analysis (Lackey and Gates 1997).

It is also possible to do multiple triangulation within a study (Lackey and Gates 1997). In this study two forms of triangulation were used. Triangulation of data methods, i.e. comparing data collected by various means, and triangulation of data sources, i.e. the use of several data sources to address the same question. Triangulation increases validity because findings obtained from more than one method inspire greater confidence that the phenomenon described was the phenomenon observed (Webb et al 1966). This is because

"Triangulation is a powerful strategy for enhancing the quality of the research, particularly credibility. It is based on the idea of convergence of multiple perspectives for mutual confirmation of data to ensure that all aspects of a phenomenon have been investigated" (Krefting 1991: 219).

The logic being "When a hypothesis can survive the confrontation of series of complementary methods of testing, it contains a degree of validity unobtainable by one tested within the more constricted framework of a single method" (Campbell and Fiske 1959: 82). However it is recognised that:

"Even if the results tally, this provides no guarantee that the inferences involved are correct. It may be that all the inferences are invalid, that as a result of systematic or even random error, they lead to the same incorrect conclusion. What is involved in triangulation is not the combination of different kinds of data per se, but rather an attempt to relate different sorts of data in such a way as to counteract various

possible threats to the validity of our analysis" (Hammersley and Atkinson 1995: 231-2).

3.2.1.2. Research supervision

Action research is dependent on context and so it cannot be prescriptive. This means it is highly dependent on the skills of the investigator. One of the reasons for undertaking a PhD is because the researcher lacks highly developed research skills. Whilst I had some qualitative research skills and experience I was also supported by my research supervisors. My supervision team had a lot of research skills and experience generally and for one supervisor this was predominantly in the qualitative research field. As well being supported by them I also had the opportunity to increase my skills by studying for a postgraduate certificate in research skills, at the University of Hull. These measures lessened the impact that my lack of skills and experience may have had on the study.

3.2.1.3. Reflection

As the study was tied up with my post I had to be mindful that this was not just a work project but research. Abbot and Sapsford (1992) have pointed out the difference between research and everyday life is that research:

- calls on a body of technique and technical expertise

- is more systematic, i.e. conclusions must flow logically and cogently from the evidence and must be open to public scrutiny, and

- requires a certain attitude or imagination, i.e. vigilance about gaps in arguments and/or weaknesses of our procedures (pviii).

I needed to ensure that I maintained this difference and the skill I used to achieve this was 'reflection'. As an occupational therapist I was educated within the framework of the reflective practitioner model. This means I am able to assimilate and consolidate cumulative work experiences by reflecting on them in a structured way and then to apply the results to future work experiences and events (Oakley et al 2000). I have applied this skill in this study. I was reflective rather than reflexive, which means I did not use reflexive analysis. That is, I reflected on the study, through a process of examining and exploring issues in an attempt to shape activity (Champion 1991). I did this to ensure that I maintained my role as a researcher but I did not assess the influence of my background, perceptions and interests on the process (Ruby 1980). Whilst the process of reflection is an intrinsic part of PhD supervision, a conscious effort was also made to take much wider soundings on the progress of the study, e.g. research seminars. This process of reflection helped to ensure that the development of the intervention was rigorous and not shaped by the work environment or a personal whim.

3.2.1.4. Documentation of methods

As no guide to developing an intervention was available it was necessary to approach the task systematically, use research methods tailored to the situation and ensure that these methods were documented. A process which Krefting (1991) calls a "dense description of research methods" (p221), i.e. describing exactly the methods of data gathering, analysis and interpretation used. The reason for doing this was "such dense description of methods provides information as to how repeatable the study might be or how unique the

situation" (Krefting 1991: 221). It was also hoped that this description would allow others to judge the logic of the methodological decisions for future studies.

3.2.1.5. Method: A four stage process to develop an intervention

Action research offers the possibility of a range of strategies and methods (Hart and Bond 1995). This is because, whilst action researchers follow a schema, "their approach is far less predetermined and generally lacks detail in design (a part from that of the immediate future)" (Waterman 1995: 19). The basic schema for action research is to reflect on a theme, plan action, take action to change practice, observe and evaluate, reflect, plan (and so on...) (Kemmis and McTaggert 1988). It was possible *a posteriori* to identify clearly four stages (spiral cycles of action) in the development of the intervention. These were:

Stage 1: Pilot work with occupational therapy service

Stage 2: Focus groups with allied health professionals

Stage 3: Review of manuals

Stage 4: Peer review process

These four stages were used to structure the report of this study.

3.2.1.6. Data analysis

The data were analysed in two ways. The quantitative data, e.g. data from the Professional Activity Checklist questions, were analysed using descriptive statistics. The qualitative data, e.g. the literature review, responses from the

experts in the field and the focus groups, were analysed using content analysis. Content analysis involved coding data, finding patterns, labelling and developing category systems (Patton 2002). Resources did not allow for this to be checked by an independent peer reviewer, although analysis and results were discussed in reflection sessions, e.g. supervision and research seminars. It was assumed that if the analysis did not reflect the participants' experience that this would be flagged up during these sessions.

3.2.1.7. Ethical considerations

This study was conducted prior to the *Research governance framework for health and social care* (DH 2001). As no patients were involved no application was made to a research ethics committee. As practitioners became co-investigators and full participants in the research for the change process in action research, and it was made clear to the services in presentations and/or meetings with staff that this was part of my research as well as my everyday work, consent was assumed by participation. No pressure was brought to bear on any allied health professional working within the trust who chose not to participate. The symbiotic relationship between my work and this research meant that it was not possible to maintain the confidentiality of the group. Data from individual therapists were anonymised through the use of numbers rather than names during the data collection. Lists of staff with the names and numbers was kept separate from the data and were destroyed when no longer needed for administrative purposes. These data have been mainly reported as a group so that identification of individual allied health professionals should not be possible.

3.3. Stage 1: Pilot work with occupational therapy staff

The initial research was carried out with occupational therapy personnel working in the then Royal Hull Hospitals NHS Trust[i]. The occupational therapy service was a given sample because the assumption was that the occupational therapy service was the scope of my work as the research and development occupational therapist. The attractions of this sampling strategy were:

a. there were no access issues

b. Philips and Pugh (1994) advise part time PhD students to study a subject related to their work to keep it manageable, and

c. there were no resource implications.

It was not possible to know at the outset what a balanced study size was because there were no previous studies to use as a guide. The occupational therapy service appeared, at the outset, to be an adequate size and scope for the study.

Upton and Lewis (1998) observed that "An initial step...is to determine the current level, or baseline, of knowledge, attitude and practice to help frame and direct future interventions" (p647). This assertion was used to guide the first spiral of action and research. On the basis of discussion with the occupational therapy service it seemed that a triangulation of data sources was needed to provide a baseline about the current situation. The sources identified were the:

• occupational therapists' perspective,

• the occupational therapy literature and

• 'experts in the field'.

The rationale for selecting these data sources was to get an all round picture of the current situation. This would be achieved by finding out the views of those who are going to be asked to change, identifying the profession's stance on research and development, and to learn from those who have similar posts to prevent the reinvention of the wheel.

3.3.1. Data collection

A triangulation of data collection methods, i.e. interviews, questionnaires, literature reviews and telephone interviews, was used to capture the data from these different data sources. The rationale and application of each method will be described in more detail below. Early in the study it was agreed that I needed to take the lead as the researcher to collect the baseline data. However, the occupational therapy service wanted to be consulted and involved at every stage of the project. My role was to collect data, draw together the results and analysis, and to present findings back to the occupational therapy team in a seminar. This was felt to be appropriate because the members of the occupational therapy service were participants in this phase of the study. They reverted back to the role of co-investigators when the data were collected.

The methods of data collection were mainly discussed with the occupational therapy service manager and my research supervisor who had a qualitative research background (RB). These discussions were supported by further discussions with the occupational therapy service in specially convened and regular staff meetings. The initial focus was how to facilitate research and

development (this was refined to research utilisation as the study progressed because research and development was too broad).

3.3.1.1. Interviews and questionnaires

Humphris (1999) warned "It is important to remember that to enable clinicians from each of the professions to take up the products of research, initiatives have to be placed within the hectic clinical reality in which they work" (abstract). It appeared that the only way to understand the hectic clinical reality in which the occupational therapists worked was to observe them. So initially the plan was to observe the therapists in this 'hectic clinical reality'. A pilot study using participant observation confirmed that the 'hectic clinical reality' exists but did not allow for much observation of the phenomenon under study, i.e. research utilisation. Whilst prolonged engagement may have eventually revealed useful data, time and resources did not allow for this (Polit and Hungler 1995). It was decided that a different approach was needed.

The hectic clinical reality would be kept in mind but we needed to access the occupational therapists' views, which are difficult to observe. It was decided to conduct interviews because:

> " We interview people to find out from them those things we cannot directly observe. The issue is not whether observational data are more desirable, valid or meaningful than self-report data. The fact is that we cannot observe everything. We cannot observe feelings, thoughts, and intentions...we have to ask people questions about those things" (Patton 2002: 341).

The occupational therapists perspective on how to facilitate research and development was gleaned through individual semi-structured interviews that lasted approximately one hour. Semi-structured interviews were used to find out:

- the extent of the therapists experience and expertise in research to date,

- to garner opinion about how they thought a research culture could be facilitated within their department and

- to elucidate their ideas about the areas of occupational therapy that need to be researched.

The use of interviews also provided an opportunity to corroborate the findings of the work carried out by the Institute of Rehabilitation, University of Hull, into barriers to research utilisation by allied health professionals (Closs and Lewin 1998, Metcalfe et al 2001). Pragmatically, the added advantage of using the face to face interview was that it enabled the occupational therapy staff and the research and development occupational therapist (a new member of the occupational therapy team) to meet each other.

The interviews were planned to last approximately an one hour, which reflected the time constraint the occupational therapy service was under. All of the occupational therapy team (n=27), whether qualified occupational therapists or therapy assistants, was invited to participate in the interviews. The researcher initiated all the appointments. An interview schedule was used to collect the interviewees' responses. In the preamble it was explained that:

- I was new to the trust and trying to get a feel for level of research and development in the occupational therapy department

- my main area of concern was research and development and that it was important to keep this as a focus because of the constraints of time, and

- I realised, based on anecdotal evidence, the response rate for recent surveys by the Institute of Rehabilitation was lower than expected due to concerns about confidentiality. I explained that I would be using the information shared in these interviews as a basis for shaping my work with the department so whilst individual data would not be identifiable they needed to bear this in mind when answering my questions. However, I also emphasised that, despite this, I would appreciate their honesty about their thoughts related to research and development.

They were then asked five questions: to describe their involvement in research, the barriers to utilising research findings, what they thought was needed to facilitate a research culture, how they defined themselves in relation to research, and their research ideas (see appendix 5). It was hoped that their responses would provide an understanding of the research-related activity in the department without the interviewees being asked an overwhelming number of questions.

In terms of recording, interviews can be audio taped or video taped. However, sometimes technology can be inhibiting. It was felt it would too inhibiting to record responses in this study because research is a difficult subject and participants were also meeting a new member of their team. The interviewer made notes on the interview schedule. These notes were written up as soon as possible after the interview. Individual member checking of the transcripts was not carried out due to the constraints of time but care was taken by the interviewer to clarify points during the interviews.

Professional organisations play a role in promoting the use of research based knowledge, through their publications and special interest groups. This suggested that the involvement in professional activities may be important and so the interviewees were also asked about this. The questions related to professional activities appeared dry and may have been a hindrance to gaining rapport so a checklist, the Professional Activity Checklist (PAC), was created to collect this information (see appendix 6). The PAC was administered during the same appointment as the interview, usually before the interview was conducted.

3.3.1.2. Literature review

A thorough literature search was conducted, using the search strategy developed for the thesis (see section 1.3.1). The aim was to identify relevant literature from the field of occupational therapy because it was assumed that this was the most effective way of understanding the profession's expectations of occupational therapists.

3.3.1.3. Telephone interviews

The experts in the field were defined as people who had had a similar role to myself (i.e. with a role in the clinical field related to research and development) or had published in the area of changing practice in occupational therapy. They were identified through the use of personal networks and hand searching copies of the British Journal of Occupational Therapy (Nov 1992- Nov 1997) and the Abstracts and Biographic Details from the College of Occupational Therapists

21st Annual Conference and Exhibition (College of Occupational Therapists 1997). Once identified, depending on whether they were known to me or not, they were contacted by letter or telephone. All were asked for practical guidance about how to increase research and development activity within occupational therapy. Participants either sent back a written response or hand-written notes were made during telephone conversations with them. It was not possible to interview them face-to-face because of their geographical locations and the lack of funding available for travel. Again these interviews were recorded by the interviewer making notes during the interview. These notes were written up as soon as possible after the interview. Individual member checking of the transcripts was not carried out due to the constraints of time but care was taken by the interviewer to clarify points during the interviews.

3.3.2. Results

The results from each data source have been presented followed by the overall data analysis.

3.3.2.1. The occupational therapists perspective

Of the possible 27 personnel 23 (85%) participated. This included the head of service, two head occupational therapists, eight senior I occupational therapists, two senior II occupational therapists, three basic grade occupational therapists and seven technical instructors/ assistants. Only 21 therapists completed the PAC; two PACs were not administered in error. In reporting the findings of the PAC the percentages indicate the percentage of the total number occupational

therapists in the occupational therapy service not the percentage of participants. The PAC identified that in terms of:

a. Membership of professional organisations

- 15 (56%) were members of the British Association of Occupational Therapists

- There was one member of World Federation of Occupational Therapists, and

- Five (19%) were members of special interest groups but only two described this as active membership. This activity was described as union steward and attending meetings.

b. Reading

- 18 (67%) indicated that they read the British Journal of Occupational Therapy

- 20 (74%) reported reading Occupational Therapy News, and

- 14 (52%) reported reading other work related journals, including Therapy Weekly, British Journal of Therapy and Rehabilitation and other specific diagnosis related journals. The majority (n=9) cited Therapy Weekly.

c. Postgraduate qualifications

- 5 (19%) reported having postgraduate qualifications

- These included a teaching certificate, fieldwork education and BHSc

(These data have also been reported alongside the PAC data in stage 2 for the purposes of comparison - see section 3.4.2).

The interviews identified that there had been some involvement in research related activity (Table 3.1). In terms of barriers 17 (63%) agreed time was the

greatest barrier. An example of the observations the occupational therapists made were:

- "I am under constant pressure I only work part-time and even with my clinical work I have to juggle what I am doing."

- "Yes there isn't enough time. Research requires a high level of mental involvement you can't just switch off from clinical work and switch into research work.", and

- "It's the greatest but by no means the only barrier"

Five (19%) occupational therapists did not agree and made comments such as:

- "I think there is a danger of using time as an excuse", and

- "…it also depends what you mean by time-i.e. in or out of work? If you are referring to in work, i.e. to implement something in work, you need time in work to be able to it"

Table 3.1: Summary of involvement in research to date described by the participants

Area of practice	Number described involvement	Notes about this involvement
Education	8 (30%)	All research described was undergraduate although one had completed this level of study post registration. Topics (where stated): • Mental health • GPs knowledge of occupational therapy • Dyspraxia • Multiple sclerosis • Childrens' interactions with snozeleen.
Practice	4 (15%)	Types of activity described: • Audit type research project • Completing questionnaires (usually for undergraduate students)

Reading	17 (63%)	Comments • British Journal of Occupational therapy (n=5) • Not a regular activity • Only if pertinent we've been trying to look at our service recently • Related to the sort of things I am interested in • When I have to • The two day CASP course has given me more appreciation
Publishing	3 (11%)	Of those who have published this was not a regular activity nor research related: • A long time ago • BMJ 8-9 years ago • Letter to Therapy Weekly

All of the participants suggested barriers other than time and seven themes could be identified in their responses:

- **Resources (money and time)** e.g. "a perception that the problem is to do with money" and "wouldn't get time in lieu"

- **Experience/ awareness/ knowledge** e.g. "I do not have enough knowledge" and "they don't really know how to go about it."

- **Attitude/motivation** e.g. "Fear", "some people are anti research" and "lack of motivation"

- **Working conditions (inc. local perception of the profession)** e.g. "We are not valued as occupational therapists" and "cannot predict the peaks and troughs of the caseload."

- **Culture**, e.g. "making it as part of the norm", "we are segregated" and "Locums are not involved in this type of thing they are not even asked"

- **Reward**, e.g. "no money for doing it or advancement in terms of the profession"

- **Management support**, e.g. "the lack of management backing" and "how much the senior bodies in a organisation think it is necessary as to whether it gets done."

The response to the question asking what was needed to facilitate a research culture within the occupational therapy department elicited a range of responses that have been summarised in seven themes:

- **Facilitation/facilitator (inc. support/advice/ education)**, e.g. "it helps having you", "to be encouraged to start" and "then allowed time to actually do it and some advice".
- **Change of culture (become more research focussed)**, e.g. "have a research slot in the staff meeting" and "the importance of it needs to stressed more".
- **Specific activities**, e.g. "Developing the critical appraisal skills of the staff", "include people in a project", "which somebody else is running", and "A support network where people could get together to brainstorm ideas."
- **Management support**, e.g. "have to feel that they have been given "permission" for this", "Our management has got to start to take us forward", and "told from management it is OK to give yourself time and that it is expected as part of the job so that everyone knows it is an acceptable part of the working day."
- **Resources (Time and money)**, e.g. "Needs to happen in work time", "Money", "People need to be given time to do it", and "this needs to be "protected" time so that they can understand more about it."

- **Environment**, e.g. "The department is too small" and "A room to actually do it in."

- **Motivation**, e.g. "having an interest in what you are researching" and "for many of them family are their priority."

Other observations were also made, i.e.:

- "It is a slow process"

- "everybody needs to be included regardless of who initiates the project"

- "the motivation of a deadline can be a useful tool", and

- "there's no point in pretending it isn't complicated because it just is you need to recognise this."

The responses to the question which of the COT categories, in relation to research and development, do they identify with have been summarised (Table 3.2). Twelve (44%) participants envisaged this would change over time and eight (30%) were not sure whether they would change or not. In terms of ideas for research one participant suggested a way forward:

"There is nothing I would like to see researched specifically. What I would like is to have is one particular area picked to do some work on to give us some evidence for the work that we are doing. This could then be published, which would help put Hull on the map. Although it would only be in one area it would also help other staff just to see this happening and so would also be valuable to them. So the topic would have to be applicable to Hull but I am not sure what".

The other participants suggested topics for research and these have been summarised (Table 3.3).

Table 3.2: A summary of the participants' responses to the question "Which of the COT categories, in relation to research and development, do they identify with?"

Category	No of participants
Consumer	12 (44%)
Participant	6 (22%)
Proactive	0
Unsure/ None of the above	5 (19%)
Total	23

Table 3.3: A summary of the topics suggested for research

Research topics suggested

- **Splinting**
  (inc. new pressure garments service, strokes, rheumatology)
- **Elderly**
  (inc. syncope for falls)
- **Specific services**
  (inc. outreach team, paediatrics, orthopaedics, vascular surgery amputees)
- **Organisation of services**
  (inc. bureaucracy and therapy time)
- **Education of pre- registration students**
- **Neurology**
  (inc. Parkinson disease, Parkinson disease and conductive education, Bobath, Multiple Sclerosis)
- **Occupational Therapy specific**
  (inc. activities of daily living)

Other issues arose during the interviews that were not directly related to the questions on the interview schedule. These included:

- A helper who described being interested but could not see the relevance of research and development to their role. Another participant suggested the

British Journal of Occupational Therapy is unreadable, particularly for support staff,

- The need to explore different models of time out,

- The problems with research and development are not just confined to occupational therapy, and

- Back up support would be needed for example we do not have access to a computer or the American Journal of Occupational Therapy.

- Interest in finding out more about audit because it is included in the basic grade's job description.

3.3.2.2. Literature review

The search revealed that there had been an interest in research in occupational therapy for a number of years but that an interest in research and development was a more recent phenomenon in the UK. Whilst there were several models of research utilisation none had been developed in the field of occupational therapy. These models have been summarised for use by occupational therapists (Brown and Rodger 1999) since this review was initially completed. There were two examples of application within occupational therapy (Conroy 1997, Taylor 1997) and these are critically reviewed in more detail. It became apparent that it was not enough to just review the occupational therapy literature. This literature review had to be extended to include management

support, a culture of research based practice and change management

because these issues were raised, but not explored in detail, in the occupational

therapy literature.

3.3.2.2.1. Occupational therapy literature

For historical detail there was a need to rely on Ravetz's (1987) overview of

research in the British Journal of Occupational Therapy:

> "Access to very early issues is limited but, nevertheless, reference to
> research appeared early and correspondence on the subject took place
> in 1944 when Hombersley, on her return to Britain after an absence of 5
> years, expressed the view that we were "a long way behind our American
> colleagues both in original research and publication of results" (p355).

Three early papers, all published in North America were located during this

literature search. Jobin (1967), in a discussion paper on *The problems of the*

clinicians in applied research, focussed on conducting clinical research and

ended with encouraging researchers to publish their research. Crocker (1977)

discussed the need to appraise critically research articles and explained how to

do it. Ottenbacher et al (1986) discussed some of the issues related to research

utilisation in occupational therapy based on the innovation-decision process.

Ravetz (1987) observed "The energetic proliferation in research during the last

decade has established research as an integral part of occupational therapy

practice and publication" (p355). With the exception of Crocker's (1977) and

Ottenbacher et al's (1986) paper, the emphasis was on research. Research

papers were published sporadically in the UK until 1997 when there was a

marked increase in the number of publications related to the broader issue of

research and development; which paralleled the way research and development developed in the NHS (see section 1.3.3).

The publications and events of 1997 seemed to mark a turning point in terms of research and development for occupational therapy. These were:

- A research and development group was formed as part of the College of Occupational Therapists' headquarters organisation and administrative framework (Eakin et al 1997).

- A research and development board was created (Eakin et al 1997).

- A group head for research and development was appointed (Eakin et al 1997).

- A report *Promoting research in the clinical setting: a local inquiry and a complementary literature review* was published (Conroy et al 1997).

- The NHS executive for the Anglia and Oxford region instigated a two year programme to promote evidence-based therapy in the region (Anon 1997).

- The Chairmen's Liaison group (1997) outlined the key elements of good therapy services that are needed to ensure the delivery of safe, efficient and cost effective therapy services. One of the key elements was "the need for the evaluation of practice and research into therapy is recognised and appropriately supported to promote research-based practice" (Chairmen's Liaison Group 1997).

- Craik (1997) published an opinion piece entitled *Research: Moving from debate to action* which concluded, "The debate about research in occupational therapy is welcome. And we can decide that debate is enough or we can decide to move from debate to the activity that is the core of occupational therapy." (p66).

- At the College of Occupational Therapists annual conference a paper session was devoted to research (and development) including the description of a research strategy to enable all staff to have active research roles, a programme to help clinical occupational therapists get started in research, and the findings of a study into the use of libraries by occupational therapists (Gaynord 1997).

- The Casson Memorial Lecture (the pre-eminent honour in occupational therapy in the UK) focussed on evidence based practice (Eakin 1997). Eakin (1997) identified that:

> "many of the restrictions are associated with access to and representation within organisational structures, limited funding and other work priorities. They are largely to do with the management of occupational therapy services. Therefore, occupational therapy service managers have a crucial role to play in promoting and supporting the implementation of research findings that are relevant to occupational therapy" (p291).

She also reminded occupational therapy practitioners of their Code of Ethics and Professional Conduct for Occupational Therapists (COT 1995) and stated "Occupational therapy practitioners cannot, therefore, claim that research belongs in the realms of academia and has nothing to do with them" (Eakin 1997: 293). She also explained

> "...occupational therapists were categorised into three groups as:
> - Those who are research consumers (all occupational therapists)
> - Those who are research participants (a substantial number)
> - Those who are proactive researchers (a limited number)" (Eakin 1997: 293).

In her conclusion Eakin (1997) proposed:

> "...evidence based practice is an issue, indeed a duty, for all occupational therapists and can no longer be seen as the preserve of academics operating somewhere in the distance beyond the realities of practice.

The challenge for the profession is to shift the balance now and in the future, towards the integration of research and practice into a seamless whole for the benefit of those who use our services and for the development of our profession" (p294).

- A special issue of the British Journal of Occupational Therapy on evidence based practice was published. It included the *College of Occupational therapists' Research and Development Strategy* (Eakin et al 1997). Eakin (1997) suggested that this strategy was needed because "overall, a culture of research based practice needs to be promoted at all levels." (p469).

- There was a debate about the need to encourage research in the British Journal of Occupational Therapy (Dawson 1997, Ilott 1997).

The COT research and development committee's observation that "These positive developments herald the start of a new era for occupational therapy in the areas of research and development and they will strengthen the profession in terms of knowledge and practice development." (Eakin et al 1997: 486) suggests that 1997 felt like a turning point to those involved. The fact that a systematic review protocol was posted on the Cochrane Library in 1996 about guidelines in professions allied to medicine (Thomas et al 1997) suggests that an interest in the development aspect of 'research and development' of occupational therapy practice was not confined to the occupational therapy profession.

Research and development has made an impression; the key textbook used by occupational therapy students in the UK has a chapter on research and development (Turner et al 1992). However, Minns' (1996) asked the question, "...who does read the journal, what value does it have for the working

occupational therapist, and what does it say about our profession?" (p394). If this was indicative of opinion in occupational therapy, Ravetz's (1987) observation that research had been established an integral part of occupational therapy practice and publication was probably premature.

Since this literature review was completed Brown and Rodger (1999) have reviewed the models of research utilisation as frameworks for implementing evidence-based occupational therapy. A number of models of research utilisation were identified. They were predominantly from the nursing literature and have been summarised in Table 3.4. They were perceived as directly applicable to evidence based occupational therapy practice. Brown and Rodger (1999) observed that

> "Research utilisation models provide a framework for collaboration and the necessary conditions for research utilisation activities to be successful. Examination of the research utilisation models demonstrates more similarities than differences. The purpose of all of the models is to bridge the gap between research and practice. It is the clinician's responsibility to make choices about implementing a research utilisation model. After implementation, models must be evaluated to furnish the necessary data to provide evidence of their effectiveness in terms of research use, process, cost and utility" (Brown and Rodger 1999: 17).

Table 3.4: A list of the models of research utilisation in the literature (Adapted from Brown and Rodger 1999)

Model/ Source	Structure
The Nursing Child Assessment Satellite Training Project (NCAST) (Barnard and Hoehn 1978)	a. Recruitment b. Translation c. Dissemination d. Evaluation Outcome: dissemination of research results to clinicians
The Western Interstate Commission on Higher Education in Nursing Project (WICHE) (Krueger et al 1978)	a. Participant recruitment b. Conduct workshops to prepare participants c. Research findings are critiqued d. Design, implementation and evaluation of innovations e. Final report of implementation process Outcome: increase in clinical staff using research in their practice
Conduct and Utilisation of Research in Nursing Project (CURN) (Horsley et al 1983)	a. Problem identification b. Assess knowledge base c. Design practice change/ innovation d. Conduct clinical trial e. Adopt, alter or reject change f. Diffuse innovation g. Institutional change and maintain innovation over time Outcome: change in client outcome
The Innovation Diffusion Process Model (Rogers 1983)	a. Knowledge phase b. Persuasion phase c. Decision-making phase d. Implementation phase e. Confirmatory phase Outcome: improved clinical practice through research
The Linkage Model (Crane 1985a, 1985b)	a. User system b. Resource/ knowledge-generating system c. Transmission mechanism d. Feedback mechanism Outcome: transmission of research innovations
Killeen's Matrix of Research Activity (Killeen 1992)	a. Valuing b. Understanding c. Practising d. Integrating Outcome: improved clinical practice through research

The Stetler-Marram model (Stetler 1994)	a. Preparation phase b. Validation phase c. Comparative evaluation phase d. Decision-making phase e. Translation/application phase f. Evaluation phase Outcome: use of findings in practice
The University of North Carolina Approach (UNC) (Nolan et al 1994)	a. Topic selection b. Call for abstracts c. Abstract review d. Research presentation e. Publication of conference monographs f. Information centre and referral service established Outcome: delivery of research-based care and dissemination of research
The Iowa Model of Research in Practice (Titler et al 1994)	a. Expected outcomes documented b. Practice interventions designed c. Practice changes implemented d. Process and outcomes evaluated e. Intervention modified if required Outcome: improving clinical practice through research

The similarities and differences in the research utilisation models identified by a comparative analysis have been summarised in Table 3.5. Brown and Rodger's (1999) critique was limited but they drew on the work of White et al (1995) to observe "it may be presumptuous to expect individuals to implement change without organisational support" (p416). They reiterated Nolan et al's (1994) analysis that "insufficient data exist for evaluating the effectiveness of any one of the research utilisation models described above in terms of research use, process, cost and utility at the present time" (Brown and Rodger 1999: 19). Brown and Rodger (1999) concluded that "By using one of the research utilisation models described, occupational therapy personnel will have a framework and strategy for establishing evidence based practice" (p20). They also noted:

"If successful, research utilisation activities will spawn a variety of outcomes, including: (1) current practice may be reaffirmed; (2) current practices may change; (3) collaborative networks may be established; (4) practitioners' critical thinking skills may be enhanced; (5) cost savings may occur; (6) new research questions may be generated; and (7) improved client outcomes may be seen" (Brown and Rodger 1999: 20).

This appeared to be conjecture rather than an observation based on research

evidence.

Table 3.5: A summary of the similarities and differences in the models of research utilisation identified by Brown and Rodger (1999)

Similarities	Differences
• Problem-focused in nature • stress the importance of an environment that is supportive and committed to the utilisation of research findings. • it is imperative that appropriate resources to be out in place to ensure success • the procedures are linear in nature and indicated an orderly progression from start to finish • all include a feedback loop • emphasises a systematic process of analysis to facilitate the incorporation of research findings into clinical practice • they are prescriptive models • they indicate the nature of the research utilisation activities • they promote evaluation of research findings	• some were developed for organisations other for individuals • some of the research utilisation models focus on applying findings whereas others are more concerned with the studies reviewed. • some of the models focus on the organisation whereas others focus on the clinician. • some consider planned change the primary focus, others prioritise educational preparation, and yet others claim critical and problem solving are paramount

3.3.2.2.1.1. Applications in occupational therapy

There had been two attempts to explore the practicalities of using research

findings by occupational therapists (Conroy 1997, Taylor 1997).

3.3.2.2.1.1.1. Evidence based practice

Taylor (1997) provided an introduction to evidence based practice focussing on the four-stage process outlined by Rosenberg and Donald (1995). She explored how this four-stage process could be applied in occupational therapy, using a clinical question about joint protection education programmes. In relation to the issue of time Taylor (1997) suggested that it may be possible to use students on placement as possible searchers for evidence.

This introduction to evidence based practice demonstrated that Rosenberg and Donald's (1995) four stage process, which was designed by doctors for use by doctors, had a wider application. The worked example was a useful template for working through the process. The discussion about how to translate this process into clinical practice was limited. The author's idea about students was interesting but needed careful consideration. A first step may be to discuss this proposal with education providers to ensure students are not being taken away from clinical practice, which is often at a premium in their training. Education providers have since suggested an alternative strategy such as the use of collaborative partnerships for final year research projects (Mayers 2000). Taylor's (1997) paper provides a starting point but would need to be used alongside additional material on facilitating evidence based practice because the discussion about changing clinical practice was limited.

3.3.2.2.1.1.2. A project to look for evidence of efficacy within occupational therapy

Conroy (1997) reported on a project to look for evidence of efficacy within occupational therapy. This was a pilot project designed to extend the awareness of occupational therapists of the evidence of efficacy in their clinical practice (Ahmad et al 1997, Conroy et al 1997, Conroy et al 1997). Nine occupational therapists working in the children's service in Southampton participated in the project; the intention was to extend the project to other clinical areas after the pilot study was completed. The project's aims were to provide evidence of efficacy for clinical interventions, develop a process for use in the occupational therapy service, and increase the awareness and use of research based evidence. A pictorial representation of the process for achieving this was presented in two forms; a picture of what they planned to do and a picture of what actually happened. This neatly demonstrated that the actual process did not follow the neat linear path anticipated. The problems faced by the therapists in the project were (a) searching which was constrained by the journals available and limited access to Inter Library Loans, (b) finding time (most of the work was done in therapists' own time) and (c) the practicalities of identifying review and research articles. The project was described as having an impact on the service in terms of clinical influences, staff development and managerial implications. "Some evidence of an increase in other research related behaviours among the participating therapists" (Conroy 1997: 490) and an "Eagerness to continue in other areas of the occupational therapy service"

(Conroy 1997: 490) were also observed. It was not clear what data these observations were based on.

This was an interesting example of how one research development practitioner had tried to raise the awareness of research findings. The later observation by the NHS Centre for Reviews and Dissemination's (1999) that:

> "Dissemination activities by themselves are unlikely to lead to changes in behaviour. However, this should not be taken to mean that raising awareness of the messages underpinning proposed changes is unimportant. Whilst the relationship between knowledge and behaviour is rarely linear, awareness of the message still plays an important part in the process." (p13)

chimes with Conroy's experience in 1997. The project illustrates some valuable lessons for those about to embark on this process. These include the need to start small, that these types of projects are more complex than you anticipate (linearity is not a common feature of this type of work), there may be other 'spin-off' benefits, such as staff development, and further confirmation that time is an issue.

3.3.2.2.2. Management support

In her Casson Memorial Lecture Eakin (1997) suggested that managers could provide a lead in facilitating the change to evidence based practice. She is not the only person to make this suggestion; others have made the suggestion in relation to occupational therapy (e.g. Alsop 1997, and Closs and Lewin 1998) and it has been suggested in the broader research and development literature (e.g. Colgan 1996, Hyer 1997). It is reasoned that the role of the manager is

critical to the success or otherwise of research utilisation projects. It stands to reason that as most occupational therapy managers are occupational therapists themselves, they are likely to face similar barriers to research utilisation (see section 2.5.2). They are not necessarily prepared for facilitating research and development, because occupational therapy only became a graduate profession in 1992, they are more likely to be diplomates than graduates therefore unlikely to have *any* research training. This suggested a need to review the role of managers in the literature.

Several studies reported the importance of the role of managers; a flavour is reported here (e.g. Bircumshaw 1990, Rodgers 1994, Veeramah 1995 and Humphris et al 2000). Shaffer (1994) found that "administrative supports for research had a significant effect on both participation in research and perceptions of barriers to research utilisation" (abstract). MacLachlan (1986) in their work on barriers to research utilisation (see section 2.4) observed "It is a general assumption that staff nurses' attitudes, behaviours, and competencies relating to the utilisation of nursing research reflect the nursing service administrator's commitment" (p384). Meah et al (1996) also observed that:

> "...it has been suggested by Luker (1995) that managerial support is vital to the success of evidence-based nursing practice; she proposes that line managers provide nurses with the power to change clinical practice. This view is supported by the reports given by midwives taking part in this study" (p82).

It is not enough for managers just to support the principle of evidence based practice but to facilitate its development they also have to take practical action.

Other authors explored what it was that was so important about the role of the manager in increasing the use of research findings. That is "Nurse administrators must take steps to create a climate which is supportive of research" (Schaffer 1994: 31). This is because she found "In the overall analysis, research climate was the only significant predictor of staff nurse participation in the research process" (Schaffer 1994: 90). This analysis is supported by Funk et al (1995) who posited that "Administrators are responsible for creating an institutional climate that fosters and promotes research use, whereas clinicians are responsible for the adaptation, implementation and, clinical evaluation of the research" (p44). It would suggest management support is crucial to the success of practice development projects because managers often dictate how resources in an organisation are used. The problem with this is "Nurse administrators may not value or recognise the importance of research based practice, and clinical environments may not sanction research utilisation" (Beyea and Nicoll 1997: 830) but "As a greater managerialism has developed in healthcare managers are increasingly important players.

Managers have come to take on responsibilities that might in earlier times have been the province of senior professionals, but they may not understand fully the significance of research which might improve services and practice" (Normand 1998: 21). Part of the problem may be that "managers see little merit in devoting resources in a slow and uncertain process of change" (Normand 1998: 22). Most of these were anecdotal observations, or observations made in studies focused on other interventions. There were no studies or interventions targeting managers identified in this search. Wensing et al (1998) have also observed that "Well designed trials of management support were rarely found" (p993).

Whilst the literature has suggested:

> "It is apparent that the utilisation of nursing research is dependent initially on the decision of nursing service administration. It is a general assumption that staff nurses' attitudes, behaviours, and competencies relating to the utilisation of nursing research reflect the nursing service administrator's commitment." (Phillips 1986: 384).

These types of exhortations are rarely accompanied by any practical guidance. This implied that the culture of research based practice and change management also needed to be explored.

3.3.2.2.3. A culture of research based practice

If managers are responsible for creating a culture in which research based practice can flourish it is necessary to understand:

- what is meant by culture?

- what are the specific features of a culture of research based practice? and

- what action is needed to facilitate a culture of research based practice?

A culture is "the customs, civilisation, and achievements of a particular time or people" (Allen 1990: 282). Every organisation has a culture (Arnold et al 1987) and it is recognised in the 'what', 'why', 'how' and 'who', i.e. the way of life (Eliot 1948) or the way things are done (Ouchi and Johnson 1978) in an organisation. Culture literally "...ties people together, giving meaning and purpose to their day-to-day activities and lives" (Arnold et al 1987: 20). However, culture can have a negative or positive effect (Arnold et al 1987). It has been described as having four basic elements (Deal and Kennedy 1982):

1. **Values** – those concepts/beliefs at the heart of the organisation. There are core values, i.e. those concepts/beliefs at the heart of an organisation, and secondary values, i.e. those held by members of significant sub cultures.

2. **Heros** – "people who personify the culture's values and serve as tangible role models for employees to follow" (Arnold et al 1987: 21)

3. **Rituals and ceremonies** – "Rituals are the relatively routine manifestations that show employees the kind of behaviour that is expected of them…Ceremonies are the extravaganzas that provide visible and potent examples of what the [organisation] stands for, such as annual awards" (Arnold et al 1987: 21)

4. **Cultural network** - the means of communicating and it carries the organisation's values. "The network is often the only effective way to get things done or to understand what is really going on" (Arnold et al 1987: 21).

This understanding of culture needs to be applied to develop an understanding of what it means in terms of developing a culture of research based practice. Closs and Cheater (1994) suggested "there are at least three prerequisites for the effective utilisation of research findings. These include a positive research culture; interest from those who have the potential to utilise findings in practice and wide ranging support from government bodies, managers and peers" (p763). The reference to a positive research culture is an implicit recognition of Arnold et al's (1987) observation that culture can have a positive or negative effect. Stewart (1998) suggested that "most important is a common attitude in the organisation that encourages a research culture" (p29). Deal and Kennedy's (1982) schema provides a key to understanding the specific features of developing a culture of research based practice:

1. **Values** - It is the manager's role to shape both the core and secondary values/beliefs to influence attitudes so that their team highly values research based practice, recognises that research is important, and uses research findings in their practice. This is because:

> "It is primarily an attitude of mind, which:
> - thinks in terms of evidence for decisions and about the nature of evidence;
> - asks questions. What is happening? How is it happening? Why? What are the consequences?
> - is aware of the potential limitations of the different answers;
> - is interested in research to try to find the answers or at least to reduce the ignorance.
> This attitude of mind is necessary if a research culture is to exist"
> (Stewart 1998: 29).

That is, managers have a role to play in stimulating the interest from those who have the potential to utilise research findings in practice.

2. **Heros** – "Developing a research culture requires at least one senior manager to act as a role model" (Stewart 1998: 29). This means managers "Co-operating in research and encouraging staff to do research based further education" (Stewart 1998: 29).

3. **Rituals and ceremonies** – It has to become an everyday ritual to question practice and actually use research findings in practice. "In a research culture managers encourage their staff to question what is being done, and group members encourage rather than sit on a member who questions the group's conclusion" (Stewart 1998: 29). The manager should also ensure that its organisation's ceremonies reward research based practice to reinforce this culture.

4. **Cultural network** – Inculcation of the values of research based practice will not just happen without the manager actively communicating the values via the cultural network.

A manager's role in creating a research culture has also been described as being analogous to the process of creating Health and Safety in the workplace (Ilott 1999). To develop this analogy, like health and safety, when creating a culture of research based practice it has to:

- fit into the organisational context,

- be a priority

- have sanctions if managers and staff do not comply with using research findings

- put effort into the information about using research findings,

- be integral and implicit, i.e. practice should be research based as a matter of course

- use education to raise awareness

- be everyone's responsibility

- take into account that there is a danger of boredom and the turn off factor

- change clinicians behaviour to facilitate clinical change.

Action is needed to facilitate a culture of research based practice. As well as the facilitators that were suggested in the barriers to research utilisation literature (see appendix 4) and the lessons learnt from projects about research utilisation (see table 3.6) there is no shortage of ideas of what needs to happen to create an environment conducive to research based practice, e.g:

- "When practitioners understand research utilisation, they have a foundation on which to develop a research based practice" (Lekander et al 1994: 118)

- "A possible way of doing this is to link acquisition of critical appraisal skills and research activity with annual staff appraisal." (Meah et al 1996: 83) and

- "A realistic, step by step approach may lead to quicker uptake of research evidence than one that tries to make changes very rapidly" (Normand 1998: 21).

Few of these suggestions or projects have been rigorously evaluated. This is because "Although in some circumstances...non randomised observational studies can provide useful information...in most circumstances moderate biases (which are common in observational studies) will render the results unreliable." (Landray and Whitlock 2002: 1373). For example, in the Promoting Action on Clinical Effectiveness (PACE) project the project team hand selected the sites to be studied (Dunning et al 1998).

Table 3.6: A summary of the lessons learnt from projects that have focussed on increasing the use of research findings in the UK

Project	Lessons learnt
GRiPP - Getting research into practice and purchasing (GRiPP 1994 cited in Appleby et al 1995)	• "Both **nationally available research evidence** and a clear, robust and local justification for change are needed in order to secure support. • **Consultation and involvement** of interested parties, preferably led by a respected product champion, needs to be thorough and comprehensive • **Change in one sector**, such as acute care, can have major consequences for others, such as general practice and primary care, which need to be addressed and taken into account. • Access to **information about current practice and the effects of change** is very important, but that information is not usually available from routine data systems. • **Contracts are best used as to summarise discussion and agreement** that has taken place elsewhere, not as a focus for discussion and debate. • **Costing the changes in practice** may reveal that more effective care costs more, not less. In any case, costing is unlikely to result in the release of resources or financial savings, though it may release capacity for other purposes. • The process requires **good, constructive relationships between providers and purchasers** if change is to be achieved. • **It all takes much more time than might be expected.** Even implementing a single initiative requires a substantial commitment of local time and effort, and the availability of appropriate clinical and research skills." (Appleby et al 1995: 22)

FACTS - Framework for Appropriate Care Throughout Sheffield (Munro et al 1995)	• Traditional methods to change clinical behaviour, e.g. CME impact tends to be small
	• "Financial incentives can be a much more powerful motivator of practice, but are too blunt an instrument if the aim is to produce research-led change" (p26)
	• Three strong themes:
	  - Aim to make life easier, not harder
	  - Be flexible not fixed in your ideas
	  - Be ready to act as a translator between different tribes of the health service
	  - "the truth of the matter is that the real world of clinical practice is more complex and more contradictory than guideline writers and audit facilitators acknowledge" (p27)
	• need to understand the wider context as well context in which clinical practice takes place
	• clinicians have individual needs that must be recognised and satisfied if they are to be receptive to change – one approach is to adopt a 'customer-centred' attitude
	• it takes time and energy to understand the culture, pressures and possibilities of a situation
	• recognise the importance of face to face communication and of careful listening

Project	Lessons learnt
Frontline - Evidence Based Medicine Project (Cumbers and Donald 1999)	• The absence of organised continuing training the natural turnover of staff meant that expertise both in using the databases and interpreting findings was lost • The inability of the hospital infrastructure to provide information when and where it was needed • The poor quality of the information itself • It is time consuming to find and analyse literature.
PACE – The Promoting Action on Clinical Effectiveness programme (Dunning et al 1998)	"The PACE experience has confirmed that a multifaceted approach- using a range of techniques- can be successful, but implementation: • *is a messy business*, requiring facilitation, flexibility and project leaders able to coax, cajole and drive the work forward • *is not a linear task*, but rather a group of complex inter-related tasks • *takes time*, usually far longer than expected • *is expensive*, requiring lots of commitment if success is to be achieved." (px) Identified ten essential tasks: 1. Choosing where to start 2. Engaging clinicians 3. Involving patients 4. Defining local standards 5. Keeping in touch 6. Securing change 7. Providing services 8. Measuring impact 9. Sustaining change 10. Learning lessons
CRISP - Uptake of research findings into clinical practice by the therapy professions (Caan 1998)	• "…therapists are a very disadvantaged group" (p2) • "…clinical effectiveness may still be promoted by nurturing existing interest groups and identifying and introducing opinion leaders relevant to this "grass roots" systems of practice development" (p2) • Future studies should begin with grass roots practitioners prioritising those topics which they consider relevant • Considerable dialogue is needed between the target clinicians and the academic community to identify these potential areas of change • A clearer channel of communication for dialogue between researchers and educators is needed to enable successful collaboration in developing evidence-based practice. • The newly emerging Learning Resource Centres should give priority to helping therapists • Management support in providing routine opportunities for therapists to search out relevant information is a vital aspect of clinical governance. • Therapists should be encouraged to join and participate in appropriate interest groups

Project	Lessons learnt
EPOC – Cochrane Effective Practice and organisation of Care	See text for review of the Effective HealthCare bulletin – Getting evidence into practice

Getting better with the evidence – Experiences of putting evidence into practice (Wye and McClenahan 2000)	Four key factors seem to be essential
	• Resources (adequate money, skills and time) need to be sufficient
	• The proposed change needs to offer benefits of real interest to staff who have to change, i.e. benefits of savings in time, savings in money, improved patient care and professional development
	• Enough of the right people need to be on board early enough. That is, everyone affected by the change, in particular the senior clinical leader.
	• The approach needs to be interactive and relate research to current practice
	  - Use a non threatening face to face approach
	  - Meet one on one or in small groups
	  - Relate the ideal (research evidence) to current practice
	  - Repeatedly go back to identify and overcome practical difficulties as they arise
	• A spiral model of change
	  - Progress is not linear
	  - The scope of the work amplifies over time
	  - Implementation is the real work: guidelines are not enough
	• Expect to take several years not 18 months to change clinical bottom line
	  - Be flexible and tailor your approach
	  - Start small and build incrementally
	  - Use what is already there and build on previous work
	  - Target enthusiasts first

Project	Lessons learnt
ASPIRE- Action to Support Practice Implementing Research Evidence (Hollis and Foy 2001)	- Provision of structured, protected time is critical - Hidden costs should not be underestimated "The use of target setting and regular progress reviews helped to keep teams action-orientated" (p18) - Use of experienced and committed facilitators maintained momentum and neutral - Tight control would have undermined ownership and motivation - Co-ordinators and administration should be locally based - The adult learning model worked well especially in well motivated teams with clear leadership "The 'bottom up' approach allowed teams to select their own topics and targets, potentially enhancing ownership and its effectiveness in promoting change" (p19) - the process of change was messy and chaotic - the need for those leading change to engage stakeholders early on - proposed changes need to be seen as offering direct benefits to patients or professions "implementation plans need to be realistic incremental and sufficiently resourced. Even relatively modest changes in practice are associated with substantial opportunity costs and usually take longer and are more complex than anticipated"" (p20)
STEP – South Thames Evidence Based Practice Project (McClaren and Ross et al 2001)	- multifaceted approach to change - change was more likely to occur in those settings in which all partners were likely to benefit - consider the strengths of the partnership in six areas: - recognition of the need to collaborate on a legitimate basis; - assessment of collaborative capacity; - purpose of the activity and the ownership of the project; - the need to nurture fragile relationships; - building trust through principled conduct, and - the strength of collaborative pathways - considerable effort needs to be put into the development of partnerships to ensure success

The key publication in this field, the *Effective Health Care* bulletin 'Getting Evidence Into Practice' (NHS CRD 1999), was published after the initial review was conducted. (This work superseded previous systematic reviews of interventions to improve professional practice, such as Oxman et al's (1995) No magic bullets and the EPOC review on closing the gap between research and practice (Bero et al 1998), so these reviews have not been discussed in this

literature review). The bulletin was partly based on a rigorously conducted systematic review and partly reflections on current theory rather than research findings *per se*. This is because there are gaps in the research in this field. The bulletin highlighted that further research was required:

- into the complex relationship between knowledge, beliefs, attitudes and actual behaviour change

- to gain understanding of the process of professional behaviour change and

- to have a greater insight into the personal skills and attributes that influence the effectiveness of individuals in changing behaviour. (NHS CRD 1999).

However, despite these gaps in the research, the bulletin represented the state of the art of what is a nascent subject for researchers.

In terms of AHPs specifically the bulletin highlighted that "more research is needed to determine the effectiveness of strategies in relation to PAMs" (NHS CRD 1999: 4). This was because the quality of the research in the one systematic review that included PAMs was "generally of a poor quality" (NHS CRD 1999: 4). In general it is known that multifaceted strategies are more effective than single strategies. There is little understanding of the process of change involved. The research into specific interventions (in healthcare) to bring about research utilisation has found that the:

- **Consistently effective strategies** were education outreach visits, reminders and interactive educational meetings

- **Strategies with mixed effects** were audit and feedback, local opinion leaders, local consensus process, and patient mediated interventions

- **Strategies having little or no effect** were educational materials and didactic educational materials (NHS CRD 1999).

Overall the *Effective Health Care* bulletin concluded that:

- it was essential there are routine mechanisms to bring about individual and organisational change

- "Whilst individual beliefs, attitudes, and knowledge influence professional behaviour, other factors including the organisational, economic and community environments of the practitioners are also important" (NHS CRD 1999: 1)

- a diagnostic analysis should be used to identify factors likely to influence the proposed change,

- the diagnostic analysis should be used to guide the change

- a range of interventions are used because "Multifaceted interventions targeting different barriers to change are more likely to effective than single interventions" (NHS CRD 1999: 1)

- it should be resourced with people with knowledge and skills, and

- change plans should include steps to monitor, evaluate, maintain and reinforce any change.

The bulletin's findings concur with earlier observations, such as it is now known that: "the mere provision of information will often fail to accomplish this goal, even when relevant information has been successfully disseminated to an appropriate target audience." (Kanouse and Jacoby 1988: 27) and key messages by other leading authors in the field, such as Grimshaw et al's (2002) findings that:

- Passive dissemination approaches are generally ineffective and unlikely to result in behaviour change when used alone

- Most other interventions are effective under some circumstances, none is effective under all circumstances

- Strategies that are generally effective include educational outreach (for prescribing behaviour) and reminders, and

- Multifaceted interventions based on assessment of potential barriers to change are more likely to be effective than single interventions.

However, Normand's (1998) observation that "It is not currently clear what approaches to training *are most effective* [my emphases] in facilitating the use of evidence" (p 21) holds. Nevertheless, collectively this literature was the most useful guidance available. It also reinforced the importance of evaluation to increase the research available.

3.3.2.2.4. Change management

In the creation of a new culture the organisation is not going to be as it was before. Therefore creating a culture of research based practice is going to involve changing from using custom and practice to using research findings as a basis for decision making. Keep (1998) has described evidence based practice as "a change perspective" (p46). This meant that there was a need to understand what change involves from a theoretical and practical perspective. Change is defined as "the act or an instance of making or becoming different" (Allen 1990: 187) and part of the difficulty in trying to understand how to effect change is that it is a topic that cuts across so many disciplines because many different professions have as one of their goals the accomplishment of behaviour change in their clients. As this literature is so vast it would have been too great an undertaking to conduct an exhaustive review of the change

literature. Part of the problem in trying to make sense of the literature is the focus: Is it organisational change? and/ or individual change? After all, organisations will only change when individuals change so you need to have an understanding of how individuals change to understand how to change an organisation. There is, however, no uniform response to change: individuals respond to change in different ways. For example, Rogers (1995) categorised the different responses to one form of change, i.e. the uptake of innovations, as:

- Innovators

- Early adopters

- Early majority

- Late majority, and

- Laggards (Rogers 1995: 262).

It appeared that the reason the *Effective Health Care* bulletin (1999) found more research was needed to gain an understanding of the process of professional behaviour change is because much of the work in the field of change is theoretical. Much of this has not been subjected to critical scrutiny of rigorous research. The ideas and theories about change have been organised into different schema by different people e.g.:

- Sudden and unexpected, revolutionary or planned (Marris 1986)

- Empirical-rational strategies; normative-re-educative strategies, and power coercive (Chin and Benne 1976)

- Top-down, bottom-up, strategic models (Harrison 1998), and

- Step change or incremental, directive or organic (Audit Commission 2001).

New ideas have come to the fore, such as re-engineering (e.g. Hammer 1993, Manganelli 1994) that have generated a whole new area to this field of

literature. Whilst understanding the theory of change is important, to enable use of research findings in practice attention to the practical considerations evinced by the theory was also important, i.e. change is difficult, the need for ownership, focus, communication and facilitation, planned change, sustainability and evaluation.

- **Change is difficult**

The knowledge that change is difficult appears to be known yet constantly overlooked in the planning of change. The discussion of the barriers to research utilisation provided an insight into why change is difficult (see section 2.5). Madhok (1999) illustrates these difficulties from his own experience of the complexities of introducing research findings to effect change in the practice of public health. As shown in figure 3.1, his experience of the change process, has led him to identify factors which facilitate change. Camiah (1997) has also identified factors based on her experience with nurse practitioners (figure 3.2). The NHS CRD (1999) as well as summarising the lessons from three projects (figure 3.3), suggest that a 'diagnostic analysis' should be used to identify possible issues or barriers. Whatever technique is used it has to be recognised that for change to be successful these barriers must be overcome. "Translating ideas into action is (always) tougher than expected." (Audit Commission 2001: 60). As such a realistic approach to change needs to be adopted to ensure it starts and remains manageable. The well-known aphorism about genius appears apposite for change: change is '1% inspiration and 99% perspiration'.

Figure 3.1: Learning the lessons 1: A public health practitioner's experience (Adapted from Madhok 1999: 3-7)

Use formal and informal channels to convey messages

Do not adopt a fixed position. Be able to change.

Remain focussed on the issue

Personal experience of using research findings to bring about change

Change does take a long time

Ensure a robust audit programme

Do not get disheartened
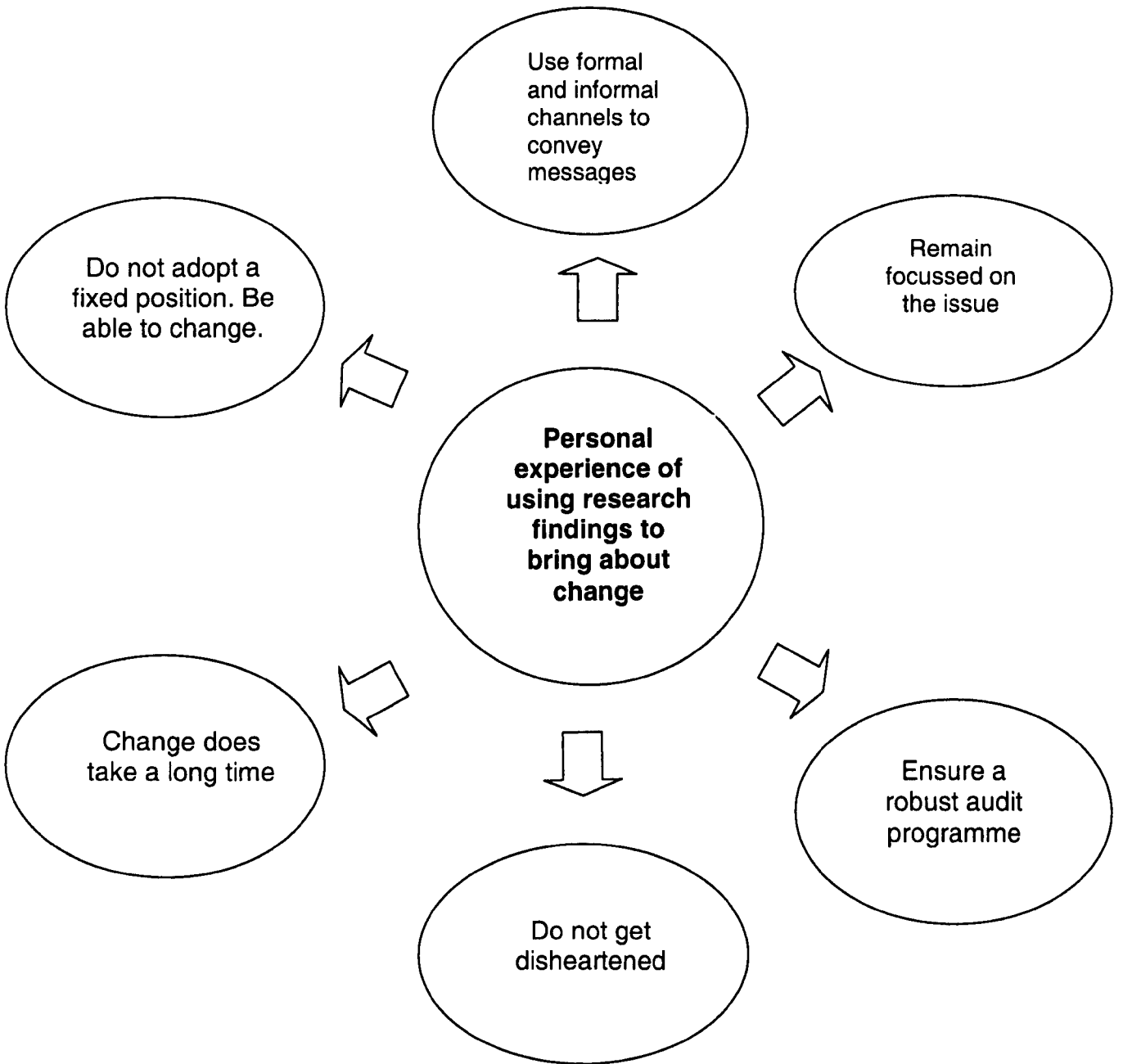
Figure 3.2: Learning the lessons 2: What nurse practitioners found useful.
(adapted from Camiah1997)

Facilitation
- teaching based upon clinical application;
- reflective discussions;
- being able to learn at own pace
- individual needs and differences taken into account.

Consistency
- Continually asking questions
- Examining own practice;
- Systematic planning,
- Implementation of care based upon relevant findings.

Management
- commitment to research-based practice;
- team effort

Characteristics of the strategies that were found useful

Support
- positive feedback / reinforcement
- having someone to lean on for support

Role modelling
- acting as a catalyst and role model in implementing change;
- use self in teaching;
- commitment; motivation; positive attitudes towards research based practice.

Application in practice
- clinical application;
- ability to read research reports critically;
- being able to keep up to date through written work
- reflective discussions.

Figure 3.3: Learning the lessons 3: Learning from three projects that worked with a wide range of practitioners (adapted from NHS CRD 1999)
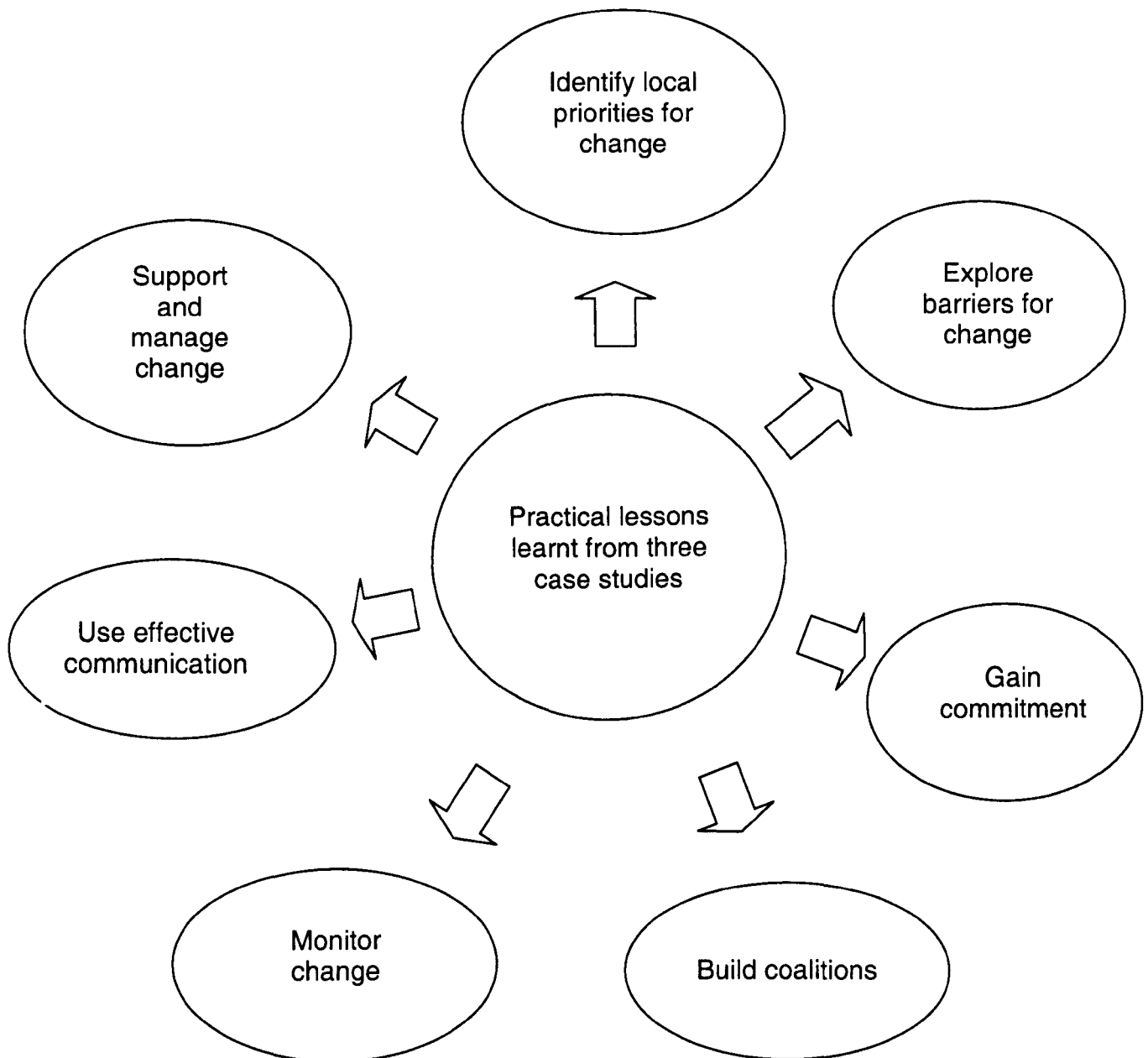
- **Ownership**

If the aim is to bring about organisational change this requires individual

change. Individuals are only likely to change if they are engaging in the change

and feel they have some sense of ownership of the change. People do not like 'things' to be done to them.

- **Focus**

Having a focus is one way of keeping a change project manageable (Madhok 1999). Being focussed involves clear prioritsation: "you cannot have ten priorities. If you think you have ten priorities then have you got any priorities?" (Scott 1992: 23). Developing the focus of the project with all relevant stakeholders also gives those involved a shared sense of purpose. The focus can then be explicitly defined in specific project aims and objectives.

- **Communication and facilitation**

The role of the individual leading the change is critical (Madhok 1999). This means the selection of the person to lead the project is an important decision. This is because the leader will shape the communication and facilitation of the change. Good communication is vital in the fostering of a sense of ownership so that those involved feel it is as much their project as the project leader's. Facilitation involves translating the original idea into actual practice. Project management is a useful tool to guide the process of turning ideas into action (Roberts and Ludvigsen 1998).

- **Planned change**

Change related to research utilisation will usually be one of many things on a manager's agenda. This means it is easy to lose sight of an individual project when under pressure. In studies that have analysed why projects are not completed a weakness identified was in the planning (Bartlett et al 1997, Caan

et al 1997, Franks 1998). This type of problem can be avoided by the application of routine project management (Usherwood 1996). Project management, initially developed by the American space programme, is a tool that is widely used in business management and is increasingly used in health and social care (Roberts and Ludvigsen1998, Iles and Sutherland 2001). It is a useful way of monitoring the work related to a project and making sure it is completed. The King's Fund project *Promoting Action on Clinical Effectiveness* (PACE) found that effective project management was vital to the success of the project (Dopson et al 1999: 10). It is a useful tool in managing change because it provides the: "capacity for managing complex programmes according to a fixed schedule" (Walmsley 1996: 4). "At the start of planning a new project, the adoption of an explicit project management method can help to see the project through to its completion" (Caan et al 1997: 472).

- **Sustainability**

An important consideration in the development of any change strategy is the extent to which the change will be sustainable after the initial implementation phase. For research findings to change practice they have to be used in routine practice. Sustainability may be helped by gaining the initial commitment of all stakeholders, ensuring that the development is supported by research evidence and provides a means of achieving health policy objectives. Through this process a change project may then be developed into a service provided by the particular organisation.

- **Evaluation**

Evaluation is an essential component of change (Keep 1998). This is because it is only possible to know if change has been achieved if there is an observed difference from the starting point. If the way of establishing that change has been achieved is evaluation it needs to be planned from the outset so that there are baseline data available.

This literature review has identified that getting research into practice is not as simple as choosing an intervention and hoping for the best (Thomson 1998: 7). It has already been observed that there is difference between knowing and doing in relation to change in health and social care; the two are not necessarily coterminous activities. It can be concluded if the current research knowledge is applied to planned change the chance of success will be increased, although this needs to be done with the proviso that more research is needed for us to fully understand the dynamics of what works and why.

Obviously it is important to bear in mind what is known about change when planning, conducting and sustaining the use of research findings in routine practice. This knowledge about change can be distilled into some 'guiding principles' for change. These principles are that:

- Change is the only certainty
- Change is challenging
- People respond differently to change
- There are wide range of considerations in planning change
- Multifaceted interventions are needed
- Change is a stepwise process in which several barriers have to be removed (Wensing et al 1998: 1991)

- Communication is critical to achieving successful change
- Diligence is needed to achieve sustained change, and
- Evaluation is needed to demonstrate that change has taken place (Bryar and Bannigan 2003: 81).

3.3.2.3. Experts in the field

Six experts were identified and approached; of these five responded. Two were academics with occupational therapy backgrounds; one had previously worked as a research occupational therapist in a clinical setting and the other had been involved in a project working with occupational therapy clinicians. The other three participants had a background in nursing; one is currently working as an academic and the two others as research nurses. Three broad themes emerged from their responses, i.e. establishing research credibility, collaborative working in health care research and practical ideas for increasing research and development activity.

3.3.2.3.1. Establishing research credibility

All of the participants commented on the importance of building up research/academic credibility. Success in research is measured in terms of publishing (in high quality journals), presenting conference papers and securing funding for research proposals.

3.3.2.3.2. Collaborative working in health care research

Most of the participants thought that ideally research and development activity should be a collaborative endeavour and that researchers should work

wherever possible in a multidisciplinary research unit. One participant decried collaborative working as a general principle because there is so much competition between disciplines and individual researchers. Another participant indicated that there can be difficulties in working collaboratively but still agreed with the principle.

3.3.2.3.3. Practical ideas for increasing research and development

Developing a strategy document was described as useful way of guiding and monitoring the overall process of increasing research and development activity. Training occupational therapists in the skills needed to be research consumers and encouraging them to read the research in their own journal was suggested as a useful starting point. It was also mentioned that there should be recognition of the fear experienced by those new to research and the need for research and development activity to focus on meaningful contributions to knowledge. Practical models for supporting research and development activity, such as setting up a journal club, using academics as a catalyst for clinical research and Conroy's (1997) project to look for evidence of efficacy within occupational therapy, were also referred to by the participants.

3.3.3. Data analysis – Research and development strategy for the occupational therapy service

The pattern that emerged from the data overall was that a research and development strategy was needed to increase the use of research findings in

the occupational therapy service. This was because it was clear from the data collected that:

- Research findings alone are not enough to change practice

- Time is the greatest barrier

- Therapists are enthusiastic

- Change management is needed but change is complex and difficult.

- Managers' support is crucial to developing a culture of research based practice, and

- A strategic approach is required.

I developed the strategy on the basis of data collected and then it was discussed, modified and agreed at a specially convened meeting of the occupational therapy service.

3.4. Stage 2: Focus groups with allied health professionals

The research and development strategy developed by the occupational therapy service was discussed with the allied health professions' managers at the then Royal Hull Hospitals NHS Trust. It became apparent it had a potential wider application than just occupational therapy as had been first thought (see section 3.3). This is because research and development is a generic activity. Out of these discussions the study evolved to include the other allied health professions at Royal Hull Hospitals NHS Trust. The trust had identified dietitians, occupational therapists, physiotherapists and speech and language therapists as the allied health professions. Not all trusts would define the allied health professions in terms of these four groups. As there was no universally

accepted definition of the professional groups that comprise the allied health professions the local definition was used for this study[ii]. Therapists also work in community settings as well as acute settings so some therapists were included from the community trust. Although therapists also work in social services settings it was decided that, if they were included as well, it would stretch the sample size beyond the scope of what was feasible in this study.

3.4.1. Data collection

The scale of the project had grown considerably and the allied health professionals who were willing to be involved made it clear that they were extremely busy and were not prepared to give up a lot of time to participate in this research project. This meant that the method had to be modified to accommodate larger numbers of therapists and their specific needs. The process used with the occupational therapy service in stage one was revisited. It was decided that this stage of the study:

- needed to be driven by the research and development therapist but not all allied health professions had a research and development therapist so there was a need for each professional group to nominate a therapist to take the lead for research and development.

- there was still a need to consult staff because ownership (see section 3.3.2.2.4) is a crucial part of the change process and we needed to generate data to inform this spiral of research and action. It was agreed to use focus groups instead of interviews.

- the professional literature reviewed in stage one was specific to occupational therapy so it was necessary to assess whether any discrete issues needed to be taken into consideration from the other professions involved at this stage, and

- as the study had evolved and we now had ideas about how to proceed, i.e. to use research and development strategies, it was felt that it was not necessary to contact any more experts.

3.4.1.1. Focus groups

Focus groups are group interviews of about six to eight participants who come from similar backgrounds. A moderator guides them and, just as with interviews, they are a way of listening to people and learning from them (Morgan 1998).

> "Overall, the definition of focus groups has very elastic boundaries. Still, there are limits to what one can call a focus group. Fundamentally, there must be an effort to gather research data through a focussed group discussion. Within those broad boundaries, a great many things are possible" (Morgan 1998: 35).

As Morgan (1998) has stated "Perhaps the greatest myth is that there is "one right way" to do focus groups" (p54). The reason for choosing to use focus groups in this study was to "...gain powerful insights into the feelings of the people who will be most affected by these changes." (Morgan 1998: 5) and because they "...produce large amounts of concentrated data in a short period of time." (Morgan 1998: 32).

Morgan (1998) describes four basic uses of a focus group, i.e. problem identification, planning, implementation, assessment. In this study they were used for 'planning' where "...the crucial concern is finding the best way to achieve a set of goals...continues the emphasis on exploration, but now the research team has a set of goals that guide its efforts" (Morgan 1998: 14). All research methods have different strengths and no research method is ever perfect or foolproof and the same is true for focus groups (Morgan 1998). The main advantage of using focus groups is speed; you can gather substantial amounts of carefully targeted data because a set of group interviews typically takes less time than a set of individual interviews or observations (Morgan 1998). The main disadvantage is the amount of data that you obtain from each individual participant will be necessarily limited. "Focus groups sacrifice details about individuals in favour of engaging the participants in active comparisons of their opinions and experience" (p33). Morgan (1998) advises researchers to ask:

- Is the additional information that you get in individual interviews a source of valuable insights or a waste of time? and

- Are the group discussions from focus groups a more efficient way to get at what you want or a serious loss of information about the individual participants?

Another disadvantage is focus groups can produce conformity. In this study there was an opportunity for individual participants to respond to the questions before the group responded to the questions as a whole. There are a number of other issues that have to be considered when using focus groups, including honesty, resources, the moderator, recruiting, ethical issues and analysis (each of these are considered in turn). Honesty is very important; the participants

must understand what the focus groups are being used for. Morgan (1998) makes it clear that researchers should not make promises they cannot keep. In this study the purpose of the focus group was explained to each manager and reiterated at the start of the focus group session. Focus groups can involve a lot of resources but it is possible to conduct focus groups on a limited or no budget with tenacity. In this study financial resources were not required because the participants volunteered their time and the hospital trust provided rooms and equipment at no cost.

The choice of moderator is another important consideration. Morgan (1998) suggests

> "All in all, the best moderator is not the one with the most experience at moderating but the one who can help you learn the most from the participants that you need to listen to. In some cases, this might take an expert moderator. In other cases, an outside professional might actually detract from what your own research team is able to do best" (p48).

In this study the lack of funding meant that use of a professional moderator could not be considered. However, it may have been inappropriate to use an 'outsider'. The participants chose to participate because they knew me, as the researcher, and this study. When recruiting, Morgan (1998) advises "Whatever recruiting strategy you use, it requires careful attention, since poor recruitment is the Achilles heel of focus groups. You cannot conduct a focus group without enough people, and you need to have the right people if you expect to produce a decent discussion. Even a talented moderator can do little with a handful of participants who have inadequate knowledge about the topic " (p67). Recruitment was not an issue because I had a volunteer sample but there were too many of them to hold one group. The subdivision was negotiated with the

nominated therapists to ensure that the groups were likely to produce a decent discussion. As with interviews, "From an ethical standpoint, focus group researchers need to consider what is an appropriate level of self disclosure. In particular, there is a very real danger of self disclosure, that is, participants regretting that they revealed as much as they did" (Morgan 1998: 90). This was dealt with in this study by explaining to all participants, in the preamble, that the focus of the focus groups was research and development and it was not possible to discuss other issues facing their service unless it was relevant to this topic. Participants were also reminded that whilst individual confidentiality would be protected the data from the focus groups were going to be used in increasing research and development in their department.

In terms of analysis, Morgan (1998) describes four approaches i.e. transcripts, tapes, notes, or memory:

- With transcript based analysis transcripts are the primary data source and it produces the most depth and details. It is also the most time consuming.

- Tape-based analysis uses audiotapes of the focus group as the primary data source. The researcher listens to the tape and reviews other data, often preparing an abridged transcript of the most relevant discussion.

- In note based analysis the primary data source is the field notes taken during the session, typically by the assistant moderator. Often the moderator and assistant moderator debrief following the group, leading either to an expanded version of these notes or an additional tape recording of their debriefing discussion.

- In memory-based analysis the primary data source is the moderator's memory of the discussion, sometimes augmented by field notes prepared during the focus group. The advantages of memory-based analysis are the immediacy and speed with which it can be provided.

When making a decision about which method of data analysis to use the researcher needs to balance need for reliability and validity alongside resources available. In this study we chose to use note-based analysis because time was at a premium and we felt that the participants may have been inhibited if they knew they were being recorded (see section 3.3.1.1).

3.4.1.2. Procedure

The procedure developed involved me contacting each allied health profession manager and securing their permission to proceed with the project in their department. The allied health profession manager appointed a therapist from their department to take the lead for research and development. I then met up with the lead therapist to develop a co-ordinated way forward for the professional group involved. It was agreed that the service managers should be interviewed separately so that they did not inhibit staff in the focus groups. Focus groups were held on mutually agreed dates, during established service meetings or over a lunch hour, and lasted for one and half-hours. The semi-structured interview and PAC used in stage one were collated into a single questionnaire (Appendices 5 and 6). The questionnaire was modified:

- for each group to ensure that it was profession specific,

- the question about the international level was removed (it was hoped that this would be covered by the question about involvement in any other work related group),

- questions were added in , i.e. (a) what do you understand to be R&D activity? and (b) what resources do you have access to support R&D activity? and

- the question that included the COT schema for research was amended, because the other professional groups were unlikely to be familiar with it, to include the slogan "Research done by some, facilitated by others and implemented by all" (Research and Development 1998: 7) and the question would you describe yourself as someone who does research, facilitates research or implements research?.

This was administered to all therapists in the focus groups individually. The therapists then came together in group(s) to summarise their responses to questions. These were then discussed in a feedback session with the group as a whole. This provided the facilitators with an opportunity to ask questions. It was hoped that administering the questionnaire would identify any individuals at variance with the group because there would be a record of individual responses. It was also hoped that this would provide group members with an opportunity to think about the subject and ensure that the group was not dominated by one person's view. The process of feedback and discussion was an opportunity for member checking. Further member checking was not possible due to the constraints of time and a desire not to erode the goodwill of participants. The data generated by the focus groups were used to develop research and development strategies for each of the therapy departments.

Literature searching was carried out using the search strategies already developed (see section 1.3.1)

3.4.2. Results

The results from the four professional groups involved have been collated and are considered together. As with stage one the results from each data source is presented followed by the overall analysis of this stage of the study.

3.4.2.1. The profile of participants

Lead therapists were nominated in each of the services:

- In physiotherapy this was the R&D physiotherapist (my counterpart in physiotherapy) (see section 1.1),

- in the community occupational therapy service the head of service took on this role,

- in speech and language therapy there was a notional agreement that it was the therapist with a keen interest in research but she was not formally designated as a Research and Development therapist, and

- in nutrition and dietetics a senior dietitian was formally designated as the lead for research and development and her job description was amended to acknowledge this.

Sixty five therapists participated in stage 2. A combined total of 88 therapists participated in stages 1 and 2 (The participants from stage 1 have been included here for purposes of comparison) (Table 3.7). No data were collected about grades.

Table 3.7: The number of respondents according to profession

Professional group	Nutrition & Dietetics	Occupat -ional therapy (in-patient)	Occupat -ional therapy (commu nity)	Physio-therapy	Speech and language therapy	TOTAL
Number of participants	8	23	12	39	6	88
Number of allied health professionals	10	27	29	51 80* (inc assts)	6	123 152 (inc Physio-therapy assts)
Response rate	80%	85%	62%	76% 49%	100%	72% 58%

*A decision was taken to only include staff with a professional qualification in

physiotherapy

3.4.2.2. The professional activity checklist

The participants involvement in professional activities has been summarised according to professional group (see table 3.8). All the professional groups described some involvement in research although not every participant in the study has been involved in research related activity. The types of research activities that the participants described having been involved in are summarised in table 3.9. Some of the participants remarked on why they had not been involved in research activity. Their reasons included that research is a low priority, pressures of time and being newly qualified.

Table 3.8: A summary of the participants' involvement in professional activities according to professional group

Professional group	Nutrition and Dietetics (n=8)	Occupat-ional Therapy (in-patient) (n=23*)	Occupat-ional Therapy (comm-unity) (n=12)	Physio-therapy (n=39)	Speech and Language Therapy (n=6)	Total (N=88)
Member of professional organisation	8 100%	15 65%	10 83%	37 95%	6 100%	76 86%
Member of SIG	8 100%	5 22%	3 25%	11 28%	2 33%	29 33%
Member of other work related group	4 50%	4 17%	5 42%	11 28%	6 100%	30 34%
Active involvement in profession related groups	3 38%	2 9%	4 33%	8 21%	3 50%	20 23%
Reads professional journal	8 100%	18 78%	9 75%	27 69%	4 66%	66 75%
Reads professional news	8 100%	20 87%	8 66%	34 87%	5 83%	75 85%
Reads other work related journals	7 88%	14 61%	8 66%	16 41%	4 66%	49 56%
Post-graduate education	2 25%	5 22%	2 17%	8 21%	1 17%	18 20%

* Two PAC not administered in error

Table 3.9: A summary of the research related activities the participants described being involved in by professional group

Professional group	Research related activity described
Nutrition and Dietetics (n=8)	• Supporting the proposal for the Institute of Rehabilitation and helping to set the professor post up • Encourages members of the department to be involved in research. • Undergraduate research • We all are involved in development in our day to day practice. • Reading • Literature searching • CAST • Doing research (with doctors)
Occupational Therapy (in-patient) (n=23*)	• Undergraduate research • Audit • Completing questionnaires (usually for undergraduate students) • Reading • Publishing
Occupational Therapy (community) (n=12)	• Undergraduate research • Postgraduate research (to Masters level) • Group activity - a critical appraisal group and an evidence based practice working group • Literature searching • Reading • Conducted patient satisfaction questionnaires • Facilitating research and development in professional group • Outcome audit within CMHT (client specific) • Supporting others research e.g. completing questionnaires • Doing research projects
Physiotherapy (n=39)	• Reading • Audit (doing or assisting) & related tasks (setting standards etc) • Undergraduate research • Post-graduate courses • Completing questionnaires • Production of guidelines, protocols, outcomes etc • Teaching and in-service training • Searching for information (literature search) • Involvement in a research project • Treating patients (needs to be recognised as R&D) • Attending meetings about research and development

Professional group	Research related activity described
Speech and Language Therapy (n=6)	• Assisting in others research project (inc working alongside a neurologist, participating in the EGFL, ISFG trial and having links with a university to identify possible subjects for research) • Regular attendance at courses where up to date research on the individual subject is given. • Looking at outcomes of patient contacts (informally) and changing practice in the light of experience • Attending interest group/ regular tutorial groups/ seminars • Reading • Undergraduate research • Postgraduate research (doctoral level) • Asking questions related to my practice • Literature searching • Trying to apply a current theory to practice. • Using outcome measures • Presented paper at conferences • Written papers and book chapters. • Attending CAST

Most therapists (69%) thought that time was the greatest barrier to reading or implementing research (Table 3.10). Some of those who did not think it was the greatest barrier suggested:

- "Often difficult to carry out research due to clinical workload or difficult to integrate the two"

- "Partly, but...also – lack of support for this as a genuine activity. Clinical activity taking precedence"

- "No multi-factorial - includes trust politics, money, time, support" and

- "No I believe time can be found. I sense that the culture of client centred focus has created barriers to reading. Also a lack of reflection and adherence to PRP, clinical audit and training structure hasn't always been carried out at team level. Above traditionally seen as 'luxury' from a nursing manager perspective. Beliefs from MDT about how best to use time available. Reading seen through short term lenses as slacking".

The participants also suggested other barriers; these have been summarised in table 3.11. The response to the question 'What was needed to facilitate a research culture in your department' also elicited a range of responses. Again these have been summarised according to their professional group (see table 3.12).

Table 3.10: A summary of the participants' responses to the question about whether time is the greatest barrier to reading or implementing research

Professional group	Nutrition and Dietetics (n=8)	Occupat-ional Therapy (in-patient) (n=23*)	Occupat-ional Therapy (comm-unity) (n=12)	Physio-therapy (n=39)	Speech and Language Therapy (n=6)	Total (N= 88)
Yes	7 86%	17 74%	3 25%	29 74%	5 83%	61 69%
Equivocal/ no comments	0 0	1 4%	2 17%	2 5%	1 17%	6 7%
No	1 13%	5 22%	7 58%	8 21%	0 0	21 24%

Table 3.11: A summary of the other barriers (other than time) that the participants suggested

Professional group	Barriers suggested (other than time)
Nutrition and Dietetics (n=8)	• **Clinical workload** (e.g. patients come before research? expected to do more and more with less as a result of additional consultants and academics, too much work) • **Professional issues** (e.g. problems of multidisciplinary working, isolation of professionals) • **Research can be daunting** (e.g. no 'right' way to do research, people slightly nervous of undertaking research). • **Nature of the research** (e.g. research questions are often specific, not always applicable to every patient (they do not always fit into neat boxes), cannot conduct research independently it needs to be group work). • **Where to start?** (e.g. in doing research and how to get the evidence from research papers, where do we get support and encouragement? Not quite sure how to go about it, I didn't know where to start and certainly didn't know how to present.)
Occupational Therapy (in-patient) (n=23)	• **Resources (money and time)** (e.g. "a perception that the problem is to do with money" and "wouldn't get time in lieu") • **Experience/ awareness/ knowledge** (e.g. "I do not have enough knowledge" and "they don't really know how to go about it.") • **Attitude/motivation** (e.g. "Fear", "some people are anti research" and "lack of motivation") • **Working conditions (inc. local perception of the profession)** (e.g. "We are not valued as occupational therapists" and "cannot predict the peaks and troughs of the caseload.") • **Culture** (e.g. "making it as part of the norm", "we are segregated" and "Locum's are not involved in this type of thing they are not even asked") • **Reward** (e.g. "no money for doing it or advancement in terms of the profession") • **Management support** (e.g. "the lack of management backing" and "how much the senior bodies in a organisation think it is necessary as to whether it gets done.")

Professional group	Barriers suggested (other than time)
Occupational Therapy (community) (n=12)	• **Workload** (e.g. working full time, little time available during working hours, clinical work usually takes priority, demanding workload prevents intensive research, prescriptive ways of working imposed from without pressure of work (quality/nature) no personal development time in working week. Pressure of clinical work, paperwork to follow up, supervision and everyday practice ->justifying research time or ring-fencing is hard). • **Motivation and interest** (e.g. what are your priorities, application, energy). • **Compliance of others** (e.g. Patient compliance with questionnaires, especially returning them after a delay). • **Culture** (e.g. Culture affects implemented research, not an operational priority so no relevance, attitude of and to R&D, previously has not been an integral part of the culture of work, I sense that the culture of client centred focus has created barriers to reading. Also a lack of reflection and adherence to PRP, clinical audit and training structure hasn't always been carried out at team level. Above traditionally seen as 'luxury' from a nursing manager perspective. Beliefs from MDT about how best to use time available. Reading seen through short term lenses as slacking). • **Facilities** (e.g. having to pay for relevant articles, Most articles are in the library 8 miles from work Lack of education, lack of links with academic institutions and access to people with skills needed to implement research, Accessing support, i.e. TQM dept re: data). • **Confidence** (e.g. knowledge of how to do it. Getting started and knowing where to start). • **Nature of the research** (e.g. Inconclusiveness of data Conflicting evidence with a lack of real debate). • **Multifactorial** (e.g. includes trust politics, money, time, support)

Professional group	Barriers suggested (other than time)
Physiotherapy (n=39)	• **Knowledge/skills** (e.g. critical appraisal, research process, computer skills, need for more clinical experience). • **Motivation** (e.g. Lack of interest/ / enthusiasm/ incentives). • **Lack of infrastructure** (e.g. Access to information or equipment (computers) No structure to facilitate R&D Unsuitable environment, Funding, Trust support). • **Patient compliance** (e.g. patient compliance and numbers). • **Workload** (e.g. clinical priority Too many non-clinical responsibilities (such as paperwork, teaching, family commitments) and staff shortages). • **Attitudes** (e.g. beliefs (guilt) and resistance to change). • **Nature of the research** (e.g. Poor, irrelevant or controversial literature).

Professional group	Barriers suggested (other than time)
Speech and Language Therapy (n=6)	• **Workload** (e.g. justification of the time especially when client caseload demands are high, on-going problems of recruitment etc so there are always immediate pressures, difficult at times to justify the time when caseload demands are high, difficult to structure my patient – related activities in order to allocate a session to read/go to library). • **Lack of support** (e.g. lack of support for this as a genuine activity. Clinical activity taking precedence, Lack of understanding from colleagues. Therefore not supported, support from others) • **Culture** (e.g. Need for R&D to be activity -> making it feel worthwhile, I also have felt guilty about allocating time to an activity that is difficult to measure and be accountable for. Does not show up statistics forms anywhere!, the emphasis is on patient contract time and is difficult for us/managers etc to appreciate that non-contract time is also benefiting the patients albeit on a more long-time basis). • **Smaller department** (e.g. the demands on each person higher individual pressures on therapists – feeling the need to see patients, it is still difficult to set time aside, especially in such a small department • **Other commitments** (e.g. I have been committed to other training, e.g. dysphagia). • **Knowledge** (e.g. knowledge of how to go about it).

Table 3.12: A summary of the facilitators needed to increase research and development in their department described by the participants

Professional group	Facilitators
Nutrition and Dietetics (n=8)	• **Practicalities within working day** (e.g. Time out, . Some commitment allowing specified time). • **Infrastrusture** (e.g. Extra staff - allow for more specialism and time, Time allocated for research in your job, The trust need to support staff with adequate resources to do this. Dietitians are aware of lifelong learning but have to be supported at a higher level, Additional time to allow for this, Time, More time available for it. Extra staff). • **Change in culture** (e.g. Valued by trust/ sharing caring environment, within a month allowed a couple of hours which is a reasonable time to think, people feel they can legitimately go off and do this, needs commitment from them and the management side, Communication, valued by the trust). • **Journal club** (e.g. a journal club would be a start, in dept/ communication, ?within speciality (e.g. DM?). • **Education/ training** (e.g. Programmes of sessions informing how to go about, Opportunities to realise how to start research/ do stats; etc). • **Build confidence** (e.g. give people idea perhaps can do it, Doesn't have to be big could be small, need to encourage staff to come to the Institute and that this type of thing is provided by Institute). • **Facilitator** (e.g. Research dietitian).

Professional group	Facilitators
Occupational Therapy (in-patient) (n=23*)	• **Facilitation/facilitator (inc. support/advice/ education)** (e.g. "it helps having you", "to be encouraged to start" and "then allowed time to actually do it and some advice"). • **Change of culture (become more research focussed)** (e.g. "needs to happen in work time", "have a research slot in the staff meeting" and "the importance of it needs to stressed more"). • **Specific activities** (e.g. "Developing the critical appraisal skills of the staff", "include people in a project", "which somebody else is running", and "A support network where people could get together to brainstorm ideas."). • **Management support** (e.g. "have to feel that they have been given 'permission' for this", "Our management has got to start to take us forward", and "told from management it is OK to give yourself time and that it is expected as part of the job so that everyone knows it is an acceptable part of working day."). • **Resources (Time and money)** (e.g. "Money", "People need to be given time to do it", and "this needs to be "protected" time so that they can understand more about it."). • **Environment** (e.g. "The department is too small" and "A room to actually do it in."). • **Motivation** (e.g. "having an interest in what you are researching" and "for many of them family are their priority.").

Professional group	Facilitators
Occupational Therapy (community) (n=12)	• **Change culture** (e.g. Make it explicit part of job, Empowerment of OTs Priority Support, Part of the job description, written into contract time to be given to research, Need a higher priority given to research, Culture which emphasises the connection between 'planning' and 'doing' Long term strategies). • **Infrastructure** (e.g. Availability of articles, Concise articles already published that OTs can actually use in their practice, increasing standard of published information, Forum for debate as well as sharing of information/ techniques, more emphasis placed on the importance of evidence based practice). • **Nature of the research** (e.g. standard of articles). • **Resources** (e.g. Time, money, time). • **Skills** (e.g Education - empowerment, resources, Education - OTs 'How to', other in trust 'why'). • **Facilitator** (e.g. A post in adult mental health to assist in research, Strategic direction - to maintain the process, Specific post to joint work as with Acute Trusts). • **National issues?** (e.g. Changes to use in under-grad education, increased communication to and from centre re: profession, e.g. COT role). • **Management support** (e.g. Management directive/ opinion -> money -> time).
Physiotherapy (n=39)	• **Resources** (e.g. allotted time, more staff to overcome workload problems). • **Education and training** (e.g. Research skills training (new skill for many)). • **Facilitator/ facilitation** (e.g. Practical help with ideas). • **Infrastructure** (e.g. Dedicated research specialists and environment More dissemination/ access to information and people Funding and support from the trust? financial incentives? Discussion/ focus group). • **Motivation** (e.g. Change attitudes). • **Change culture** (e.g. Continuing professional development to include research Stress importance, implications and benefits and keep R&D on the agenda Write R&D into contract, remove choice but ensure multi-level involvement). • **Management support** (e.g. Senior lead, involvement , knowledge More encouragement/ push).

Professional group	Facilitators
Speech and Language Therapy (n=6)	• **Workload** (e.g. clinical pressures <u>are</u> a problem). • **Resources** (e.g. regular time for everyone funding, planned /allocated time and regular support to determine specific goals (from whom?) to use time effectively and generate ideas Continued support from the Institute. More time, more staff). • **Facilitation** (e.g. support & direction – of goals and time frames, regular progress reports of achievements made Also a definite purpose/intention of goals should be decided upon therefore making it feel worthwhile. Action plan; group & individual Experienced support, especially in planning stages Awareness of available resources). • **Change culture** (e.g. Priorities of service provision & R&D, flexibility, therapists are very committed to the needs of patients, a clear cut written policy). • **Education & training** (e.g. knowledge of resources available and access to these). • **Smaller department** (e.g. a team approach would be good to be able to divide up requirements for each person and to make it time efficient, ?integration with other trusts (involvement with Unis in the area) Collaborative working set-up -> group ethos, to reduced suspicion for lack of support). • **Management support** (e.g. Support from managers that time allocation for R&D is encouraged Support from managers etc so but department is considering research, not an individual). • **Infrastructure** Department meetings, e.g. to set up research projects, review current research; etc – this would ideally involve all, perhaps in smaller groups. Structure and direction (goals, time spans – an end in sight). • **Knowing <u>exactly</u> what benefit the activity will have for yourself and the department.**

The responses to the question 'Would you describe yourself as someone who does research, facilitates research or implements research?' are summarised in table 3.13. It was difficult to summarise this question because of the nature of the responses the participants gave, i.e. some suggested one or more roles. If their main role could not be disentangled from their response they were included under the heading equivocal. Most envisage that their role will change over time (Most of those who were unsure hoped to change but appeared to be equivocating in case they did not) (see table 3.14). A lot of topics were

suggested for research (see table 3.15). Some of the participants described having lots of ideas and one respondent used the phrase "Too many to put down" in response to the question 'Do you have any ideas about the research you would like to do or see carried out?' (Question 5).

Table 3.13: A summary of the participants' perception of themselves in relation to research

Professional group	Nutrition and Dietetics (n=8)	Occupat-ional Therapy (in-patient) (n=23*)	Occupat-ional Therapy (comm-unity) (n=12)	Physio-therapy (n=39)	Speech and Language Therapy (n=6)	Total (N= 88)
Consumer/ implements	2 25%	12 52%	5 42%	18 46%	2 33%	39 44%
Participant/ doer	0 0	6 26%	2 17%	2 5%	1 17%	11 13%
Proactive/ facilitates	0 0	0 0	0 0	9 23%	1 17%	10 11%
Unsure/ equivocal/ None of the above	6 75%	5 22%	5 42%	10 26%	2 33%	28 32%

Table 3.14: A summary of the participants' responses to whether they envisage their role in research will change

Professional group	Nutrition and Dietetics (n=8)	Occupat-ional Therapy (in-patient) (n=23*)	Occupat-ional Therapy (comm-unity) (n=12)	Physio-therapy (n=39)	Speech & Language Therapy (n=6)	Total (N= 88)
Yes	1 13%	12 52%	8 66%	19 49%	3 50%	43 49%
No	2 25%	3 13%	3 25%	12 31%	0	20 23%
Unsure	5 63%	8 35%	1 8%	8 21%	3 50%	25 28%

Table 3.15: A summary of research ideas suggested by the participants

Professional group (N= 88)	Research ideas
Nutrition and Dietetics (n=8)	• **Patient referral** (inc. criteria for GPs). • **Patient expectations** (inc. Best practice for patient education, group vs 1:1 education). • **Psychology** (inc EDN for Dietetics). • **Dietetic consultations** (inc. Are patients referred appropriately to give best outcome?).
Occupational Therapy (in-patient) (n=23*)	• **Splinting** (inc. new pressure garments service, strokes, rheumatology). • **Elderly** (inc. syncope for falls). • **Specific services** (inc. outreach team, paediatrics, orthopaedics, vascular surgery amputees). • **Organisation of services** (inc. bureaucracy and therapy time). • **Education of pre- registration students** • **Neurology** (inc. Parkinson disease, Parkinson disease and conductive education, Bobath, Multiple Sclerosis). • **Occupational Therapy specific** (inc. activities of daily living).
Occupational Therapy (community) (n=12)	• **Eating disorders** (inc. occupational therapy and eating disorders). • **Enduring mental illness** (inc. occupational therapy and enduring mental illness, value of rehabilitation, role of occupational therapy generally, role of occupational therapy re: crisis intervention/ risk assessment). • **Increase in motivation** • **Organisation of care** (inc. Support worker in community mental health, Longer term vision, Evaluating mental health community group work, Outcome measures, The role of the user, Reversing long-term clients institutionalisation). • **Nature of the research to be carried out** (inc. smaller research that does not require massive funding). • **the therapeutic relationship** (inc. the value of therapeutic relationship). • **Therapeutic activity** (inc. Therapeutic activity - how?; Therapeutic activity into understandable/ identifiable research-specific data/ evidence). • **Occupational therapy specific** (inc. the use of OT assessments in mental health, OT in Healthy Lifestyles, OT in Risk Management).

Professional group (N= 88)	Research ideas
Physiotherapy (n=39)	• **Efficacy** (inc of exercise for chronic renal patients, of traditional chest physiotherapy, of exercise for Perthes disease, of physiotherapy following multilevel soft tissue and boney surgery, of physiotherapy input with Erb's palsy, of physiotherapy input with Talipes, of physiotherapy input with cerebral palsy, of electrotherapy – all types including UVL, of traction). • **Organisation of care** (inc. Investigation of readmission (why so many and what for?), How to identify and prevent inappropriate patient discharge, Effects of early appropriate referral on outcome, What outcome tool to use?, Standardise assessments). • **Education** (inc. Is there any standardisation of best practice in training institutions?). • **Treatment (general)** (inc. Long-term benefits of different treatment modalities, Development of treatment protocols for specific injuries – tendon repairs, Is physiotherapy necessary in the treatment of Perthes disease?, Orthotics, What is the most effective treatment of symphysis pubis dysfunction, Incidence of re-fracture in the elderly following hip fracture, What is the best method of pain relief, What is the best way to give information to patients and carer to improve compliance?, Long term effects of pelvic floor exercises on the outcome of colposuspension, Specific clinical topics – treatments and outcomes, Stroke (teamwork, role of MDR, positioning). • **Theory and research** (inc. What is the theory behind physiotherapy?, How to ensure that everything we do is the best way of doing it?, Why is existing research not used effectively?). • **Nature of the research to be carried out** • (inc. Get the CSP to stop supporting pointless research about areas with minority interest).
Speech & Language Therapy (n=6)	• **Dysphagia and neurological diseases** (inc. Alternative service provision for dysphagia). • **Dyspraxia** (inc. linking into work at the University of Sheffield, what is it?, Therapy? general efficacy studies). • **Implementation of therapy outcome measures** • **Dysphasics**(inc. single case study). • **Specific treatment/setting** (inc. Long term follow up teenage psychogenic aphonics, Difference btw male and female brains and recovery from language problems after stroke/head injury, Effective dosage of nystatin for valves to reach maximum life expectancy, common difficulties in ICU (training required, outlining knowledge required), semantic therapy, developing knowledge of which/what treatment is effective with which clients, and trying to understand why). • **Evidence based practice.**

3.4.3. Allied health professionals literature review

Although allied health professions are often linked as a single group it would have been presumptuous to assume that the issues they faced were homogenous. As such, the search strategy used in stage 1 was revised to identify whether there were any discrete issues about research and development for the professions included in stage 2. (This was done using the search strategy developed for the thesis see section 1.3.1). No discrete issues were identified in the literature. Collectively the professions of occupational therapy, physiotherapy and speech and language therapy produced a position statement identifying that they were faced with shared issues (Therapy Professions Research Group 1994). Although Nutrition and Dietetics were not a part of this position statement the literature indicates that the issues they face are no different. The issues of management support, culture and change management are also equally pertinent to this group (see sections 3.3.2.2.2, 3.3.2.2.3 and 3.3.2.2.4).

As with occupational therapy the other allied health professions have embraced research and development as an aspect of practice. For example, as identified in the introduction the use research findings in their practice is expected as part of professional conduct (see section 1.3.4). All of the professions have research committees and two have research and development strategies (CSP 1995, BDA 1998). The national bodies of physiotherapy and speech and language therapy had research officers, although this person was employed part-time in speech and language therapy. The BDA were actively seeking to appoint a Research Awareness Co-ordinator (BDA 1998).

The main difference between the groups involved in stage 2 and occupational therapy is the level of awareness of research and development. It appears to have been higher up the agenda before the turning point of 1997 identified in occupational therapy. For example in physiotherapy as well as the publication of the research strategy in 1995 (CSP 1995) there has already been:

- some consideration of the use of research findings (Bohannon and LeVeau 1986, Turner and Whitfield 1997)

- a paper about the Cochrane collaboration (Newham 1995)

- editorials about research (e.g. Newham 1994, Twomey 1996), and

- a research based paper considering the impact of research on knowledge in Physiotherapy (Robertson 1995).

This is as well as having more research based papers in their journal. Speech and language therapy's journal is almost exclusively research based and articles about research and development are published in their news (e.g. Enderby 1994, Byng 1996). This observation appears to be supported by Pringle's (1999) observation in a survey of therapists that:

> "Therapists who were "reserved" about research were more likely to be occupational therapists, to have trained before 1980 and to be working part-time or within the community. Those who were research "orientated" were more likely to be physiotherapists or SLTs, to have trained after 1990, to work full time and to be based in an acute setting. Therapists who fell into the "orientated" group were the most influenced by research findings in their everyday practice" (p12).

3.4.4. Data analysis: Research and Development strategies

For those professional groups (nutrition and dietetics, physiotherapy, occupational therapy) that went on to develop a research and development

strategy a pattern in the form of a process emerged from the data analysis. This was:

1. Support from manager

2. Lead therapist

3. Consultation process

4. Plan a strategy

5. Launch strategy

6. Making it happen

7. Monitor and evaluate

8. Revise strategy

The support of the manager was vital. In one service, speech and language therapy, the manager left the department and there was a vacuum in the management of the service. In this department the research and development strategy failed to come to fruition. It appears that it is not enough for a manager to say they support it and then let the process go; they actually have to be seen to be supporting it throughout the process. The lead therapist played the active role in actually bringing the strategy to fruition. It seemed to be important that it was someone:

- from the therapy team, i.e. 'one of us' ,

- who had a vested interest in seeing the work completed, i.e. it was their job to do it, and

- that they felt that they were acting with the authority and support of their manager.

Again for the service in which there was not a lead therapist formally designated it was not possible to see the process through to fruition. The consultation

process also seemed to be important in getting the team members involved and developing a sense of ownership. One of the lead therapists did question why we bothered with the consultation process when we could have just developed a strategy based on what we already knew. My view is that the consultation process is important from a change management perspective and in terms of gaining ownership it enabled the therapists involved to articulate the issues in their own words. Whilst there are many similarities in the responses of the participants from different professional groups when they have voiced their concerns they used their own words.

It was very important in planning a strategy to actually use the words of the participants in the action plan. This meant the therapists could see how the lead therapist had listened to and then responded to their views and concerns. It also meant that the plans were documented and there was a record that could be used in the monitoring and evaluating that would need to happen over time. Without monitoring and evaluation the department would have no idea if change had occurred or not. The advantage of having a strategy document is there is written evidence of where the service was at baseline. It also seemed to be important to formally launch strategy so there was a marker of when the work was being put into action, i.e. to send a clear signal the plan was more than just words on paper but actual plans that were going to be made to happen. Making it happen was important to both the lead therapist and the therapists in the team so that they did not feel that all their efforts had been for nothing. It was anticipated that as the plans were put into action and they were monitored and evaluated it would be necessary to revise strategy; that it was not a document

set in stone but something to work with and drive forward the research and development agenda within the department.

There were a number of reasons why the speech and language therapy service did not develop a research and development strategy. These included the loss of head of service and senior therapist interested in research went on maternity leave. This left an already small service with only four members of staff and no clinical lead. On top of these changes there did not appear to be the energy or inclination to develop further the research and development strategy. This suggests that there is only so much change an organisation can cope with without there being resistance to, or an inability to respond to, more change. This does not mean the process of developing research and development strategy was without value, it in fact lends weight to the need to follow a process. After all the only service that did have continuous management support and did not formally nominate a lead therapist was unable to complete it. Whilst there were valid reasons for this perhaps if the process had been followed they may have completed it. This process appeared to be acceptable to other professional groups in helping them to use research findings and this suggested it was worth pursuing as an intervention.

3.4.4.1. Data analysis: What intervention?

Although we had concluded that the process provided the basis of an intervention we then had to think through how this knowledge was this going to help anyone other than therapists at Hull. The obvious next step was to develop guidance for other research and development therapists but it was unlikely that

these posts would be widely replicated. So the challenge remained "...for practitioners and managers alike ... to create organisational conditions that are supportive of the NHS policy objectives to enhance the use of evidence-based practice" (Humphris et al 2000: 516). The most important thing about any intervention was that it has to be 'something' that would actually be used in everyday practice. This meant that it had to be cost-effective because the higher the costs attached to using the intervention the less likely would be its widespread use. Funk et al (1995) had highlighted that "cost efficiency is essential" (p402). The possible interventions that could have been developed were brainstormed. The interventions identified were:

- internet,

- manual,

- telephone helpline,

- disc, and

- education programme.

Colleagues were consulted as to the feasibility of these interventions the intervention chosen was a manual. Whilst the internet, training and support, and a telephone helpline all had positive advantages they were excluded on the grounds of the unrealistic on-going costs and the resource implications associated with them. Disc format was ruled out because of the varying levels of skills and infrastructure in relation to information technology amongst therapists. A manual was perceived as being a cheaper version of an education programme. This was appealing because it was likely to be accessible to all regardless of the size and/or budget of the department.

3.4.4.2. Data analysis: A manual

A manual is "a handbook of instructions for learning a subject" (Thompson 1996). To have wide appeal to therapists the manual developed would have to go beyond this dictionary definition. It should aim not only to increase therapist's knowledge but also to enable therapists to apply what they learn. From the outset the manual was conceptualised as a workbook; a practical document that its users refer to time and again. The development of a manual was the next stage in this study.

3.5. Stage 3: Review of manuals

One of the manuals identified was *How to write a training manual* (Davis 1992) and as this appeared to be a key text it was summarised. There are three other aspects to stage three:

- a review of manuals currently in use by my colleagues,

- an analysis of what constitutes the key points when writing a manual, and

- an outline how this learning has been applied in the development of the manual.

3.5.1. A summary of *How to write a training manual* (Davis 1992)

How to write a training manual is a manual about writing the documentation to support effective course delivery. This is not what the manual being developed here would be used for. However, Davis (1992) clearly states that in trying to

write a training manual what you are trying to achieve is "to marshal information by putting it in a useable form" (p2). As this is one of the aims of writing a manual, and in the absence of any other relevant literature, the sections of the book that appearred to be common to writing a manual have been summarised. From the outset Davis (1992) states that there are many ways to write a training manual and no single best way. This conclusion is not based on formal research or evaluation but developed on the basis of Davis' (1992) experience of working as a trainer. A process for writing a manual can be extracted from the text (see table 3.16).

Table 3.16: A summary of the process for writing a manual based on Davis (1992)

Step 1: Identify learning needs	The manual should be written in response to defined needs.
Step 2: Develop learning and training objectives	Learning and training objectives should be developed based on learning needs identified.
Step 3: Write a manual outline	The outline Davis (1992) suggests for a manual is: • The rationale, i.e. What is it? / What is it for? / Who is it for? • The content summary • The timetable (This is the least relevant aspect of for writing a manual that is not going to be used as the basis of an oral presentation but it serves as a useful reminder that others will have to commit time and energy to using the manual and perhaps some estimation should be made of that) • Lists- supporting materials
Step 4: Share your ideas with others	Once the ideas are on paper they can be used as the basis of discussions with those that will use the material. These ideas can then be modified if necessary.
Step 5: Write the manual up in detail	The format Davis (1992) suggests is: • Outline • Detail • Support documentation • Odd 'n' ends
Step 6: Pull all the information & documentation together	

Steps one and two are needed because if the wrong information is targeted at the wrong people, the manual will not achieve what it sets out to achieve. It is vital to know what the end product should look like before the manual is put together in detail so that it is clear what information is needed. Davis (1992) emphasises the need to write steps one and two down so that it can be referred to throughout the writing process to ensure that the right material is being included. Numerous suggestions and comments on the process of writing a manual are also made in the text. These have been summarised under the headings – writing, structure and style. If the word manual is substituted with 'training course' much of this information makes sense when writing a manual that will not form the basis of an oral presentation.

3.5.1.1. Writing

What is written in the manual is important and Davis (1992) cautions that nothing should be written without thinking about it. One of the main guidelines is to 'Write for someone else not for yourself'. This is suggested because it helps the writer see things from another perspective and explain things fully so that others know precisely what the writer means. When written, "there should be no remaining questions of intent or meaning. If you cannot explain it to yourself how will you explain it to someone else?" (Davis 1992: 9). Davis (1992) also suggests writing the text in spoken English and not to be constrained by the rules of grammar. He also reminds the reader that repetition is one of the cornerstones of learning (Davis 1992).

3.5.1.2. Structure

The structure of the manual should emerge from the outline that is drafted in step three of the process (see table 3.16). The outline is basically the rationale that is written to enable the audience to understand what the training course is about. It should describe "What the learning experience is, what it will achieve, what it will be like, what it covers, and about how long it will take" (Davis 1992: 7). It enables the author to check that they are in tune with their brief before proceeding too far with the writing of the course. It is also the first impression that the audience will gain of the course. It should be one or two pages of A4 at most and be designed to grab interest quickly. The rationale will ideally provide the headings when the content is written up in detail.

The first three parts of the rationale, the title, duration and participants, are what Davis (1992) suggests be used as a flag to get attention. The title should be 'punchy' as well as informative, acceptable to environment and may make use of a subtitle if needed. The duration provides an indication of the time investment needed. The point was made that everyone is constrained by time. "People are interested in how long it is going to take at least as much as how much they might learn" (Davis 1992: 21). It is suggested that if this is the audience's first question they need to be told the answer. Under the heading 'participants', the audience that the training course is aimed at should be described as clearly as possible. This ensures that people reading the description can quickly judge whether the course is for them or not.

The next headings in the rationale are introduction, purpose, and objectives. The introduction should address the question 'why?' in order to establish the importance of subject. The aim of this is to "legitimise the topic" (Davis 1992: 23). Under the heading purpose is where the writer starts to formulate part of the answer to the question why posed in the introduction. The purpose is a written statement that provides a succinct statement of what is to be covered. In relation to the objectives it is stated: "We need the introduction and purpose statements to identify where we are going, and why we need to go there. We need the objectives to tell us how we will know when we have arrived" (Davis 1992 24). It is also advised that objectives are difficult to write. It is suggested: "I want to know that someone has or has not done something with a learning experience rather than whether they *know* what they could do" (Davis 1992: 27). In the light of this comment care needs to be taken to write objectives based on what they will have to do with the information and the opportunities to practice the course will provide them with (Davis 1992). Objectives should relate to what they will do as a result of the learning experience rather than what they will know. Knowledge is not necessarily coterminous with learning.

3.5.1.3. Style

The last section of the rationale is the approach you intend to adopt. This is where you commit to a style or 'feel' of the experience. Style is not an afterthought. The writer should "Think about style. Make sure each word you use earns its place" (Davis 1992: 15). When writing a manual, words are not the only consideration. "The way space is used on a page can be quite helpful, and it should be treated with the same care as using words and sentences" (Davis

1992: 63). Training should be entertaining; the trainer has a responsibility to enhance the experience for others and should always be asking themselves 'What can I do to add value?' An analogy was made to the use of theme music in Hollywood movies to illustrate this point. Theme music is used to enhance the experience for the audience and providers of training should think along similar lines of what more could they add to enhance the experience. The sorts of considerations the trainer may have are - For whom else are you writing? What are they expecting? What would they like to see? and What questions will they have that you can answer in your manual before they ask? (Davis 1992: 15). Whilst Davis (1992) is realistic enough to recognise you cannot please everybody he does think that the trainer should work hard to achieve this, by putting quality and interest into their work. Davis (1992) does mention the fact that costs and benefits impact on what can be presented. In his manual Davis (1992) encourages his readers to work with the material presented so that they are not just passive readers.

3.5.2. Review of manuals in current use

As Davis' (1992) work was not research based and does not precisely address my concern about writing a manual as an intervention in itself it was necessary to explore further how to write a manual. Manuals tend to be expensive and/or only have a limited circulation. Time and resources did not allow for a thorough review of a wide range of manuals. A number of my colleagues use manuals in their work and so a survey of manuals currently in use in the Institute of Rehabilitation, University of Hull was conducted. Eleven manuals were identified for review and were included in this review (Munro 1991, Davis 1992,

Lewin 1992, Cook 1996, Anderson et al 1997, Dixon et al 1997, Sackett et al 1997, Harris et al 1998, Weaver 1999, Community Practitioners' and Health Visitors' Association undated, NHS Management Executive undated). They cover a variety of different perspectives and topics and so should provide a useful overview of how a manual should be written. A review pro-forma (appendix 7) was developed based on Davis' (1992) work. It included the headings – title, time, introduction, purpose, objectives, participants, style, content and supporting materials provided. Two categories were added; format and reviewer's comments. Any other points that particularly struck the reviewer that are not covered by the previous headings were written up under reviewer's comments. Each manual was reviewed using this pro-forma. Some of the individual reviews have been supplemented with information from owner/user of manual; this information is formatted in italics (Appendix 8). The data from the individual reviews recorded on the pro-forma (Appendix 7) have been analysed and are presented as the key points for writing a manual.

3.5.3. Key points for writing a manual

The review of manuals indicates that Davis (1992) rationale, as the backbone of a manual, is a useful starting point. The manuals that were easiest to read contained most of the elements of the rationale suggested by Davis (1992). The headings from Davis (1992) rationale have been used to structure the analysis of the review as to what constitutes the key points for writing a manual.

3.5.3.1. Title

Long titles were not attractive. The best titles, in terms of attracting the attention of the reader, were those with a mix of a short eye-catching slogan and an explanatory subtitle. The slogan tended to be dynamic to catch the attention of the reader and the subtitle explained the content. It is apparent from the review that it is easy to mislead the reader if care is not taken with the wording of the manual.

3.5.3.2. Time and participants

Where estimates of time and an explicit, precise definition of the target audience were given this was very helpful in determining whether to proceed with using the manual. Sometimes estimates were only given for part of the task and may have been more useful if they had considered associated work.

3.5.3.3. Introduction

Not all of the manuals made explicit statements to justify the manual or topic. Those where no statement was made, even if the importance of the topic was implicit, were not as accessible as those that clearly explained the need for the manual and the importance of the topic. The review also highlighted the importance of choosing an author of the foreword with care. It is important that they understand what the manual is trying to achieve. It was impressive how much information many of the manuals managed to convey in a short space.

Davis (1992) suggestion of two sides of A4 paper appeared to be an ideal length.

3.5.3.4. Purpose

This tended to be the opening gambit in the manuals that were most accessible and underpins Davis' (1992) assertion that the purpose needs to be clearly stated.

3.5.3.5. Objectives

Davis (1992) made the point forcefully that it does not matter what people know at the end of a training course. It is what they actually do with the new knowledge that is important and learning objectives should reflect this. In the manuals' objectives related to knowledge far outweighed those related to what the users should do as a result of using the manual. Objectives are difficult to write, which is probably the reason most of the objectives were knowledge related. A manual appears to be more useful if it is clearly stated what the user should be able to achieve rather than just the knowledge gained. This appears to be one of the major differences between a textbook and manual.

3.5.3.6. Format

A ring binder was the most common format. It is likely that this choice was cost related. The format the reviewer preferred was the A4 workbook used in *The Heart Manual* (Lewin 1992) and *The Evidence Based Medicine Workbook*

(Dixon et al 1997). High quality paper, the use of colour and graphics did make a manual more attractive and so pleasant to read. Some manuals appeared to have been produced very cheaply and were not as attractive.

3.5.3.7. Content summary and supporting materials

The manuals did not tend to have a lot of chapters, parts or sections. This suggested that a manual should be focussed on one topic. Those with a lot of sections, e.g. *Coronary Heart Disease Prevention in Primary Care* (Harris et al 1998) were more arduous to work through and felt like a textbook rather than a manual. The types of information included as supporting materials were contacts, information leaflets, copies of journal articles, references and explanatory notes.

3.5.3.8. Style

The need for a balance between text and space suggested by Davis (1992) was very important. The manuals with more space were easier to read. The most difficult text to read had two columns of text side by side. The types of things that stood out as impressive were attention to detail, for example providing quiz answers with explanations. Logos like the hedgehog used in *Coronary Heart Disease Prevention in Primary Care* (Harris et al 1998) did not enhance the credibility of the text because it appeared 'twee'. This suggested that logos such as this should not be used. The manuals provided lots of ideas about how to present information, e.g. examples, humour (cartoons and asides), exercises and illustrations. Few things were used consistently throughout. The manual

summary sheets provide ideas of how different information can be presented in a manual (appendix 8).

A mix of heading styles and the use of sub headings did make a manual much easier to read because they broke up the text. Short summaries of theory, e.g. the Health Belief Model and the Stages of Change Model in *Progressive Practice* (Cook 1996) were excellent examples of how complex information can be presented easily. Equally the lack of detail was frustrating for the reader, e.g. lack of information to support the five step process in the *Clinical Effectiveness Information Pack* (Community Practitioners and Health Visitors' Association undated). Overall the two manuals that provided excellent working examples were the *Evidence Based Medicine Workbook* (Dixon et al 1997) and *Just for the Record* (NHS Management Executive undated).

3.5.3.9. Summary of findings

To summarise the main findings of this review of manuals was the need for a:

- Concise, clear rationale (A maximum of two side of A4 paper)
- Simple, logical structure
- Consideration of use of text/space as well as the use of words
- Objectives related to action not knowledge, and
- Quality dictates a need for attention to detail throughout.

There were also some watchwords for authors of manuals, i.e.

- write from the perspective of the audience
- a manual is not a textbook and so should not be didactic, and
- avoid gimmicks.

These findings have been used to guide the development of a manual to enable therapy managers to increase the use of research findings in their departments.

3.5.4. Theory into practice: the development of the manual

This analysis was used to shape the content of the manual. The starting point was to develop a two page rationale that included first three steps involved in writing a manual that identified learning needs, development of learning and training objectives, a manual outline (appendix 9). It was at this point in the study that its focus was refined. The focus became the use of research-based knowledge rather than research and development *per se*. This is because it was recognised that research and development was too broad a focus and was probably unrealistic. This was a recognition that research and development is beyond the scope of therapy managers because research and development is such a broad remit. Whereas it was realistic to expect the therapy manager to have a responsibility to create a culture in which research findings can be used.

The learning needs to reflect the literature review (section 2), i.e. the need to overcome barriers to research utilisation. In terms of objectives two of the objectives were knowledge based because there is a knowledge gap and one objective was action based. The title, the Hull Turnkey Manual, was an improvised mnemonic. 'Turnkey', i.e. therapists using research based knowledge in everyday practice, and Hull in recognition that the manual was developed in Hull. It was hoped that this would be eye catching with a subtitle to provide the explanation, i.e. Overcoming the barriers to using research findings

in your department with this 8-step process. The slogan on which the pneumonic for the title was developed, Therapists Using Research Based Knowledge in Everyday Practice, was used throughout the manual to reiterate message with a picture of a 'key' to emphasise the imagery of the Turnkey.

The manual outline was based on the analysis of knowledge gained from stages one and two of this study. An eight-step process to increase the use of research based knowledge was identified from the research with therapists and this was used to form the structure of the manual (see section 3.4.4). The aim was to convey the Hull experience supported by a summary of the research underpinning the manual's development. The reasoning for this was it was identified that doctors are happy to read the key message of *Effective Health care* bulletins as long as the research that underpins them is readily available, if they want to read it. So it was decided to separate the manual from the research that underpins it but include it as an appendix so it is available if the readers want to read it. All this information was to supported by additional resources that may be useful to the reader, i.e. glossary, references, bibliography, directory of contacts and a list of web addresses.

Once this outline was completed it was used as part of step 4 to share my ideas with others. I discussed the outline informally with occupational therapy manager, head occupational therapists and supervisor (RB) in first instance. It was also discussed more formally with academics at the seminar to upgrade from MPhil to PhD status. It was generally accepted that this was a good basis on which to proceed. In terms of step 5, i.e. writing the manual in detail, I did this in discussion with my supervisor (RB). The main consideration when writing

the manual was the use of language. The literature review indicated one of the barriers to using research-based knowledge was the language researchers use. It was also important to ensure that the manual was attractive and useable so that it appealed to the audience at whom it was targeted. I followed the structure developed in the outline. The introduction was the manual outline with some additional points about how to use the manual, and the need to focus on research based knowledge. The overview was of using research-based knowledge including the research practice-gap, the manager's role in overcoming the barriers to using research findings and introduced the 8-step process. Each stage of the 8-step process (see section 3.4.4) was outlined with the practicalities needed. Whilst developing the overview the process was condensed into a seven-step process. The launch of the strategy was incorporated into the section under making it happen. This was because it was something the therapists could consider doing but was not an essential part of the process (physiotherapy decided against having a launch in the end). This required some redrafting and modifying until the first draft of the manual was produced. When it was completed all the documentation for the supporting materials were pulled together (step 6).

My aims for the manual were that it was accessible, well targeted, and conveyed the Hull experience. It was hoped that the managers would think it a worthwhile endeavour and find it explained research-based knowledge in plain English. Having drawn all this material together I needed to find out whether the manual met the needs of the target audience or not? This led into the fourth spiral of research and action in this action research project, i.e. the process of peer reviewing the Hull Turnkey manual.

3.6. Stage 4: Peer review process

Having written the first draft I needed to ensure the manual met the needs of the target audience. It was decided that the best way to access the views of the target audience was to conduct a peer review process similar to the process for assessing whether a paper is suitable for publication in a journal. The aims of the peer review process were to find out, at an early stage, whether:

1. the Hull Turnkey manual met the needs of its target audience, therapy managers? and

2. there are any modifications that need to be made to the manual?

A list of prospective reviewers was assembled (appendix 10). It was comprised of the therapy managers who had been involved in the process of developing the manual, therapists engaged in the process of increasing the use of research based knowledge, and other local experts. The panel members were all local to reduce the likelihood of diffusion of innovations (Cook and Campbell 1979) prior to a formal evaluation of the manual. Invitations were sent to the prospective reviewers for the review panel and all agreed to participate. A pro-forma to guide reviewers in their task was developed based on the findings of reviews in stage 3 (appendix 11). Each reviewer was sent a covering letter explaining the process and deadline date (appendix 12), a draft of the manual and the pro-forma. Two weeks later a reminder was sent out (appendix 13). One of the reviewer's commented on their pro-forma "PS Glad you reminded me" (Reviewer 14), which suggests that this was a useful step.

3.6.1. Findings from peer review

Nineteen out of the 21 reviewers who agreed to participate returned comments; a response rate of 90%. The reviewers are referred to using numbers to maintain their anonymity. These numbers reflect the order in which the comments were returned and bear no relation to the alphabetical list of reviewers (appendix 10). Reviewers were generally positive about the manual. For example:

- "I think that going through the process of consultation and discussion itself would bring up a lot of ideas, which would make the following stages easier. It was difficult for me to envisage what I would do at the later stages, but if I was actively involved in the process I think it would make more sense to me! I certainly would use it –its excellent." (Reviewer 11), and

- "Yes – a very good guide to help therapy managers – broad enough to be used by all PAMs. The manual exceeded my expectations!" (Reviewer 10).

Whilst most were positive about the manual many also thought that it did needed some modification. For example, reviewers commented:

- "You may need to make it easier for the managers" (Reviewer 1), and

- "The idea is good and presentation good but I feel it needs condensing to make it a workable document." (Reviewer 14).

The findings have been summarised under the headings title, content and style.

3.6.1.1. Title

The majority of reviewers liked the title (n=13/68%), others were not as keen on it (n=4/21%), or made no comments at all (n=2/11%). The preferred format for the title was horizontal with the padlock as an image. The kind of comments made were:

- "The image of turning the key to unlock the padlock, in order to overcome the barriers is a good representation." (Reviewer 2)

- "Also "turnkey" as an expression is a bit 17th century" (Reviewer 7)

- "The title maybe better as either the Hull manual or the TURNKEY – however titles are notoriously difficult." (Reviewer 13) and

- "Not sure about 'turnkey'" (Reviewer 15).

3.6.1.2. Content

In terms of content, the 'Introduction' through to 'Step 5: Making it happen' was well received by the majority of reviewers (see table 3.17). This was not unequivocal; points were made about modifications that were needed but generally these were felt to be useful, workable chapters. For example in relation to the introduction some amendments suggested were, e.g. keep the sections clearer (Reviewer 5), Does there need to be the depth/description of Haynes Car manual (Reviewer 5), and maybe could say why not suitable when says not suitable for some staff (Reviewer 7).

Table 3.17: A summary of comments made by the reviewers about the contents of the manual

Section of the manual	Positive comments (n/%)	Negative comments (n/%)	No comment (n/%)
Introduction	15 /79%	2 /11%	2 /11%
Overview	13 /68%	4 /21%	2 /11%
Step 1: therapy Manager	13 /68%	4 /21%	2 /11%
Step 2 lead therapist	12 /63%	5 /26%	2 /11%
Step 3: Consultation process	15 /79%	2 /11%	2 /11%
Step 4: Strategy	14 /74%	3 /16%	2 /11%
Step 5: Making it happen	13 /68%	4 /21%	2 /11%
Step 6: Evaluating and monitoring	1 /5%	1 /5%	17 /89%
Step 7 Revise strategy	5 /26%	12 /63%	2 /11%
Supporting materials	11 /58%	5 /26%	3 /16%

However, most of the reviewers had concerns about steps 6 and 7. Step 6 had not been photocopied properly and this did not come to light until the comments and manuals had been returned. Step 7 was felt to be inadequate and required reworking because it appeared repetitive to some of the reviewers, e.g:

- "...is repeating what has gone before." (Reviewer 3) and

- "Do you need to repeat the OT strategy as this is already in the appendix (3) and can be referred to?" (Reviewer 5)

Although step 7 needed to be reworked some of the reviewers did think the chapter had value, for example reviewers commented:

- "Good to say that strategies are progressive, "not on the shelf" documents." (Reviewer 7), and

- "Good to show how to close the loop!" (Reviewer 16).

The problem was summed up by Reviewer 8 who stated, in relation to this chapter, "It doesn't seem to be finished – sort of tails off – lost direction!". The same reviewer when commenting on the manual as a whole also said, "Expectations partly met, but last few stages somewhat wishy-washy."

3.6.1.3. Style

On balance, in terms of the overall style of the manual, the reviewers indicated that it needed to be re-examined (see table 3.18). The reviewers approved of the purpose and objectives and the layout. Although there were aspects of the layout that needed to be revisited (see table 3.19). The reviewers indicated that a lot more work was needed on the targeting and style. The preferred formats for the manual have been summarised in table 3.20.

Table 3.18: A summary of comments made by the reviewers about the different aspects of the overall style of the manual

Aspect of the overall style of the manual	Positive comments (n/%)	Negative comments (n/%)	No comments (n/%)
Users of the manual	10 /53%	8 /42%	1 /5%
Purpose and objectives	16 /84%	3 /16%	0 / 0%
Layout	15 /79%	2 /11%	2 /11%
Style	5 /26%	10 /53%	4 /21%
Usefulness	10 /53% (unequivocal) 6 /32% (with reservations)	1 /5%	2 /11%
Overall comments	13 /68%	–	–

Table 3.19: Summary of the aspects of the layout of the manual the reviewers liked and disliked.

Like	Dislike
7 step process useful - boxes - columns - bullet points - definitions in left column with titles. - the chapter pages - key points at each stage - the next step box - format of the text on the right with quotations on the left– with spaces around – they could be clearly seen. - you can take each step separately - space for notes step by step process - what we did in Hull bits - space and text are easy to read - use of headings with logical progression. - pages seemed to be broken up into easy to read portions. - highlighted areas for specific examples and separate definitions.	- sometimes justification gives a problem with readability - a little frustrating when boxes referred to were on different pages - some of the spacing is wider - the space and text. - not sure about the split page/ use of 2 columns of equal width – looks too daunting because of so many pages. - very 'wordy' - you have to decide what you are using all the quotes for and where you want them – they are good on the left hand side but less good within the text or in boxes. - one of your main problems is packaging it so that it is accessible. - very long & bulky. - use of space & text was interesting. Is too much variety a good thing?

Table 3.20: A summary of the reviewers' preferred formats for the manual

Preferred formats	Comments
• Colourful and glossy (n=1).	• You may need funding for this
• Uncertain which option is best out of A4 ring binder, spiral bound booklet or book (n=3)	• I'm not sure if an A4 ring binder (which you can annotate and allow to become dog-eared like a Haynes manual) is best or a book (more long lasting) is best.
• A hard copy (n=1).	• I would not use a computer so a hard copy would be necessary for me.
• Spiral bound booklet/ book (n=6),	• Incorporate notepaper for individuals to write in • Booklet much more user friendly • A spiral bound - relatively firm • Glossy back/front
• A4, ring binder (n=6)	• Easier to insert extras • Easy to access • File provides protection of paper • Forms and exercises could be pulled out and photocopied to avoid writing on the original, and then put back into the book,
• Small A5 ring binder (n=1)?	• Maybe bigger but not A4.
• A4 ring binder /a paper copy & disc (n=2)	• So I can move information around and add to it if necessary • A book looks more professional • Book form may be most durable of paper forms.
• Disk (n=2)	• Easier to update
• Whether 2 booklets would be useful in one folder - One with the background, the other with the 7 steps and exercises? (n=1)	• There is a lot of information

There were a number of issues identified during the peer review process. Some of these, such as reducing the length and the number of errors like typos and omissions, are easy to rectify through the use of editing and proof reading. The others required more thought. The language was a problem for many of the reviewers for a number of reasons. Reviewer 11 observed "...Good to see focus/discussion on 'knowledge' but I was a bit confused when I read it". In

terms of language other reviewers were also concerned about the following issues:

- **Heavy going in places**

  For example "…I had to keep reading them twice" (Reviewer 3), "I would try to make sure shorter, snappier sentences are used wherever possible. Using (funny!) cartoons to illustrate your points would make it more readable." (Reviewer 11) and "Takes a long time to read which may put people off." (Reviewer 11).

- **Negative**

  For example "Yes it does sound and look very time consuming!" (Reviewer 1) and "Page 40 "difficult task" why assume this?" (Reviewer 7)

- **Inappropriate explanation**

  For example, "A few terms need more explanation a few need a great deal less. You tend to use a lot of complex sentences. Simplify them. Also beware of too many extraneous phrases, e.g. that is… (Reviewer 13) and "Explanation sometimes almost embarrassing." (Reviewer 17).

- **Patronising tone**

  For example "A few bits of unnecessary verbiage – sounds patronising." (Reviewer 13), "Occasionally a bit patronising" (Reviewer 13)

  "I think you have assumed the basic knowledge/ competence of therapy managers too low. A lot of this we know use and don't need detailed

description. Since there will be a variation in level of understanding/ experience it might be useful to have a format whereby individuals can skip inappropriate sections rather like in questionnaires e.g. if you satisfy a, b, c go to 3. If not carry on to number 2 (Hope you understand this – if not I'll gladly discuss!)" (Reviewer 14) and "Aims good but I'm not sure many managers would do the exercise full (too little time). Yes it appears so but from a limited view point and model. Writing a job description – may consider this to be 'sucking eggs'. (Reviewer 17).

The manual was also too long. The following comments encapsulate many of the comments made:

- "Some elements seem to be a little long winded e.g. questions and answers. Attempts to break up the pattern with block of other information does not disguise this. Not sure if there appears to be too many boxes of information distracting the readers from the topic in hand. Plenty of material in the manual – sometimes too much." (Reviewer 17)

- "I would guess many managers would be put off by the length and depth, and demands on their time. I would suggest cutting it down to the bare bones and putting a bit of the detail into the appendices to avoid this." (Reviewer 1) and

- I think it will be very useful as long as you simplify some of the text – no one is going to read something too wordy, which would be sad. (Reviewer 13).

It also did not indicate how long it would take to work through the material in the manual. Seven (37%) reviewers commented on this. The targeting of the manual also needed to be analysed. Reviewer 7 made a number of comments about this on the proforma:

- "I think it could be edited +++, or more clearly targeted at managers who do not encourage research-based knowledge into practice. I felt that most of the manual was already familiar having looked at mgmt of change and motivation in other cases. May be good document to inspire change if a hidebound service."
- "I think the learning obs are clear and it achieves them, but on reflection feel that the manual needs to be more explicitly aimed – managers vary in their experience and enthusiasm for this topic and it is old hat to some novel to others." and
- "needs to target your audience more openly."

However observations such as "You may need to make it easier for the managers." (Reviewer 1) also suggested that the material had not been well targeted.

One reviewer (Reviewer 17) made a number of observations about the manual from their own perspective which they felt was different to Hull experience:

- "The Hull experience would need creativity and flexibility to adopt my organisational culture."

- The "Role of therapy manager – is too narrow perhaps professional lead/head – so that the manual is easily related to different organisational models that people operate within."

- "...again is no acknowledgement that other models of management exist. In this trust model would require general management and other tiers of management to agree. Appointing and funding of such a post. In this model is comparatively simple operation. Have you considered those professional leads such as myself who would have to incorporate/ implement/ influence a whole variety of different levels of management. What other processes could be considered so that adoption of this manual would be possible. I'm not sure if people need to be told how to write a job description."

- "Strategy needs approving and ratification by the organisation where the therapist work. How does it fit in/complement the trusts R&D strategy."

- "By using only professional management and only this one process people such as myself may be put off using the manual. If many OT managers are in roles similar to myself where would we fit in. Seems almost too narrow."

- "I'm not sure what I expected. Perhaps I expected at least a format for critical appraisal. Some aspects are helpful and would save me reading other books. Perhaps the model & the seven-step process that you experienced proved successful. I would have to adopt a different approach. Due to the nature of organisation."

The reviewers also shared a lot of their own ideas to improve the manual and these have summarised in table 3.21. In relation to questions about users of the manual and its usefulness, Reviewer 2 highlighted the need for further evaluation. That is, "Needs to be field-tested to answer these questions." and

Table 3.21: A summary of the reviewers' ideas about the manual

Aspect of manual	Suggestion
General points	• Assessment of status quo to determine if this manual could be useful. (Reviewer 7) • Greater emphasis on business planning, contract negotiation; etc – if don't have resources (e.g. time often mentioned) then manager needs to secure them (Reviewer 7) • A workbook – full of questions with tick boxes. Information could be summarised with direction for more detail or ?into appendices. (Reviewer 8) • I think you need to go through this with a fine tooth comb when finished and construct a very detailed index so that people can quickly find their way to the information. Also is it worth producing a mini-version containing the practical 'meat' for quick reference. (Reviewer 15)
Step 1	• Also can get results with facilitation and motivation so would be good to include this.(Reviewer 7)
Step 2	• Write a new and more appropriate job description for the post" (Reviewer 1)
Step 3: Consult-ation process	• How the idea is presented to the staff is likely to be the key to success. This may be clearer when you have got your presentations for appendix 6. I think most managers would need a fair bit of help with 'How to sell the project'. I would prefer to see more on that, as all the emphasis seems to be on consultation. (Reviewer 1)
Step 4: Strategy	• Detail how to keep the strategy on the department's agenda? (Reviewer 3) • IPR as a means of fostering research knowledge into practice and getting a focus. (Reviewer 7)
Step 5: Making it happen	• Resource implications relating to business planing (Reviewer 7) • The organisation having a culture to foster this approach (Reviewer 7) • Common pitfalls and how to avoid? Get them to identify problems to this stage and ways to overcome(Reviewer 8) • Examples of possible problems/barriers which may need to be overcome to implement. (Reviewer 9) • Specific guidance needed on how to help staff access/ appraise information searching skills etc. contacts, information sources, training available, information on what is available to staff if info/training etc not available locally how to take steps and make it available. (Reviewer 11)
Step 6	• Needs the flowchart for monitoring and evaluating (Reviewer 5) • Monitor through IPR. (Reviewer 7)
Purpose and object-ives	• Detail how it can support individuals CPD/learning hours. Link to training requirements? (Reviewer 3) • Doesn't need all the references – this is a manual not a PhD thesis (maybe put them back in the thesis!). (Reviewer 13)

"Will need to field test to test this theory...Yes meets my expectations – though I feel there some work to be done in the later sections".

3.6.1.4. Developing the second draft of the manual

The overall conclusion that can be drawn, from the peer review process, about the manual, was that it was a good idea but it needed more work. The next step was to use the findings from the peer review to develop the next draft of the manual. The key issues to be considered were the name of the manual, language, time, length, targeting and developing the later steps of the manual. In terms of the name of the manual it was decided to change the name to Turnkey manual instead of the Hull Turnkey manual. Reviewer 15 had made the comment that "The title maybe better as either the Hull manual or the TURNKEY" and an external reviewer of the protocol developed to evaluate the manual suggested that the word Hull may put people off. This was because people may think that the manual had no relevance to them if they did not work in Hull or like Hull. One reviewer referred to the 17th century meaning of the word 'Turnkey'. This meaning is negative; the dictionary defines the archaic use of the term as "a gaoler" (Allen 1990: 1318). This was obviously the completely opposite to the image to the one the manual was trying to convey. In more recent times the word has been used as an adjective "...(of a contract etc) providing for a supply of equipment in a state ready for operation" (Allen 1990: 1318), which is more positive. Most reviewers seemed unaware of the 17th century meaning and liked the imagery of the key and the lock so it was decided to retain it.

The comment about knowledge by Reviewer 11 suggested that the use of the term 'research based knowledge' was confusing (see section 3.6.1.3). It was decided to use the phrases 'research utilisation' and 'using research findings' in subsequent drafts of the manual. These were terms that appeared to be increasingly adopted in the literature. The language and content would also be revisited with the aim of reducing the patronising tone identified by some of the reviewers and more accurately reflecting the pressures on the manager. This would be a difficult task because although many reviewers claimed they already had some of the skills described I rarely saw them being used in practice.

The concern about the time expressed by some reviewers suggests that Davis' (1992) observation that participants need to know the time involved is accurate. The time involved was made more explicit the second draft of the manual. The steps that were used to reduce the length were stringent editing and removing the summary of research underpinning the manual. The later steps in the process described in the manual needed to be completely revised. The reviewers' suggestions and observations were considered during the process of redrafting.

3.7. Strengths and limitations of the study (stages 1-4)

The strengths and limitations of the study's methodology (all four stages of study 1) are discussed, i.e.:

- Nature of the research question
- Sample size and response rate
- Operationalisation of terms

- The nature of self reported data

- The role of the researcher

- New information

The issues raised by this study are considered in the concluding discussion (see chapter 6).

The decision to focus on overcoming the perceived barriers rather than extending the barriers research (see section 2.5.5) appears to have been valid. The participants have not only engaged with this study but also followed it through to its conclusion. This is reflected in the sample size and response rate, which were N=23, 85%, N= 65, 68% and N=19, 90% respectively for stages 1,2 and 4. The sample was biased initially by the fact that my post was funded by the acute trust specifically for occupational therapy. So despite research and development being a generic activity the initial focus was on occupational therapy. The spirals of action and research corrected this bias over time hence stage 2. It could be argued that Stage 1 was a necessary stage for the therapy services to go through; they needed to learn that this was a generic activity for themselves. In the trust, at that time, it would not have been possible to involve all the services or the community services from the outset: it would have been too controversial. However, because a uni-disciplinary route had to be taken a multidisciplinary strategy was not seriously considered at any time. This may also be a reflection on the NHS at that time. Although there is increased emphasis on multidisciplinary approaches now it would have been impossible at the time. For example, the physiotherapists who participated in the study found it difficult to work with me. This appeared to be because the Research and Development occupational therapist rather than the Research and Development

physiotherapist was leading the work. It was interesting that the physiotherapy department decided not to include staff without a qualification in physiotherapy. This was not an issue for nutrition and dietetics and speech and language therapy because they did not employ support staff. Although support staff were included in stage 1 they were bemused by this and some of them stated that they did not think the research and development agenda had anything to do with their role. Again this was probably an artefact of the time, which is likely to change or have already changed with the advent of foundation degrees and more support staff in the NHS gaining qualifications in higher education.

There were some errors in the methods that were identified with hindsight. Terms that have many different meanings, e.g. reading, were not operationalised. For example many therapists said that they did read their professional journals. What did they mean by this? Did they mean that they read articles of interest every month? Or that they read it occasionally? Or they flick through to job advertisements? There was also an oversight between stages 1 and 2 because the data on grades had automatically been collected in stage 1. There was no formal question about it on the PAC and it was forgotten in stage 2. This limited the data analysis possible. The study also relied on self-reported data. A researcher can never really be sure that participants are not just acquiescing and saying what they think the researcher wants to hear. However, there are aspects of the results that could be perceived as negative or critical, which suggests a degree of honesty. For example in the peer review of the manual the respondents were able to say it was patronising in places. This could have been because they were managers and felt comfortable, in their more senior position, making criticism. Nevertheless in earlier stages

participants also provided negative as well as positive responses, e.g. "no money for doing it or advancement in terms of the profession", suggesting that they were not just acquiescing.

I am concerned about the depth of analysis because action research operates in real time analysis. This means it is not possible for the analysis to have the depth it would have in other studies where the time constraints are not so tight. Perhaps this is one of the trials and tribulations of being an action researcher? Hart and Bond (1995) suggest that time scale is an issue in action research generally. In their consideration of analysis they note:

> "central to all research is the generation and analysis of data, but within an action research project these activities are entwined with gaining access, reading relevant literature, analysing emergent findings, evaluating progress and planning subsequent phases" (p72).

They do not address the central issue of balancing speed against quality. I have learnt the importance of only collecting relevant data and handling the data according to resources available, i.e. do not transcribe focus groups unless a team of researchers is supporting this activity. However, despite this in feeding back analysis to participants it has been accepted suggesting it is an accurate reflection of their responses.

The role of the researcher in action research is as a collaborator with the practitioners as full participants. In this study this was only achieved to a limited extent and the study could have been far more collaborative. For example I was not interviewed and neither were the lead therapists and it did not appear to occur to anyone that we should be. Although every stage of the process was

discussed with the teams it was strongly directed by me. This may reflect my immaturity as a researcher, i.e. a fear of letting go in case I lost control, but it also in part reflects the pragmatic nature of the work. The study had to be completed and the perception was I had been employed to do it. The therapists also perceive time as a barrier to their involvement in research and the same was true for this study. There were a number of other issues competing for the therapists' attention. This in part explains the willingness of therapists to be involved in stage 2 but with a proviso on how much time they were prepared to give to support the project (see section 3.4.1). However, in future studies I would spend more time at the outset clarifying roles and what collaboration means because the participants contributions have greatly enriched the data collection and process.

The reflection in this study was reflection, i.e. the focus was on the process and the spirals of action and research. There was little reflexivity, i.e. consideration of the impact of the role of the researcher on the study. Again, this in part reflects on the maturity of researcher and the pragmatic nature of the study as there were very short turnaround times. It may also explain why this study was not as participatory as it could have been. If I had been reflexive I may have picked up on this earlier. However Hart and Bond (1995) point out "there is a variety of focus which the researcher practitioner relationship might take" (p 9). Using Hart and Bond's (1995) schema the model used in this study, the 'professionalising' model, was appropriate when working with professionals. Nevertheless I may have had a more creative and innovative response if I had had the courage to work in the the 'empowering' model (Hart and Bond 1995). This would have been appropriate because I was partly involved in

consciousness raising and trying to shift a balance of power. They also point out that "The most important lesson seems to be that the process of defining the problem and formulating research questions arising from it needs to be collaborative" (Hart and Bond 1995: 10) and this does appear to have been achieved in this study.

Another difficulty has been that there is new information being published all the time. I have tried to incorporate literature if it was very important e.g. The *Effective Health Care* bulletin 'Getting evidence into practice' (NHS CRD 1999). It was, however, impossible to keep refining literature review to reflect all the literature published. To do this would have distorted the view of what formed the basis of the manual. It is interesting to note that much of the information available confirms what has been learnt in this study, e.g. Royle et al (2000).

Every research study has strengths and weaknesses. On balance, having assessed the strengths and limitations of this study, it can be concluded that it had internal validity, i.e. it has credibility, dependability and confirmability. In terms of credibility, i.e. the confidence in truth of conclusions, prolonged engagement, data triangulation and member checking have demonstrated this. That is, the data from different sources have identified similar issues, there have been no significant new issues emerge between stage 1 and stage 4 and although formal member checking was not conducted the fact that the participants have been involved in the discussions to develop the study is an informal version of member checking.

The study can be described as dependable because the data have remained stable over time. That no significant new issues have emerged between stages 1 and 4 suggested we have generated an accurate picture. In terms of confirmability the fact that the respondents concur that the findings are an accurate reflection of their views suggested that the confirmability of the data analysis. (The data are also available for checking). Whether the study has external validity, i.e. is transferable, is not so clear cut. That the process appealed to the different professional groups and in different settings suggests it will appeal to therapists per se. However it may be what was observed was an anomaly related to geography and that therapists outside of the environs of Hull may not find it useful. It could equally be that without the direction of an research and development therapist the process is not replicable. The manual will be subjected to further evaluation, so external validity is not crucial at this stage. The findings from this study suggest further evaluation would be worthwhile.

3.8.   Conclusion: Evaluating the Turnkey manual

Having developed the Turnkey manual and found it had the potential to be a useful intervention the next step was to test whether its use would increase the use of research findings.

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[i] now Hull and East Yorkshire Hospitals NHS Trust
[ii] The definition has become clearer since this study was conducted with the emergence of the Health Professions Council.

4. STUDY 2: A PILOT STUDY TO ASSESS THE UTILITY OF THE TURNKEY MANUAL

4.1. Introduction

To formally evaluate the Turnkey manual a steering group of six people was convened to develop a research protocol. The aim was to assess the manual's effectiveness, impact and generalisability. Effectiveness concerned whether or not the use of the manual enabled managers of allied health professions to increase the use of research findings in their departments. In relation to impact it was necessary to develop some understanding of the process; to find out why therapy managers used the manual or not. In terms of generalisability, it was necessary to establish whether the Turnkey manual had utility, i.e. was it useful beyond the boundary of Hull where it had been developed with local allied health professionals. The steering group agreed that the evaluation design had to be a randomised controlled trial (RCT). However, there was not a sufficiently robust outcome measure available to conduct such an evaluation of the Turnkey manual. Therefore, the aim of this study was to conduct a pilot study assess the utility of the Turnkey manual in a clinical practice setting from the manager's perspective. The objectives were to:

- describe the environment/context in which it was used.

- describe and understand how the manual was used in the field, and

- gain an insight into the manager's and lead therapist's experiences and opinions about the manual.

This chapter outlines the pilot study used to assess the utility of the Turnkey

manual, the results are presented and the limitations of the study discussed. The

study's findings are discussed in the context of the findings of the other studies in

the thesis in the concluding discussion (see chapter 6).

4.2. Methodology

4.2.1. Pilot study

A pilot study is "A preliminary study where the procedures and protocols are tested

or 'piloted'" (Polgar and Thomas, 2000: 297) and is used to "...judge the feasibility

of your overall research plans" (Blaxter et al 2001: 42). Although the peer review

had provided an indication that therapy managers may use the Turnkey manual

(see section 3.6) it was worth assessing the utility of the manual in the practice

setting, bearing in mind Blaxter et al's (2001) comment:

> "...the value of pilot research cannot be over estimated. Things never work
> quite the way you envisage, even if you have done them many times before,
> and they have a nasty habit of turning out very differently from how you
> expected on occasion. So try a pilot exercise. If you don't, you will probably
> find that your initial period of data collection turns into a pilot in any case."
> (p136).

So just as "...the questionnaire designer can improve the instrument by piloting

it..." (Parahoo 1997: 263) it was hoped that piloting the Turnkey manual would

provide a means of assessing its utility prior to a larger scale study.

> "This type of research study is also called a 'feasibility study'...It is usually
> carried out when a researcher wants to explore areas about which s/he has

little or no knowledge. A small-scale study is undertaken to decide if it is worth carrying out a detailed investigation. On the basis of the assessment made during the exploratory study, a full study may eventuate." (Kumar 1996: 9).

The advantages of conducting a pilot study are that it provided an opportunity to:

- make changes to the manual if needed (Lowe 1993)

- modify the research protocol if necessary, Blaxter et al 2001) and

- reduce the likelihood of wasting resources when conducting a full scale study (Lowe 1993).

Therefore a pilot study presented an opportunity to refine the manual if necessary before further evaluation of its effectiveness.

4.2.2. Research design

This study was primarily descriptive (figure 4.1), because no measure of effectiveness or comparison group was available. The intention was to conduct "...an intensive, in depth form of investigation" (Vallis and Tierney 2000: 19) and to conduct it "...within the context it occurs, thus giving a picture of the real life situation" (Pegram 2000: 8). The purpose of this pilot study was predominantly descriptive with some explanatory analysis to understand how the manual was used. It was hoped that this would provide insight into the utility of the manual in the practice setting.

Figure 4.1: A descriptive research design [Adapted from: Øvretveit J (1998) Evaluating Health Interventions Buckingham: Open University (p54)]
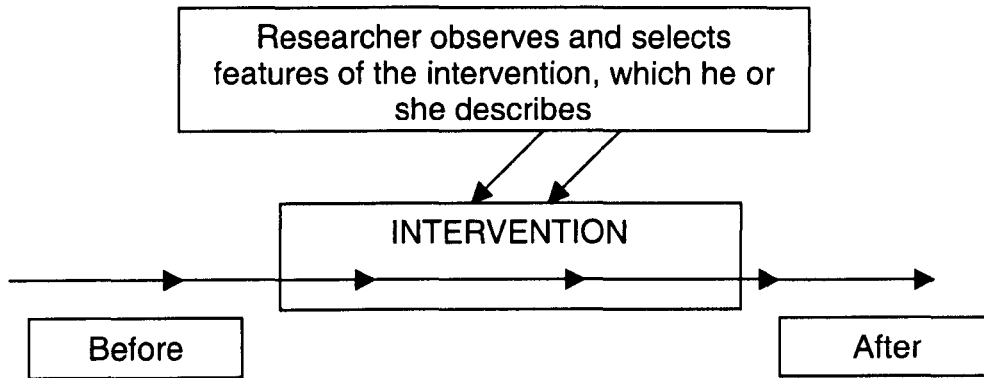
4.3. Research methods

4.3.1. Sampling

The "initial task is to clarify precisely the nature of your study question" (Yin 1994: 21). In this study the question was the utility of the Turnkey manual in practice and so the focus needed to be on the clinical practice setting. Therefore a sample was needed that would allow an assessment of the utility of the Turnkey manual in a clinical practice setting from a manager's perspective. The participants, a manager and a senior therapist, volunteered to use the Turnkey manual therefore this was a given sample. This meant a formal process of selecting a sample was not needed. This sample was acceptable because pilot studies should be conducted with people similar in characteristics to the intended respondents (Parahoo 1997) but

the sample should also be different from the intended sample (Bell and Opie 2002). This manager and therapist met the inclusion criteria for the trial protocol (see section 4.1), making them similar in characteristics, but would not compromise the sample of the planned future trial because they would not be eligible to participate in that trial. Whilst there were no access issues to address as such, it was still necessary for the researcher to provide information to secure the support of the participants' organisation (see appendix 14).

4.3.2. Data collection

Data for any study may be gathered retrospectively, at a point in time or prospectively (St Leger and Walsworth-Bell 1999). As a general rule of thumb researchers should, where possible, collect data prospectively; prospective data are stronger than retrospective data (Polit and Hungler 1995). There are two reasons for this: firstly, there is clarity about the time sequence of events and, secondly, it reduces the likelihood of missing data. The data in this study were collected prospectively. The use of a single point in time for data collection was discounted because a feature of the Turnkey manual is that it is used over a period of time and so several points in time were needed to provide a balanced view of its use.

There is no off the shelf package of data collection tools to use in a pilot study. It is acceptable to make use of both quantitative and qualitative data collection methods, which will provide different insights, and use multiple data collection tools (Polit and Hungler 1995, Pegram 2000, Bryar 2000). This is done as a way of

gaining complementary insights into the research question and to enable the researcher to gain a deeper understanding (Pegram 2000). Researchers should be guided by their research question in selecting the data collection methods for their study (Bryar 2000).

A quantitative measure had yet to be developed (section 4.1) and only two participants were involved in the pilot study so it was decided to only use the methods from the qualitative research paradigm in this pilot study. This decision was justified because qualitative methods "are a source of well grounded, rich descriptions and explanations of processes in identifiable local contexts" (Miles and Huberman 1994:1). It also meant that the research design was not too complex for a novice researcher. The data collection methods selected were semi-structured interviews, documentary evidence in the form of a diary, secondary source materials, such as policy statements and field notes. An action plan was developed to manage the data collection process. Figure 4.2 is an overview of the data collection process.

Figure 4.2: An overview of the data collection process in the pilot study of the utility of the Turnkey manual.
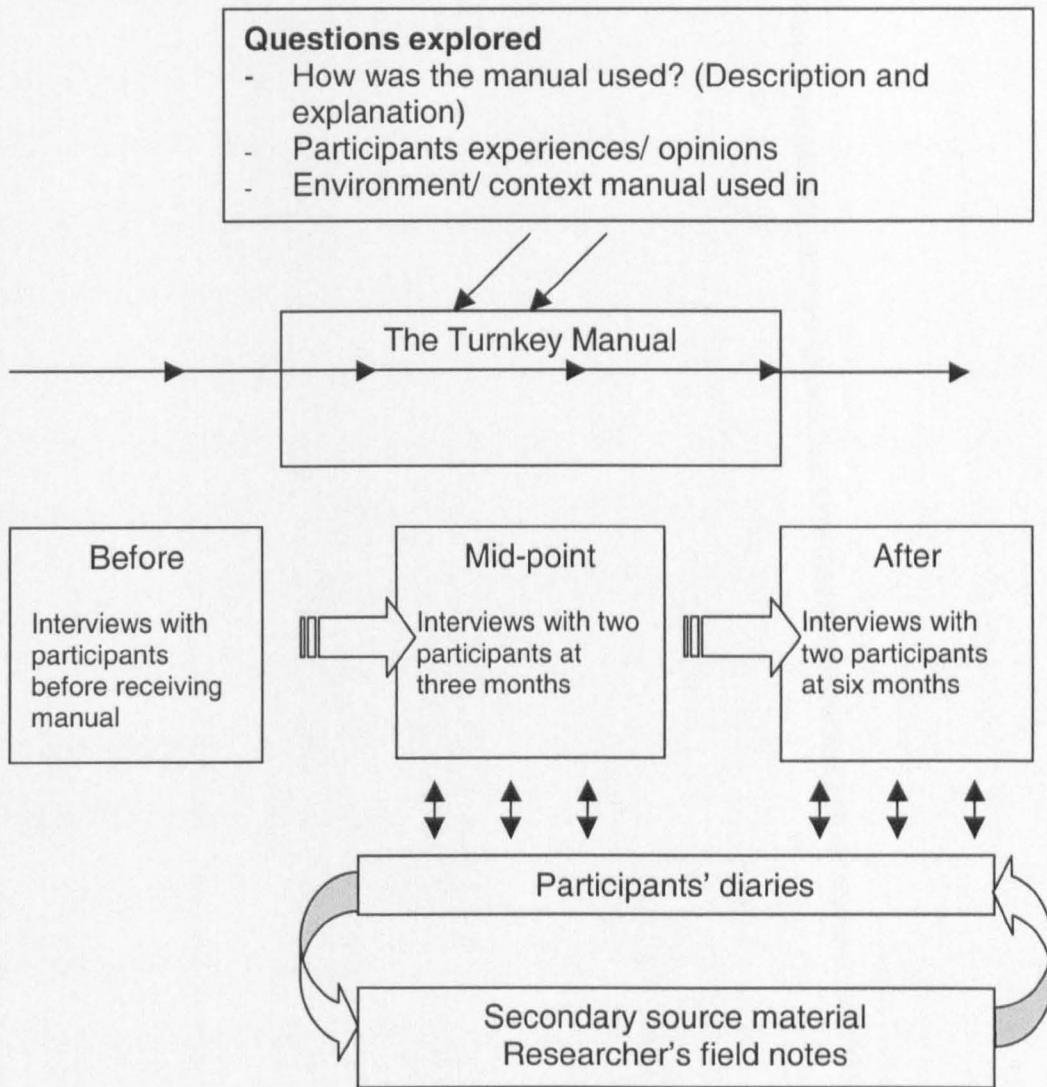
Questions explored
- How was the manual used? (Description and explanation)
- Participants experiences/ opinions
- Environment/ context manual used in

The Turnkey Manual

Before	Mid-point	After
Interviews with participants before receiving manual	Interviews with two participants at three months	Interviews with two participants at six months

Participants' diaries

Secondary source material
Researcher's field notes

Adapted from:
Øvretveit J (1998) Evaluating Health Interventions Buckingham: Open University (p54)

4.3.3. Semi- structured interviews

Interviews are "A method of data collection in which one person (an interviewer) asks questions of another person (a respondent)" (Polit and Hungler 1995: 644). They are used in research because they allow the participant to express themselves more freely than they would on paper (Drummond 1990) and the interviewer may seek clarification. Semi-structured interviews were selected because they "lend themselves to in-depth investigations, particularly those which explore personal accounts of experiences and feelings" (Denscombe 1998:113). Semi-structured interviews are a structured format in terms of a series of open-ended questions with open-ended probes enabling the researcher to explore some issues in greater depth (Patton 1990). This means they guide the respondent into certain predetermined areas of discussion whilst still allowing the participants to express themselves freely.

The interviews were conducted face-to-face, rather than by telephone, because there were few participants. It is easier to build a rapport in face-to-face interviews (Polit and Hungler 1995) and it provided the interviewer with the opportunity to record additional data such as non-verbal communication or degree of cooperation (Polit and Hungler 1995). The interviews were tape recorded so that the interviewer could concentrate on the interview and record additional data, such as non-verbal communication. They were conducted with the participants before, during (three months) and after (six months) they had received the manual. However, as this was an inductive process with an emphasis on understanding, an iterative process

was used. Therefore analysis and writing up went on throughout the research. That meant the interview transcripts and diaries were analysed during the data collection process and the results used to develop the subsequent interview schedules.

4.3.4. Development of the interview schedule

The interview schedule is "the formal instrument... that specifies the wording of all questions to be asked of respondents" (Polit and Hungler 1995: 644). An interview schedule was used in this study to provide the interview with some structure. The schedule was not, however, highly structured, which allowed some scope for the participant to shape the interview content as well. Each interview schedule was structured using four sections - preamble, questions, close and a list of administrative tasks as an aide-mémoire for researcher. The interview schedule began with a preamble in an attempt to provide a gentle introduction to put the interviewer and participant at ease. The preamble was an opportunity for the interviewer to explain the interview process and for the participant to ask questions. The questions were open-ended to allow the respondents to respond in their own words (Polit and Hungler 1995) and were structured using the objectives of the study to maintain the focus (Pegram 2000). The first interview schedule the questions were shaped around the aims of the study, i.e.

- the environment/context in which the participants worked
- the participants' expectations of the manual because they had yet to have access to it, and

- the participants' experiences and opinions about research utilisation (Appendix 15).

The closing section of the interview provided the participants with an opportunity to make comments and the researcher to discuss administrative aspects of the study such as the arrangements for member checking.

The interview schedule was piloted using a peer review process. Colleagues, with experience of using semi-structured interviews, were asked to review it to assess its face validity. This resulted in minor changes being made to syntax rather than content. The interview schedules for interviews two and three were developed on the basis of the analysis of the data from previous interviews and diaries so they are discussed in the results section (see section 4.7.1).

4.3.5. Diary

While the aim of this study was to assess the utility of the Turnkey manual it was likely that three interviews would not identify all of the valuable data about how the manual was used in between interviews. This was because human recall is poor (Yin 1994) and the participants may not have recounted information they did not think was important. Also the researcher has no idea whether what is said in the interview reflected what actually happened in the practice setting. Therefore, it was decided to ask the participant to complete a diary. Obviously only direct observation would provide an accurate verification of events but a diary is a way of accessing a large amount of relevant data with minimal time investment (Gill and

Johnson 1991). Access to these data would also enable the researcher to plot a sequence to show the use of the manual over time.

4.3.5.1.   Development of the diary

This focused on the use of the manual because this study was not concerned with general aspects of the participant's professional lives, especially as they were both likely to be busy and involved in several projects. This meant the therapists needed clear guidelines about how and when to use the diary. It was decided not to use a vignette to illustrate a typical diary entry in case it influenced how the participants wrote their diary entries. The diary provided space to write comments and record the time involved in using the manual. The time aspect was included because the peer reviewers had expressed concern about the time it would take to use the manual (section 3.6.1.3). It was recognised that this method of recording would not be entirely accurate but it would provide a rough estimation of the time involved, which was not available to the researcher before this study. As the diaries were to be analysed for use in the development of subsequent interview schedules it was decided that they should be returned to the researcher on a monthly basis to ease this process. Reminders were sent to the participants if the diaries had not been returned within a week of a new month starting.

Compliance with keeping the diary can be a problem. However, in this study the participants were volunteers it was hoped that this would influence the participants' compliance because they wanted to be involved in the development of the Turnkey manual. Compliance was fostered through:

- using A5 size; the size of the typical diary used in the NHS,

- keeping the task small and manageable by asking them to return the diary monthly

- providing a stamped addressed envelope for them to return the diary

- reinforcing the usefulness of the diary in meetings and interviews

- providing the researchers contact details if they needed any clarification about how to use the diary (this was feasible because there were only two participants) and

- explaining how to fill in the diary at the first interview before the therapists received the manual.

4.3.6. Secondary source material

Secondary source material related to the organisation the participants worked in, e.g. local documents, such as Research & Development and Education & Training strategies, regional initiatives, such as the research conscious workforce, and national initiatives, such as the professional body's Research & Development strategy. These data were collected to assist in the development of a deeper understanding of the context in which the participants were using the manual. They were used to corroborate what the participants said about their environment and to identify gaps in the participants' knowledge. The participants were asked to forward copies of documents they referred to during the interviews and diary entries. I also sought information independently. These data were analysed and used in the development of interview schedules two and three.

4.3.7. Field notes

Field notes are "The notes taken by researchers regarding the unstructured observations they have made in the field, and their interpretation of these observations" (Polit and Hungler 1995: 642). Researchers conducting participant observation usually use them to record their thoughts and observations. Although in this study I was not formally observing, field notes were used as a way of recording my thoughts and impressions, particularly my impact on the research. The borrowing of a tool from another method is not without precedent because as Miles and Huberman (1994) have observed "No study conforms exactly to a standard methodology; each one calls for the researcher to bend the methodology to the peculiarities of the setting" (p5). The field notes provided me with a means of recording data outside the formal tools of the interview and diary. For example comments made by the participants to the researcher and the place of the researcher in the research process (this was important in this study because the participants were known to the researcher). However, heeding Miles and Huberman's (1994) words of caution, "Unless something has an obvious, direct or potentially important link to a research question, it should not fatten your field notes" (p25), I tried to be circumspect in recording field notes. Field notes were recorded as handwritten notes when activity concerning the project took place and were typed up afterwards.

4.4.   Ethical considerations

In an earlier application to the Northern and Yorkshire MREC (see appendix 16),

related to the protocol for evaluating the Turnkey manual (section 4.1), the

committee deemed that it was not necessary to apply to an ethics committee

because this study did not involve patients or patient records. At the time of the

publication of the *Research governance framework for health and social care* (DH

2001) clarification was sought from the LREC about whether this advice still stood

for this particular study. A member of the LREC asked a question on behalf of the

researcher at their meeting on 19th March 2001 and it was confirmed verbally that

an application was not needed. The only studies involving staff that required ethical

approval at that time were drug related experimental studies. However, the

manager and lead therapist were research participants and so I felt I still had a

moral obligation to act ethically. In the light of this the participants were asked to

sign a consent form (Appendix 17) as well as provide verbal consent to ensure that

they were informed:

- about what their involvement in the study would be,

- how the data was to be handled and their confidentiality protected, and

- that they could withdraw from the study at any time.

The process of data collection and analysis was discussed with the participants

during the consent process. This verbal information was supported by an

information sheet (Appendix 18) because one aspect of informed consent is that

participants have adequate information regarding the research (Polit and Hungler

1995). The information sheet also included contact details so that either the

researcher or research supervisor could be contacted if necessary. It was unlikely that this research would raise difficult personal issues so it was not deemed necessary to put in place any precautions, such as negotiating access to a counselling service.

In this study withdrawal from the study may have been difficult for the participant. This is because without their participation the study will have to cease. However, the participant should feel as able to withdraw from this study as if they were participating in a study with several other participants. For this reason a clear statement about withdrawal was made in the information sheet (Appendix 18) and was reiterated verbally during the consent process and the participants were asked if they were happy to be involved and have their interview recorded during the preamble to each of the interviews.

From the point of view of the development of the Turnkey manual the feasibility study, and any subsequent studies, may be compromised due to diffusion of innovations if the Turnkey manual was circulated. Therefore the participants were also asked to sign a non-disclosure form for the duration of the study and the manual's development (Appendix 19).

4.4.1. Procedures to maintain confidentiality and anonymity of participants

The confidentiality and anonymity of the participants was observed through the use of the following procedures

- the participants' role was referred to rather than their name and no references to the actual service or geographical location were used in the transcription, collation, reporting and discussion of data.

- tape recordings were stored anonymously, away from the researcher's place of work for the duration of the study, and

- the destruction of all audio tape recordings on completion of the research project. (The member checked and anonymised transcripts are included in the study database).

4.5. Data management

Yin (1994) advises case study researchers to create a case study database, which "can then be the subject of separate secondary analysis, independent of any reports by the original investigator" (p95). This advice has yet to be widely adopted by researchers generally (Yin 1994) but it was decided, in the light of the *Research governance framework for health and social care* (DH 2001), to develop a database for this study to facilitate an audit trail. Lincoln and Guba (1985) advised that there are six categories of records that can be included in a database for an audit trail:

- raw data, e.g. field notes, video and audio recordings

- data reduction and analysis products e.g. quantitative summaries, condensed notes, working hypotheses

- data reconstruction and synthesis products e.g. thematic categories, interpretations, inferences

- process notes, e.g. procedure of design strategies, trustworthiness notes

- materials related to intentions and dispositions, e.g. study proposal, field journal and

- Instrument development information e.g. pilot forms, survey format, schedules.

The database for this study has been collated using Microsoft® *Word* 97 to make it widely accessible and includes:

- An index of all the documents included in the database

- The diaries collated in date order

- Interview schedules

- The anonymised member checked transcripts from the interviews. (It was decided not to include the actual audio tape recordings because the interviewees could be identified from them).

- Field notes

- Document summary forms for documentary data collected. The original copies of the documents have been stored and are available if further clarification was needed.

Each of these documents have been given source tags (see section 4.7.6.4 and table 4.3) so that all quotations can be quickly located.

4.6. Data analysis

Qualitative research is an iterative process and therefore analysis and writing go on throughout the research. However:

"The most serious and central difficulty in the use of qualitative data is that methods of analysis are not well formulated. For quantitative data there are clear conventions the researcher can use. But the analyst faced with a bank of qualitative data has very few guidelines for protection against self-delusion, let alone the presentation of unreliable or invalid conclusions to scientific or policy-making audiences. How can we be sure that an 'earthy', 'undeniable', 'serendipitous' finding is not wrong?" (Miles 1979 cited in Miles and Huberman 1994: 591)

To ensure findings are not misleading researchers have a responsibility to do their very best with their data by fairly representing the data and communicating what the data reveal given the purpose of the study (Patton 2002).

"The purpose of data analysis, regardless of the type of data one has and regardless of the tradition that has driven its collection, is to impose some order on a large body of information so that some general conclusions can be reached and communicated in a research report" (Polit and Hungler 1995: 520).

Miles and Huberman's (1994) *Qualitative Data Analysis* book was used to guide the imposing of order in this study because it (a) is designed for those without training, working alone, working on one case, focussing on the individual or small group level, (b) "does not necessarily require prolonged training" (Miles and Huberman 1994: 3) and (c) it is written on the premise of learning by doing. They suggest that:

"The core requisites for qualitative analysis seem to be a little creativity, systematic doggedness, some good conceptual sensibilities, and cognitive flexibility...None of these qualities is contingent on a battery of advanced 'methods courses'"(Miles and Huberman 1994: 309).

They have identified three concurrent flows of activity in data analysis, which are considered in sections 4.6.1, 4.6.2 and 4.6.3, i.e.:

- data reduction

- data display, and

- conclusion drawing/ verification.

4.6.1. Data reduction

Altogether the data collected in a qualitative study amounts to many thousands of words. These need to be reduced to become more manageable through a process of data reduction. "Data reduction refers to the process of selecting, focussing, simplifying, abstracting and transforming the data that appear in written-up field notes or transcriptions" (Miles and Huberman 1994: 10). Data reduction began by looking for data related to the sample. Obviously, as only one service was used in this study, there needed to be a description of the sample so that the nature of the sample is transparent. The aims and objectives of the study were then used to guide the thematic reduction of the remainder of the data; all data related to each theme was collated under these headings. This was then summarised and used to inform the data display.

4.6.2. Data display

In Miles and Huberman's (1994) schema the next stage of data analysis is data display. "A 'display' is an organised, compressed assembly of information that permits conclusion drawing and action" (Miles and Huberman 1994: 11). They suggest alternatives to text, which is the usual form of data display in qualitative

research, such as matrices, graphs, charts and networks (Miles and Huberman 1994). Miles and Huberman (1994) advise that text is cumbersome and that by "using only extended text, a researcher may find it easy to jump to hasty, partial, unfounded conclusions" (p11) and suggest "the dictum 'You are what you eat' might be transposed to 'You know what you display'"(p 11). The data display used in this study was the time-ordered matrix, where data is ordered according to chronology (Miles and Huberman 1994). This is because the focus of this study was on the use of the Turnkey manual, particularly how it was used.

4.6.3. Conclusion drawing and verification

Conclusion drawing is the process of deciding what the data mean. Once meaning has been ascertained the conclusions need to be "…'tested' for their plausibility, their 'confirmability' – that is their 'validity'" (Miles and Huberman 1994: 11) to ensure that they make good sense. This is because "qualitative analyses can be evocative, illuminating, masterful and wrong" (Miles and Huberman 1994: 262). What this means for qualitative researchers is they have to demonstrate the trustworthiness of their conclusions. This has been done in this study by developing strategies to increase the credibility, transferability, dependability, and confirmability of the conclusions (see section 4.7.6.1, 4.7.6.2, 4.7.6.3 and 4.7.6.4).

4.7. Results

Interview schedules for the midpoint and end point interviews were developed using the analysis of data collected in the previous interviews, diary entries,

secondary source material and field notes. The development of these interview schedules is explained before the results of the study as a whole are presented. The results have been presented under the following headings: development of interview schedules, the nature of the sample, data reduction, data display, conclusion drawing and conclusion verification. An extract of data is included in the appendices (Appendix 20).

4.7.1. Development of midpoint and endpoint interview schedules

Two issues had a bearing on the development of the interview schedule for the midpoint interview; a perceived breech of confidentiality and the difficulty the manager and lead therapist experienced using the manual initially. The perceived breech of confidentiality happened during the baseline interviews. The interview with the manager went smoothly; the manager was confident and responded easily and at length to questions. The second interview was not so comfortable. During the interview the researcher realised that 'something' had gone wrong but could not work out what it was, even though the lead therapist was asked about this during the interview [T3914]. This made the researcher extremely nervous and added to the discomfort within the interview. During the transcription and member checking it became clear that the lead therapist perceived a breech of confidentiality in the interview. Whilst transcribing the interview I realised I had said:

"Is that's it just very interesting because err as you are aware I have interviewed some body else for this research in speech and language therapy and they used

this word about thinking therapist and you used the word thoughtful and I was just wondering whether this is something people talk about in speech and language therapy. Cos I've never come across it before...thinking about people being thoughtful therapists" [T2536]

During the member checking stage the lead therapist wrote in response to the researcher's question 'How do you feel about the interview now you have seen the transcript?'

"I felt uncomfortable in the interview because you made a comment fairly early on which revealed something which <<manager>> has said in her interview. Therefore I was feeling that my answers may not be confidential. I was also unsure about how the answers were going to be used and how they would appear in your final document. If I had been aware from the beginning I would have not felt so uncomfortable...You had made a comment about <<manager>> and the 'halo effect' previously. So I knew you regarded her thoughts and opinions very highly. I felt rather insecure about revealing my own after that, as you would be likely to take the same judgmental approach with me." [T3990]

The difficulty using the manual was indicated in the first two diaries returned by the participants. The following quotations demonstrate that the participants were struggling with using the Turnkey manual:

- "Felt quite intimidated and unsure as to how to go on and whether I wanted to...Struggled and only managed a few inexact thoughts. I'm not sure I'm cut out for this" [D19.06.01]

- "shared feelings of panic" [D22.06.01]

- "when I had completed the tick lists I was so depressed it was hard to think we could ever do this." [D24.06.01]

- "If we had picked the manual off a shelf, I don't think we would have carried on – The process was quite daunting." [D02.07.01]

They also indicated that their continued use of the Turnkey manual was on account of being involved in a research study and their association with the researcher.

"Feel a slight Hawthorne effect – we may not have done anything much yet if we weren't being studied... ...this was a point at which we almost gave up. It was only the thought of letting Katrina down that kept us plodding through this. I certainly felt stupid and unable to complete the tasks outlined." [D02.07.01]

This difficulty made me question the value of the participants continued use of the manual when they were struggling so much, especially as it is known that the sole use of the written materials to change practice flies in the face of research findings to date e.g. NHS CRD (1999) (see section 3.3.2.2.3). I had justified the sole use of the manual on economic grounds but if it was failing perhaps I had gone beyond the bounds of acceptability? I questioned myself as to whether I had really taken on board the complexity of research utilisation. I wondered whether I had been

ignoring this reality by trying to bulldoze my way through the study with a crude intervention that had no chance of succeeding? Yet I was also aware that research utilisation is difficult and maybe there was no way to 'soft pack' that reality? Especially as one of the participants did say:

"felt we had made progress but it was tough! We also felt unsure about other therapists' reactions, as it is something all should do, but requires high level of commitment..." [D02.07.01]

The reality is research utilisation does involve a high level of commitment, which leaves the question 'How can the level of commitment needed be presented in an accessible, useful way?'

These observations caused me to question this research study. Initially, after the realisation that the lead therapist perceived a breech of confidentiality, I continued with study to observe whether the participant would choose to withdraw at the member checking stage. This was because I was not sure if I was overreacting. After the first diaries were returned, despite the participants expressing the difficulty they were having using the manual, I chose to continue the study because I was not sure whether or not their initial fears would wear off. When similar difficulties were expressed in the second diary entries it appeared to be important to reflect on the process to date and decide whether the pilot study should continue as planned. I was uncertain about how or whether even to continue with the pilot study. I developed an outline of possible strategies for use of the remainder of the

pilot study time (Table 4.1) and these formed the basis of a discussion with my

research supervisor.

Table 4.1: An outline of possible strategies for use of the remainder of the pilot study time.

Strategy	Pros	Cons	Next steps if plan selected
1 Continue with the pilot study as planned.	• The research will be seen through to conclusion. • It would give a true insight into the process of using manual (but may be unrealistic because participants have indicated that they are only continuing because of their relationship with the researcher).	• Unethical? (Setting the participants up to fail). • Researcher would find it very difficult to proceed under these circumstances. • All that will be learnt is what we know already, i.e. that its not going to be used by therapy managers. • Loss of goodwill.	• Proceed with mid point interviews. • Continue to collect data via diary.
2. Continue with next stage of the pilot study and then take stock	• Give the study participants the opportunity to withdraw from the study if they want to. • Give the study participants an opportunity to say what they think is the best way to proceed with the development of the manual.	• There appears to be a 'power' dynamic between the participants so one of the participants may not feel able to say what she really thinks.	• Continue with the midpoint interviews and decide on a way forward depending on the participants' responses to a question about whether to continue with the study.

Table 4.1(cont.): An outline of possible strategies for use of the remainder of the pilot study time

Strategy	Pros	Cons	Next steps if plan selected
3. Stop the pilot study completely (with no further action)	• Stops the discomfort the participants and the researcher are experiencing.	• Valuable lessons will be lost • Not sure how this will affect credibility of participants, who have started to use the manual with their team. • Unethical	• Inform the pilot study participants about not continuing with the study.
4. Change the pilot study to focus on the way manual has been developed and supporting materials needed.	• Stops the discomfort the participants and the researcher are experiencing. • Enables the researcher to learn the lessons from the process so far. • Learn how the manual has to develop.	• Not sure how this will affect credibility of participants who have started to use the manual with their staff. • Lead work started but not completed (By way of compensation researcher could support (but has time implications)).	• Proceed with the midpoint interviews and discuss best way forward during interviews. • Speak to pilot study participants about best way forward before the next interviews. • Have a meeting with the participants and the researcher together to discuss way forward

In discussion with my supervisor, bearing in mind Yin's (1994) comment about flexibility in methods but not questions in research, it was agreed to continue with the study. This was because the breech of confidentiality was being judged in a health service context rather than a research context. In a research context

different ideas need to be tested to develop an accurate understanding. However, in the light of the difficulties experienced this had to be openly discussed with the participants and a consensus about confidentiality reached. It was also felt that to stop the research would represent a loss of goodwill because the participants, who had volunteered, had not chosen to withdraw themselves. It was also true that we did not know at that stage whether or not the manual was going to be used by the participants, therefore it would have been imprudent to stop the research. It was agreed that they would be asked if they wished to continue with the study. Reflexively, I recognised the problem arose, in part, from the fact that one of the participants (lead therapist) was known to me. I also had to recognise that much of my concern about this was 'my' need to stop their pain and make everything alright. This was because I felt I had inflicted it on them, when in fact they had volunteered and been through a process of informed consent (see section 4.4). My concern as a researcher was about my personal credibility; if they thought the manual was awful would they think I was awful? However, the valuable lesson to be learnt from this experience was the need to provide support to allied health professionals to make the initial use of the manual less forbidding.

Having decided to proceed with the study these difficulties were reflected in the development of the second interview schedule. In the interview schedule the preamble asked the participants if they wished to continue and the questions section was divided into two sections. There was a general section with questions to be asked of both participants, and specific questions related to the data shared by the individual study participants in previous interviews. Questions in the interview schedule were still shaped by the aims of the study but also data that

emerged from diaries and the previous interview's transcripts. The perceived breech of confidentiality was also broached with the lead therapist in the preamble to her interview.

Both participants agreed to continue and between the midpoint and endpoint interviews there were no incidents requiring the level of reflection there had been between the baseline and midpoint interviews. So the endpoint interview schedule used the same format as the midpoint interview. It was clear at the endpoint interview that the participants were not far into using the manual but the study had technically ended so there was some discussion about what should happen next. I also tried to be more circumspect in the number of questions I asked because both of the previous interviews went over the hour agreed and although both participants were amenable I was acutely aware of the constraints on their time. The main difference in terms of content between the second and third interviews was that both participants were asked to estimate of the time involved in using the manual because this was only reported periodically in the diary returns. I was also concerned about the quality of the data from the diary returns so I asked the participants about this. As the manager was having difficulty with member checking the interview transcript this was discussed with her. Examples of her comments in relation to this were:

"I haven't edited the transcript as I can't really recall it that well, so I think its best to leave it as it stands" [T12]

"Am I going to get another dreadful transcript" [T8690]

In the final interview arrangements were also made for ending the study, particularly member checking data analysis.

4.7.2. The nature of the sample

The selection of the sample was not an issue because the lead therapist volunteered and that her service matched the criteria for including therapists in the protocol developed for evaluating the manual (see section 4.1), which suggested the sample was not atypical. The sample was a speech and language therapy service with on average 39 therapists in post but this number fluctuates because

"we are always understaffed we've got vacancies and that's kinda a chronic fact of life" [T199].

The service was part of a community trust and provided a speech and language therapy service to paediatrics, adults with learning disabilities and some adult cover. The community trust covered a wide geographical area, including coastal, rural and city locations, and this is reflected in how the service was organised:

"...very few people who are based in one place all week ...they have to travel ...we cover quite a large, well very large geographical area, people have to travel around... I am really not very happy about I feel they are not getting enough contact with their colleagues" [T669]

"The service meets every six weeks or so as whole group" [T644].

Both participants described their main area of interest as clinical but the lead therapist clarified this

"...still clinical...but with an added focus I think erm...really things I am really concerned about what things we can do to make us better at our jobs" [T2517].

The manager said 60-70% of her time was clinical [T492] but she is seen as a manager by others, e.g. a comment made by the lead therapist

"all the management comes through <<manager>>...and she filters out a lot of the upper management sort of things that go on" [T2808]

The manager, who was the head of the service, had limited personal experience of research. She described being involved in:

"...a small scale research thing" [T29]

and when asked about research utilisation said that it was

"not a term I've come across" [T132].

The lead therapist, a senior speech and language therapist, was in the process of changing jobs at the start of the study. She was about to start a Surestart project

and re-launch an outcome measures project and continue running a cleft palate clinic, both things she had previously been involved with. She had had more exposure to some aspects of research utilisation:

"in the last two years I worked as an R&D therapy facilitator" [T2497]

"...it involved working with erm four groups of therapists erm dietitians, physios, occupational therapists, speech and language therapists erm to help them get access to information...any other information that they might sort of need really to help them to find ways of accessing information and...teach then specific of literature searching databases internet...erm...its kind of a big area" [T2578]

Despite her experience in this post she had not been involved in helping others to use research findings. The closest she had come to being involved in research utilisation was:

"...looking at the research in my own clinical area...and doing you know the search erm writing a report guidelines doing some guidelines" [T3534]

4.7.3. Data reduction

As the aims of the study were used to guide the data reduction they are used as the headings for presenting the results; the environment/context in which the manual was used, how the manual was used in the field and the manager's and lead therapist's experiences and opinions about using the manual.

4.7.3.1. The environment/context in which the manual was used

There are three levels to consider regarding the context in which the sample operated: the national professional, the local trust and the local service contexts. In terms of the national professional context there is a 'mixed picture' in relation to research. At an award ceremony for student research projects at the annual professional conference the statement was made that:

"Research is vital for developing an evidence base and to support clinical decision making" [DSF 6]

However, this statement seemed to be at odds with what the professional body did, e.g. disband their Research and Development committee [T 11316], but not its output, e.g. the publication of Communicating Quality (van der Gaag 1996), a statement of practice that summarises the research in the field, which had been very influential. There had also been national publications that had generated debate, e.g. a randomised controlled trial and editorial published in the *British Medical Journal* [DSF 3] and an opinion piece about post modernising the evidence [DSF 9]. There appeared to be a consensus in the literature and amongst the participants that there was a lack of evidence to support speech and language therapy practice [DSF 3/9; T168; T2779; T7701].

In the local trust context research utilisation is considered as an integral part of clinical governance and research and development; reflecting how research

utilisation is conceptualised nationally (see section 1.3.3.1). This could be seen in the strategies related to clinical governance [DSF2] and research and development [DSF1] developed by the trust:

"We believe that evidence from research and development should underpin managerial and clinical decisions as much as possible" [DSF1].

The strategies in the trust had also been linked into regional initiatives such as developing a research conscious workforce [DSF 1]. However, the speech and language therapy service was isolated and disenfranchised from the processes that these strategies describe. If there were explicit references to allied health professionals these tended to be theoretical. It was not clear how allied health professionals were actually to be supported with clinical governance and research and development. The strategy outlined objectives but there were no coherent plans of action [DSF1/2/4]. The lead therapist's sense of isolation can be observed in her inability to call on resources:

"I feel frustrated too, in that although we are doing all this work, and people are expected to get on board with it all, there is still no commitment from the Trust in terms of funding or time to support it " [D15.11.02]

and her observation:

"I think at a practitioner level for a lot of people it's just words" [T1260].

The manager seemed to have accepted this was the situation and worked around it because she said:

"up to a point you can do your own thing...they are not in a position to kinda set a direction" [T380] and:

"there's space to move things forward and to look at what we need to do as a professional group" [T408].

It seemed that this position was not about excluding allied health professionals from the R&D agenda because:

"they are very willing to listen" [T384].

It seemed to be more a reflection of the management style, which was described as:

"muddled" [T438];

"the impression I get that is at director level they may know where they are going but nobody else really does" [T345].

The experience was not confined to R&D, the manager made the following observation in relation to communication:

"...if we don't send stuff to them there they wouldn't see it somewhere else" [T728].

The lead therapist also made an observation that suggested this was a reflection of management style rather than a specific attempt at exclusion:

"I think you're you're given a chance to develop your own interests... you are encouraged to develop your own interests ermm. You're given support for your ideas as well" [T2931]

In terms of the local speech and language therapy service context there were no (formally designated) research therapists but there was an active interest in research. This can be seen in the fact that some therapists were studying for an MSc, one therapist had been on a secondment to a research unit, research projects were supported by the department [DSF 5] and they:

"...have erm a research session at the moment which we wangled out of the timetable some time ago" [T1477].

A different therapist is given the research session for a year at a time to undertake a research based project.

The barriers to research utilisation experienced by the speech therapists in the study [DSF8] were experienced across the board. Time was the main barrier but there were barriers related to department/service issues, training and development issues, therapists attitudes and problems with the research/articles [DSF 8]. The

lead therapist and manager observed that time issue probably shapes the experience of other barriers:

"...it may be because time is the major issue if they had time to read they maybe would identify problems with research articles" [FN1000].

Clinical governance and research and development are only two aspects of the work of a community trust and there were numerous other ongoing pressures on the service. The speech and language therapy service had merged as a service prior to the Trust merger, that happened just around the start of the study, so the impact of the merger was not felt as strongly as might have been expected:

"the merger hasn't really affected us very much" [T3162]

But it did have an impact on the manager:

"Whereas this time it feels it kinds like everything changed all at once like a lot of the people I knew and worked with left...erm some were pushed out some got other jobs which was quite variable as to how that went and a lot that you either knew by reputation or didn't know at all came across from <<geographical location>> or came across sounds a bit like they came to as but it didn't really work that way did it but anyway I suppose that shows my view point but erm and so it just seemed like a lot changed at once" [T872]

However there were several other major issues that had to be dealt with during the time (6 months) of the study, i.e.

- Regrading [T3882],

- Establishing a supervision system [T561]

- Looking at our standards [T565]

- Move to PCTs/ Health Act (and health act flexibilities) [T4452]

- Local modernisation review (as part of the performance assessment framework) [T7477],

- Outcome measures project [T8807]

- Triage system [T4375],

- Surestart [T4448] and

- Recruitment [T2906] (understaffing [T2958])

This list suggests that part of the context that the service operated in was one of competing agendas which was epitomised in the comment:

"I can see there's lots if things that we need to be getting established" [T557].

There also appeared to be some anxiety about balancing the competing agendas which can be seen in the following quotes:

"...the team are very worried about where the time is going to come from because they know their patients they know who's sitting there waiting to be seen and not getting seen because they are doing something else" [T1202]

"you have too little time to do too much really um partly because we're understaffed with high caseloads..." [T2958]

4.7.3.2.   How the manual was used in the field

No additional time was given to the lead therapist for this work [FN1033]. The manager and lead therapist went through three clear phases in their use of the manual, i.e. reading, planning (meetings), and doing. Because these phases can be plotted it makes it seem like using the Turnkey manual was plain sailing but it was not. Initially they struggled with using the manual. For example:

"Talked briefly to <<lead therapist>> re: the manual I definitely felt 'the task was too big'!" [D24.06.02]

"Meeting with <<lead therapist>> re: the manual: main feelings: confusion, frustration. If we had picked the manual off a shelf, I don't think we would have carried on – The process was quite daunting" [D02.07.01]

It was only being involved in the research and their association with me and that prompted their continued involvement:

- "if I wasn't been interviewed I may be wouldn't have done it" [T4802]

- "...we decided to carry on partly because we didn't want to let you down. But also because we felt that there would never be a good time" [T4862]

- "I suppose we didn't give up because we didn't want to give up for your sake because we felt we had to try and do it" [T5220]

This suggests that they would not have got beyond the first phase (reading) if they had not been part of project. This struggle was so immense it was clearly stated:

"If we had picked the manual off a shelf, I don't think we would have carried on – The process was quite daunting" [D02.07.01]

This highlighted that therapists need for additional support. The participants were asked about additional support and liked the idea of training sessions and a website but were less keen on a telephone helpline or a network of contacts [See, for example, T10678]. It is clear that there was some kind of a turning point, "a point at which a decisive change occurs" (Allen 1990: 1318), where they became committed to the process for themselves rather than because they were part of a research project. This turning point was not an eureka moment, i.e. a single moment in time where they felt they had got it!, but a gradual dawning (Figure 4.3). There was a point where they felt engaged with the Turnkey manual in way they had not been before. This turning is epitomised in quotes like:

"Amazing how you really begin to understand something only when you have to present it. So now I'm beginning to understand what research utilisation means" [D25.09.01]

and it appeared that 'doing' aided understanding.

4.7.3.3. The manager's and lead therapist's experiences and opinions about using the manual

4.7.3.3.1. Experiences

The manager's and the lead therapist's experiences were different. The manager described:

- "I can be the big stick saying you have got to do this whether you want to or not" [T4974]

- "problem is not having enough time to give it" [T5004]

- "conscious effort to read stuff" [T7933], and

- "I felt kinda slightly attacked by the manual" [T4078]

Whereas the lead therapist described:

- "I do feel a bit daunted by it you know its a quite big you know a responsibility I suppose" [T6732] and it was

- "not as scary as I thought it would be" [T10722]

They both appeared to work well together. When asked about working together they said or observed "its great" [T4992], "shared feelings of panic" [T7014]

[D22.06.01] and "Alright yeah...there's not been a problem" [T10912]. When asked about the lead therapist, the manager also observed that:

"I don't think I could have asked somebody with no prior knowledge to take this on" [T4833].

Despite this good working relationship, the process of change was not easy. The manager and lead therapist struggled and had only continued with using the manual because it was part of my research (see section 4.7.5). Both the manager and the lead therapist appeared to have a discrete role and their roles changed during the course of using the manual. The manager's role receded during the process but management support was still needed. The lead therapist's role became more central but she still felt she needed the manager's continued support. At the end of the six months the manager observed:

"I think we've got over the beginning part of it and er to use that phrase you could say we are at the end of the beginning...we're not anyway near the end" [T8556]

4.7.3.3.2.   Opinions

The type of things they found easy about using the Turnkey manual were:

- the lead therapist [T5045]
- "erm I suppose the good thing about it is it makes the manager...it really stresses to the manager about support and communication...I am not saying she wouldn't have done it but she might not have it makes it very clear" [T6352], and the

- structured approach [T10033].

The things that were more difficult included:

- Finding the time [T4860; 6305;9948] and

- "getting around to it" [T8101]

When they were asked: Has the manual been able to help you with research utilisation? their responses changed over time. For example:

"I wouldn't say help made me think about it a bit more and me think that it is not quite as difficult as it sounds" [T4632]

"...erm...at this stage I don't think its made much difference...but I think it will do" [T5807]

"Erm well I mean errrm I don't know really...in that it has given me a much clearer idea idea about what it is all about and while I would never have been able to do this in the department without it...we wouldn't have taken such a through approach...to it in our department" [T9890]

Overall at the end of the study they were positive about the manual and its role in increasing research utilisation in the allied health professions:

"Erm I think I would say overall it is very useful erm...I've found...it follows a process which has a logical base to it which I think is you can see the link cos you are obviously quite research minded kinda link it back to where you ideas have come from its not just well I think it's a good idea To do this I think its useful

because it makes you think in that pattern erm...I think I said to you in the beginning I found the style part of the style of it Quite difficult and I think that needs some work [T8368] and:

"well its been a very good experience for us as well as we would like we would be happy for people to know we have taken part in it" [T8727].

They found the process useful but thought it should be more central in the Turnkey manual. The model of a manager and lead therapist was also practicable. However, whilst they were positive about the manual their praise was qualified because they both thought the manual could be improved as an intervention. For example:

"I think having that personal contact does make it much more meaningful...I do I do think if someone picked up the manual off the shelf in a shop that they wouldn't they might just sort of put it back again [laugh]...Do you know what I mean whereas if you actually promote it...Erm its got some of your cos cos alot of it is your personality... within the manual if they actually meet you [laugh] they would understand that do you know what I mean......Well it does help people to kind of engage [T11171]

They suggested amendments to the tone, style and layout of the manual. For example:

"I think in terms of kind of its approachability and its er friendliness if you like I think it could be improved" [T5116]

"I think the graphics could be better designed to make it easier to read" [T5144]

"Having now read to the end, I feel that it's a bit top heavy – there's a lot of information at the beginning, but it seems to tail off towards the end. All the information is useful and relevant, but maybe it needs to be spread in more manageable chunks throughout the manual." [T6104]

Both participants had used another manual which they thought could provide a useful template for developing the next draft of the Turnkey manual [DSF 7]. They independently suggested:

"I'm thinking there's erm a course in speech and language therapy called Hanen which is a Canadian system and basically its about running parent workshops and they have a three day introductory course that therapists go on where they learn about how to run the workshops and they teach them bits from the workshop manual but mainly its about how people learn how you need to approach group how you set up a group a lot of practical things about dealing with parents in groups as opposed to dealing with individual clients and its I think its very well structured to that thing and its kinda its an approach that I like because on the training you do practical things you present some of the lectures to the group and you and so you practise using the materials if you like that are in their manual which is the equivalent to your manual Erm but you also learn the theory of about

how people learn and how to make it fun and all those kind of things which I think works really really well and then once you've done your three-day course you are accredited and licensed and off you go and run your courses and you can go back for refreshers but you don't really need to" [T4237]

"I've been on a recent training course for Hanen which is a programme for training parents...Which is from Canada...but they once you have done the training it basically qualifies you to do it...so I can say I am a qualified Hanen...facilitator but then you also then have a pass word to their website...[so you have access to...information and and a kind of web erm what do you call it... I can't remember what they are called now where you can go and chat to kind of chat rooms...Yes a chat room...If you have got any problems or queries...You can kind of just put it out...You know that kind of thing...would be really useful" [T10625]

4.7.4. Data display: Time ordered matrix

The second element to the data analysis was data display, a time ordered matrix was selected for this study.

> "A time-ordered matrix...has its columns arranged by time period in sequence, so that you can see when a particular phenomenon occurred. The basic principle is chronology. The rows depend on what else you're studying" (Miles and Huberman 1994: 119).

The chronology used here was the general ordering of events as there was no need to be any more precise. All that was needed was a general overview as it was not necessary to understand down to the day, hour or minute of how the

manual was used. The rows plotted were activity and then the specific activity of

the manager and lead therapist to assess whether this model was useful. A third

role, the role of volunteers, was introduced by the manager and lead therapist so a

third row was added. These data were then analysed for common themes and

whether there was any relationships between the variables the results of this

analysis has been added as rows. Miles and Huberman (1994) also suggest using

metaphors to help with describing and/or understanding the data. During the

member checking of the data analysis the metaphor of moving from darkness into

light in terms of a gradual dawning [FN1012] was suggested by the manager. This

appeared to fit the data. The dark night representing the manager's and lead

therapist's struggle, the dawn the turning point and the light the easier period when

they were actually able to get to grips with using the manual. Two matrices were

developed one combining the raw data and analysis (Table 4.2) and another a

pictorial representation that incorporates the metaphor suggested by the manager

(Figure 4.3)

Table 4.2: Time ordered matrix (Miles and Huberman 1994)

	0 (Baseline interview)				3 months (Mid point interview)				6 months (Endpoint interview)	
Raw data										
Activity	Informed trust	Reading manual	Exercises	Memo	Meeting (s) to plan presentation	Planning (e-mailing, preparing agenda)	Consultation day - Barriers - SWOT analysis - Request for volunteers	- Prepare feedback (for whole staff group) - Action plan	Turnkey action planning meeting ⇒ action plan Permission to take reading time	Re-read manual
Role of Manager	Spoke to Head of R&D	Reading/ Reading at work	Filled in document-ation	Presented memo at staff meeting	Working with lead therapist	Planning Mentioned at SLT *away day*	Attended/ Supported/ presented		Supported/ Role moving into background	Reading
Role of lead therapist		Reading	Filled in document-ation	Prepared memo	Working with manager	Planning	Organised/ attended/ presented	- Typed up responses - Went to the library to find articles - Re-reading manual	Chaired meeting (using planning notes)/ role to the fore	Reading/ Skimming through
Role of volunteers	–	–	–	–	–	–	–	Volunteers came forward (6 people/ not usual volunteers)	Participated / Took on Individual tasks	
Data analysis										
Phases	Reading/ planning				Planning/ meetings				Doing	
"The process"	Commitment to process		Anxiety and struggle		Getting to grips with it	Turning point "a point at which a decisive change occurs" (Allen 1990:1318)		Getting to grips with it	Doing it	Off the shelf resource

Figure 4.3: The use of the Turnkey manual

0 months   3 months   6 months

Support required

Manager's role

Lead therapist's role

Struggle

Commitment to the process

Anxiety and struggle

Getting to grips with it

Turning point

Getting to grips with it

Doing it

On the shelf resources

Lead therapist's role increased

Struggle overcome

Manager's role reduced

Less support required
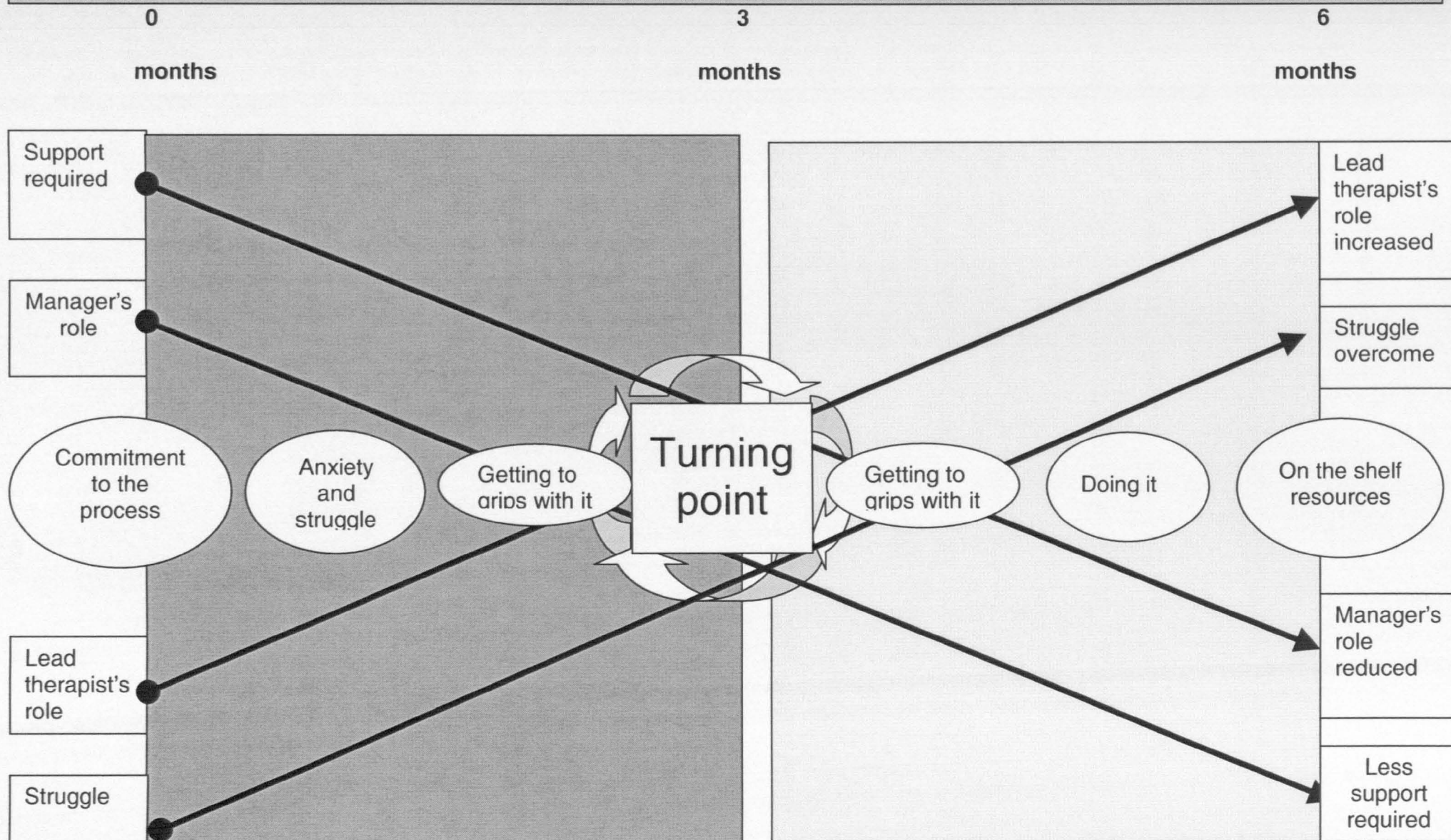
4.7.5. Conclusion drawing

The conclusion that can be drawn from these findings is the Turnkey manual has utility. The therapists in this study were able to use it. However, they may not have stuck with it initially if it had not been for the research project. Therefore, whilst it has potential it does need to be modified (perhaps using Hanen as a template), particularly providing more support in the initial stages. The model of manager and lead therapist and process at the core of the manual were useful concepts around which to develop a modified third draft.

A competing explanation may be that the manual is not useful and that the manager and lead therapist only used it to please me. The fact that they are prepared to endorse it suggests that this is explanation is implausible, if they did not think it was useful they may have continued to use it to support me. However they would be unlikely to want to put their names to it, which both have agreed to do. Even if the rival explanation was plausible the manager and therapist did use the manual. This would suggest it is usable but that the users need a powerful motivator to ensure their continued use. Whilst I could not be a motivator to all allied health professionals who might use a manual a training programme, like the one used with Hanen, or a train the trainers approach, may have a similar effect in terms of keeping a manager and lead therapist engaged with the process.

4.7.6. Conclusion verification

The process of verification as described by Miles and Huberman (1994) is coterminous with the concept of trustworthiness used by other qualitative researchers. Verification is about demonstrating the rigour of the work, showing how the conclusions drawn stand up to scrutiny. A study is trustworthy if its findings reflect reality (Holloway and Wheeler 1996) and the meaning of the data is accurately interpreted. Trustworthiness is not a naturally occurring phenomenon and qualitative researchers have to work hard to achieve it. Strategies were employed to increase the credibility, transferability, dependability and confirmability of this study in an effort to make it trustworthy (Krefting 1991; Holloway and Wheeler 1996). These have been described in turn (sections 4.7.6.1, 4.7.6.2, 4.7.6.3 and 4.7.6.4).

4.7.6.1.   Credibility

Credibility refers to the confidence others can have in the truth of the data; "…central to the credibility of qualitative research is the ability of informants to recognise their experiences in the research findings" (Krefting 1991: 219). Credibility is also judged by the authority of the researcher;

> "the principle is to report any personal or professional information that may have affected the data collection, analysis and interpretation – either negatively or positively – in the minds of users of the findings." (Krefting 1991: 472).

The steps used to achieve credibility were member checking (transcripts and analysis), triangulation, reflexivity and peer review.

Member checking is "A method of validating the credibility of qualitative data through debriefing and discussions with informants" (Polit and Hungler 1995: 646). There were two stages to the member checking in this study. The first stage of the member checking process was to send the participants their transcripts after the interviews so that they could check that they were a fair representation of their views. No data were analysed until member checked transcripts were returned. The second stage was to provide the participants with an opportunity to member check the analysis, i.e. to assess whether they could see their experience in the data analysis, in a debriefing session. An example of how this has increased the trustworthiness of these conclusions was the concept of the 'turning point' used in the time ordered matrix. At the debriefing about the analysis I called the phenomenon an eureka moment; whilst the participants concurred that I had accurately observed a phenomenon they had experienced they did not think the word eureka accurately described it. They felt that a eureka moment reflected a single moment in time whereby all suddenly becomes clear when actually the process was more gradual than that. Other language was explored using a thesaurus [FN1058] and 'turning point' was the phrase that most closely matched their experience. It still does not describe it as accurately as it could but this reflects the limitations of language.

Triangulation of data sources involved the use, where possible, of a variety of data sources to verify observations (Patton 2002). For example, Trust policy documents

were used alongside the interview transcripts to develop an understanding of the local trust context.

Reflexivity is defined as 'disciplined self reflection' (Wilkinson 1988) and involves

> "constantly reflecting on questioning and evaluating the research process...
> to distinguish how subjective and inter-subjective elements have impinged
> on (and possibly transformed) both the data collection and the analysis"
> (Finlay 1998: 453).

I tried to be reflexive in my discussions with my supervisor and in the field notes that I kept. An example of reflexivity in this study can be seen in the reflection on the study between the baseline and midpoint interviews after two diaries had been returned. In the light of the concerns that arose from the first interview with the lead therapist I also asked an experienced qualitative researcher to peer review the transcripts related to this participant. He felt:

"Some element of her trying to say the right thing to get your approval" [FN931],

"you strongly pushing your own view but again didn't deflect respondent" [FN832] and

"you challenge – you don't agree with her" [FN891].

These observations clearly identify aspects of my own personality that I will have to temper if I am to become a more skilled interviewer. However, the reviewer did not think that these completely negated data collected because he also observed:

"you question yourself – Respondent seems capable of rejecting your

interpretations" [FN714] and

"You are reflexive" [FN768].

The credibility of the conclusions can be attested by the fact that:

- the participants believed that it described their experience,

- more than one source of data can be used to support some of the findings,

- the researcher has reflected on her role in the research, having reviewed some

  of the interview transcripts, and

- another more experienced researcher felt that on balance the data were not

  undermined by my lack of skill as a qualitative researcher.

4.7.6.2.   Transferability

Transferability refers to the extent to which the findings from the data can be

transferred to other settings or groups. It is analogous to the concept of

generalisability, when using quantitative data. Krefting (1991) states it is the

researcher's "responsibility to provide an adequate database to allow transferability

judgements to be made by others" (p221). This means the "The exact methods of

data gathering, analysis, and interpretation in qualitative research must be

described" (Krefting 1991: 221). The strategies used to increase transferability

were to select a sample that was not atypical, to provide sufficient detail about the

sample and to develop a study database for others to assess the nature of the study. The fact that the sample was not atypical suggests that other allied health professionals are likely to be able to use the Turnkey manual (although this must be verified by further research). The methods have been clearly described and a study database is available for others to check the transferability of these conclusions.

4.7.6.3.   Dependability

The dependability of a study is assessed by the stability of data over time and conditions, i.e. data collected should be characteristic rather than reflecting an anomalous moment in time. The strategy for achieving dependability in this study was to spend time in the field, i.e. have more than one point of data collection. If I had only collected data during the initial stages of the study I would have thought manager and lead therapist could not use the manual. If I had only collected data at end I may have thought the manager and lead therapist could use manual with little support. Having more than one point of data collection identified that the reality was somewhere in between these two observations.

4.7.6.4.   Confirmability

Confirmability refers to the objectivity or neutrality of the data, i.e. that another researcher could arrive at comparable conclusions given the same data or research context. The ideal way to demonstrate confirmability of the data is to have independent peer review but the funding was not available to do this. Instead the

steps used were an audit trail and reflexivity. An audit trail is a "chain of evidence"

(Yin 1994: 98) it allows others to see how the data have been analysed and or to

follow it back through if they wish to assess the transferability of a study. The chain

of evidence for this study comes from clear description of methods supported by a

study database. All quotes have a source tag (table 4.3) so that others can locate

quickly the sources of the quotation in the study database.

Table 4.3: Key to the source tags used in this study

Data	Source tag
Diary entry	D + date of diary entry
Transcription	T + line number
Document summary forms	DSF + document number
Field notes	FN + line number

4.8. Limitations of the study

Overall the strategies used to achieve credibility, transferability, dependability and

confirmability suggest that the conclusions drawn in this study are verifiable.

However, all research studies have limitations that affect the interpretation of the

results and these should be considered before any discussion of results. The

limitations of this study were:

- the use of a volunteer sample,

- reliance on only two informants,

- skills and personality of the researcher,

- time spent in the field, and

- the data collected from the diaries.

Each of these points will be considered in more detail. The issues raised by the findings of this study are discussed in the concluding discussion (see chapter 6)

That the sample was a volunteer sample meant that the therapists were committed to using the manual and so probably did not give up when non-volunteers may have done. This means I had to consider the fact that that they stuck with it and went on to use the manual successfully might be more a reflection of their determination to see something through than a reflection of the value of the manual. This study relied on two informants. Other speech and language therapists in the service may have provided a different perspective on the environment/context in which the manual was used. They may also have provided different perspectives that refuted and or enriched the data provided by the two informants who had a vested interest in being seen to be a success. As I was interested in process rather than outcome the perspective of others was not as vital but would need to be considered in future studies of outcome.

A mark of good qualitative research is the researcher. This is because the researcher often operates as researcher-as-instrument. This meant I needed to consider how reliable and valid an information-gathering instrument I was. It may be that I could never have been a good researcher-as-instrument in this study because I was too involved with the sample and too much of a novice researcher to overcome this. I had a vested interest in the success of the manual and I was well known to the lead therapist. This was reflected in the peer reviewer's comments that I had my own ideas and there was an element of the participants (particularly the lead therapist) trying to say the right thing. Another more neutral

interviewer, not associated with the manual, could have been used. However, it is acknowledged that appointing an independent researcher is extremely difficult without additional funding and that the strategies of member checking, peer reviewing and reflexivity perhaps went some way to overcoming this flaw.

There was not enough time spent in the field. Six months proved not to be enough judge use of the manual over time. One of the participants said the end of the study felt like the end of the beginning of using the manual (see section 4.7.3.3.1) It may be that use of the Turnkey manual is not sustained over time; and sustainability is a key issue in bringing about lasting change (Dunning et al 1999). The reason this situation occurred was in part because the process was slower than anticipated; I overestimated what was possible. Although I should have known this it reflects the lack of realism about change experienced by others in this field (Dunning et al 1999). As such it was agreed with the participants to conduct a one-year follow up study. This should provide more insight into the use of the manual over time.

In terms of data collection the diaries were useful up to a point. These data highlighted early on that the participants were struggling. However they elicited a small amount of data for the effort involved in collecting it and this reduced as time went on despite numerous measures in place to ensure compliance. One of the participants admitted to not always writing in the diary [T8013]. This reflects the truth of the statement that compliance can be a difficulty in using diaries (see section 4.3.5.1). It was decided to discontinue their use in the follow up study.

Member checking was also a methodological issue because one of the participants felt very uncomfortable with having to member check her transcripts. She found it very difficult to read what she had said. It could be that this discomfort was specifically related to her professional background, i.e. being a speech and language therapist. However, it highlights that a process that was supposed to be an empowering process was actually quite demeaning for one of the participants. Concomitantly the debriefing about the analysis was a much easier experience and has greatly enriched the understanding of how the manual was used. Therefore, whilst I would not want participants to be excluded from the data analysis process I have learnt that it is important to think through the possible sensitivities in advance.

Whilst these limitations may have impacted on the study other methods to increase the trustworthiness of the study or strategies to overcome deficits, e.g. a follow up study, have gone some way to alleviating their impact. Therefore this study does have internal validity.

4.8.1. The sample was not atypical

Whilst no two services of allied health professionals will be identical this sample was not atypical it met the inclusion criteria for the protocol developed for evaluating the manual (see section 4.1). It confirmed the earlier observations from the literature that therapists are enthusiastic about research (see section 1.3.4.1) but that therapists experience barriers to research utilisation (see section 2.5.2). One of the assumptions of this thesis was that managers would have limited experience/ awareness of research utilisation even if they were committed to it.

The manager in this study conforms to this assumption although she had limited experience of research utilisation she was trying to support research related activity in her service. The lead therapist may have had more experience than many senior therapists and this will need to be taken into account when planning future drafts of the manual.

4.8.2. Conclusion and recommendations for future research

The utility of the manual has been demonstrated in that the therapists in this study were able to use it and as such this pilot study has internal validity. The next step is to confirm the external validity. The findings from this study will contribute to the development of a third draft of the Turnkey manual and development of support so that it is an educational intervention that uses a range of techniques rather than just written materials. The intervention developed will then be the one tested in the TURF trial using the Bannigan Utilisation of Research Profile (BURP), the development of which is described in the next chapter.

5. Study 3: Development of the Bannigan Utilisation of Research Profile (BURP)

The desired outcome of using the Turnkey manual was to increase the research utilisation behaviour of the allied health professionals that work with the managers using the manual. Developing a protocol for a study showed that in order to evaluate the effectiveness of the Turnkey manual a measure of research utilisation was required (section 4.1). Any measure used in a research study should be reliable and valid therefore a reliable and valid measure of research utilisation was required. As such, there are four elements to this chapter:

- An exploration of the concepts of reliability, validity and utility, and

- Development of a conceptual framework for measuring research utilisation

- A critical review of measures of research utilisation and

- The first stage of the development of the 'Bannigan Utilisation Research Profile' (BURP).

5.1. The concepts of reliability, validity and utility

The field of psychometrics "provides a way to quantify the precision of measurement of qualitative concepts such as satisfaction" (Utwin 1995: 1). The product of psychometrics is measurement scales. Reliability and validity are research techniques used to assess the accuracy of measurement scales. Reliability (or consistency) refers to the stability of a measurement scale, i.e. how far it will give the same results on separate occasions, and it can be assessed in different ways; stability, internal consistency, and equivalence.

Validity is the degree to which a scale measures what it is intended to measure. The different terms in common usage (of the 35 possible available) related to validity include:

- content validity (which includes face validity),

- criterion validity, (which includes concurrent and predictive validity), and

- construct validity (which includes convergent, divergent, factorial and discriminant validity) (Lynn 1986).

Utility, i.e. how practical the measurement scale is for use in the field, is another key issue to be considered alongside reliability and validity when developing, or assessing the quality of, a measurement scale. This is because if the scale is not actually used the time spent developing it and testing for reliability and validity will have been wasted.

5.1.1. Reliability

Reliability is essentially concerned with 'error in measurement' (McDowell and Newell 1996: 37) i.e. how consistently or dependably does a measurement scale measure what it is supposed to be measuring (Polit and Hungler 1995). The premise for conducting reliability tests is that there will always be a degree of random error in the administration of measurement scales. An example of a random error is a mistake in measurement due to the respondent or rater being distracted. Reliability assesses "the extent to which a score is free of random error...[and]...is defined as the proportion of observed variation in scores" (McDowell and Newell 1996: 37). Essentially, "the less variation an instrument

produces in repeated measurements of an attribute, the higher its reliability" (Polit and Hungler 1995: 347). Therefore "reliability is a statistical measure of how reproducible the instrument's data are" (Utwin 1995: 6) and can be equated with stability, consistency and dependability (Polit and Hungler 1995). Reliability can be assessed in different ways; test-retest reliability for stability, inter-item reliability for internal consistency and interrater reliability or parallel scale for equivalence.

5.1.1.1.　Stability

A measurement scale's stability is "…the extent to which the same results are obtained on repeated administrations of the instrument. The estimation of reliability here focuses on the instrument's susceptibility to extraneous factors from one administration to the next" (Polit and Hungler 1995: 347f). This is assessed through 'test-retest reliability', a commonly used indicator of the reliability of a measurement scale (Utwin 1995). The measurement scale under development is administered on two separate occasions to the same sample and the scores are compared. Statistical procedures are used to elucidate a reliability coefficient; "a numerical index of the magnitude of the test's reliability…[where]…the higher the coefficient, the more stable the measure" (Polit and Hungler 1995: 348-9). No test will yield exactly the same results from test to test therefore it is necessary to determine what is an acceptable level of error. The issues that have to be considered in designing test-retest studies are:

- That the construct being measured may change over time regardless of the stability of the measure and so may confound the calculation of a reliability coefficient

- Memory of the first administration of the test may influence the second (Eysenck 1994)

- Subjects may actually change as a result of the first test administration, and

- Subjects may not be as careful when using an scale a second time.

Polit and Hungler (1995) advise "Stability indexes are most appropriate for relatively enduring characteristics such as personality, abilities, or certain physical attributes such as height" (p349).

5.1.1.2.   Internal consistency

Internal consistency "...is applied not to single items but to groups of items that are thought to measure different aspects of the same concept" (Utwin 1995: 21). It is used to assess how well the different items measure the same characteristic (Utwin 1995: 25). "An instrument may be said to be internally consistent or homogeneous to the extent that all of its subparts are measuring the same characteristic" (Polit and Hungler 1995: 349-350). Internal consistency is a widely used method of testing for reliability because it is economical and it identifies errors in the sampling of items (Polit and Hungler 1995). A variety of procedures exist for measuring internal consistency including the 'split-half technique', 'Cronbach's alpha'   (or 'coefficient alpha') and the 'Kuder-Richardson formula 20' (KR-20). Nunally (1967) advises coefficient alpha is the best estimate of reliability because most major sources of error are due to the

sampling of instrument contents. The theory behind this procedure is "the higher the internal consistency, the higher the test-retest reliability will be" (McDowell and Newell 1996: 40). However, the procedures for internal consistency do not consider fluctuations over time (Polit and Hungler 1995).

5.1.1.3. Equivalence

Equivalence can be addressed in two ways (a) the use of the scale by the same administrators at the same time (i.e. interrater reliability) or (b) administering two parallel forms of the same scales to the same sample successively (i.e. alternative form reliability). In relation to assessing interrater reliability it is suggested that "The use of Pearson correlations can seriously exaggerate the impression of reliability" (McDowell and Newell 1996: 38). Kendall's tau is used as it takes tied scores into account (Brymor and Cramer 1994). Other techniques suggested are intraclass correlations, analysis of variance, Rasch's item response model and rank-order correlations (Polit and Hungler 1995, McDowell and Newell 1996).

5.1.2. Validity

Once a measurement scale has been shown to be reliable over time it should be assessed to establish whether or not it is reliably measuring what you want it to measure (Utwin 1995). Validity is concerned with the meaning and interpretation of a scale. There are many ways of testing validity and it has been suggested that "A variety of approaches should be used in testing any index, rather than relying on a single validation procedure" (McDowell and Newell

1996: 37). This is because validity is not absolute. It is a matter of degree rather than an 'all or nothing' concept" (Carmines and Zeller 1979). "In reality...it is not possible to take one form of measurement validity in isolation, as several forms may be applicable" (Gould 1994: 102).

5.1.2.1.   Content validity

Face validity and content validity are two closely related forms of validity and they are the minimum requirement of acceptance of a scale. However, Streiner and Norman (1995) recommend that "...this judgement should comprise only one of several used in arriving at an overall judgement of usefulness and should be balanced against the time and cost of developing a replacement."(p6).

5.1.2.1.1.   Face validity

Dempsey and Dempsey (1992) describe face validity as the quickest method of determining validity. It is an assessment of whether a measurement scale looks reasonable, i.e. are the items included in the scale relevant? Face validity is directly related to the 'subjects acceptance of the text' (Payton 1988). "The measurement tool must be understandable and perceived as relevant by the subjects to ensure their co-operation and motivation" (Gould 1994: 99). Face validity is not tested using statistical procedures. Subjects, experts and/or the researcher may be involved in a consideration of whether a scale appears to be relevant. Obviously the more people and different groups related to the subject who are involved in the process the more acceptable it is likely to be. An

assessment of face validity is important because acceptability of a scale is important to its utility.

5.1.2.1.2. Content validity

Content validity considers whether a scale has included all the relevant and excluded irrelevant issues in terms of its content. "In the classical psychometric model it is the extent to which the measure adequately samples all possible questions that exist. In behaviour scales it would be the extent to which the measure samples behaviours representative of the entirety of behaviours" (Carr 2001). It is usually assessed by either:

(a) a critical review by an expert panel for clarity and completeness or

(b) comparing with the literature or

(c) both.

This is done to achieve authenticity, i.e. to ensure all concepts relevant to the construct of interest are included in the instrument (Messick 1994), and assure directness, i.e. not including items which are not relevant. Content validity is closely related to construct validity. This is because the domain of content must first be defined (Rothstein 1985, Arnell and Sim 1993), and then it must be investigated to see if the measurement scale adequately reflects the domain (Gould 1994). The difficulty for researchers with content validity is there is no definitive list of 'correct content' (Gould 1994). It is therefore impossible to sample the content of a concept and establish total content validity (Arnell and Sim 1993). It can also be difficult to ensure that the measuring scale includes all the components of a concept (Brink 1991). Content validity should be carried

out in the planning stages to try to ensure content validity from the outset, rather than making a judgement on it at a later stage (Gould 1994).

Whilst content validity is not usually assessed using formal statistical procedures Lynn (1986) and Cohen (1987) have suggested ways of quantifying content validity using the Index of Content Validity (CVI) and Content Validity Ratio (CVR) respectively. Unlike content validity, criterion validity and construct validity are tested using more formal statistical procedures.

5.1.2.2.   Criterion validity

Criterion validity involves comparing the scale being developed with a criterion measure that has been established as valid. Criterion related validity is relatively straightforward if a valid criterion is already in existence (Gould 1994). There are two subdivisions of criterion validity (a) concurrent validity when the information about the criterion is available at the time the test is administered (Eysenck 1994) and (b) predictive validity where the criterion measure is obtained after the test has been administered (Eysenck 1994).

5.1.2.2.1.   Concurrent validity

Concurrent validity assesses the extent to which a measurement scale under development correlates with the 'gold standard' (McDowell and Newell 1996), i.e. is similar to the currently accepted scale for measuring the construct of interest (Polit and Hungler 1995). Concurrent validity may test the accuracy of a complete measure or each question ('item analysis'). The procedure is to apply

the scale under development against the established test to an appropriate sample of people and compare the results to test level of agreement. "The correlation of each question with the criterion score is used to select the best questions and thereby refine draft versions of the questionnaire" (McDowell and Newell 1996: 31). However it is important to be sure that the gold standard is a true gold standard in terms of its psychometric properties and not just a scale that is in common usage but has no reliability or validity. In most instances there will not be another reliable and valid measure available. However if another reliable and valid test exists, "it begs the question of whether a new test is needed in the first place. It must offer something different to be of any use" (Carr 2001: 15).

5.1.2.2.2.   Predictive validity

As with concurrent validity, predictive validity involves correlating the results of one scale with the results of a second scale that is administered much later (Utwin 1995). It is used to measure the accuracy of a measurement scale because it "measures how well the item or scale predicts expected future observations" (Utwin 1995: 45).

5.1.2.3.   Construct validity

If a gold standard or other measure does not exist, and there is no way of directly testing the relationship between the measurement scale and the underlying concept (Arnell and Sim1993), validity can be tested by assessing to what extent the measurement scale under development correlates with the

construct under investigation (Polit and Hungler 1995). Construct validity, is the main form of validation for a test, it is an indirect approach and multiple measures can be used to determine validity (Seaman 1987). Construct validity is relevant when a scale has been developed on the assumption of a particular theory. It is demonstrated by investigating the convergence or divergence of similar tests and by logical theoretical argument (Domholdt 1993). The procedure for testing construct validity begins with defining the topic or construct to be measured (McDowell and Newell 1996). "These may be expressed as hypotheses indicating, for example, what correlations should be obtained with other instruments, which respondents should score high or low, or what other findings would be predicted from the scores" (McDowell and Newell 1996: 33). Construct validity is part art and part science that cannot be proven definitively "it is a continuing process in which testing often contributes to our understanding of the construct, following which new predictions are made and tested" (McDowell and Newell 1996: 36). Features of good studies of construct validity (McDowell and Newell 1996) will:

- State clear hypotheses with justification of why they are the most relevant
- Test the hypotheses stated
- Try to disprove the hypothesis that the method measures something other than its stated purpose

Construct validity can be assessed through convergent validity (that uses correlational evidence), factorial validity and discriminant validity (that uses group differences or discriminant evidence).

5.1.2.3.1.   Convergent (and divergent) validity

Correlational evidence evolves by testing *a priori* hypotheses developed about
how the measurement under development will correlate with another
measurement scale. The testing of hypotheses formulated about the
measurement scales the measure will correlate with is known as 'convergent
validity'. Conversely, 'divergent validity' tests hypotheses formulated about the
measurement scales the measure will not correlate with. This may involve
several other indices. Convergent validity assesses the sensitivity and divergent
validity tests the specificity of a measurement scale. McDowell and Newell
(1996) recommend "Construct validation should begin with a reasoned
statement of the types of variable with which a measure should logically be
related...The expected strength of correlation coefficients (or of the variance to
be explained) should be stated prior to the empirical test of validity." (p34).

5.1.2.3.2.   Factorial validity

Factorial validity involves factor analysis, which is "a statistical procedure for
reducing a large set of variables into a smaller set of variables with common
characteristics or underlying dimensions" (Polit and Hungler 1995: 642). It is
used "to describe the underlying conceptual structure of an instrument; it
examines how far the items accord in measuring one or more common themes"
(McDowell and Newell 1996: 35). In relation to construct validity it is used to
establish whether the items in the scales group together in a consistent and
coherent way (Bowling 1995: 293). There are two main approaches to factor
analysis exploratory factor analysis (EFA) and Confirmatory factor analysis

(CFA). EFA is used to identify a set of factors, which are not easily observed in a large set of variables (Watson and Deary 1997). CFA "allows hypothetical models to be set up before the data are analysed and subsequently tested for their fit, by a number of criteria, to the data" (Watson and Deary 1997: 407). McDowell and Newell (1996) provide the following guidance for those carrying out factor analysis:

- Items should be measured at the interval-scale level

- The response distributions should be approximately normal

- There should be at least five (some authors say 20) times more respondents in the sample than there are variables to be analysed

5.1.2.3.3. Discriminant validity

Measurement scales should be able to discriminate between different people being measured by it in a way that would be expected. As such discriminant validity is "The extent to which scores on a measurement distinguish between individuals or populations that would be expected to differ (e.g. people with or without a disease)" (McDowell and Newell 1996: 500). It is assessed using a multivariate statistical procedure (discriminant analysis) that "selects the set of questions that shows the most marked contrast in the pattern of replies between the groups" (McDowell and Newell 1996: 500).

5.1.3. Utility

When developing a measurement scale a researcher also needs to consider its utility by assessing how practical the scale is to use in the field. Aspects to consider are the:

- time it takes to administer

- ease of administration

- language used to ensure the phrasing is clear (McDowell and Newell 1996: 31)

McDowell and Newell (1996) advise that new measurements should be retested in a variety of settings to assess how far different people are able to use a measure.

As Bowling (1995) has pointed out "Scales need to be adequately tested for their reliability and validity. This is a lengthy and expensive process, and is one reason for using - or adapting - existing scales rather than creating new ones" (p291-2). Having explored the concepts of reliability and validity the next step was to identify what measurement scales are available for measuring research utilisation and then critically review them to assess how reliable and valid they are. In order to be able to do this it was necessary to establish a conceptual framework for research utilisation.

5.2. Measuring research utilisation: a conceptual framework

A conceptual framework is developed to demonstrate the relationships between concepts and is used as an underpinning framework for a measure. It is important to outline fully the conceptual basis for a measurement scale to provide a conceptual explanation of what is being measured and the value judgements incorporated (McDowell and Newell 1996). This is because "the conceptual definition of an index justifies its content and relates it to a broader body of theory, showing how the results obtained may be interpreted in the light of that theory" (McDowell and Newell 1996: 27). This step, which is often neglected, is needed to make a judgement about content (McDowell and Newell 1996). Therefore, in order to be able to assess the available measures of research utilisation it was necessary to understand what is meant by research utilisation. Research utilisation, like health, has no single variable that describes it; instead measurement will rely on assembling a number of variables as 'indicators' of research utilisation, each of which represents an element of the overall concept.

5.2.1. Definition of research utilisation

As outlined in earlier sections there is no standard nomenclature for research utilisation or a definition of barriers to research utilisation (see sections 1.3.1 and 2.5.1 respectively). Unsurprisingly, whilst there are definitions of research utilisation in the literature (table 5.1), there is no widely accepted definition. Estabrooks (1997) recalled Larsen's (1990) observation that there is a 'terminological tangle' in this field. She noted that:

"Definitions are frequently missing or absent from articles, different disciplines use different terminology, most of the literature rests on assumptions that are rarely made explicit, and investigators, at least in nursing, appear to have assumed that terminology and concepts from other disciplines are readily transferable to nursing" (Estabrooks 1997: 6).

She also found that "one of the significant problems in the literature on research utilisation, knowledge utilisation and innovation diffusion is the lack of definitional precision and the resulting conceptual confusion surrounding the central concepts in the field" (Estabrooks 1997: 16). It would appear that the field is still in a 'terminological tangle'. As such, defining the term for this thesis was a useful starting point for generating an understanding of the concept.

Table 5.1: Some examples of definitions of research utilisation in the literature

Source (chronological order)	Definition
Caplan and Rich (1975)	'Conceptual utilisation' which occurs when research is used more diffusely in a manner that promotes cumulative awareness, understanding or enlightenment.
Krueger et al (1978)	The use of findings through concepts of planned change.
Rothman (1980)	"...involving movement across the space between producers of knowledge (researchers) and users of knowledge (appliers)" (p19-20).
Horsley et al (1983)	"A process directed towards the transfer of specific research-based knowledge into practice through the specific use of a series of activities" (p100).
Stetler (1985)	The use of findings in practice.
Bohannon and LeVeau (1986)	"...the routine application of research findings in a clinical setting..." (p45).
Polit and Hungler (1995)	"The use of some aspect of a scientific investigation in an application unrelated to the original research" (p652).
(Hickey 1990)	A process through which research findings are critiqued, implemented, evaluated and disseminated.
(McGuire et al 1994)	A process (1) dissemination of research findings (2) evaluation of scientific merit and clinical applicability (3) incorporation of findings into practice (4) evaluation of research-based practice and (5) socialisation into the importance and necessity of using research in practice.
McCurren (1995)	"a process in which the products of research are applied to verify current practice or to change current practice" (p132).
Learmonth (2000)	"...conclusions from research activity are transferred into practice" (p746).
Maljanian (2000)	"...application of research conducted by others" (p155).

Not all the definitions refer to or suggest a process (e.g. Krueger et al 1978 and

Stetler 1985). It has already been identified that using research is not a one-off

event but a process (see section 3.4.4), so not to describe research utilisation as a process is too simplistic. Some of these definitions probably reflect their age because our understanding of research utilisation has evolved over time. Of those definitions that refer to a process, the one that was selected for this study as being most apposite was McCurren's (1995) (see table 5.1). Other definitions, such as Hickey's (1990) and McGuire et al's (1994), were not selected for a variety of reasons. Hickey's (1990) notion of the process seemed confused, i.e. dissemination as the final rather than initial activity, and McGuire et al's (1994) observation that there is a requirement for socialisation into the importance and necessity of using research in practice is disputable.

McCurren's (1995) definition recognised that research utilisation may involve verification rather than change, which meant that this definition was the most fitting. This emphasis on verification is important because, contrary to the usual assumption, sometimes research findings will verify current practice rather than highlight the need to change practice. However, this definition does need to be slightly modified, i.e. "a process in which the [valid] products of research are applied to verify current practice or to change current practice" (McCurren 1995: 132). The inclusion of the word 'valid' clearly signals that research utilisation involves a process of identifying whether the research findings (the products) are valid. This is important because only reliable, valid or trustworthy findings should be applied to practice (Gray 1997). It is only once the decision has been made about the rigour of the research findings that they should be compared to current practice to assess whether practice needs to be changed or not.

This modified definition indicates that 'research utilisation':

- involves a process

- part of the process involves making judgements about the rigour of research

- another part of the process involves making a decision about whether these findings verify or need to be applied to practice, and

- sometimes, but not always, change will be involved

This in turn implies that research utilisation is:

- a generic skill

- a macro skill that is a composite of a number of other sub or micro skills.

However, it has been suggested that definitions of research utilisation, like McCurren's (1995), define only one form of research utilisation, i.e. instrumental use. This understanding of research use will be explored before the suppositions related to McCurren's (1995) definition are explored in more detail.

5.2.2. Research utilisation: understanding research use

Research utilisation as a concept can be differentiated. Within the nursing field, applying work from other fields, Stetler (1994) suggested that research utilisation can be understood as instrumental, conceptual or symbolic use of research based knowledge, where:

- **Instrumental use** is the "…concrete application of knowledge, including research…direct development of policies, procedures or standards is one such instrumental use…" (Stetler 1994: 16-17)

- **Conceptual use** "…refers to the cognitive application and is best embodied through the term enlightenment, in which utilisation changes understanding or the way one thinks about a situation…This type of use may occur more

frequently than the concrete application of findings, and the related gradual, cumulative understanding of a topic may lead to changes in behaviour that are less specific and not easy to pinpoint in time" (Stetler 1994: 17)

- **Symbolic use** is where "...information is used to legitimate a policy or a currently held position..." (Stetler 1994: 17)

Whilst this conceptualisation was developed in the USA and as Estabrooks (1997) observed "has largely not been followed through in the nursing literature" (p19-20) it obviously has an inherent logic for those working in the field of research utilisation in the UK. For example, Closs and Cheater (1994) and Carter (1996) have both discussed this conceptualisation.

Estabrooks (1997) in her PhD thesis examined this conceptualisation in more detail. She was aware of the diagrammatic representation of research utilisation, e.g. Stetler's (1994) theory, but felt the theory needed to be subjected to rigorous testing. The aim of her study was "to expand existing knowledge of research utilisation in nursing by expanding our understanding of the causal mechanisms underlying the utilisation and non-utilisation of research by nurses." (p4). She used LISREL to use mathematical models to test this theory empirically. LISREL:

> "is a software product designed to estimate and test Structural Equation Model (SEMs). Structural Equation Models are statistical models of linear relationships among latent (unobserved) and manifest (observed) variables. You can also use this software to carry out both exploratory and confirmatory factor analysis, as well as path analysis." (Statistical Services LISREL Software 2003: 1).

The model tested was that "overall research utilisation is made up (caused by) instrumental, conceptual and symbolic utilisation" (Estabrooks 1997: 40). She augmented the definitions of the terms:

- **"Instrument utilisation:** a concrete application of research where the research is normally translated (on an organisational or nursing unit level) into a material and useable form such as a clinical protocol, a clinical decision algorithm, or the currently popular clinical practice guidelines. At the individual level the research may be applied "directly" as an intervention without translation into another form such as a protocol. It may be applied fully, partially, or in modified form. The research in this is used to make specific decisions/ interventions, i.e., to direct practice in a tangible and measurable way.

- **Conceptual utilisation:** the use of research such that the research changes one's thinking but not necessarily one's particular action. In this case, the research informs and enlightens the decision-maker (nurse), influencing decisions and interventions in less tangible ways than instrumental utilisation.

- **Symbolic (or political) utilisation:** the use of research as a persuasive or political tool to legitimate a position or practice. It is commonly used to influence colleagues and decision makers at local, regional, and/or higher levels of authority." (Estabrooks 1997: 42).

She also changed the labels from instrumental, conceptual and symbolic to direct, indirect and persuasive, respectively (Estabrooks 1997). This was because she thought, "These words seem to me to be more readily understood, and less cumbersome for both the researcher and practitioner" (Estabrooks 1997: 125). In her study she "…had no indication that the respondents had

difficulty differentiating between direct, indirect and persuasive research utilisation" (p125). She also noted that "It is apparent that there is not one "grand" or integrating theory of innovation diffusion or research utilisation" (Estabrooks 1997: 36). She developed a mid range theory that located "a model of research utilisation that illustrates the causal influence of direct (instrumental), indirect (conceptual) and persuasive (symbolic) research utilisation on overall research utilisation" (Estabrooks 1997: abstract).

Whilst there are some limitations in Estabrooks' study, e.g. low response rate, this model does appear to be useful as a model of research utilisation in nursing. Despite the fact that this theoretical development and empirical testing has only been conducted in nursing it makes inherent sense that research use will be direct, indirect and persuasive for all healthcare professionals. The terms direct, indirect and persuasive have been adopted in this thesis in the light of Estabrooks (1997) experience. In this study the focus was on the concept of overall research utilisation in everyday decision making. It was recognised that, to understand overall research utilisation, it is necessary to take into account that this research use may be direct, indirect, or persuasive. In the case of allied health professions, where there is little robust research, most of the research use may be indirect. To revisit McCurren's (1995) definition, the language does need to be modified to ensure that this differentiation is explicit, i.e. 'a process in which the [valid] products of research are applied [directly, indirectly or persuasively] to verify current practice or to change current practice'. Therefore, the definition of research utilisation used in this thesis was:

'a process in which the valid products of research are applied directly, indirectly or persuasively to verify current practice or to change current practice'.

5.2.3. Research utilisation: a process

Whether direct, indirect or persuasive research utilisation involves "a course of action or proceeding" (Allen 1990: 951); it is never just a one off action or task. This 'process' may:

- not always be linear (see sections 1.2.1 and 1.2.2). For example, many of those involved perceive or experience barriers to this process (see section 2).

- be a composite of processes (see section 5.2.1),

- in the case of indirect research utilisation not involve external physical actions but cognitive processes (see section 5.2.2).

5.2.4. Research utilisation: making judgements about the rigour of research

Part of the process involves making a judgement about research findings. There are two aspects to this judgement, i.e. rigour and relevance. The rigour of research methodology has to be assessed. This is because all research is subject to bias, which may have distorted the findings. If biased research findings are used in practice it may be that the practitioner ends up doing more harm than good. The relevance of the findings also has to be considered. For example, a research study may be well conducted and have statistically significant findings but if the findings are not clinically significant they should not

be applied to practice. The judgement made about the research often governs whether the research is used at all or if it is used directly or indirectly.

5.2.5. Research utilisation: making a decision about practice

If the decision is that the research is rigorous and relevant it is necessary to consider the findings in relation current practice. This may just involve verification or it may involve use. This use could be direct or indirect use (see section 5.2.2). If direct use is the agreed course of action this may require a process of planned change because, as has already been determined, research findings are not enough to change practice (see section 1.2.3).

5.2.6. Research utilisation: sometimes change will be involved

As has already been discussed, change involves a number of issues (see section 3.3.2.2.4). The issues involved may also depend on the practitioner's role. For example "Administrators are responsible for creating an institutional climate that fosters and promotes research use whereas clinicians are responsible for the adaptation, implementation, and clinical evaluation of the research" (Funk et al 1995: 44).

5.2.7. Research utilisation: a generic skill

The ability to use research findings is needed to improve/develop practice. The process of research utilisation does not rely on specialist clinical skills. Therefore, like communication, research utilisation is a generic skill that all

professionals working in health and social care need to be able to use. This also means that it is not the province of any one professional group.

5.2.8. Research utilisation: a macro skill

The skill of research utilisation is a composite of sub or micro skills and relies on other skills like problem solving. For example, each aspect of the process requires different skills, e.g. in the initial stage about making a judgement about the quality of research is made up of a number of component skills, e.g. literature searching. Within each of these components there are also different micro skills e.g. finding information requires the ability to design and implement search strategies and to retrieve the literature identified. Which, in turn, involves knowing how to use the following technologies:

- electronic databases,

- the Internet,

- citations and

- library facilities.

5.2.9. Conceptual basis: evidence based practice

In terms of theory to support these suppositions the obvious starting point is the models of research utilisation listed in chapter 3 (see section 3.3.2.2.1) as they all appear to centre on some form of process. However, not all of these are about research utilisation *per se*. Some are about awareness raising (e.g. Bernard and Hoehn 1978, Crane 1985a, b) others were primarily about dissemination (e.g. Nolan et al 1994). Others aim to increase research

utilisation but tend to be focussed on one set of research findings following the dissemination model. There are some other difficulties with using these models, i.e.:

- they are nursing models, so they may not be applicable to other professional groups,

- they were developed in America, so there may cultural issues reducing their applicability in the UK and

- they have not all been widely adopted, e.g. some of them have been in existence since 1970s it would appear that they have failed to capture the imagination.

This is not to say that they could not be applied more widely. However, given that there are issues that need to be addressed in terms of application to professions other than nursing and culture this may be quite challenging. There is also a generic theory that has been widely accepted, judging by its wide adoption in the UK and North America, which crosses all professional groups, namely, evidence based practice. Evidence based medicine is described as "...a process of turning clinicians problems into questions and then systematically locating, appraising, and using contemporaneous research findings as the basis for clinical decisions" (Rosenberg and Donald 1995: 1122). This makes this process analogous to research utilisation, based on the suppositions outlined (see section 5.2.3).

5.2.9.1. Evidence based practice: a process of research utilisation

Rosenberg and Donald (1995) identified four key components of evidence based medicine, i.e. formulate a clear clinical question from a patient's problem,

search the literature for relevant clinical articles, evaluate (critically appraise) the evidence for its validity and usefulness and implement useful findings in clinical practice. Sackett et al (1997, 2000) extended this schema by adding a fifth stage, i.e.:

1. Convert these information needs into answerable questions,

2. Track down, with maximum efficiency, the best evidence with which to answer them,

3. Critically appraise that evidence for its validity (closeness to the truth) and usefulness (clinical applicability),

4. Apply the results of this appraisal in our clinical practice, and

5. Evaluate our performance (p3).

Whilst Rosenberg and Donald (1995) and Sackett et al (1997, 2000) refer to this process as evidence based medicine its credence as a process has moved beyond medicine. Bury (1998) notes that it only requires rephrasing, i.e. substituting the term 'practice' for 'medicine', and describes the concept of evidence based healthcare as being separated into five key strands:

• Evidence based policy

• Evidence based commissioning/ purchasing

• Evidence based management

• Evidence based practice and

• Evidence based patient choice.

As such it has been widely adopted in health and social care including the allied health professions (Enderby et al 1998). "To give you some evidence of the impressive take-up of this concept, there is a very long list of journal articles

within Index Medicius that have incorporated the term evidence based in their title over the last eight years" (Sutherland 2000: 3).

5.2.9.2.   Research utilisation: taking account of the complexity

At this point it would have been easy to be drawn into describing a simple solution to a complex problem as others had been before (see section 1.2.1 and 1.2.2). It would have been easy to assume that this four/five stage process is all that was needed to understand research utilisation. It may provide the basis of for understanding the process because it covers the basic tenets. Like the overall concept of research utilisation, that has concepts of direct, indirect and persuasive research utilisation within it, this is a process that has processes subsumed within it. It also operates within the processes of health and social care. There are "...complex problems involved in moving research findings into practice." (Tornquist et al 1995: 106) as well. These also have to be considered, i.e. barriers (see chapter 2), attitudes, and infrastructure (see sections 3.3.2.2.2 and 3.3.2.2.3).

5.2.10.   Research utilisation: moving from conceptualisation to operationalisation

Therefore, to measure research utilisation a measure is needed that will assess skills in the use of this five-stage process. However, if this alone was measured it is not enough to develop an understanding of skill in terms of research utilisation. Other issues also need to be considered such the:

- micro skills involved,

- barriers,

- infrastructure (as an indication of culture) the individual is operating in and

- individual's attitude.

Taken together, with an assessment of skills in the five stages of evidence based practice, these aspects will provide an overview into an individual's ability to use research. Without capturing data about these 'other issues' it may be that respondents are using research indirectly rather than directly and without a measure of attitude the respondent may seem antithetic to the use of research based knowledge. If these other issues are measured as well it may be possible to identify that a respondent lacks skills due to constraints of resources, culture or the nature of research. No one aspect will provide a complete overview of research utilisation, which suggests that a measure of research utilisation may needed to be a profile of measures. An assessment of skills cannot be decontextualised (Rodgers 1994). Having defined and conceptualised research utilisation we now have an understanding of conceptual basis to use as a criterion, alongside reliability, validity and utility, for selecting and reviewing measures of research utilisation.

5.3. Measuring research utilisation: a critical review

The only measures of research utilisation that were known in detail at the start of this review were the measures related to the barriers to research utilisation (see chapter 2). A thorough literature search was conducted using the search strategy developed for the thesis (see section 1.3.1). A sample electronic search strategy is presented in appendix 2. The research studies identified have been summarised with the key focus being the measurement scale used. A

sample of this work is presented in appendix 21. (Only research-based studies were selected because the focus of this review was research measures). From this literature it was possible to identify 48 measures. An overview of the literature is presented followed by a more detailed review of those measures that considered the issues of reliability and validity in their development.

5.3.1. Overview of the literature

The issue of measuring skills, such as research utilisation, is not just a problem that has perplexed those involved in health and social care. It is also an issue for business. In a survey of business in USA it was found that "Most organisations evaluate participants' reactions to training courses but rarely the impact of training on the job or on organisational objectives" (Todesco 1997: 3). There are several models for evaluating training including the Bell system approach, the Parker model and the CIRO models (Phillips 1991 cited in Todesco 1997). However, the most well known model of evaluation of training is the Kirkpatrick model, which involves four levels of evaluation:

- **Reaction**, where participants give their assessment of a training course or learning event and generally give their level of satisfaction with the training/learning typically at the end of the course or event,

- **Learning**, where participants demonstrate what knowledge and skills they have acquired through achievement or performance tests or exercises,

- **Behaviour**, where the transfer of knowledge or skills to the participants' behaviour on the job is assessed, and

- **Results**, where the impact of on the job changes on business or corporate objectives is assessed (Kirkpatrick 1994).

Sometimes a fifth level is added in, i.e. return on investment. This involves the examination of the monetary value of the results with respect to the cost of training/learning (Todesco 1997). However, this model describes an approach to evaluation rather than rigorously developed and tested measures. This suggests that outside of health and social care measuring the development of skills, such as research utilisation, is an equally perplexing problem. It also indicates there is no guide that could be adopted in health and social care because business is struggling with the dilemma in a manner similar to the public sector.

The forty-eight studies identified for this review have been reviewed using a pro-forma (see appendix 22). A database (*Measuring research utilisation database*) has been created to record this work. This database has a dual role in that it can be used to verify the analysis in this study but it will also be a valuable resource for future work. Microsoft® *Word* 97 has been used to record this data to make it widely accessible. The database includes:

- a summary of research into research utilisation (see appendix 21 for an example)

- an index of measures (see appendix 22)

- a list of items from all measures identified

- a list of the scaling used in all measures identified, and

- copies of measures (where researchers provided electronic versions of their measures).

The electronic database is supplemented by paper based materials, e.g. journal articles and reports, that have been collated using the index of measures.

The nursing professions have conducted most of the research in this field. There were some studies by therapists, i.e. occupational therapists (e.g. Jaramazovic and Curtin 2000) and physiotherapists (e.g. Turner and Whitfield 1997). There is limited research in the field of medicine but doctors have tended to be involved in larger evaluation studies of discrete projects, e.g. facts (Munro et al 1995) or PACE (Dunning et al 1998). Many studies were evaluations rather than formal research projects where the evaluation was not the priority or appeared to be a secondary aim, e.g. ASPIRE (Hollis and Foy 2001). This appears to be because the projects were focussed on the intervention and/or achieving change and measurement seems to have been in the background, if considered at all.

These evaluation studies, such as those listed in table 3.6 (see section 3.3.2.2.3), tended to use a before and after methodology and made use of questionnaires designed for the study. Generally the development of these questionnaires involved little or no reliability and validity testing and they did not take into account other studies and previous research. For example in the development of the ACE Pre-workshop/ post-workshop questionnaires Richardson and Jerosch-Herold (1998) used the Critical Appraisal Skills Programme workshop evaluation pre-workshop questionnaire but no other studies or tools. Some studies were about doing research rather than using research, e.g. Bostrom et al (1989), and others focussed on a sub skill such as searching (section 5.2.1), e.g. Michaud et al (1996). Overall, in terms of quality many of the studies lacked rigour. There was poor reporting so where reliability and validity were referred to there was often not enough information to judge the quality of the measure. Despite this 18 measures merited further discussion

(see table 5.2) because reliability and validity was considered in their development.

Table 5.2: Tools used to measure research utilisation that were identified for critical review (Chronological order)

1. Research utilisation questionnaire (Linde 1989)
2. Research utilisation in nursing (Champion and Leach 1989)
3. BARRIERS: the barriers to research utilisation scale (Funk et al 1991)
4. Nursing Practice Questionnaire – Education (NPQ-E) (Barta 1992, 1995)
5. Information seeking (Barta 1992, 1995)
6. Factors Encouraging and Discouraging the use of nursing research findings (Pettengill et al 1994)
7. A survey of research-related activities and perceived barriers to research utilisation among professional oncology nurses (Walczak et al 1994)
8. How clinical nurses integrate research and practice (Shaffer 1994)
9. Survey of nurses research attitudes and activities (Rizzuto et al 1994)
10. Research Attitude scale (Hicks 1993, 1995,1996, Hundley et al 2000)
11. Edmonton Research Orientation Survey (EROS) (Pain et al 1996)
12. Research utilisation survey (Estabrooks 1997)
13. Clinical effectiveness and evidence based practice follow up survey (Upton and Lewis 1998)
14. Implementing Evidence Based Practice (Humphris 1999)
15. Barriers and Attitudes to Research in the Therapies (BART) (Metcalfe et al 2001)
16. R&D Culture Index (Clarke et al 2002)
17. Building a research conscious workforce (BaRCW) (Hurst 2003)

5.3.2. Critical review of measures of research utilisation

The measures identified that considered reliability and validity in their development have been critically reviewed. With the exception of the scales related to barriers to research utilisation (which are all considered together), they are reported following the chronological structure of table 5.2.

5.3.2.1. Research utilisation questionnaire (Linde 1989)

Linde (1989) wanted to assess the effectiveness of three interventions to increase research utilisation. She developed the *Research Utilisation Questionnaire*, as a pretest posttest measure, which comprised a combination of previously developed scales and some questions developed specifically for this project. It consisted of:

1. Background characteristics
2. The work related change scale (Trombo 1961)
3. Research attributes
4. Perceived organisation support (Horsely and Pelz 1980)
5. Current nursing practice
6. Current research activities
7. Barriers and facilitators –open ended questions

Data are available about the reliability of parts of the scale. The work related change scale has a reliability coefficient of 0.79, which is a fairly high level of stability (see section 5.1.1.1). The research attributes scale has a number of sub scales, which had been assessed for internal consistency (see section

5.1.1.2). Their alpha coefficients were between 0.55-0.77 (with an average of 0.64) which is variable with moderate to substantial levels of agreement (Pereira-Maxwell 1998). There were no published data available about the perceived organisation support scale. The current research activities achieved a Cronbach's alpha of 0.87, which is a high level of agreement. In terms of validity:

- the conceptual framework for the study was the social interaction model of the diffusion process but it is not clear how this was applied in the development of the *Research Utilisation Questionnaire*, and

- the work related change scale was assessed against questions about specific past, current and anticipated future change events.

Utility was not explicitly discussed. Linde (1989) mentioned that the *Research Utilisation Questionnaire* took 10-18 minutes to complete and she piloted the current nursing practice scale, which established that the scale was clearly worded. There was no other information, such as a response rate, to provide further insight into the measure's utility.

To summarise the *Research Utilisation Questionnaire* was nursing focussed. Aspects of the tool were reliable but its validity was not established. Since the development of the *Research Utilisation Questionnaire* the barriers to research utilisation field has been further developed so the open-ended questions used are no longer relevant. Linde (1989) did not conduct any further reliability or validity testing on her sample using the *Research Utilisation Questionnaire* and it does not appear to have been used with another sample by others.

5.3.2.2. Research utilisation in nursing (Champion and Leach 1989)

Champion and Leach (1989) wanted to identify variables, which were related to utilisation of research in the clinical area. They used a correlational study "...to investigate the relationship of support, availability, attitude, and selected demographic variables to research utilisation" (Champion and Leach 1989: 706). Three (Attitude, Availability and Support) of the four scales were developed from past research and carefully reassessed for use in this study. The research utilisation scale was developed to measure the degree to which a nurse felt he or she incorporated findings into practice but it was not clear how the items for this scale were generated. Experts assessed the validity of the scales and reliability was assessed using internal consistency. The Cronbach's Alpha for the scales were Attitude 0.94, Availability 0.84, Support 0.87, and Use 0.92, which are substantial levels of agreement (Pereira-Maxwell 1998). Utility was not discussed but the response rate of 39% suggests utility may have been an issue.

Again, this was a nursing focussed scale. It has been since been used by Lacey (1994). Pettengill et al (1994), Veeramah (1995) and Humphris (1999) have adapted it. Estabrooks (1997) considered it alongside other tools that she determined were not suitable for her study. None of these studies have contributed reliability and validity data to provide further validation of the scale. Whilst reliability was demonstrated content validity is the minimum requirement of acceptance of a scale (see section 5.1.2.) and "...this judgement should comprise only one of several used in arriving at an overall judgement of

usefulness" (Streiner and Norman 1995: 6). This suggests that more work is required to demonstrate validity.

5.3.2.3. Barriers to research utilisation (Funk et al 1991a, Pettengill et al 1994, Walczak et al 1994, Metcalfe et al 2001)

The research into barriers into research utilisation has been summarised in chapter 2. Four measurement scales that considered reliability and validity in their development were identified, i.e.

- the BARRIERS scale (Funk et al 1991a)

- Factors encouraging and discouraging the use of nursing research findings questionnaire (Pettengill et al 1994)

- a survey of research related activities and perceived barriers to research utilisation (Walczak et al 1994), and

- Barriers and attitudes to research in the therapies (BART) (Metcalfe et al 2001).

To recap, The BARRIERS scale developed by Funk et al (1991a) has been most widely used. The fairly robust development of the scale, its widespread application and the reliability and validity testing suggest this provides a reliable and valid indication of the perceived barriers to research utilisation in nursing (section 2.3.1.1). Although the tool appears to be applicable to other professions the factor structure that emerged from Closs and Bryar (2001) suggested that this tool as it is currently configured is dated (section 2.5.3.3). Use of the BARRIERS scale provides a ranked list of barriers. This provides no indication of whether the healthcare professionals involved have and/or use the research utilisation skills only why they perceive that it does not happen.

Therefore, the BARRIERS scale does not measure research utilisation, although it contributes to an understanding of why research utilisation may not be occurring.

Although the other three measures considered reliability and validity they were not as rigorously developed:

- Pettengill et al (1994) developed a questionnaire of *Factors encouraging and discouraging the use of nursing research findings* using literature reviews, a previous study the researchers had been involved in (Pettengill et al 1988) and in collaboration with Carolyn Chambers Clark. Two nurse educators and two nurse administrators assessed content validity. There was no attempt to assess the reliability. This measure was one of the ones that Estabrooks (1997) considered and determined was not suitable for her study but it has been adapted by Humphris (1999). As content validity was the only assessment of reliability or validity it would appear that Estabrooks (1997) assessment was correct.

- Walczak et al (1994) aimed "To identify nursing staff members' current research-related activities, knowledge of research utilisation, and perceived barriers to using research in practice" (p710) using a survey of research related activities and perceived barriers to research utilisation. The measure developed was a four part, 38 item self-report questionnaire. Some of the items in their questionnaire were generated using existing literature; this was the only attempt to assess validity. Reliability was assessed on two scales. Test-retest was used and yielded reliability coefficients of 0.92 (p=0.0001)

for the barriers scale and 0.84 (p=0.001) for the research related activities scale, both of which are substantial indicators of stability (Pereira-Maxwell 1998). Internal consistency was assessed using a larger sample (N=82) and yielded an alpha coefficient of 0.76 for the barriers scale and 0.88 for research-related activities.

Although reliability and validity were considered in the development of this measure there is little detail about the procedures used. For example it is not clear how the pre-existing literature was used to assess content nor is there enough detail to judge the test-retest procedure. It does not appear to have been subject to further development or used in any other studies. Overall the two scales assessed have internal consistency but it is not possible to judge the accuracy of the test retest reliability and the validity has not been demonstrated.

- The BART (Metcalfe et al 2001) is a composite scale; it combines the BARRIERS scale (Funk et al 1991a) and the scale of perceived importance of research (Ballin et al 1980) to assess barriers to conducting as well as using research. Metcalfe et al (2001) conducted a factor analysis on this measure but no attempt was made to explain the factor structure with reference to theory. There are no references to suggest that there has been development and testing of the BART. This study was the first to use the BART which indicates that the scale requires further development and testing in terms of reliability and validity.

5.3.2.4. Nursing Practice Questionnaire – Education (NPQ-E) and Information seeking (Barta 1992, 1995)

Barta (1992, 1995) wanting to estimate the level of research utilisation of nurse educators developed two measures the *Nursing Practice Questionnaire – Education* (NPQ-E) and *Information seeking*. The NPQ-E was adapted from the *Nursing Practice Questionnaire* (Brett 1986), which includes a total innovation adoption score to estimate stage of the innovation decision process, questions that reflected their awareness and inclusion of innovations related to paediatric pain assessment and management. In the *Nursing Practice Questionnaire* the underpinning conceptual framework was the stages of innovation-decision process (Rogers 1983). It was focussed on specific research based nursing practices. Brett (1986) assumed content validity because the examples were research based practice. Reliability was assessed using test retest and internal consistency:

- The test retest yielded reliability coefficients of 0.44-0.98 (p<0.05) for the *Nursing Practice Questionnaire* sub scales and r = 0.83 (p<0.001) for the overall scale

- In the pilot study the Chronbach's alphas were 0.45-0.97 sub scales, with 0.82 for the overall scale. This increased to 0.68-0.95 for the sub scales and 0.95 for the overall scale when the whole sample was assessed.

Barta (1992, 1995) used a panel of three nurses, who were active in paediatric pain assessment and management, to assess the research topics to be included in the NPQ-E. The experts strongly agreed that eight of the nine nursing practices should be included in the final instrument. This assessment was based on an adoptability profile suggested by Brett (1986). Stability was

not assessed but internal consistency was established with a coefficient of 0.74 for the overall score (0.19-0.82 for the sub scales). It is not clear from the text whether the sub scale yielding 0.19 was removed.

The NPQ-E is building on previous work in developing the *Nursing Practice Questionnaire*. Both appear to have satisfactory reliability. There is a link to a conceptual framework and it is not clear how this informed the development of the scale. It is an assumption to assess the nursing practices as having validity because they are research based. Some of the references to these were to PhD theses and considering there is a research-practice gap these findings cannot be assumed to be everyday nursing practices. This is borne out in the comment: "...several subjects reported that at least two of the nursing practice were not available in their clinical agencies" (Barta 1992: 35). This may also explain why this comment is at variance to the experts' view that the practices are acceptable, i.e. an expert is more likely to be aware of, and using, cutting edge research findings in their everyday practice. The NPQ-E and the *Nursing Practice Questionnaire* by focussing on specific research findings are rooted in the dissemination model (section 1.2.2), limited to specialities within professions and a discrete point in time.

The *Information seeking* measure was developed to determine information seeking of paediatric nurse educators. It is a 39 item self-report instrument based on Means (1979/1980) survey of family practice physicians. It was adapted through the deletion or amending of any items not relevant nursing. As well as a category for other there were four categories of sources of information including:

1. Print media

2. Non-print media

3. Interpersonal communications

4. Formal educational activities

Only content validity was assessed using a sample of paediatric nurses educators who rated items and no assessment of reliability were made. This meant that neither reliability nor validity was established for this measure.

5.3.2.5. How clinical nurses integrate research and practice (Shaffer 1994)

Shaffer (1994) was interested in how clinical nurses integrate research and practice because she wanted to determine the association between administrative supports for research and staff nurses' perceptions of barriers to using research findings in practice. She developed the questionnaire using a three-step process:

1. Interviews were conducted and the data collected were subject to content analysis. This generated a list of 50 supports 14 research activities. This list was validated through repeat interviews with a proportion of the respondents, who agreed that the list was an accurate reflection of their views.

2. In the literature review

   "Articles were examined to determine if any additional administrative supports for research or research activities could be identified. No new items were identified...all of the items identified through the interviews were mentioned in at least one article." (Shaffer 1994: 41-42).

3. Content analysis was used to identify themes in the lists of items and five provisional scales (concepts) were identified, i.e. Fiscal resources scale, human resources scale, formalisation of research scale, communication network scale and participation in research scale.

A panel of five experts was convened to examine the relevance of each item to scales. This resulted in a few changes to the scales but these were not specified. Shaffer (1994) then used these scales alongside 3 other scales:

- Reliance on the Hierarchy of Authority (Aiken and Hage 1967)

- Participation in decision-making (Aiken and Hage 1967), and

- BARRIERS (Funk et al 1991a)

Shaffer (1994) did not explain why she selected these scales. A pilot study revealed that the instrument had utility because the "Pilot subjects did not report or demonstrate any difficulties understanding or completing the questionnaire" (Shaffer 1994: 48). Construct validity was assessed through a contrasted group approach that demonstrated through the comparison of means that the scale could discriminate between two groups of nurses, i.e. hospital and community nurses, ($p<0.01$). Reliability was assessed through test-retest reliability the sub scales yielded reliability coefficients between 0.599-0.943 for the sub scales. The reliability coefficient for the overall scale was not reported.

This scale is nursing focussed. It is not clear whether the construct was research utilisation or broader but more effort had been made to establish validity and reliability within its development. Aspects may be dated, e.g. it includes the BARRIERS scale which needs updating. However, elements of the tool have potential as a basis for inclusion in a generic measure.

5.3.2.6. Survey of nurses research attitudes and activities (Rizzuto et al 1994)

Rizzuto et al (1994) sought to

- describe nurses' attitudes about nursing research, their perceptions of the extent of support for nursing research at work, and their involvement in research activities, and

- determine the personal environment that predict nurses' involvement in nursing research.

They focussed on research activities, work environment and research involvement in their *Survey of Nurses' Research Attitudes and Activities*. The questionnaire contained a:

- Demographic data form

- (modified) *Nursing Research Survey* (after Chenitz and Slater 1986), and

- *Research Involvement Survey*

The survey was developed in line with Bandura's social cognitive theory, where "in this model of human nature and causality, human functioning is proposed as an interaction of personal, behavioural, and environmental events" (Rizzuto et al 1994: 194). The reliability was assessed through internal consistency. The *Nursing Research Survey* yielded a Cronbach's alpha of 0.91 and the *Research Involvement Survey* yielded Cronbach's Alphas of 0.89, 0.86 and 0.96 for each of its three sub scales past, present and future involvement respectively. "Discriminant function analysis revealed that prior research instruction, awareness of support for research, and positive attitudes toward research were predictive" (Rizzuto et al 1994: 193). Whilst a conceptual framework and

reliability have been considered in the development of the *Survey of Nurses'*

Research Attitudes and Activities it is not clear whether the research activities

referred to are activities related to using research or doing research or both.

5.3.2.7. Attitudes towards research scale (Hicks 1995,1996, Hundley et al 2000)

Hicks (1993) conducted a survey "…to clarify the picture regarding midwifery

research involvement and to highlight obstacles perceived at any stage of the

process as a preliminary stage in devising a staff development programme"

(p52-3). She aimed to explore:

- attitudes towards the role of research in midwifery

- the extent of their involvement in research

- publication, and

- any barriers to this process

using a questionnaire designed to collect information on midwives attitudes,

demographic details, research activities and any difficulties. The items for the

questionnaire were derived from two sources a review of available research

literature and a series of interviews with a number of midwives. The key issues

that emerged resulted in the construction of:

- 38 positive and negative attitude statements

- six items related biographical details

- 10 items about research activity and

- eight possible impediments to initiating and carrying out research.

This tool was piloted with 50 midwives of all grades and "ambiguities and comments about the biographical and research sections from the completed forms were noted and used to modify the final questionnaire" (Hicks 1993: 54). The "...attitude statements subjected to standard item analysis which reduced the scale to the most discriminating items (13 in total) and these formed the final attitude questionnaire" (Hicks 1993: 54). The revised scale was tested for reliability. Test-retest yielded a reliability coefficient 0.828 (p>0.005). There was no reference to the validity of the tool. No explicit reference was made to utility but Hicks (1993) had mentioned that ambiguities/ comments were noted and used to modify final questions. When used in the main study a response rate of 72% was achieved indicating that the measure had utility.

The tool has been developed in two subsequent studies (Hicks 1995, 1996). The data collected from midwives (Hicks 1993) has been subjected to factor analysis (Hicks 1995). The factor analysis yielded four factors, which were:

1. Health care professionals' attitudes and reactions to midwifery research

2. Midwives' perception of the value midwifery research

3. General research role of midwives

4. Midwives' competence to undertake research

She identified " The findings of this factor analytic study have revealed four coherent factors which may be construed as source components of midwives' attitudes to research. Each factor has a face or predictive validity which is supported either by additional analyses of the data or by existing research" (Hicks 1995: 15-16).

The same scale has also been used to assess nurses' attitudes towards research (Hicks 1996). The response rate (46%) was much lower, which suggests that scale may not have the utility with nurses that it has with midwives. The factor analysis on the scores from the *Attitudes towards research* scale identified five factors, i.e.:

1. Nurses' subjective barriers to research

2. Organisational/ structural barriers to research

3. Doctors' reactions to nursing research

4. Health professionals reactions to nursing research

5. Impact of nursing research

Hicks (1996) commented that

> "These five factors, taken together, form clear source components of the general attitudes to research demonstrated by this sample of nurses. Moreover, some of the factors have a significant predictive validity for certain specific and essential research behaviours. Overall, the study adds weight to the theoretical perspective that specific attitude measurements can accurately predict related behaviours" (Hicks 1996: 378).

The *Attitudes towards research* scale has also been used by Hundley et al (2000) in their study which aimed to evaluate the effectiveness of two approaches to increase research awareness among midwives and nurses. She used the *Attitudes towards research* as part of a self complete questionnaire that covered:

• Attitudes toward research

• Attitudes of midwives/nurses who do research

• Barriers to reading research and barriers to do research

• Knowledge of and use of resources associated with research

- The respondent's own involvement and education with regard to research, and

- Demographic questions.

No additional data was contributed to the reliability and validity of the *Attitudes towards research*, this is probably because this focussed on a specific project. Although the 78% and 75% response rates suggest utility may not have be the reason for the lower response rate in the study of nurses (Hicks 1996).

The tool has been translated from nurses to midwives, and has been used subsequently by Hundley et al (2000), which suggests that has potential to be an interdisciplinary tool with a modification in language. In the development Hicks (1993, 1995, 1996) has done a lot of work towards establishing reliability and validity. The scale *Attitudes towards research* is about research *per se* rather than research utilisation but the attitudes towards research are equally relevant whether doing research or using research are being considered. It only considers one aspect of the concept of research utilisation but it may useful for assessing this aspect of the concept. Permission has been secured from Hicks to use the scale.

5.3.2.8. Edmonton Research Orientation Survey (EROS) (Pain et al 1996)

Pain et al (1996) wanted to assess the research orientation of practising clinicians. They developed a questionnaire in two phases. Phase one involved instrument construction. Focus groups were used to identify the dimensions of research utilisation. Clinicians and administrators were asked about the type of effects research might have on practice with the following questions:

1. In what ways (if any) have research findings influenced your own practice and that of others?

2. In the ideal world, how should research be integrated into clinical practice?

3. How do clinical researchers differ from clinicians who are not involved in research?

4. What types of information do you find most influential in changing your practice?

The questionnaire developed was based on the data from the focus groups and the existing literature. It consisted of 62 items with four sub components:

- Development of positive attitudes toward research and scientifically based practice

- Changes in self concept and confidence in one's practice

- Changes in clinical behaviour, and

- Changes in the types of information accessed in the course of treatment.

"The draft questionnaire was sent back to the focus group members for comments and pilot testing, and revisions were made based on their input" (Pain et al 1996: 95).

In phase two the questionnaire was tested. Item analysis reduced the number of items from 62 items to a 38-item questionnaire that was called *Edmonton Research Orientation Survey* (EROS). Pain et al (1996) observed "...the resulting scale consisted of 38 items, all relating to the impact of research activity on clinical practice" (p96). It was not clear how some items, such as "I am an excellent researcher", related to impact of research activity on clinical practice. The internal consistency of EROS was high, it yield a Cronbach's alpha of 0.93. Construct validity was explored through discriminant validity (see

section 5.1.2.3) two of three hypotheses they tested were supported, suggesting EROS could discriminate between some groups. In terms of utility it only achieved a response rate of 38%, which is extremely low.

As Pain et al (1996) observed "The results of this study indicate that the Edmonton Research Orientation Survey holds promise as an indicator of research orientation within clinical practice" (p98). It was encouraging that a wide range of professionals were involved, i.e. nursing, occupational therapy, physiotherapy, speech and language therapy, psychology, medicine, social work, audiology, recreation and education. This suggested that the construction of a generic tool is possible. The main issue with EROS, from the point of view of measuring research utilisation, is that the concept 'research orientation' is not sufficiently defined. The emphasis in EROS appears to be as much about doing research as using research.

5.3.2.9. Research utilisation survey (Estabrooks 1997)

Estabrooks (1997) wanted to understand the factors influencing the utilisation of research by nurses and how those factors work together. The primary objective of her study was:

> "To determine and test the causal structure of a model of research utilisation in nursing, in which individual and professional variables influence overall research utilisation and the different sub-types of research utilisation (instrumental, conceptual and symbolic)" (Estabrooks 1997: 48).

The *Research utilisation survey* was developed because she

> "...examined all published questionnaires used by nurse investigators (Alcock et al 1990, Baessler et al 1994, Brett 1986, Champion and Leach 1989, Funk et al 1991a, Lacey 1994, Pettengill et al 1994, Rizzuto et al 1994, Walczak et al 1994) and some unpublished questionnaires (Crane 1989) and determined that none were suitable for this study" (Estabrooks 1997: 49)

No detail was provided about how this review was conducted or what criteria were used to assess these measures. Estabrooks (1997) initially developed the *Research utilisation survey* herself and then revised it based on feedback from the dissertation supervisory committee and others. Final revisions were made after a pilot test was conducted in December 1995. Survey development was done following standard procedures and Estabrooks (1997) indicated which texts she used to guide this work.

Three approaches were used to establish content validity, i.e. "...good survey question design and careful attention to relevant theoretical concepts in the literature were employed...an early version of the questionnaire was reviewed by two researchers with some expertise in the area....a small pilot study was conducted (n=23)" (Estabrooks 1997: 50-51). Construct validity was established by testing the model using structural equation modelling. Reliability data in terms of internal consistency was available for some of the scales from studies conducted previously. The alpha coefficients ranged from 0.72-0.85. Estabrooks (1997) referred to utility in passing but did not address the issue explicitly. The *Research utilisation survey* is a 26 pages long saddle stitched booklet and when it was administered there was a very low response rate (41%). Estabrooks (1997) compares this to other studies to suggest that it compares favourably but much higher response rates have been achieved more recently (e.g. Hicks 1995 and Upton 1999). Estabrooks (1997) also makes the comment that "a lengthy mailed survey conducted during massive health restructuring and job

insecurity is a significant accomplishment" (p54-55). This does provide an alternative explanation for the low response rate but it could be queried as to why the *Research utilisation survey* was administered during this time.

Overall considerable work has gone into developing and establishing the validity and reliability of the *Research utilisation survey*. Estabrooks (1997) asserted that no one study demonstrates construct validity but that "…strong evidence does exist in this study to support the ongoing use of this survey to measure overall research utilisation and its sub types" (p123). However, there are two concerns about this tool. Firstly, the tool has been developed just for nurses working in Alberta so it may not translate geographically as well as inter professionally. Secondly, the issue of utility has to be considered as the tool is extensive. It is interesting to note that despite the considerable efforts Estabrooks (1997) has made towards developing a valid tool it does not appear to have been used by others (of course this may just be an example of the research practice gap).

5.3.2.10. Clinical effectiveness and evidence based practice follow up survey (Upton and Lewis 1998)

Upton and Lewis (1998) wanted to determine the current level, or baseline, of knowledge, attitudes and practice to help frame and direct future interventions. They developed a questionnaire "aimed at recording professionals' attitudes toward, and knowledge of the concepts of evidence based practice and clinical effectiveness and how they are applied in practice" (Upton and Lewis 1998: 647). They stated that "there was no adequate measure of attitudes toward

evidence-based practice and clinical effectiveness" (Upton and Lewis 1998:

648) but did not explain how they arrived at this decision. A pool of items

(n=164) was developed through a review of literature, a review of appropriate

policy documents and interviews with practising clinicians. The items were

discussed at the study's steering group meeting and after removing and adding

items to eliminate repetitions and ambiguities the number of items was 164.

These were translated into questions/statements as the basis for the *Clinical*

Effectiveness and Evidence Based Practice Follow-up Survey, which comprised

the following sub scales:

- Demographics

- Knowledge of clinical effectiveness and the clinical effectiveness initiative

  their key features

- Application of evidence based practice

- Attitudes towards evidence based practice and clinical effectiveness

- Barriers to potential practice and possible solutions to overcoming these

  barriers

- Attitudes to evidence based practice, clinical effectiveness and the clinical

  effectiveness initiative

Two pilot studies were conducted to facilitate an assessment of test-retest

reliability. Test retest yielded reliability coefficients between 0.80-0.92 and

internal reliability Chronbach's alpha's of 0.74-0.88 for the sub scales. The

researchers felt they had established face and content validity:

> "In terms of validity there was no external reference and therefore it is
> difficult to comment on criterion validity. However, all items were drawn from
> either the literature or interviews on evidence-based practice/clinical
> effectiveness, and consequently face validity was high. There was an

indication from discussions with experts and the pilot studies undertaken that the content validity was also good" (Upton and Lewis 1998: 650).

The high response rates 63-71% (Upton 1999) suggests that this measure has utility despite having 164 items.

The *Clinical Effectiveness and Evidence Based Practice Follow-up Survey* is focussed on the allied health professions not just the core three, i.e. speech and language therapists, occupational therapists and physiotherapists, but also podiatrists. This adds weight to the idea that it may be possible to develop a generic scale may be possible. However in this survey the measure appeared to be trying to incorporate too many issues, i.e. evidence based practice, clinical effectiveness and the clinical effectiveness initiative. The clinical effectiveness initiative was a Welsh Office initiative and so some of the project specific items would need to be adapted for wider use in the UK. It is interesting that barriers and solutions are mention but the BARRIERS to research utilisation literature is not mentioned and conceptually evidence based practice is not linked to research utilisation.

5.3.2.11. Implementing Evidence Based Practice (Humphris 1999)

Humphris (1999) wanted to explore the factors that inhibit and enable their use of research evidence in practice. Qualitative methods were used to describe the general factors that facilitated and inhibited the incorporation of research evidence into practice. In this phase six themes were identified:

- Professional and organisational culture
- Accessibility and understanding of research results

- Time

- Resources

- Education for research and

- Self-motivation (Humphris et al 2000).

To evaluate the importance of these factors a postal survey was conducted. The questionnaire was developed using the themes from the qualitative data collection, the literature and previous questionnaires (Pettengill et al 1994 and Champion and Leach 1989) two other questionnaires were also considered (Funk et al 1991a and Lacey 1994) but not used. A draft questionnaire was developed which was piloted in two stages.

"In the first stage the draft questionnaire was completed by a convenience sample of 40 nurses within a Trust, who were asked to comment extensively on the draft in terms of its structure, layout, readability and relevance. In light of these comments modifications were made and re-tested with a sample of 23." (Humphris 1999: 60).

More modifications were made as a result of discussions with a statistician and supervisors. In the second stage the draft questionnaire was piloted using a postal survey:

"The pilot testing enabled the data handling, postal reminders for non-respondents and analytical details to be tested out prior to the main study, providing invaluable understanding of logistical requirements for the main study...statistical analysis of the pilot data was possible to aid both the refinement of the questionnaire and the logistical arrangement of data collection and analysis" (Humphris 1999: 61).

Using the pilot data a number of modifications were made to the questionnaire wording and items in the questionnaire to orientate them to a multiprofessional audience and means of collecting responses. The final questionnaire contained four sections:

- Participation in research

- Research utilisation

- Resources, and

- Helpful and discouraging factors.

Humphris (1999) highlights the importance of reliability and validity in the development of a questionnaire but it is not clear how the reliability and validity was assessed in the development of her questionnaire. Humphris (1999) referred to "...both Pettengill (1994) and Champion and Leach (1989) undertook tests of reliability and validity, which have been repeated with the data as appropriate" (p66-67). (See sections 5.3.2.2. and 5.3.2.3 for details of the reliability and validity of these measures). Utility was not explicitly discussed but piloting considered issues related to utility and the response rate 75%. Overall, this is example of generic questionnaire but it was broader in its focus than research use and its reliability and validity was not demonstrated.

5.3.2.12. R&D Culture Index (Clarke et al 2002)

Clarke et al (2002) developed a research and development culture index as a part of the development of a Nursing Practice Research Centre to:

- Describe the characteristics of nursing R&D in the Trust, and

- Identify the factors that the nursing staff perceived as contributing to an R&D culture.

There were two phases to the development of the index. In phase one, focus groups were conducted with a wide range of nursing staff and business managers. These were described as "discussion group meetings, focussing on practice development and research capacity and culture." (Clarke et al 2002: 9)

Five themes were identified based on the data collected in the focus groups. These were:

- organisational support systems,
- organisational culture,
- training and development infrastructure,
- nursing research and practice, and
- dissemination.

Phase two of the study involved the development of a questionnaire, based on the key themes identified in phase one. The questionnaire contained three sections:

- Demographic data
- A 17 item index based on the themes from phase one (Respondents were asked also to indicate their five priorities in securing an R&D culture in the Trust by placing small stickers against five of the index items) and
- An open section, inviting detail about any current development and research activity.

Reliability was assessed in terms of internal consistency of the index yielded an Cronbach's alpha of 0.79. Construct validity was explored in terms of a factor analysis. The factors identified were:

- The context of R&D
- R&D skills and
- Intent to utilise R&D in practice.

Utility was not discussed but the response rate was only 25%. It was suggested that this "was influenced by the very short period of time which nurses had to

return the questionnaire" (Clarke et al 2002: 10). Clarke et al (2002) have observed:

> "The R&D Culture Index is a tool developed specifically for the Trust and may not be transferable to other organisations. However, it had a sound Alpha Coefficient of 0.79, and factor analysis identified three key components of the Index: the context of R&D, R&D skills and intent to utilise R&D in practice. To develop further an index of R&D culture for the NHS, the tool has been slightly modified following factor analysis and to reflect multidisciplinarity. Use in another (specialist learning disabilities) Trust will provide the opportunity for confirmatory analysis of its psychometric properties. The index should therefore be regarded as a tool in development." (p19).

5.3.2.13. Building a research conscious workforce (BaRCW) (Hurst 2003)

The BaRCW was developed as a means of highlighting the strengths and weaknesses of research and development education and training in Northern and Yorkshire hospital trusts. A questionnaire was developed to collect data about research knowledge and skill needs assessment among staff in different healthcare settings. "The questionnaire was developed from:

1. Published and grey literature.

2. Meetings with the Teesside University and N&YR&D co-workers.

3. Discussions with health care professionals undertaking postgraduate degrees at the University of Leeds.

4. Pre-pilot studies with other Leeds University healthcare professionals

5. Pilot studies among a sample of healthcare professionals drawn from the N&YR&D R&Dinfo database." (Hurst 2003: 6)

There were four parts to questionnaire:

- biographical details,

- rating the value of knowing about or skills in various aspects of research (e.g. designing studies and psychometrics)

- the value of various R&D educational settings and methods, and

- two 'lie' detectors which correlated well the knowledge and skills lie detector questions with a reliability coefficient of 0.69 (p<0.0001)

Reliability and validity were not demonstrated in the development of this tool. The idea of lie detector questions is an interesting technique for addressing the issue of social desirability or lying in self-report questionnaires.

5.3.3. Summary of the critical review: The need for a measure of research utilisation

This review provided further confirmation that there is a lack of interdisciplinary research (Humphris 1999). Reliability was assessed more frequently and in more detail than validity in the development of most of the tools reviewed. Utility rarely explicitly considered and it perhaps needs to be considered more to maximise response rates (It may be an explanation for some of low response rates achieved although it is recognised that other issues can impinge on response rates). No generic measure of research utilisation was identified although some fairly rigorous tools have been developed that focus on nursing, aspects of the concept of research utilisation or a combination of doing and using research.

5.4. The development of the Bannigan Utilisation of Research Profile (BURP)

As no sufficiently reliable and valid generic measure of research utilisation existed a study was initiated to develop a measure. The aim of the study was to develop a reliable and valid measure of research utilisation. The development of any measure comprises four stages:

- classification and conceptual basis

- devising the items

- developing the scale and

- assessing reliability and validity (Streiner and Norman 1995).

It was not possible to achieve all four stages during this doctoral work because each stage requires extensive work. All that was possible within the remaining time available was to use the conceptual basis already developed (see section 5.2) to devise the items needed to measure research utilisation. This analysis is presented followed by a way forward for completing the next stage of the measure development as part of a programme of post-doctoral work (see figure 6.4).

5.4.1. Content validity: Item development

Once the conceptual basis has been developed the next stage is to devise a pool of items for inclusion in scale. This is a two step process that involves (a) content analysis and (b) expert panel. Content analysis of the literature involves coding according to the conceptual framework developed. Babbie (1998) suggests that the developed operational definitions of the key variables should

be used to decide what to include in the analysis, then classify and record data according to this schema, and finally analyse the data. The literature on research utilisation is vast and so this had to be contained to keep this task realistic so only the measures identified in the review of measures were used. The items from all 48 measures identified (section 5.3) were listed (These are recorded in the database described in section 5.3.1). This list was then analysed using the schema of the five steps from the process of evidence-based practice and other issues identified, i.e. barriers, infrastructure, and attitude (section 5.2.10). This analysis was then revisited to check for duplicates (see appendix 24 for an example of the analysis).

5.4.2. The Bannigan Utilisation of Research Profile (BURP)

This analysis indicated that one measure of research would be too unwieldy and 6 sub scales were clearly identified, i.e.

1. Asking answerable questions

2. Finding the evidence

3. Reviewing the evidence

4. Using the evidence

5. Self evaluation

6. Reading habits

These analyses also provided a pool of items to guide demographic data collection. There were other possible sub scales, e.g. conducting research, that do not fit neatly into the conceptual framework developed. These will be presented to the expert panel for consideration. The other issues barriers, infrastructure and attitudes can be incorporated into the sub scales above. This

has been done with the barriers and infrastructure items. However because

Hicks (1993, 1995, 1996) has developed a reliable and valid tool that appears to

applicable to different professions attitudes this will be considered separately at

this stage (This will be discussed with the expert panel). Items that were project

specific, profession specific, about clinical audit and current practice were

excluded. A draft of the BURP is outlined in figure 5.1.

Figure 5.1: A draft of the Bannigan Utilisation of Research profile
[With examples of possible items]

1. Demographic data
    1.1. Age?
    1.2. Sex?
    1.3. Fathers occupation?
    1.4. Mothers occupation?
    1.5. Are there any healthcare professionals in your family?
    1.6. Marital status?
    1.7. Number of children?
    1.8. Time in practice?
    1.9. Time in
        - present job?
        - present institution?
    1.10. Highest education completed?
    1.11. Current position?
    1.12. What is your basic practice preparation?
    1.13. When did you complete your highest level of practice education?
    1.14. Did your undergraduate program have a research course?
    1.15. If you have graduate work, did it include a research course?
    1.16. Have you had a statistics course?
    1.17. In what area do you work?
    1.18. How would you describe your patient population?
    1.19. Is you place of employment associated with education or research/ not associated with education or research?
    1.20. What professional associations are you a member of?

2. Asking answerable questions
    2.1. There is not a documented need to change practice
    2.2. Lack of time to investigate research related to clinical problem
    2.3. Considering your practice in relation to an individual patient's care over the past year, how often have you identified a gap in your knowledge which you need to fill
    2.4. Considering your practice in relation to an individual patient's care over the past year, how often have you formulated a clearly answerable question as the beginning of the process towards filling this gap

2.5.	There are opportunities to reflect on my practice
2.6.	If I have an idea to improve clinical practice, I have the knowledge and skills to address it
2.7.	There are regular staff meetings to explore issues
2.8.	There is an opportunity to develop practice in my area
2.9.	I feel I have an important role in identifying, selecting and implementing new healthcare practices.

3. Finding the evidence

3.1.	Unable to obtain research findings in one's area of interest
3.2.	I have access to research findings where I work
3.3.	I have access to research findings on my floor
3.4.	I seek out research related to clinical practice
3.5.	How often do you seek out research related to your clinical problem
3.6.	The healthcare professional is unaware of the research
3.7.	The relevant literature is not compiled in one place
3.8.	Print media sources of information for updating (most useful, second most useful, third most useful)

- Physician desk reference
- Professional journals
- Other professional journals
- Textbooks
- Literature from drug companies
- Product literature
- Hospital procedure manual
- Cumulated Index of Nursing and allied Health/Index medicus
- Other

| 3.9. | Non print media sources of information for updating (most useful, second most useful, third most useful) |

- Medline/ Cumulated Index of Nursing and allied Health (via computer)
- Video tapes
- Audiotapes
- Television
- Films
- Computer assisted instruction
- Slide/cassette
- Other

| 3.10. | Conducting a computer-based search of research for problem-solving behaviour |
| 3.11. | Your access to information on clinical effectiveness |

- What library facilities does you have access to?
- Are all staff allowed to use these library facilities?
- When are these library facilities open for people to use?
- Is there a person in the library who can help people both to find materials in the library and to undertake literature searches?
- Which of the following electronic data sources does the library provide access to?
- Do most staff work on the same site as the library?
- Is any training provided for staff on how access and use information on clinical effectiveness?

3.12.   The kind of knowledge you use in your practice
- Information that I learn about each patient/client as an individual
- My intuitions about what seems to be "right" for the patient /client
- My personal experience of working with patients/ clients over time
- Information I learned in during training
- What physicians discuss with me
- New therapies and medications that I learn about after physicians order them for patients
- Articles published in professional journals
- Articles published in research journals
- Information in textbooks
- What has worked for me for years
- The ways that I have always done it
- The information my fellow healthcare professionals share
- Information I get from policy and procedure manuals
- Information I get from the media (e.g. popular magazines, television the internet etc
- Information I get from attending in services/ conferences

3.13.   How much time have you spent searching for evidence from published literature to help your clinical decisions making in the last month?

3.14.   What access do you have to journal publications to help you in clinical decision making and where are they used?

3.15.   Considering your practice in relation to an individual patient's care over the past year, how often have you tracked down the relevant evidence once you have formulated the question

3.16.   I feel competent in carrying out literature searches on topics related to my clinical practice

3.17.   Keeping up to date with the literature/ research is a high priority within my department/ section

3.18.   Keeping up to date with literature/ research is important to me in my job

3.19.   I am happy with the amount of time that I have available to keep up to date with the literature/ research in my field.

3.20.   It is difficult to see patients and keep up to date with literature/ research related to my clinical practice

4. Reviewing the evidence

4.1.   Is there a 'journal club' running in your department?

4.2.   The majority of literature/research that I find related to my clinical practice is not of interest to me

4.3.   Research papers are always clear about the intervention that has been given and for how long

4.4.   A lot of research work that has been done is not transferable to my particular area of work

4.5.   The majority of literature in my field is relevant to my practice

4.6.   I feel confident that the findings of most published research are reliable

4.7.   The quality of research is not adequate for application to practice

4.8.	Research is understandable
4.9.	Agreement with the conclusions of the report
4.10.	Reading and understanding the report
4.11.	Relevance of the findings for practical situations
4.12.	I am familiar with selected statistical procedures used for the analysis of research findings
4.13.	I get put off when I see statistics used in published research
4.14.	I reviewed the research literature ? times last year
4.15.	Healthcare professionals should not be expected to be able to read, critique, and synthesise information from the research literature
4.16.	Most published research tells very little about what works in practice
4.17.	I review manuscripts for a professional journal
4.18.	Statistical analyses are not understandable
4.19.	The research has not been replicated
4.20.	The research has methodological inadequacies

5. Using the evidence

5.1.	Suggestions for practice too time consuming to implement
5.2.	Resistance to change in the work setting
5.3.	I transferred the knowledge included in the results of the research study into useful practice activities ? times last year
5.4.	I used a new activity, based on research ? times last year
5.5.	I discontinued or rejected a traditional practice activity because of the results of a research study ? times last year
5.6.	Rewards for using research results not worthwhile
5.7.	Research findings that are advantageous to good patient care can be implemented in my working environment
5.8.	I would change my practice based on research findings
5.9.	I want to base my practice on research
5.10.	Using research helps me to meet my goals as a healthcare professional
5.11.	Healthcare professionals' practice should be based on research
5.12.	More healthcare professionals should use research in their practice
5.13.	Research is not applicable to my practice
5.14.	Research findings are relevant to use in practice
5.15.	Research findings are too complex to use in practice
5.16.	I base my practice on research
5.17.	My healthcare professionals care decisions are based on research
5.18.	I do not use research in my day-to-day practice
5.19.	I apply research results to my own practice
5.20.	I use research findings in planning patient care

6. Self evaluation

6.1.	Which of the following associations, organisations or groups do you identify most closely with as a healthcare professional? Circle one only the organisation in which you work/ your union/ a clinical interest or speciality group/ national associations/ other
6.2.	Studying research is a waste of my time

6.3.	Understanding research helps me practice professionally as a healthcare professional
6.4.	I think research is exciting
6.5.	Research is stimulating
6.6.	I receive recognition from my peers for having research knowledge
6.7.	I balance professional commitments to make time for research in my daily practice
6.8.	I formulate goals to pursue research interests
6.9.	I demonstrate the importance of research to my clinical practice
6.10.	The healthcare professional does not see the value of research for practice
6.11.	The healthcare professional is unwilling to change/try new ideas
6.12.	The healthcare professional does not feel capable of evaluating the quality of the research
6.13.	The healthcare professional is uncertain whether to believe the results of the research
6.14.	The healthcare professional sees little benefit for self
6.15.	Interpersonal communications for updating (most useful, second most useful, third most useful)

- Phone conversations
- Informal conversations in clinical setting
- Informal conversations in academic setting Informal conversations at conferences
- Journal clubs
- Committee meetings
- Telecommunications via computer (e.g. bitnet or INTERNET)
- Other

6.16. Formal educational activities for updating (most useful, second most useful, third most useful)

- Educational activities sponsored by hospitals
- Educational activities sponsored by higher education
- Educational activities sponsored by speciality groups
- Staff meetings
- Faculty meetings
- Preceptorships Self-assessment tests
- Peer review
- National professional meetings
- State professional meetings
- Local professional meetings
- Other

6.17. Was research utilisation included in your basic undergraduate (BS, AD, diploma) program?

6.18. Are you a member of a research utilisation task force or the research utilisation subcommittee?

6.19. Would you be interested in reading a newsletter that summarises clinical research related to your field?

6.20. Have you taken a research –related academic course in the past 18 months?

7. Reading habits

7.1. General reading habits
- Are you reading a book or journal at present?
- What sort of reading are you doing at present? (Fiction/non-fiction/ textbook/magazine/ daily newspaper/ other)
- How many books/journals have you read in the last month?
- Please complete the following sentence I read because....
- I am not reading because...

7.2. Reading clinical research topics
- Have you ever been advised to read clinical research books/articles?
- [If yes by whom (Tutor/clinical teacher/ senior professional/ junior professional/ student / other please state)]
- In the last week how often have you discussed any research topic with the following? (Tutor/clinical teacher/ senior professional/ junior professional/ student / other please state)
- Did you think that what you read would work in any practical situation you have been in?
- When you are a healthcare professional will you apply clinical research to patient care?

7.3. Can you suggest any areas in clinical practice, which you   think should be investigated?
- Do you think clinical research can help to improve clinical care?
- Could you please tell me what the term " clinical research" means to you?
- In the library have you done any of the following? Looked up a research topic in a book/ looked up a research topic in a journal/ Taken out a book on clinical research)/ In the last six months have you bought the professional press/research articles/ others please state
- In the last week have you read any article from the professional press

7.4. I read the following journals on a regular basis (Types of professional press)

7.5. I have time to read about research while I am on duty

7.6. As a professional, each clinician has an obligation to read relevant research literature.

7.7. Each clinician should, invest time in keeping up with research methods and findings

7.8. I read research articles in professional journals and reports

7.9. The clinician does not have time to read research/ Reading clinical research projects/ Reading completed clinical research studies

7.10. I feel confident in my ability to read and understand the clinical literature

7.11. I read at least one published paper on clinical topic per month

7.12. State the title, or briefly describe one research book/article you have read/

7.13. In relation to the article/book you read, in your opinion was it:
- very interesting, interesting, uninteresting/

- were you able to make sense of the article/book you read yes no don't know/
- please complete the following sentence I found the article/book difficult to follow because/
- did you think that what you read would work in any practical situation you have been in?/

8. Attitudes towards research (Based on Hicks 1995;1996 With permission)

8.1.	Research findings have very little impact on healthcare professionals practice
8.2.	One essential role of the healthcare professionals is to carry out research
8.3.	Even if healthcare professionals did carry out research, the doctors wouldn't use the findings
8.4.	Most healthcare professionals are competent to undertake research
8.5.	The attitudes of medical staff don't permit the implementation of any research findings
8.6.	All healthcare professionals should do a compulsory course on research methodology
8.7.	Most clinical healthcare professionals are not interested in implementing research findings
8.8.	Lack of time for research is no excuse for the really motivated healthcare professionals
8.9.	Most healthcare professionals don't have any motivation to carry out any research of their own
8.10.	Most hospitals and health centres would adopt the results of sound research
8.11.	Most healthcare professionals just pay lip-service to the value of research – they aren't really convinced of its worth
8.12.	The health care professions have a lot of confidence in research
8.13.	Most healthcare professionals lack the confidence to carry out research

5.4.3. Next steps: Post doctoral work

Having developed a pool of items and sub-scales based on the literature an expert panel will be convened to clarify this data analysis. The aim will be to establish content validity by reviewing the sub-scales to assess for inclusion and exclusion of specific items.

5.4.3.1. Content validity: Expert panel

Streiner and Norman (1995) advise that criteria should be set for selecting panel members. Criteria for an expert panel will be based on the following in relation to research utilisation:

- experience,
- current involvement,
- demonstrated interest, and/or
- involvement in research programs.

Different methods can be used to conduct an expert panel. For example, Clemson et al (1999) used a delphi panel approach, Hammond and Lincoln (1999) a postal questionnaire to special interest group members, and MacKenzie et al (2000) used a two stage process that involved rating items identified by the researcher and a nominal group technique to identify additional items not already identified. As a pool of items has been developed but only by one person the two-stage process used by MacKenzie et al (2000) was the most appropriate. In the first stage the expert panel will be asked to rate items and these ratings will be quantified using the Content Validity Ratio (CVR), where:

$CVR = N_e - N/2 / N/2$ [N_e= number of panellists indicating item and N = Number of panellists] (Cohen et al 1996: 178).

In the second stage the nominal group technique will be used to identify any items that have been overlooked. Once the expert panel has established the content the profile will be developed. This involves defining the responses to the items, selecting the items, avoiding bias in the selected items, combining the selected items to form a scale, and establishing interpretability (Streiner and Norman 1995). When this stage has been completed the BURP will be rigorously tested to assess its reliability and validity.

5.4.4. Limitations of the study

This study was constrained by the resources available, i.e. only one researcher and limited time. One researcher may have biased the analysis to date. However, if there is an inherent bias this should be rectified in the next stage with the use of an expert panel. By developing this work as part of a post doctoral research programme it will allow the time needed for the next stages to be developed rigorously.

5.4.5. Conclusion

This chapter has provided a conceptual framework for research utilisation, a critical review of measures of research utilisation and proposed the BURP as a basis for further research. The sub-scales and items provide a basis for developing a robust measure of research utilisation because a profile of measures, that does not rely on any one aspect of the concept, should more accurately reflect the complexity of research utilisation. This will also provide an opportunity to empirically test the five stage theory of evidence based practice.

This theoretical proposition has an inherent logic, which probably explains its wide adoption in education and practice, but it has not been subjected to rigorous testing. The BURP may also prove to be a useful tool for diagnostic analysis and/or benchmarking practice within this field. The draft of the BURP outlined in figure 5.1 will be the focus of further development including testing for reliability and validity.

"Their noses had been too deeply buried in the bark of a special tree, to be able to discuss forests in a meaningful way" (Zuchov 1979)

6. Concluding discussion: Using systems thinking to make sense of the whole.

The methodological limitations of the individual studies have been considered alongside the individual study reports (see sections 3.7, 4.8 and 5.4.4). This chapter will comment on the thesis as a whole, discuss research utilisation in relation to the allied health professions (who were the focus of this thesis), and make some general observations on the field of research utilisation. The aim of this concluding discussion is to draw together the findings of the literature review and three studies to provide an overview of this thesis' contribution to knowledge. 'Systems thinking' has been used to make sense of the thesis as a whole. The implications for policy, practice, education and research will be explored in the light of this. The overall conclusions and recommendations draw this work to a close.

6.1. Comment on thesis

To refer back, the original aims were to:

1. understand the barriers experienced by healthcare professionals in using research findings

2. use this understanding to develop an intervention to enable therapy managers to increase the use of research findings, and to

3. evaluate the intervention developed to assess whether or not it is effective in increasing research utilisation amongst therapists.

However, the third aim was not achieved because there were no sufficiently robust tools available to evaluate the intervention developed. This meant that the aims of the thesis had to be modified. Aim three became:

- To develop a reliable and valid measure of research utilisation. (see section 1.4).

The problem experienced in this thesis is common across health and social care in the UK. For example, a finding by the Commission for Health Improvement of their clinical governance reviews attests to this, i.e. "There is a poverty of adequate measurement to assist improvement and what there is, is not being used by clinical teams effectively" (Beighton 2002).

6.1.1. Measurement

This dilemma was not due to a lack of attention to measurement on the part of researchers. The number of measures identified clearly shows that attention had been paid to measurement in this field (see section 5.3). The problem was that work in this field has often been done with little reference to previous research, resulting in a lack of coherence in relation to measurement in research utilisation. For example, authors refer to 'the' literature when developing scales (e.g. Upton and Lewis 1998) but it is not clear what this literature was or how it was used. The reference lists often indicate that very little of the available literature has actually

been considered. The difficulty with this is, without robust measurement, it is not possible to design or conduct the rigorous studies that are needed to evaluate interventions, such as the Turnkey manual. For example, a body of research is needed to provide the data for calculating sample sizes, particularly for studies that need to make use of intra cluster correlation coefficients.

Evans and Haines (2000) commented there was a need to: "...address the imbalance between the growing volume of literature on the theory of evidence practice and the lack of material on implementation based on real world experience" (pxvii). The Turnkey manual was an attempt to address this imbalance. However, this thesis has demonstrated that, without the concomitant development of the measures needed to evaluate interventions, much of this work may be of limited value because it will not be possible to generalise findings. Despite these challenges, one of the significant achievements of this work has been to provide a critical review of the current state of the art of measurement in research utilisation. This critical review (see section 5.3) provides a valuable overview for other researchers in this field; it is the first step in building a coherent body of work. The proposed *Bannigan Utilisation of Research Profile* offers a way forward for measurement in this field.

6.1.2. Nature of research

The widespread use of the 'dissemination model' (see section 1.2.2) to shape the research on research utilisation appears to be the main reason the situation with regard to measurement has evolved. To recap, the 'dissemination model' involves

targeting specific research findings at healthcare professionals. In research studies where the methodology is shaped around the 'dissemination model', specific research findings are targeted at healthcare professionals and a before and after study is used to assess a change in clinical practice. The measures used are clinical measures, such as lung function (Shah et al 2001) or treatment threshold for systolic hypertension (Cranney et al 1999). In these studies the focus is on strong research evidence and not transferable research utilisation skills. As such, it is likely that the studies neither inculcate nor assess the ability of healthcare professionals to generalise research utilisation skills to other research findings. Obviously, because data are not collected it is only possible to speculate about this. A large number of studies have been conducted that have used this model and there does not appear to have been a corresponding impact on the long-term research use by the healthcare professionals involved. A consideration of models of research utilisation (see section 3.3.2.2.1) supports this analysis. These models, which are generally based on the dissemination model, proliferated in the USA in the 1970s and 1980s. However, judging by the fact that research utilisation is still a general concern in the literature, their use does not appear to have had a lasting impact on research utilisation.

This reason for the widespread use of the dissemination model to shape research methodology in studies of research utilisation seems to be related to the belief that surrogate end points (or interim measures) should not be used in health services research. The assumption is that the only important outcome for health services is a clinical outcome, i.e. something that has a direct and meaningful impact on patient care. Usually this assumption would make inherent sense: whilst there is a

place for 'blue skies' research, it is recognised that funds for health services research should be used for studies that are directly relevant to patient care. Using these criteria, research utilisation skills are a surrogate endpoint and so their use is invalidated.

6.1.3. The need for surrogate end points

Whilst it is not the norm to use surrogate end points in health services research, they are needed in this field because change is so difficult to achieve and measure. If clinical change continues to be regarded as the only acceptable measure it could be that an intervention which moves clinicians of the part way along the continuum of research use would be discounted. This is because this effect would not be detected because the data were not collected. The use of surrogate end points actually represents a realistic view of the complexity of change and is a more theoretically appropriate way of researching research utilisation based on the nature of change.

The use of surrogate end points could serve two purposes, i.e. detecting effects not identified by solely focussing on clinical change and providing a source of motivation. The use of monitoring and taking incremental steps is important to motivate further change. That is, if change is notoriously difficult to achieve, those engaged in the process are more likely to continue if they can see that they are progressing along a continuum towards the long term aim of improving patient care. This type of measure may also be the only way to measure indirect use of research, which is a causal factor in overall research utilisation (see section 5.2.2).

Therefore, the 'Bannigan Utilisation of Research Profile', which was proposed in study 3, is not a meaningless interim measure but a recognition that (a) there is a need to be realistic about the nature of change, and (b) measures are needed that provide an indication of performance along the continuum and take into account context. There needs to be wider recognition that surrogate end points, like the BURP, are appropriate so that research using surrogate end points is funded and there is more coherence in the field.

6.2. Research utilisation in the allied health professions

Whilst measurement has been a perplexing issue to contend with, it was not the focus of the thesis. The focus was on increasing the use of research utilisation in the allied health professions. The main contribution to knowledge in relation to this was the development of a research-based tool that has the potential to enable managers to overcome the barriers to research utilisation. There were a number of issues that arose from the data analysis that deserve further detailed discussion, i.e. the role of manager, focus, the gap between enthusiasm and action, the Turnkey manual and the need for realistic change.

6.2.1. Role of manager

It was observed that research findings play a limited role in research utilisation. Once they have been appraised and found to be rigorous and applicable to practice their role becomes less important. The role of manager appears to be much more important in achieving research use because it requires a change in

approach to practice that is fundamentally different to current practice, i.e. a change from the use of custom and practice to evidence based practice (Eakin 1997). This means the whole culture has to change and this is only possible with the support of the manager. The manager's role had only been considered in passing prior to this research (see section 3.3.2.2.2). The unique focus of this study is the central role ascribed to the manager in bringing about research utilisation.

6.2.2. Focus

In terms of focus, the initial focus of this work was research and development but this was refined. The focus became the use of research-based knowledge rather than research and development *per se*. This was because it was recognised that research and development was too broad a focus; it links using and doing research, which are two different activities requiring very different skills. By making research use the focus, the task was more realistic. In the light of clinical governance (section 1.3.3.1) it was realistic to expect the therapy manager to have a responsibility to create a culture in which research findings can be used. The accuracy of this analysis is illustrated by the fact that, during the period of this research, NHS trusts have created R&D offices and appointed R&D facilitators indicating that this is a discrete role beyond the scope of clinical and general managers.

6.2.3. The gap between enthusiasm and action

This study identified a gap between the enthusiasm and interest of therapists and their involvement in research related activity. Therapists are enthusiastic about research; this is clearly identified in the literature (see section 1.3.4.1), supported by their involvement in the data collection for this study and expressed in the range of research topics they are interested in (see sections 3.3.2.1 and 3.4.2.2). Despite this, they are not involved in research related activity. That therapists cannot translate this evident enthusiasm into action would suggest that research utilisation is not an easy task and that they need support with it. This supports the findings of the barriers literature (see section 2), i.e. therapists perceive /experience barriers to research utilisation. Whilst our understanding of barriers may not be as precise as it could be it is known that they exist and they need to be overcome in order for therapists to be able to translate their enthusiasm into action. This is why it was important that efforts were directed away from barriers research to developing interventions to enable therapist to overcome the barriers they experience.

6.2.4. The Turnkey manual

In thinking about interventions to increase research utilisation, change management theory was identified as an important source of information to draw upon in meeting this challenge (see section 3.3.2.2.4). An added, but not unexpected, difficulty was that the answer was not readily available. What was known was that no single strategy, e.g. setting up a journal club, is effective in itself but that multiple strategies would be needed. This added to the complexity of the

problem. This outcome did not spell despondency because a strategy can be used as a means for a manager to handle complexity. This was a central tenet of the intervention developed in this study - the Turnkey manual.

The Turnkey manual, although only evaluated from the process point of view, is a potentially useful intervention (with some modifications). The fact that the participants struggled initially with using the Turnkey manual, despite their commitment to this work, adds further weight to the observation that written materials alone will not lead to an increase in research utilisation. However they did reach a turning point so it is realistic to expect that, with additional support, other therapists will be able to engage with the process outlined in the Turnkey manual. The participants found the structure, process and the model of having a manager and lead therapist useful so these should feature in future drafts of the manual. It is acknowledged that the manual needs to be significantly modified in the next draft. A key change will be to the language used because if the manual is targeted at managers they should feel that they want to engage with the process. They should not feel attacked by it, as the manager in this study did (see section 4.7.3.3.1).

The utility of the manual has been demonstrated by the fact that the therapists in study 2 were able to use it and as such the case study had internal validity. The next step is to confirm the external validity, which is keeping with case study research where it has been observed that "the true value of single case studies...is to form the basis of development of further studies" (Rastall 1994: 394). The findings from this study will contribute to the development of a third draft of the Turnkey manual and development of support so that it is an educational

intervention that uses a range of techniques rather than just written materials. The intervention developed will be the tested in the Therapists Using Research Findings (TURF) trial using the *Bannigan Utilisation of Research Profile* (see figure 6.4). This further programme of research is still necessary because the need for the Turnkey manual has not changed during the period of this research. Evidence based practice is not the 'hot topic' it was but research utilisation has not been achieved. Managers still need support in facilitating research utilisation; the evidence for this is anecdotal such as a recent letter received from the Proffesiynau Iechyd Cymru (Health Professions Wales), which is part of the Welsh Assembly Government (Owen 2003).

6.2.5. Change has to be realistic

The overriding lesson from the data collection and analysis was that the process of integrating research and development as core activities in clinical practice is extremely complex. Study 2 emphasised the importance of being realistic about change. There were a number of pressures on service involved as well as several other competing agendas (see section 4.7.3.1). Six months was just enough to get the process started but too short to get any insight into sustainability. The progress was slower than anticipated and this was a powerful reminder that change can be alluring, resulting in completely unrealistic expectations. This lesson will also be incorporated into future work on the Turnkey manual.

6.3. General observations

During this research on allied health professions some general observations were made about the field of research utilisation as a whole, i.e. research utilisation is a nascent field, a generic problem and a complex problem. These merit further consideration.

6.3.1. Research utilisation: A nascent field

As well as the lack of coherence in relation to the measurement of research utilisation there is no widely accepted definition of research utilisation or other key concepts. The lack of definition suggests this is a nascent field. There are also a number of synonymous or interchangeable terms in use (see section 1.3) but it is not always clear whether the words used are being used in the same or different ways. This has been observed by others e.g.:

- "Currently there is no widely accepted definition of dissemination, the nomenclature tending to depend on the discipline" (Crosswaite and Curtice 1994: 290), and

- "...the failure to address definitional issues and in particular, the issue of the dependent variable (i.e., what is and how do we measure research utilisation) is one of the, most pressing issues in the research utilisation literature in nursing and of the most significant problems facing us. In nursing, as in other fields, the lack of conceptual clarity has made it difficult to compare studies or to build theory" (Estabrooks 1997: 36)

This situation appears to match closely the experience of an "invisible college" described by Rogers (1995) in relation to innovations research. Estabrooks (1997) concluded that the lack of definition and coherence is "... an indication that we do not yet have a critical mass of researchers working cohesively on the problem in the area. Until such time as we do have such debates we cannot be confident that we are progressing satisfactorily toward better science in the field" (p137). My experience of researching this field resonates strongly with this observation. The field is so disparate and ghettoised in the professions that the links between researchers do not form in order to have the debates Estabrooks (1997) suggests are missing. This is likely to persist until researchers move out of the segregated groups of their own professional groups and start tackling the problem together.

6.3.2. Research utilisation: Generic nature of the problem

The focus of this thesis was the allied health professions but throughout the thesis it has been clear that many of the issues they face are similar across the board. For example, barriers (whether real or perceived) are a reality in research utilisation for most professional groups (see section 2). This is because, like communication and record keeping, research utilisation is a generic skill. It is accepted that there are differences between groups but there seem to be more similarities than differences and a focus on the similarities initially may be more useful than a focus on the differences. The emphasis in the NHS plan (DH 2000b) on interdisciplinary working suggests that working across boundaries is not natural for us, hence a policy directive is needed to make us do it. Many of us probably chose to work in a profession in the first place because we want to work with

likeminded people. Perhaps if research utilisation were tackled across professional boundaries there would be more coherence, less duplication and a critical mass of researchers. It would mean that key terms would have to be defined so that there could be more comparison between studies and so coherence in the field. This in turn may move the field on from a disparate and invisible college to a recognised field of research.

6.3.3. Research utilisation: The complexity of the problem

Research utilisation is a complex problem. The myths and realities surrounding research utilisation point to the complexity of the problem (see table 6.1). There is a reasonable human desire to reduce the problem into a simpler form. Hence the models of diffusion and dissemination (see sections 1.2.1 and 1.2.2). The difficulty being that, as others have observed:

- "The way in which we achieve this translation of research findings into practice is, however, not simple" (McIntosh 1995: 83)

- "in reality it is a complex activity" (Hunt 1996: 424), and

- "...successful research implementation is a highly complex and interdisciplinary undertaking..." (Closs and Cheater 1994: 770-771)

It feels as if the time has come to face this reality and stop running away from the complexities of the problem. Instead of trying to find simple answers to the question all involved need to embrace the complexity.

Table 6.1: A summary of the myths and realities surrounding research utilisation.

Myths	Realities
• Research utilisation is a linear process (see sections 1.2.1 and 1.2.2) • Targeting research findings overcomes a reliance on serendipity (see section 1.2.2) • Research findings are used to underpin practice (see section 1)	• Research utilisation is not a linear process (see section 1.2.3) • Research utilisation is impeded by perceived or real barriers to research utilisation (see section 2) • Those with a pivotal role in increasing research utilisation are probably least skilled in relation to research use (see section 3.3.2.2.2) • There is little to guide those engaged in increasing research utilisation. (see section 3.3.2.2.3)

There is a need to recognise that research utilisation is a complex problem without a simple solution. A guiding principle to bear in mind when thinking about this paraphrases the words of the journalist HL Mencken: 'For every complex problem, there is a simple solution, and...it's wrong'. However, we like simple solutions because they are easy. It is often only when you get inside a complex issue do you realise just how complex it is and this can be disabling. With so many different facets to the problem and working in an ever-changing environment like the NHS with the potential for many problems (e.g. barriers) the task could be overwhelming. The tension is that if there is a sincere belief that the use of

research findings improves the quality of patient care something has to be done to increase research use and we have exhausted the simple solutions. The challenge for those working in this field is to reconcile the complexity issue so that movement rather than inertia is created.

6.4.   Using systems thinking to make sense of the whole

Reflecting on the findings of these studies and the experience of doing this research it seems that much of the thinking and work surrounding research utilisation is mechanistic. Research use as a process tends to be atomised; i.e. researchers focus on one aspect in isolation from or with limited reference to the bigger picture. The issue of complexity is avoided because complexity presents a problem to the method of science (Checkland 1999). This seems to be at the root of the reason why the field does not seem to have moved on. For example, the barriers to research utilisation research have until recently only been replicated with little reference to the wider field. There has also been little reported in the way of the activity to overcome the barriers. The focus on individual professional groups, despite research utilisation being a generic skill, is another way in which the field is atomised. For example, in this study the initial focus was on 'occupational therapy' but it was easily broadened out to include other professional groups.

6.4.1. Mechanism

The atomising of a question is indicative of a mechanistic worldview. Mechanism is typical of conventional scientific method and:

> "One aspect of the mechanistic worldview that they have paid particular attention to is reductionism (narrowing attention to linear, causal relationships between variables, thereby failing to see that these relationships can only be adequately understood as aspects of the operation of wider systems). Reductionism follows on logically from, mechanism in that, if someone believes that systems are no more than the sum of their parts, it makes sense to decompose them into those parts to increase understanding." (Midgley 2000: 39).

This mode of thinking when it is incorporated into research methodology involves "three stages:

- Dissect conceptually/ physically

- Learn the properties/ behaviour of the separate parts

- From the properties of the parts, deduce the properties/ behaviour of the whole"

    (Skyttner 1996: 10)

This approach to research runs into difficulties when researchers are faced with highly complex, real-world problems set in a social context, such as research utilisation.

6.4.2. Complexity science

If complexity is at the heart of the problem, complexity science may offer solutions. 'Complexity science' or 'chaos theory', is gaining credence in health and social care. In 2001 the British Medical Journal ran a series of articles on complexity

science (Plsek and Greenhalgh 2001, Wilson et al 2001, Plsek and Wilson 2001, Fraser and Greenhalgh 2001). Chaos and complexity theorists "...argue that it is simply not possible to plan with such certainty" (Midgely 2000: 122) and "use new ideas in mathematics to show that much of what happens, far from being inherently predictable, is actually *un*predictable" (Midgely 2000: 2). The difficulty with the science of complexity is that it is "...a subject that's still so new and so wide-ranging that nobody knows quite how to define it, or even where its boundaries lie...complexity research is trying to grapple with questions that defy all the conventional categories." (Waldrop 1992: 9). So whilst complexity science may have potential what is most useful in these theories is the focus on systems. This led onto an exploration of systems thinking.

6.4.3. Systems thinking

'Systems thinking' is a philosophical position that answered some of the concerns posed by the mechanistic worldview, where:

> "...systems thinking focuses on the feedback relationships between the thing being studied and the other parts of the system. Therefore instead of isolating smaller and smaller parts of a system, systems thinking involves a broader view, looking at larger and larger numbers of interactions. In this way, systems thinking creates a better understanding of the big picture." (Aronson, 2003: 1).

In systems thinking there is the concept of 'system' which embodies the notion of a collection of elements connected together to form a whole. "Systems thinking complements scientific method by dealing with such complexities" (UK Systems Society: 1). There are many theories that have developed based on systems

thinking e.g. the Hierarchy of systems complexity and the Gaia hypothesis. It is

beyond the scope of this discussion to explore these in detail but there is a basic

idea and some key features to systems thinking that characterise all of these

theoretical interpretations. The basic idea of systems thinking, in contrast to

mechanistic thinking, is:

> "Systems thinking expands the focus of the observer, whereas analytical
> thinking reduces it. In other words, analysis looks into things, synthesis
> looks out of them. This attitude of systems is often called expansionism, an
> alternative to classic reductionism. Whereas analytical thinking concentrates
> on static and structural properties, systems thinking concentrates on the
> function and behaviour of whole systems. Analysis gives description and
> knowledge; systems thinking gives explanation and understanding. With its
> emphasis on variation and multiplicity, rather than statistically ensured
> regularities, systems thinking belongs to the holistic tradition of ideas"
> (Skyttner 1996: 21)

There are two key features of systems thinking: emergence and hierarchy and

communication and control (Checkland 1999). Other features include being

interdisciplinarity and pluralism. Emergence and hierarchy refer to holism and

systems. Holism involves taking "...seriously the idea of a whole entity which may

exhibit properties as a single whole ('emergent properties'), properties which have

no meaning in terms of the parts of the whole" (Checkland and Scholes 1990: 25).

Systems are hierarchical and their use relies on analogy, i.e.

> "To do systems thinking is to set some constructed abstract wholes (often
> called 'systems models') against the perceived real world in order to learn
> about it. The purpose of doing this may range from engineering (in the broad
> sense of the word) some part of the world perceived as a system to seeking
> insight or illumination" (Checkland and Scholes 1990: 25).

Communication and control refer to the idea that "...in any hierarchy of open systems, maintenance of the hierarchy will entail a set of processes in which there is communication of information for the purposes of regulation or control." (Checkland 1999: 83). Together emergence and hierarchy, communication and control "...generate the image or metaphor of the adaptive whole which may be able to survive in a changing environment." (Checkland and Scholes 1990: 19).

Systems thinking is also interdisciplinary. It has moved away from the conventional scientific view of specialisation and compartmentalisation (Skyttner 1996). It also tends to be "More ethical, less philosophical" (Skyttner 1996: 23) in focus and pluralist in nature, i.e. draws on a wide range of theories and methods so they are not seen as competing. As such systems theorists "...can accept a plurality of theories flowing into methodology, and hence a wide variety of methods may be seen as legitimate" (Midgely 2000: 171). An obvious danger inherent in this approach to thinking about the world is arrogance. How can any researcher or research team be truly holistic? Even if they believe that they have been it is likely they will have missed aspects of the whole system. Another danger is that studies become unwieldy in their attempt to deal with the whole. This means whilst the application of systems thinking is useful in researching complex problems it needs to used with a degree of humility. Researchers using systems thinking need to recognise that they cannot understand or explain everything. In some ways this takes us back to the start of this philosophical musing; if systems thinking is only capable of looking at part of the whole surely it is of little more use than the mechanistic approach of conventional science? This is not necessarily the case if the boundary concept is taken on board.

6.4.4. The boundary concept

A boundary "...is a distinction made by an observer which marks the difference between an entity he takes to be a system and its environment" (Checkland 1999: 312). The boundary concept is central to systems thinking because:

> "...once we acknowledge that no view of the world can ever be comprehensive, the boundary concept becomes crucial. Where exactly boundaries are constructed, and what the values are that guide the construction, will determine how issues are seen and what actions will be taken." (Midgely 2000: 36).

It is:

> "the motivation of systems thinkers to be as comprehensive as possible in their analyses. As it is impossible for any analysis to be totally comprehensive, this leads on to a consideration of boundary judgement: Judgements about what is to be included or excluded from analyses" (Midgely 2000: 33).

It is important to note that :

> "...a boundary does not simply mark what is included within it. It also marks what is excluded. However, for there to be any awareness of what is excluded, a second boundary must be apparent...Everything is distinguished from that which it is not, and that which it is not comes to be distinguished in turn with references to another boundary" (Midgely 2000: 36-37).

When making boundary judgements "It is necessary to explore different possible boundary judgements in order to optimise the inclusion in analyses" (Midgely 2000: 38) and recognise that "boundary judgements and values are intimately connected" (Midgely 2000: 136). This means researchers have to find a way to make choices

but they have to be careful not to disempower other key stakeholders. This entails considering who is involved, what values you are using and whether other groups will be marginalised. It is also possible to assess which choice to make and how the choice was made through boundary critique. This critical scrutiny is vital because of the value judgements involved in boundary judgement (Midgely 2000). This suggests that boundary judgements are a practical way of thinking about complexity.

6.4.5. Using systems thinking to make sense of research utilisation

The focus of this thesis was research utilisation. The way the field has been researched to date has not allowed it to develop. This appears to be due to the need to simplify the problem and so reduce it into smaller parts, which is a characteristic of mechanistic thinking. There are other ways of thinking about the world, i.e. systems thinking. The application of systems thinking, and branches within it such as complexity science, allows a more holistic approach to evaluation. If researchers in the field take on board these ideas they may provide a way of coping with the complexity that has beset researchers to date. It also signals a move away from the reliance on the dissemination model. These ideas need to be developed further but what they offer is an opportunity to think differently about the problem. This idea is not without precedent Goode et al (1987) have used systems theory for depicting the process of using research based knowledge in clinical practice. This may or may not prove to be helpful in thinking about methodology but at least it provides an opportunity to move away from a methodology that has driven this field of research into a rut.

6.5. Implications for policy, practice, education and research

As a result of this research there are implications for delivering research utilisation (policy and practice) teaching research utilisation (education) and evaluating research utilisation (research). Ideally these different aspects of health and social care should be symbiotic but they are fragmented because they operate in different organisational systems with different, and often competing, agendas. Acknowledging this they will be considered separately here.

6.5.1. Policy and practice: Delivering research utilisation

Policy and practice have been considered together because in a liberal democracy, such as the UK, one shapes the other. The key implications in terms of policy and practice are the need for research utilisation to happen, for someone to take responsibility for it, and for funding to be assigned to it.

6.5.1.1. Research utilisation has got to happen

The following observations need to be considered in relation to research utilisation:
- "if research continues to be distanced from the practitioners and clinical areas there is little justification for continuing to support and resource it" (Blanchard 1996: 524)
- "... we have to ask ourselves some very serious questions as to why we are continuing to produce these reports if in fact they are not being utilised within

the executive offices of our policy and decision makers" (Juzwishin 2001: 9), and

- "...and there is a very real question of why we are doing [research]" (Lewis 2001: 21)

The point is, why should the UK government spend £400 million a year on research if little of the knowledge generated informs clinical practice? The attitude to research utilisation is one of 'head in the sand', i.e. that governments will continue to fund research regardless of whether it is ever used or not. Juzwishin's (2001) and Lewis' (2001) comments clearly make the link between continual production of research and research use. They both work for Canadian government funded research units and made these comments in public arenas. The bottom line is that research utilisation is essential to justify investment in research (Crosswaite and Curtice 1994).

Despite the policy drive for evidence based practice, efforts to date have had little lasting impact on increasing research utilisation. This is why the research on barriers to research utilisation should be put on hold and attention should be focussed on interventions. More information about why health care professionals are not using research is not needed at the moment. There is a need to help them overcome their barriers, especially when they are so enthusiastic. As such interventions need to be developed but any interventions developed need to realistic so that practitioners are not set up to fail.

6.5.1.2. Whose responsibility?

This leads into the question of whose responsibility is it to ensure research utilisation? It has been argued that the "Responsibility for dissemination must be shared between researchers and users...A greater mix between the researchers and their audience could serve to promote understanding - a valuable component of communication" (Crosswaite and Curtice 1994: 295). It can also be argued that all in health and social care have a role to play (see table 6.2). The codes of professional responsibility have made it an ethical responsibility to use research in practice for healthcare professionals. However, what this does is make it everyone's job but no one in particular's responsibility to do it. It can easily fall off the agenda because it is not anyone's primary role, i.e. a practitioner is unlikely to forget to care for a patient, a manager to manage a service or an educator to teach a student. Research utilisation can easily become an added extra and if it is everyone's responsibility no one has to worry too much about it because someone else will do it.

Table 6.2: A summary of the roles different groups can play in increasing research utilisation (Adapted from Polit and Hungler's (1995) tips for improving research utilisation)

Group	Roles
Practitioners/ students	• Read widely and critically • Learn to expect evidence that a procedure is effective • Seek environments that support research utilisation • Become involved in a journal club • Collaborate with a researcher
Researchers	• Do or replicate high quality research • Collaborate with practitioners • Disseminate widely and aggressively • Communicate clearly (inc. implications for clinical practice).
Educators	• Incorporate research findings into the curriculum • Encourage research and research utilisation • Role model
Managers	• Foster a climate of intellectual curiosity • Offer emotional or moral support • Offer financial or resource support for utilisation
Policymakers	• Policy directives encouraging research utilisation • Value research and development equally • Fund research utilisation projects.

If this analysis is accurate it suggests that sharing the responsibility in this way is no guarantee it will happen. Part of the reason for this is there is no incentive for it to be anyone's responsibility or to keep it on his or her priority list. As has already been discussed it is a highly complex task so it is not immediately attractive as a task. It also has no funding attached to it, i.e. there is an expectation that it will just happen. It has been observed that "Funding bodies have often failed to acknowledge the need to adequately resource dissemination" (Crosswaite and Curtice 1994: 291). This means that research utilisation is currently highly

dependent on goodwill and so it no wonder that there is a reluctance to own the responsibility for research utilisation.

6.5.1.3. Delivering research utilisation

Research and development should be research and development, i.e. efforts should be directed equally at research activity *and* development activity. This means both activities should be funded. If there is no additional funding available for research and development a proportion of the research and development budget should be re-directed from research to development. This will mean less research but that there is a greater chance that the research knowledge generated will impact on practice. It recognised that this is unlikely to be popular initiative, e.g. it has been observed "In the absence of a widespread recognition of the value of dissemination, however, it is unlikely that appropriate support will be available, especially in the current contracting climate, where researchers must compete for resources" (Crosswaite and Curtice 1994: 295). Therefore a necessary first step will be to elevate the status of research utilisation to a level where it is valued as an important component of the research process is a necessary 'next stage', if new research information is to be effectively used in practice (Crosswaite and Curtice 1994: 295)

This type of radical action can be done if the will is there. It has been done in agriculture in the USA. Rogers (1983) described the agricultural extension model where an integrated system is used for the innovation-development process. In this model fifty-fifty level of funding is used, i.e. 50% on innovation and 50% on the

development process. As Rogers (1983) explains: "This fifty-fifty level of funding for diffusion activities in agriculture is one reason for the success of the agriculture extension services; no other federal mission agency spends more than 4 or 5 per cent of its research program on diffusion activities" (p160). Whilst the focus in the agricultural extension model was innovations *per se* rather than research in particular there is no reason why the model could not be adopted for research based innovations. Whether something as radical as the plan suggested here happens or not, the point is something needs to happen. More investment is needed in research utilisation activity and if the UK continues as it is it is literally throwing more money at the problem and not the solution. That is if we keep doing the same thing we will keep getting the same thing, i.e. more and more research and limited implementation into practice.

6.5.2. Education: Teaching research utilisation

Funding is only part of the solution; money is not sufficient to foster a climate of research utilisation. This is because, as highlighted in study 1, the culture and environment in which a healthcare professional works influences behaviour (see section 3.3.2.2.3). This means education has a vital role to play in delivering research utilisation because it is part of the environment in which health and social care are delivered. New recruits to the professions learn their professional norms and values in the settings where they are educated. The implications for education can be considered in terms of the barriers to research utilisation, the way we think about learning, and the role the Turnkey manual could play in education.

6.5.2.1. Education to overcome the barriers

Many of the barriers experienced by healthcare professionals are related to knowledge and so the need for education, e.g. as Walsh (1997c) observed

> "The fact that understanding statistics was seen as the biggest barrier among the factors associated with understanding research has important implications. If A&E services are to move forward in an inter disciplinary spirit of evidence based practice, then nurses will have to get to grips with quantitative, empirical research just as doctors will have to appreciate the value of qualitative research. Nursing cannot afford to be innumerate, it has to get to grips with understanding statistics if it if to understand the reliability of evidence upon which to base practice, especially when working in increasingly autonomous and expanded roles" (p27).

So for those who have completed their pre-registration education, educators can offer post-registration courses to fill these knowledge gaps. This need appears to be being met, with the increased emphasis on continuing professional development, there has been a proliferation in post registration courses and transitional postgraduate courses to facilitate this learning.

At pre-registration level educators need to inculcate the importance of research use into the professional norms and values that students are expected to adopt. They can do this by using research findings in the curriculum they teach and ensuring they base their teaching on the best available research evidence. Educators need to be aware of themselves as role models and the long term impact of the messages they give.

6.5.2.2. A new understanding of learning may be needed

An issue identified throughout this thesis has been the complexity involved in research utilisation and it is not always clear how teaching can prepare students for this. There is a danger that evidence based practice is 'idealised' in the classroom. Learning is conceptualised in different ways. Bloom's taxonomy of learning, which is widely used, has been selected as an example here to develop this argument. Learning is assessed at different levels with different expectations at each level (see table 6.3).

At the highest level of education students are assessed on their ability to synthesise and evaluate knowledge. This can be practice based but even if it is, it is usually an academic exercise. Healthcare professionals need to be able to actually use research findings and not theorise about their use. Even Masters level education, whilst important preparation, does not prepare students in this way.

Table 6.3: Bloom's taxonomy of learning as an example of levels of learning and different expectations at each level (Bloom 1956)

Educational level	Expectations
Knowledge	• Observation and recall of information • Knowledge of dates, events, places • Knowledge of major ideas • Mastery of subject matter
Comprehension	• Understanding information • Grasp meaning • Translate knowledge into new context • Interpret facts, compare, contrast • Order, group, infer causes • Predict consequences
Application	• Use information • Use methods, concepts, theories in new situations • Solve problems using required skills or knowledge
Analysis	• Seeing patterns • Organisation of parts • Recognition of hidden meaning • Identification of components
Synthesis	• Use old ideas to create new ones • Generalise from given facts • Relate knowledge from several areas • Predict, draw conclusions
Evaluation	• Compare and discriminate between ideas • Assess value of theories, presentations • Make choices based on reasoned argument • Verify value of evidence • Recognise subjectivity

This suggests that there is a need to rethink levels of learning. Application, level 3 in Bloom's taxonomy, can be understood in terms of theory and/or practice. In Bloom's taxonomy the understanding of application is a theoretical application. As practice is a more complex skill, i.e. it involves simultaneous thinking, doing and

reflecting, perhaps an educational level needs to be added so that Bloom's taxonomy looks like this:

1. Knowledge

2. Comprehension

3. Theoretical application

4. Analysis

5. Synthesis

6. Evaluation

7. Practical application

What this would mean in terms of qualification is not certain. It may mean there is a need for a higher level qualification than a Masters degree or it may be that this need will be fulfilled by the professional doctorate. Whatever the implications educators need to grapple with how to teach and assess complex skills such as research utilisation. The bottom line is practitioners need to be skilled so that they can use research findings in practice and it is not clear that the proliferation of courses currently available is delivering this.

6.5.2.3. The Turnkey manual

There are no figures about courses targeted specifically at managers but as this research appears to be unique in its focus on managers, this may make it attractive to workforce confederations who commission education. It may be that the Turnkey manual can be developed as an educational tool to make a contribution to both pre

and post registration level education for more than just managers or allied health professionals.

6.5.3. Research: Evaluating research utilisation

In terms of research there are implications about the defining of terms, the focus of research to date, measurement and the need for more innovative study design.

6.5.3.1. Defining terms

At every stage of this thesis it has been noted that there is no consensus with regard to which terms or definitions are used. There is a multiplicity of terms related to research utilisation (see section 1.3) and there is no accepted definition of a barrier to research utilisation (see section 2.5.1) or research utilisation (see section 5.2.1). In relation to research this is important because it means that there is no consensus about how these terms are operationalised. This is turn means we have no idea whether a study of technology transfer is really evaluating the same phenomenon as a study of research uptake or evidence based practice. In a disparate field of research this contributes to further disparity rather than consolidation. In the field of health and social care, where it has been observed that research utilisation is a generic skill (see section 5.2.1), consensus needs to be achieved to facilitate consolidation and interdisciplinary research. Consolidation and interdisciplinary research are needed to contend with the complexity of the problem of research utilisation.

6.5.3.2. Focus: Interventions rather than barriers

Therapists clearly perceive and/or experience barriers to research utilisation. There has been a focus on barriers to research utilisation in research but this needs to be put on hold so that interventions can be developed to overcome them. More barriers research may refine what we know of the barriers experienced by healthcare professionals but it does not enable therapists to translate their enthusiasm into action. If one of the implications of not using research is that research itself may stop there is more urgency for interventions to be developed.

6.5.3.3. Measuring research utilisation

As has already been identified, to evaluate the interventions developed, reliable and valid measures are needed. McDowell & Newell (1996) state features of good studies of construct validity will:

- State clear hypotheses with justification of why they are the most relevant

- Test the hypotheses stated

- Try to disprove the hypothesis that the method measures something other than its stated purpose

- Construct validity can be assessed through convergent validity (that uses correlational evidence), factorial validity and discriminant validity (that uses group differences or discriminant evidence).

Although some reliable and valid measures were identified few have been tested very widely. If the BURP can be developed into a reliable and valid instrument it may also have a potential application in clinical governance, as a diagnostic tool

and/ or as a tool for benchmarking performance in relation to research utilisation between organisations.

6.5.3.4. Need to rethink the design of future studies

Rogers (1995) made the following observation of the innovations field

> "Once diffusion researchers became an "invisible college", they began to limit unnecessarily the ways in which they went about studying the diffusion of innovations. Such, standardisation of approaches, especially in recent decades, has begun to constrain the intellectual progress of diffusion research." (pxvi)

With the emphasis on the dissemination model this seems to be what has happened in relation to research on research utilisation. There is no clear statement that the dissemination model should be used it just has become standard practice. The comments made about surrogate end points were not identified from any text on methodology but by reading between the lines from current practice in research. Rogers (1995) went on to suggest that there is a need to rethink the design of future studies. He stated:

> "We do not need "more of the same" diffusion research. The challenge for diffusion scholars of the future is to move beyond the proven methods and models of the past, to recognise their shortcomings and limitations, and to broaden their conceptions of the diffusion of innovations" (p xvii).

There is no reason to think that there is anything different needed in research about research utilisation. We do not need more of the same research on research utilisation based on the dissemination model. The challenge for research utilisation

scholars of the future is to move beyond the methods based on the dissemination model, to recognise their shortcomings and limitations, and to broaden their conceptions of research utilisation. Systems thinking may be one means by which researchers researching research utilisation can start thinking outside of the box. Systems thinking may offer solutions or the ways forward needed to move from dissemination model because it is not advancing the field.

6.6. Conclusions and recommendations

6.6.1. Conclusions

Research utilisation is still a nascent subject; there is a lack of definition, interdisciplinary research and coherence in the field. This thesis provides a critical review of the state of the art in terms of the research into barriers to research utilisation and measurement in this field. Systems thinking, including the concept of boundary, has been explored as a means of researching this complex concept. It may also provide a way forward for interdisciplinary working and so establish this emerging subject.

Therapists clearly perceive and/or experience barriers to research utilisation. There has been a focus on barriers but this needs to be put on hold so that interventions can be developed to overcome them. The role of managers is important in increasing research utilisation and the Turnkey manual (with modification) has the potential to be a useful intervention in enabling managers to do this. A profile of

measures is needed to assess research utilisation and the *Bannigan Utilisation of Research Profile* is proposed as a basis for further research.

6.6.2. Recommendations

Seven recommendations have emerged from this research:

6.6.2.1. There is a need to face up to the complexity of research utilisation but if research utilisation does not happen the time and money invested in health services research is being wasted and it should stop.

6.6.2.2. Spending on development in research and development should be increased. If there are no further funds available the amount spent on research and development should be split fifty-fifty following the agricultural extension model in the USA.

6.6.2.3. There needs to be an increased emphasis on practical, rather than theoretical, application in education (NB: The professional doctorate may meet this need).

6.6.2.4. The focus should shift from research into the barriers to research utilisation to interventions and these should be rigorously evaluated.

6.6.2.5. The leading researchers in the field (e.g. Closs, Estabrooks, Funk and Humphris) need to come together to produce a consensus paper on research utilisation to start the debates that are needed within the field.

6.6.2.6. Researchers need to explore more creative ways of looking at the problem of research utilisation. Systems thinking may offer an alternative to the dissemination model because it is not advancing the field.

6.6.2.7. A programme of post-doctoral research needs to be set-up so that this work can be completed. This should include the development and testing of BURP and the TURF trial to assess the effectiveness of the Turnkey manual (see figure 6.4).

Figure 6.4: An outline of the thesis revisited (incorporating plans for postdoctoral work)

CHAPTER 1: INTRODUCTION
RESEARCH UTILISATION: THE POLICY CONTEXT

CHAPTER 2: BARRIERS TO RESEARCH UTILISATION
LITERATURE REVIEW

STUDY 1: DEVELOPMENT OF THE TURNKEY MANUAL

STUDY 2: A CASE STUDY TO ASSESS THE UTILITY OF
THE TURNKEY MANUAL

STUDY 3: DEVELOPMENT OF THE BANNIGAN RESEARCH
UTILISATION PROFILE (BURP)

CHAPTER 6: CONCLUDING DISCUSSION
USING SYSTEMS THINKING TO MAKE SENSE OF THE WHOLE

POST DOCTORAL WORK		
Complete follow-up study to study 2	BURP – Further development and testing	TURF Trial feasibility study to test the effectiveness of the Turnkey manual
SYSTEMS THINKING		

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8. Appendices

8.1. Appendix 1: Job description - research and development occupational therapist, Hull and East Yorkshire Hospitals NHS Trust.

<u>JOB DESCRIPTION</u>

<u>JOB TITLE:</u>   Research and Development Occupational Therapist

<u>SALARY SCALE:</u>   Head III

<u>HOURS:</u>   36 per week

<u>ACCOUNTABLE TO:</u>   The Head of Occupational Therapy Service

OVERVIEW OF POST

This is a temporary post for an occupational therapist who has already demonstrated a high level of recent clinical expertise and clinical leadership in a recognised speciality who now wishes to develop research skills and explore the possibility of a career in research or academia through undertaking a higher degree by research and through working closely with the academic staff of the Institute of Rehabilitation and the University of Hull. The individual will have a clinical caseload related to this. The postholder will also be expected to contribute to the development of evidence based practice within the occupational therapy department, Royal Hull Hospitals, by managing the process of critical evaluation of clinical practice within that speciality of occupational therapy within the trust. The length of tenure is fixed to the completion of the higher degree, and will be discussed with the successful candidate.

DUTIES AND RESPONSIBILITIES

1. To undertake research mutually acceptable to the Trust, Department and individual. The clinical caseload related to this will be mutually agreed.

2. To facilitate recognition and identification of clinical practice which require clinical evaluation.

3. To promote clinical effectiveness within occupational therapy both locally and nationally, and contribute to the development of clinical guidelines.

4. To assist the Professor of Therapy and Rehabilitation in providing supervision and guidance to occupational therapy staff in undertaking small research projects within the department.

5. To disseminate results of research and encourage incorporation of findings into clinical practice at local, national, international level by publication and presentation.

6. To maintain professional knowledge and standards by keeping up to date with developments including attendance at relevant post registration courses.

7. To participate in the in-service training programme for occupational therapy staff.

8. To participate in the research training programme organised by the trust for therapy staff.

9. To establish and maintain good working relationships with the interdisciplinary teams.

10. To establish good working relationships with external academic establishments, e.g. schools of occupational therapy/universities.

11. To be aware of the Trust's Health and Safety at Work policies and procedures and to ensure safe working environments.

12. To maintain such statistical records as required by the occupational therapy manager and the Trust.

13. To take part in and contribute to staff performance, planning and development review.

14. To ensure that all equipment is in safe working order and to immediately report any fault or defect.

15. To observe rules of professional conduct as laid down by the College of Occupational Therapists.

This is a broad outline of duties and will be negotiated with the postholder.

8.2. Appendix 2: Samples of the strategies used in electronic searching

Literature searching

Plan

Broad search	Research utilisation (RU)	
Search (2)	Allied Health Professions	RU and Allied Health Professions
Search (3)	Policy in the UK	RU and policy in the UK
Search (4)	Barriers/ obstacles	RU and barriers/ obstacles
Search (5)	Facilitation & change management	RU and facilitation & change management
Search (6)	Evaluation	RU and evaluation

Search strategy (for electronic databases)

Broad search: research utilisation

1. evidence based medicine.sh
2. evidence based adj (care or practice or healthcare or health or care or clinical).ti,ab.
3. research adj (findings or awareness or practice gap or uptake or involvement or minded$ or based practice or support or using or utili?ation or implementation).ti, ab.
4. acting adj3 evidence.ti, ab.
5. clinical adj2 effectiveness.ti, ab.
6. 1 or 2 or 3 or 4 or 5

Search 2: Therapies

7. speech adj3 therap$.ti, ab. or speech therapy.sh or (exp Speech Therapy/)
8. (physiotherap$ or physical therap$).ti, ab. or physical therap$.sh
9. occupational therap$.ti, ab. or occupational therap$.sh
10. (Dieti?ian or Dietet$ or Nutrition).ti, ab. or dietetics.sh or (exp Dietetics/)
11. allied health.ti, ab.
12. 7 or 8 or 9 or 10 or 11
25. 6 and 12

Search 3: Policy

26.policy or policies or initiative$.ti, ab.
27. research$ adj3 development.ti, ab.
28. United Kingdom or UK or England or Ireland or Wales or Scotland.ti, ab.
29. Great Britain or great britain.mp. [mp=ab, hw, ti, sh, it, rw]
30. (26 or 27) and (28 or 29)
31. 25 and 30

Search 4: Barriers

35. Barriers.ti, ab.
36. Facilitators scale.ti, ab.
37. Obstacles.ti, ab
38. 6 adj (36 or 36 or 37)
39. 6 and (36 or 36 or 37)

Search 5: Facilitating change/ implementation

40. exp organi?ational change/
41. Change adj3 (management or planned or behavio?r or organi?ational).ti, ab.
42. Knowledge management. ti,ab
43. Diffusion adj2 innovation.mp. ti,ab
44. Facilitat$.ti,ab
45. organi?ational adj3 culture.ti,ab
46. 14 and (40 or 41 or 42 or 43 or 44 or 45)

Search 6: Evaluation

47. Evaluat$.ti,ab
48. (Outcome$ or impact or change or effect$ or uptake or increase or decrease) adj5 measure$.ti,ab
49. (Outcome$ or impact or change or effect$ or uptake or increase or decrease) adj5 Scale$.ti,ab
50. (Outcome$ or impact or change or effect$ or uptake or increase or decrease) adj5 Survey$.ti,ab
51. (Outcome$ or impact or change or effect$ or uptake or increase or decrease) adj5 Questionnaire?.ti,ab
52. Factor analysis. ti,ab
53. 14 and (47 or 48 or 49 or 50 or 51 or 53)

8.3. Appendix 3: A sample of the findings from summary of the findings from the research on barriers to research utilisation

Seminal work by Funk and colleagues			
Reference	**Factors (if factor analysis conducted)**	**Greatest barriers**	
		Top 3 ranked	**Suggested**
Funk et al (1991a) **Sample** Nursing	1. Characteristics of the adopter: The nurse's research value, skills, and awareness (0.8) 2. Characteristics of the organisation: setting barriers and limitations (0.8) 3. Characteristics of the innovation: qualities of the research (0.72) 4. Characteristics of the communication: presentation and accessibility of the research (0.65)	1. The nurse does not feel she/he has enough authority to change patient care procedures 2. There is insufficient time on the job to implement new ideas 3. The nurse is unaware of the research	1. Insufficient time on the job to implement new ideas 2. Lack of support from administration 3. Lack of support from physicians
Funk et al (1991b) **Sample** Nursing (clinical)		1. The nurse does not feel she/he has enough authority to change patient care procedures 2. There is insufficient time on the job to implement new ideas 3. The nurse is unaware of the research	1. Insufficient time on the job to implement new ideas 2. lack of support from admin 3. lack of support from physicians

| Funk et al (1995a) **Sample** Nursing (clinical adminis-trators) | | 1. The nurse is unaware of the research 2. There is insufficient time on the job to implement new ideas 4. Statistical analyses are not understandable | Not reported |

Yorkshire Nursing Professions

Reference	Factors (if factor analysis conducted)	Greatest barriers	
		Top 3 ranked	Suggested
Closs et al (2000) **Sample** Hospital nurses		1. There is insufficient time on the job to implement new ideas 2. Doctors will not co-operate with implementation 3. The nurse does not feel she/he has enough authority to change patient care procedures.	1. insufficient time on the job to implement new ideas 2. doctors non co-operation with implementation 3. other staff not supportive of implementation

Reference	Factors (if factor analysis conducted)	Greatest barriers	
		Top 3 ranked	Suggested
Griffiths et al (2001) **Sample** Community nurses		1. There is insufficient time on the job to implement new ideas 2. the facilities are inadequate for implementation 3. statistical analyses are not understandable	1. There is insufficient time on the job to implement new ideas. 2. The nurse does not have time to read research 3. Research reports/articles are not readily available
Closs & Bryar (2001) **Sample** Nurses (methodolo gy paper)	• Benefits of research (characteristics of the nurse) 0.79 • Quality of the research (characteristics of the research) 0.75 • Accessibility of the research (characteristics of the presentation of the research) 0.66 • Resources for implementation (characteristics of the setting) 0.69		

8.4. Appendix 4: A sample of the facilitators identified in the barriers to research utilisation literature

Reference/ Nature of publication/Focus	Facilitators
Parahoo (2000) **Publication type** Research **Sample** Nurses	• Managers support • Time • Support from colleagues • Motivated staff • Access to findings • Training/education • Opportunity for further study • Research-aware staff • Resources • Research seen as beneficial to patient care
Retsas (2000) **Publication type** Research **Sample** Registered nurses	**Accessibility** Research that is applicable/ relevant Time to use Information that is accessible Having skills and 'know how' **Support** From senior nursing staff, medical staff and colleagues As education/in-service As guidance/supervision by experienced researcher **Motivators** As personal motivation As encouragement from others As acknowledgement (p601)

8.5.   Appendix 5: Interview schedule

NB: This is an example of an interview schedule used in study 1. The wording was modified to reflect the language of each professional group being studied.
Space was included in the schedule to record responses.

Preamble

New to the trust – trying to get a feel for where people are at with research in the occupational therapy department – my main area of concern is research and it is important to keep this as a focus re: constraints of time – Anecdotally, I realise that the response rate for recent surveys by the Institute of Rehabilitation were lower than expected due to concerns about confidentiality – confidentiality – appreciate honesty about your thoughts related to research – but I will be using the information shared in these interviews as a basis for shaping my work with the department.

Clarify with interviewee time that they have to finish by

1. What has been your involvement in research to date?
\<Education\>
\<Practice\>
\<Reading\>
\<Published\>

2. In a recently conducted survey of the barriers to research the clear message from the findings was **therapists feel that lack of time, either to read or implement research findings is the main difficulty** in utilising research findings
(a) Do you agree that this is the greatest barrier to research utilisation in your work?
(b) Do you think that there are any other barriers to research utilisation?

3. What do you think is needed, if anything, to facilitate a research culture within the occupational therapy department?

4. This is a question in two parts:
    (a) Firstly, the College of Occupational Therapists research strategy categorises occupational therapists into three groups:
- **Thos who are research consumers**
- **Those who are research participants**
- **Those who are proactive researchers**

   Which, if any, of these categories would you identify yourself with?
   (b) Do you envisage that this will change in time?

5. Do you have any ideas about the research that you would like to do/ see carried out in occupational therapy?

Do you have any questions that you would like to ask me?
Thank you very much for you time

8.6. Appendix 6: Professional Activity Checklist (PAC)

NB: This is an example of the PAC used in study 1. The wording was modified to reflect the language of each professional group being studied.

Please circle your response to the following questions and fill in further details as appropriate

(1)   Are you a member of

(a) BAOT   NO   YES

(b) WFOT   NO   YES

(c) Special interest group(s)   NO   YES

(d) Any other work related group   NO   YES

If yes, please state which one(s) _____

_____

(2)   Are you actively involved in any of these groups NO   YES

If yes, please state which group(s) and describe your involvement _____

_____

_____

_____

(3) Do you read

(a) BJOT   NO   YES

(b) OT News   NO   YES

(c) Any other work related journals NO   YES

If yes, please state which

one(s)_____

_____

(4) Do you have any postgraduate qualifications?   NO   YES

If yes, please state which one(s)_____

Thank you for your time

8.7. Appendix 7: The pro-forma for the review of manuals

Title

Time

Introduction – legitimising the topic

Purpose

Objectives

Participants

Format

Content summary & supporting materials provided

Style

Reviewer's comments

8.8.   Appendix 8: A sample of the review summary sheets of the manuals

Manual 1: Anderson J, Davenport C, Pengilley L, Shakespeare J, Smith S, Trinder S (1997) *A resource pack for the secondary prevention of coronary heart disease in primary care.* Oxford: Oxfordshire Professional Development Group.

Title
A resource pack for the secondary prevention of coronary heart disease in primary care. – Long winded, not very eye catching and not likely to draw the reader in.
Time
Time suggested for workshop, no indication of how long preparation for the workshop would take.
Introduction – legitimising the topic
Does not outline the underlying reasons for the topic or the need for the manual.
Purpose
To provide a Primary Health Care Team with an awareness of research guidelines and resources available to Primary Health Care Team for the secondary prevention of heart disease. This is the opening statement of the manual
Objectives
The objectives are listed after the aims and include a mix of knowledge and action outcomes. Action outcome – Adopt a practice strategy for the implementation of secondary prevention of heart disease in primary care.
Participants
All clinical members of the Primary Healthcare Team
Format
A4 folder that has been customised with inserts. Loose leaf pages. Black on white no colour, some additional notes on blue paper, sections separated by numbered dividers.
Content summary & supporting materials provided
Introduction [two sides of A4]   Aims/ Objectives/ Authors/ Definition/ At whom the pack is aimed/ How can it be used/ The trainer/ Why has the package been produced now?   Section 1 - Outline of a programme of a training session with supporting materials   Section 2 - Support materials for the development of practice-based secondary prevention/ Appendices
Style
A programme worked out with all the supporting materials (Including: Accreditation procedure and Evaluation form). Types of learning techniques used - audit exercise, case studies with model answers, group work to move from theory to practice. Sparsely written only providing minimum amounts of information needed for facilitating the workshop, yet some supporting materials crammed full of information, e.g. evidence to support intervention in primary care for stopping smoking.
Reviewer's comments
Assumes a lot of knowledge on the part of the people using the manual in terms of using research findings. However, does suggest an outside facilitator and provides contact details if needed. *Manual yet to be used by the staff member who manual belongs to.* Not sure how far it will assist in the achievement of the objective of adopting a practice strategy

Manual 4: Davis J (1992) *How to write a training manual.* Aldershot: Gower Publishing Company Limited.

Title
How to write a training manual – this is slightly misleading because it is not about writing a training manual per se but a manual for supporting a trainer using oral presentation to train others.
Time
No indication of how long it takes to work through the manual. Although does explain how long he took to work up some of the examples used.
Introduction – legitimising the topic
Legitimises the topic (1) reminding readers how training is generally delivered and (2) what can be achieved using a well written and prepared training manual.
Purpose
To explain how to put the documentation together to support effective course running
Objectives
Six aims listed ["After reading this book you will.." (p.4)]. No objectives because not able to measure whether the reader has achieved them or not.
Participants
Training managers who want to develop their teams professionalism.
Format
Book but suggests using A4 paper size ring binder for manuals
Content summary & supporting materials provided
1. Preface – provides rationale for book. 2. Introduction – reiterates rationale, aims listed, style of the book explained, structure. 3. Setting up – explains stages involved in writing training manual. Structure of manual designed to lead through stages described, to keep reader focussed. 4. Chapters of book follow stages through – content summary, timetabled lists, writing the detail, finally, using the manual, appendices
Style
Examples used throughout. Builds on the examples as the work progresses to illustrate the process. Uses the layout that it is trying to teach its readers to use. Uses humour, not always successfully. Tells the reader how to use the manual. Large margins provided for the reader to write comments. Exercises, points for reflection woven into text not clearly demarcated Writes with a familiar/ personal tone e.g. asides are made to the readers in brackets as if having a conversation. Directive asserts that the process works, but leaves the choice to the reader. The style of the book is explained under this heading.
Reviewer's comments
Accessible language that is easy to read. Lack of depth, superficial covering of the subject reflected in the lack of references or follow up material. Not easy to dip into and working through the exercises was a little dull and difficult to follow at times. Uses mind maps without explanation, assumption was the reader would know exactly what they are.

8.9. Appendix 9: Rationale for the Hull Turnkey Manual

Learning needs
Managers have a clearly identified role in helping to overcome the barriers to research based knowledge being used in everyday practice in their department. However, many therapy managers are therapists and have little or no experience of using research findings themselves. There is currently no specific guide for therapy managers to use to steer them through this process.

Learning & training objectives
To:
- explain why there is a gap between research findings being produced and being used in practice
- summarise the manager's role in increasing the use of research based knowledge
- use the 8-step process to develop and implement an action plan for increasing the use of research based knowledge in their department

Title
Hull Turnkey manual
Subtitle: Overcoming the barriers to using research findings in your department with this 8-step process.
Slogan (to used as footer throughout the manual): Therapists Using Research Based Knowledge in Everyday Practice

Duration
This will be variable depending on your department, e.g. size and experience of using research findings, and other issues around, e.g. organisational change. Provide estimates based on Nutrition & Dietetics, Occupational therapy, Physiotherapy, Speech & Language Therapy in Royal Hull Hospitals NHS Trust. Explain that the important aspect in relation to time is to commit to the process, to recognise there may be setbacks, to accept that this happens, to return to the process and not to abandon it.

Participants
It is hard to define which group of people constitutes therapy managers because changes in health service have flattened out career structures. Different trusts now use different grades to define different levels of responsibility. If you are a senior (or above) therapist with defined line management responsibility for other senior members of staff, the equivalent to a head of service, this manual has been written for you. It may be more appropriate for the following people to refer to a text such as Bury & Mead (1998):
- basic grade (or equivalent) therapist or
- senior II (or equivalent) therapist or
- a senior (or equivalent) therapist with no line management responsibility or
- a senior (or equivalent) therapist with only line management responsibility for assistants and junior members of staff (Basic Grade and Senior II).

Introduction
As part of its commitment to quality health services, the government is committed to an evidence based health service. However, despite considerable funding of health services research there still is marked research-practice gap, which means research findings are often not implemented quickly, if at all. One of the reasons for this is there are numerous barriers to research utilisation. Changing the culture in which health care is delivered has been cited as a means to overcoming these barriers. Changing the culture of an organisation requires change management skills. Managers generally have change management skills and so this clearly identifies a role for them in increasing the use of research based knowledge. The difficulty is many of them have little or no experience of using research findings personally and so do not know where to start with this task.

Purpose
The purpose of the Hull Turnkey is to guide therapy managers stepwise through an eight-stage process, that fits in with the other demands on their service, to enable them to facilitate the use of research based knowledge in everyday practice.

Objectives
To:
• explain why there is a gap between research being produced and it being used in practice
• summarise the manager's role in increasing the use of research based knowledge
• develop and implement an action plan for increasing the use of research based knowledge in their department

Content
Introduction
Overview
Part 1: An 8-step process to increasing the use of research based knowledge
[Step 1: Therapy Manager
Step 2: Lead Therapist
Step 3: Consultation Process
Step 4: Strategy
Step 5: Formal Launch
Step 6: Making it happen
Step 7: Monitoring & evaluating
Step 8: Revise strategy]
Part 2: Supporting material

Supporting materials
Research underpinning the development of the Hull TURNKEY manual
Glossary
References
Bibliography
Directory of Contacts
WebPages Listing

8.10. Appendix 10: Peer review panel for the Turnkey manual (alphabetical order)

- Karen Bayston, Head Occupational Therapist, Hull & East Yorkshire Hospitals NHS Trust.

- Mandy Boaz, Trust Head of Profession, Hull & East Riding NHS Trust.

- Professor Rosamund Bryar, Department of Community Healthcare Nursing Practice, University of Hull

- Liz Buckles, Therapy Research Facilitator, Institute of Rehabilitation, University of Hull.

- Patty Collier, Trial Co-ordinator Sprinter Trial, Institute of Rehabilitation, University of Hull.

- Elizabeth Dack, Nutrition and Dietetics Manager, Hull & East Yorkshire Hospitals NHS Trust

- Penny Foster, Senior Occupational Therapist, Hull & East Yorkshire Hospitals NHS Trust

- Sandra Gorman, Senior Dietitian, Hull & East Yorkshire Hospitals NHS Trust

- Kaye Grannon, Head Occupational Therapist, Hull & East Yorkshire Hospitals NHS Trust

- Eileen Henderson, Clinical Services Manager, Hull & East Yorkshire Hospitals NHS Trust

- David Jackson, Research Physiotherapist, Institute of Rehabilitation, University of Hull.

- Jennifer Klaber Moffett, Senior Lecturer/Deputy Director, Institute of Rehabilitation, University of Hull

- Anita Liley, Senior Dietitian, Hull & East Riding Community Trust.

- Linda McFadden, Superintendent Physiotherapist, Hull & East Yorkshire Hospitals NHS Trust

- Caroline Metcalfe, Research & Development Physiotherapist, Hull & East Yorkshire Hospitals NHS Trust

- Liz Minnich, Physiotherapy Manager, Hull & East Yorkshire Hospitals NHS Trust

- Judy Pearson, Senior Speech and Language Therapist, Hull & East Yorkshire Hospitals NHS Trust

- Sue Perry, Senior Dietitian, Lead for Research & Development, Hull & East Yorkshire Hospitals NHS Trust

- Margaret Saunders, Occupational Therapy Manager, Hull & East Yorkshire Hospitals NHS Trust

- John Thompson, Senior Physiotherapist, Hull & East Yorkshire Hospitals NHS Trust

- Dr Steve Wisher, Director of Department of Applied Mathematics, University of Hull

8.11. Appendix 11: Peer review proforma (Study 1 stage 4)

The Hull Turnkey Manual

Reviewers comments sheet

Please read this information first

This pro-forma has been developed using the findings of a critical review of a range manuals currently in use by healthcare professionals. It is divided into two parts. The first part focuses on the content of each section of the manual. The second part looks at the manual as a whole. Questions have been posed to stimulate your thoughts. As well as completing this pro-forma please feel free to write comments against the text in the manual. Please note:

- This is a first draft and it is expected that the manual will be far from perfect.

- All feedback is useful so please record *any* comments you have about the manual.

- When completing the pro-forma please try to include the reasons for the comments you make, particularly if you are recommending a change to the manual.

- If you would like to discuss any aspect of the review process please do not hesitate to contact me on 01482 675640/ 01904 659309 (ansaphone).

Please return your comments sheet and the manual in the return envelope (enclosed) no later than **Monday 20th December 1999** to Katrina Bannigan, Institute of Rehabilitation, 215 Anlaby Road, Hull. HU3 2PG.

Part 1: Content of the manual

Please comment on the content of each section of the manual, bearing in mind that the manual is targeted at therapy managers.

(a) Title page
Is the title page of the manual eye-catching? Is the title page self explanatory? Is the title appropriate for the target audience? Do you like the image of turnkey? Are you able to suggest an alternative image or title that may be more effective?
Please write your comments here.

(b) Introduction

Is there a clear rationale for the topic? Has the manual been written in response to defined learning needs? Does the introduction grab your attention? Is the importance of the topic explained?

Please write your comments here.

(c) Overview

Is the overview useful? Is there any missing or extraneous information?

Please write your comments here.

(d) Step 1 - Therapy Manager

Are there clearly identified aims for this step? Does this step achieve its aims? Are the exercises useful? Would you be able to complete the exercises? Is there any missing or extraneous information?

Please write your comments here.

(Cont. over)

(e) Step 2 - Lead Therapist

Are there clearly identified aims for this step? Does this step achieve its aims?
Are the exercises useful? Would you be able to complete the exercises? Is there
any missing or extraneous information?

Please write your comments here.

(f) Step 3 – Consultation Process

Are there clearly identified aims for this step? Does this step achieve its aims?
Are the exercises useful? Would you be able to complete the exercises? Is there
any missing or extraneous information?

Please write your comments here.

(g) Step 4 – Strategy

Are there clearly identified aims? Does this step achieve its aims? Are the
exercises useful? Would you be able to complete the exercises? Is there any
missing or extraneous information?

Please write your comments here.

(h) Step 5 - Making it happen

Are there clearly identified aims? Does this step achieve its aims? Is there any missing or extraneous information?

Please write your comments here.

(i) Step 6 - Evaluating & Monitoring

Are there clearly identified aims? Does this step achieve its aims? Are the exercises useful? Would you be able to complete the exercises? Is there any missing or extraneous information?

Please write your comments here.

(j) Step 7 – Revise the strategy

Are there clearly identified aims? Does this step achieve its aims? Are the exercises useful? Would you be able to complete the exercises? Is there any missing or extraneous information?

Please write your comments here.

(Cont. over)

(k) Part 2 - Supporting materials

Is there any missing or extraneous information? Is the Hull TURNKEY Manual self-contained?

Please write your comments here.

Part 2: The manual as a whole

(a) Users of the manual

Is the manual is well targeted? Can it be targeted more accurately? Does the manual indicate how long it will take to work through the material?

Please write your comments here.

(b) Purpose and objectives

Is the purpose clearly stated? Are there clear learning objectives? Does the manual achieve its learning objectives?

Please write your comments here.

(Cont. over)

(c) Layout

What do you like or dislike about the use of space and text in the manual? Do you find the seven-step process a useful structure?

Please write your comments here.

(d). Format

In what format would you like to see the manual published? Examples of different formats include A4 ring binder, disk, spiral bound booklet and book. Which title format do you prefer? Do you have any suggestions as to how the format can be improved?

Please write your comments here.

(e) Style

Are all the terms used clearly explained? What do you like or dislike about the style that manual was written in? Is the structure of the manual logical? Do you think that therapy managers will find it accessible? Do you feel there is sufficient attention to detail in the manual?

Please write your comments here.

(Cont. over)

(f) Usefulness of the manual

Do you think the Hull TURNKEY manual will enable therapy managers to increase the use of research based knowledge? Does the manual meet your expectations?

Please write your comments here.

(g) Are there any other comments you would like to make about the manual?

Please write your comments here.

Please check appendix 4 to ensure that your details have been recorded correctly. Please note any amendments on this sheet or telephone 01904 659309 (ansaphone) and leave a message.

Thank you very much for taking time to review the Hull TURNKEY Manual and completing this comments sheet. Your comments will be used in producing the future drafts of the manual.

Please post this sheet and the manual back to: Katrina Bannigan, Institute of Rehabilitation, 215 Anlaby Road, Hull. HU3 2PG in the envelope provided.

8.12. Appendix 12: Covering letter peer review

Address

26th November 1999

Confidential: For attention of addressee only

Dear

**Therapists Using Research Based Knowledge in Everyday Practice
The Hull Turnkey Manual**

Thank you very much for agreeing to review The Hull Turnkey Manual. I have enclosed a copy of the manual, a reviewer comments sheet and a return envelope. Please complete the reviewers comments sheet and return it with the copy of the manual to me. **Monday 20th December 1999 is the deadline date for posting the manual back to me.**

It is important that this process remains confidential and the draft copy of this manual is not circulated because a draft should not be publicly available before the manual is evaluated. Your comments will be incorporated into revisions of the manual before the final copy is printed.

When the evaluation of the manual has been undertaken you will be given a personal copy of the manual and any supporting materials. I anticipate this to be in 18 months to two years.

Please do not hesitate to contact me if you would like to discuss any aspect of the review process. Thank you for your continued support and I look forward to receiving your comments.

Yours sincerely,

Katrina Bannigan
Research and Development Occupational Therapist

8.13. Appendix 13: Reminder letter

Address

13th December 1999

Dear

The Hull Turnkey Manual Deadline

This is to remind you that **Monday 20th December 1999 is the deadline date for posting** the Hull Turnkey Manual and your reviewers comments sheet back to me.

Please do not hesitate to contact me if you would like to discuss any aspect of the review process, particularly if you are going to be unable to meet the deadline.

Thank you again for your continued support.

I look forward to receiving your comments.

Yours sincerely,

Katrina Bannigan
Research and Development Occupational Therapist

8.14. Appendix 14: An outline of the case study to assess the utility of the Turnkey manual (Information sheet given to the participants' for circulation in their organisation)

Recent NHS policy initiatives, such as the clinical governance, require that all healthcare professionals use research findings to inform their clinical practice (Department of Health, 1997; Department of Health, 1998). Healthcare professionals find it difficult to do this because they experience barriers to using research (Closs and Lewin, 1998; Metcalfe et al, 2000). As such, there is a need to develop interventions to overcome these barriers and increase the use of research findings (Curtin and Jaramazovic, 2001). The Turnkey manual was developed to enable therapy managers to increase their use of research findings in their department.

A single case study, involving the Speech and Language Therapy Service at Hull and East Yorkshire Community Healthcare Trust, is be conducted to assess the utility of the Turnkey manual in a clinical practice setting. Data will be collected in four ways:

a. Interviews
Two therapists will be involved in three interviews. These will be carried out before they receive the manual (on the 1st May 2001) and at three and six months after they have received the manual. The therapists will have a chance to read and amend (if necessary) their transcript prior to analysis.

b. Diary
The therapists will be asked to keep a record of their work using the manual. This data will be analysed in preparation for the interviews.

c. Secondary resources
The therapists may be involved in providing copies of relevant documents to the researcher, e.g. policy statements.

d. Researcher's field notes
This will not involve the therapists. The researcher will keep field notes during the study period. These will be used in the data analysis.

The findings from this study will be used to inform the Therapists Using Research Findings (TURF) trial when the effectiveness of the Turnkey manual will be evaluated. This study is being conducted as part of the researcher's studies for a higher degree by research at the University of Hull. It is supervised by

Professor Rosamund Bryar
St Bartholomew School of Nursing and Midwifery
City University
Philpot Street
Whitechapel
LONDON
E1 2EA

Tel: 0207 505 5876
Email: r.m.bryar@city.ac.uk

Katrina Bannigan (Researcher)
Research & Development Occupational Therapist
Institute of Rehabilitation
215 Anlaby Road
Hull
HU3 2PG

References

Closs S Jose, Lewin Bob JP (1998) Perceived barriers to research utilisation: a survey of four therapies *British Journal of Therapy and Rehabilitation* 5 (3) 151-155

Curtin M, Jaramazovic E (2001) Occupational Therapists views and perception of evidence based practice *British Journal of Occupational Therapy* (in press)

Department of Health (1997) *The new NHS. Modern, dependable* Executive summary London: Department of Health.

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Metcalfe C, Klaber Moffett J, Lewin RJP, Bannigan K, Perry SM (2000) *Barriers to Research Utilisation in Four NHS Therapies* Hull: Institute of Rehabilitation

8.15. Appendix 15: Example of an interview schedule used in this study: Interview schedule 1

Preamble

- Recap study and stage of study
- Confirm still willing to be interviewed and tape recorded
- Reiterate confidentiality arrangements
- Explain interview process
  Length of interview
  Questions
  Tape recording
  Member checking
- Do you have any questions that you would like to ask me before we start?

REMEMBER TO SWITCH ON TAPE RECORDER

Questions

a. Will you briefly explain your career to date
<Your background>

b. Please describe the environment you are currently working in.
<Staffing>   **<Physical working environment like>**
<Resources>   **<Does it vary for your staff>**
<Management style>   **<Why do you work for this organisation?>**
<Good things/positives>
<Bad things/frustrations>

c. Have there bee n any significant events in your trust in the last year?
<Merger>
<Research & Development related>
<Clinical governance>
<What do you think about them?>

d. How would you define research utilisation?

e. What do you think about research utilisation?
<Reasoning>
<Positive/negative?>

f. Experience of research utilisation to date?
<Positive/negative?>

g. How do you envisage the manual will help you?

h. How do you expect to use the manual?
<Reasoning>
<Difficulties anticipate?>

i. Do you have any questions that you would like to ask me?

Close

Do you have any other comments, questions, points you wold like to make?

Thank you very much for your time

SWITCH OFF TAPE RECORDER

Admin tasks
1. Diary <<Mention time element>>
2. Make arrangements for member checking

8.16. Appendix 16: Letter from the chair of the Northern and Yorkshire Multi Research Ethics Committee

JT/JP/MREC/0/3/23

22 May 2000

Ms Katrina Bannigan
The Roost
29 Park Grove
York
YO31 8LL

Mrs Bannigan

MREC/0/3/23 Evaluation of a manual developed to increase the Therapists Use of Research Findings (TURF Trial)

Your application was not considered by the ethics committee on the 12 May, 2000, for two reasons.

The general view of the members was, as this study did not involve patients or records it did not require ethical review. However, members did express some concerns about this study which may be helpful to you.

The research protocol, it was insufficiently developed for the committee to be able to judge its quality. For example, the methods were not adequately described. In particular, there was no indication as to what the primary end point was or of the details of randomisation etc.

I am sure you will want to sort out these problems before you start, but once you have done this, assuming no patients are involved, and there is no patient contact, the study can proceed without MREC or LREC review.

Yours sincerely

Margaret His

DR J G THORNTON
Northern & Yorkshire MREC Chairman

Telephone: 0113 392 6240
E-mail: j.g.thornton@leeds.ac.uk

INVESTOR IN PEOPLE

8.17. Appendix 17: Consent form

RESEARCH CONSENT FORM

Name of researcher: Katrina Bannigan
Title of study: A case study to assess the utility of the Turnkey Manual

Please read and complete this form carefully. If you are willing to participate in this study, ring the appropriate responses and sign and date the declaration at the end. If you do not understand anything and/or would like more information, please do not hesitate to ask me.

I have had the research satisfactorily explained to me in verbal and/or written form by the researcher.	**YES / NO**
I understand that the research will involve me in	
• three semi-structured interviews, which will be tape recorded	**YES / NO**
• keeping a monthly diary for six months	**YES / NO**
• copying relevant documents to the researcher	**YES / NO**
I understand that my participation is voluntary and I may withdraw from this study at any time without having to give an explanation	**YES / NO**
I understand that all information about me will be treated in strict confidence and that I will not be named in any written work arising from this study	**YES / NO**
I understand that any tape recordings will be used solely for research purposes and will be destroyed on completion of your research	**YES / NO**
I understand that you will be keeping field notes and discussing the process of your research with your research supervisor Professor Rosamund Bryar, St Bartholomew School of Nursing and Midwifery, City University.	**YES / NO**

Declaration

I freely give my consent to participate in this research study and have been given an information sheet and a copy of the consent and non-disclosure form for my own information.

Signature: _____

Date_____

Print name:_____

8.18. Appendix 18: Information letter

<<Trust headed paper>>

<<name>>
<<address>>
<<date>>

Dear <<name>>,

Thank you for your verbal agreement to participate in the case study to assess the utility of the Turnkey manual. As I mentioned in our meeting on the 3rd April 2001 I also need your written consent. If you are willing to participate please sign the enclosed consent and non-disclosure forms and return it to me using the stamped addressed envelope as soon as possible.

To recap, the case study is a single case study, which means only your service is participating in the study. The aim of this study is to assess the utility of the Turnkey manual in a clinical practice setting. It is being conducted by as part of the researcher's studies for a higher degree by research at the University of Hull and is supervised by Professor Rosamund Bryar (contact details below). Data will be collected in four ways:

a. **Interviews**
   You will be involved in three interviews. These will be carried out before you receive the manual and at three and six months after you receive the manual. You will have a chance to read and amend (if necessary) your transcript prior to the analysis of your interviews

b. **Diary**
   You will be asked to keep a record of your work using the manual. This data will be analysed in preparation for the interviews.

c. **Secondary resources**
   You may be involved in providing copies of relevant documents to the researcher, e.g. policy statements.

d. **Researcher's field notes**
   This will not involve you. The researcher will keep field notes during the study period. These will be used in the data analysis.

(cont...)

Your participation in the study is entirely voluntary and you are free to withdraw from the study at any time.

In the event of questions, comments or complaints relating to this study please feel free to contact:

Katrina Bannigan (Researcher)
Research & Development Occupational Therapist
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Hull
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Professor Rosamund Bryar (Research supervisor)
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E1 2EA

Tel: 0207 505 5876
Email r.m.bryar@city.ac.uk

Yours sincerely,

Katrina Bannigan
Research & Development Occupational Therapist

Enc. Consent form
      Non-disclosure form
      Stamped addressed envelope

8.19. Appendix 19: Non-disclosure form

RESEARCH NON-DISCLOSURE FORM

Name of researcher: Katrina Bannigan

Title of study: A pilot study to assess the utility of the Turnkey Manual

Please read this form carefully and complete the declaration at the end. If you do not understand anything and/or would like more information, please do not hesitate to contact me. <u>Your participation in this study is contingent on your non-disclosure of the manual for the duration of the manual's development.</u>

I understand that this pilot study is one of several studies that the researcher will be conducting to develop the Turnkey manual.   **YES / NO**

I understand that a process of 'diffusion of innovations' may invalidate other studies conducted by the researcher. For this reason I agree not to discuss or circulate the Turnkey manual to others until all the work on its development is complete.   **YES / NO**

I can talk indirectly about a process of research utilisation and my work related to the manual without disclosing or circulating the manual.   **YES / NO**

Declaration

I agree not to disclose the content of the Turnkey manual for the duration of its development. I understand this means I am not to discuss the content, fax, photocopy or circulate the manual electronically. If I have any concerns or issues arise about non-disclosure I will contact the researcher or research supervisor to discuss it.

Signature: _____ Date_____

Print name:_____

Katrina Bannigan (Researcher)
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Professor Rosamund Bryar (Research supervisor
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City University
Philpot Street
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E1 2EA
Tel: 0207 505 5876
Email r.m.bryar@city.ac.uk

PLEASE RETURN THIS TO KATRINA BANNIGAN IN THE ENVELOPE PROVIDED

8.20. Appendix 20: An extract of data

For you I mean obviously that is the model that is used in the manual is that the best model? Is that the ideal?

I don't know… it works reasonably well Erm it's a bit we said earlier I said if we hadn't had <<lead therapist>> I don't know who I would have picked on

<<So in reality would it be difficult to identify two lead therapists as you have suggested might be a better model?>>

Yes but not impossible!

Erm…..but my impression is that its harder for her because I don't know that much about the process to help her or guide so it's a bit like the blind leading the blind. No <<lead therapist>> is partially sighted No it's the blind leading the partially sighted I don't think because <<lead therapist>> knows far more about research utilisation than I do ermm I think that's necessary I don't think the overseer/manager necessarily needs to know more than their research therapist But I think <<lead therapist>> would probably have found it helpful if she had got somebody else who knew a bit more probably than I did

<<Do you mean known more about research utilisation this **or the manual process?
If you mean the process described in the manual do you think the first training session should just involve managers?>>** No

Erm and I feel a bit guilty that I can't give her as much as I think she might need or deserves

Do you find though that erm you are able to help with <<lead therapist>> with the change management stuff or how to motivate people and things like that?

Up to a point erm…I can do it for some of the staff for <<lead therapist>> I don't think its a problem I think she's completely on board with the idea anyway so for her its not an issue erm for some of the staff it depends very much I think how they see me

<<Do you think part of the process is you sharing your knowledge about change management?>>

Good one!

For some of them see me well if she says then well urrruuurrruuur well we'll have to you know that kind of approach and some will will think well you know if <<manager>> thinks this is a good idea then you know well then maybe this is something we should think about in it and the same you know if <<lead therapist>> had been doing a presentation it would be similar I guess so and and an I guess you get people who have always resistance to change and people who are much more willing

<<Are you are aware of Roger's model of how people respond to change?>>

Not sure what is it? Is that like the grief process?

and as people have come and said we should be doing more about X I've said well oh well you know <<lead therapist>> is going to being this presentation I think that's gonna help us think about get a grip of where we need to go with this so I think we can help I can help <<lead therapist>> with that I can also and I think this more how <<lead therapist>> sees me is that I I I can be the big stick saying you have got to do this whether you want to or not erm but and I do think that is a problem with the role of the manager perhaps in that you are the person who says well you've got to

<<Rather than be the person that has to wield a big stick could you be the person who says we are all in this together including me?>>

Sometimes-but some people think this is a con!

so its hard to be the person who kind of says well isn't this a great idea that's really really wonderful because I then everybody thinks she says that because shes got to so and so I think I wonder whether it needs or should be the head of the service myself who us the line manager if you like who is should necessarily be that person so I think that's one to think about generally the management role

Are you finding it hard having to work with the lead therapist?

No its great giggle…it is it is actually I find <<lead therapist>> very easy to work with erm because she is very straightforward she tells you what the problem is if there is one we can sort out between us the jobs that need to be done pretty well I'm not sure she she gets as much support from me as she probably needs as I've said but I don't have any probably with her and you whenever I do when I do they are always well thought out and its you know it is very easy to kind of respect her work because its very good but… so from that point of view she was a very good choice… but I think we knew that before we started.

Sure erm so how are you finding being the manager?

Ok…erm I think as I've said the problem is not having enough time to give it as much time as I think it needs And at the moment for me its only when something comes to the top of the pile that it gets done So when I have a meeting with <<lead therapist>> about it then I think about it The rest of time it doesn't it doesn't get a look in unless something else crops up when somebody says to me well what are you doing about research or whatever and then I'll say oh well we've got this really good project going erm and I think I would like to have had whether its at all possible and I suppose if it comes to a point I could make the time although I am not sure that I really could actually erm I would like to have been able to give it a little bit more time

8.21. Appendix 21: A sample of the findings from the research/evaluation of research utilisation

Projects & reference(s)	Focus & method of research/ evaluation	Measure		Conceptual; framework/ Reliability/ validity/ utility?
		Development	Content	
Achieving research-based nursing practice				
Pearcey P A (1995) Achieving research-based nursing practice *Journal of Advanced Nursing* 22 33-39	To identify the self perceived research skills of trained nurses with the view to organising workshops to meet these needs. Questions: • What are the self-perceived needs for 'research skills' of trained nurses? • Is there an interest among trained nurses/nurse educators in improving their research skills? • Are attitudes generally positive or negative? • Are there 'common areas' of needs that can be identified or are there differences between areas (e.g. clinical and educational?) Survey	Two questionnaires developed • One for nurses and tutors and • a shorter one for managers Why two were needed was not explained. Content validity was established using a convenience sample of 23 nurses and five colleagues [academics/course leaders] gave constructive criticism Pilot study used to establish reliability test-retest • validity by criticism	Two self-administered questionnaires Explained research skills Reassurance about anonymity Four sections • Demographic details • Attitudes to research • Knowledge base • Behavioural aspects of research utilisation • List in order of importance the useful research skills for discussion in potential workshops • Space for other topics (Few used)	Reliability testing used Spearman's Rho appropriately. Value indicated reliability. (Spearman's rho 0.92) Expertise of those involved in assessing validity? Reliable but limited validation. Utility not discussed (Response rates were 67% and 77%).

Projects & reference(s)	Focus & method of research/ evaluation	Measure		Conceptual; framework/ Reliability/ validity/ utility?
		Development	Content	
ACE – Appraise Clinical Effectiveness				
Richardson B, Jerosch-Herold C (1998) Appraisal of clinical effectiveness – an ACE approach to promoting evidence-based therapy *Journal of Clinical Effectiveness* 3 (4) 146-150	To gain insight into senior clinician's understanding and the extent of their efforts to develop an evaluative culture and implement evidence based practice Before and after questionnaire survey	The pre-workshop questionnaire used a ranked questions format, based upon the used by the CASP team [Don't know whether this was a reliable and valid tool] Post-workshop Questionnaire included additional open questions on their activities to implement evidence based practice in their department, in their multidisciplinary teams and in their own work.	ACE Pre/ Post-workshop Questionnaires Pre workshop Questionnaire To assess views on EBP and self reported knowledge Post-workshop Questionnaire • Knowledge of terms • Attitude • Practice	Not discussed in the development of the tool. Authors asked about reliability and validity in e-mail. Response - "Please bear in mind that we had to think up a way of evaluating the effectiveness of these EBP workshops very quickly and never piloted the questionnaires, so there are flaws". Used questionnaire developed by CASP not clear how reliable and valid that is and why they did not just use it. Utility not discussed (Pre-workshop questionnaire 100% response rate Post-workshop questionnaire 53.5%/ 57%).

8.22. Appendix 22: Pro-forma for recording the details of critical review of measures

Projects and references

Focus and method of research/evaluation

Measure - Development

Measure - Content

Conceptual framework/ Reliability/ Validity/ Utility

Notes & comments

8.23. Appendix 23: Index of tools used to measure research utilisation (Chronological order)

1. **Obstacles to applying nursing research (Miller and Messenger 1978)**
   No copy available
   Items derived from paper

2. **Attitudes towards nursing research scale (Young 1981)**
   No copy available

3. **Research Environment Scale (Young and Rice 1983)**
   No copy available

4. **Research awareness in nurses undertaking pre-registration training (Bennett 1984)**
   Copy available

5. **Modified 'Attitudes on Nursing Research Scale' developed by Boothe (1981) (Bostrom et al 1989)**
   No copy available
   Items derived from paper

6. **Nursing practice questionnaire (NPQ) (Brett 1987)**
   No copy available

7. **Research utilisation questionnaire (Linde 1989)**
   Copy available

8. **Research utilisation in nursing (Champion and Leach 1989)**
   Copy available

9. **Research values and clinical research behaviours of clinical occupational therapists (Fisher et al 1989)**
   Copy available

10. **BARRIERS: the barriers to research utilisation scale (Funk et al, 1991)**
    No copy available
    Items derived from paper

11. **Nursing Practice Questionnaire – Education (NPQ-E) (Barta, 1992, 1995**
    Copy available

12. **Information seeking (Barta, 1992, 1995)**
    Copy available

13. **Factors Encouraging and Discouraging the use of nursing research findings (Pettengill et al 1994)**
    Copy available

14. **A survey of research-related activities and perceived barriers to research utilisation among professional oncology nurses (Walczak et al 1994)**
No copy available
Items derived from paper

15. **How clinical nurses integrate research and practice (Shaffer 1994)**
Copy available

16. **Survey of nurses research attitudes and activities (Rizzuto et al 1994)**
No copy available

17. **Attitude scale (Hicks 1995;1996; Hundley et al 2000)**
Copy available/ permission to use.

18. **Achieving research-based nursing practice (Pearcey 1995)**
Two self-administered questionnaires (One for nurses and tutors and a shorter one for managers)
No copy available.

19. **Edmonton Research Orientation Survey (EROS) (Pain, Hagler, Warren, 1996)**
Copy available

20. **Midwifery Practice Questionnaire (Berggren 1996)**
Adapted from Nursing Practice Questionnaire
No copy available

21. **Critical Appraisal Skills programme workshop evaluation pre-workshop questionnaire (1996?)**
Copy available

22. **Midwifery practice questionnaire (MPQ) (Berggren 1996)**
No copy available

23. **Evidence based medicine as a component of daily practice (Michaud et al 1996)**
No copy available
Items derived from paper

24. **Assess the scope for research within the trust (Simpson et al 1997)**
No copy available

25. **Assess staffs perception of evidence based practice within the trust (Simpson et al 1997)**
No copy available

26. **Understanding the relation between research and clinical policy: a study of clinician's views (Berrow et al 1997)**
Self completed questionnaires
No copy available

27. **Research: promoting positive attitudes through education (Dyson1997)**
No copy available
Items derived from paper

28. **Survey of the progress of clinical effectiveness in the NHS (Walshe and Ham, 1997)**
Copy available

29. **Research utilisation survey (Estabrooks 1997)**
Copy available

30. **ACE Pre-workshop/ post-workshop questionnaires (Richardson and Jerosch-Herold, 1998)**
Copy available

31. **Self rating scale (Caan, 1998)**
No copy available
Items derived from report.

32. **NDUs staff/ clinical leader questionnaires (Redfern et 1998)**
No copy available
Items derived from report.

33. **Assessment Frameworks in Higher Education (NHS Executive South & West and University of Southampton 1998)**
Three assessment frameworks: Self assessment framework for higher education/ Assessment framework: NHS Perceptions/ Comparative framework
Hard copy available

34. **Clinical effectiveness and evidence based practice follow up survey (Upton 1998)**
Copy available

35. **Research awareness questionnaire (McSherry 1999)**
No copy available
Items derived from paper

36. **Implementing Evidence Based Practice (Humphris 1999)**
Copy available

37. **Clinical effectiveness initiatives questionnaire (Dopson et al 1999)**
Copy available

38. **Examining the research-practice gap in the therapy professions (Pringle 1999)**
No copy available
Items derived from report

39. **Statements about 'Barriers to achieving evidence-based stroke rehabilitation' (Pollock et al 2000)**
No copy available
Items derived from paper

40. **Research utilisation and attitudes towards research (Parahoo et al 2000)**
No copy available
Items derived from paper

41. **Occupational therapy and the use of evidence based practice (Jaramazovic and Curtin 2000)**
Copy available

42. **Research Participation Questionnaire (Tsai 2000)**
No copy available
Items derived from paper

43. **Research Utilisation Questionnaire (Tsai 2000)**
No copy available
Items derived from paper

44. **Barriers and Attitudes to Research in the Therapies (BART) (Metcalfe et al 2001)**
Copy available

45. **ASPIRE Action to Support Practice Implementing Research Evidence (Hollis and Foy 2001)**
Pre & post course questionnaires
Soft and hard copies available

46. **Is research working for you? Self assessment tool (Version 3) (Canadian Health Services Research Foundation 2001)**
Copy available

47. **R&D Culture Index (Clarke et al, 2002)**
No copy available
Items derived from paper (personal communication from first author)

48. **Building a research conscious workforce (BaRCW) (Hurst 2003)**
Copy available

8.24. Appendix 24: A sample of the analysis of items for the Bannigan Utilisation of Research Profile

Sub scale – Asking the question

Conceptual framework	Items from measures of research utilisation (Source)	Duplicates (Source)
Step 1: Asking the question - Translate clinical problems into questions	There is not a documented need to change practice **(Funk et al, 1991)**	
	Lack of time to investigate research related to clinical problem **(Walczak et al 1994)**	
	Considering your practice in relation to an individual patient's care over the past year, how often have you done the following Identified a gap in your knowledge which you need to fill **(Upton 1998)**	
	Considering your practice in relation to an individual patient's care over the past year, how often have you formulated a clearly answerable question as the beginning of the process towards filling this gap **(Upton 1998)**	
	There are opportunities to reflect on my practice **(Clarke et al, 2002)**	
	If I have an idea to improve clinical practice, I have the knowledge and skills to address it **(Clarke et al, 2002)**	
	There are regular staff meetings to explore issues **(Clarke et al, 2002)**	
	There is an opportunity to develop practice in my area **(Clarke et al, 2002)**	
	I feel I have an important role in identifying, selecting and implementing new nursing practices. **(Linde 1989)**	

Sub scale -Reading habits

Conceptual framework	Items from measures of research utilisation (Source)	Duplicates (Source)
Reading	**General reading habits** - Are you reading a book or journal at present? - What sort of reading are you doing at present? (Fiction/non-fiction/ textbook/magazine/ daily newspaper/ other) - How many books/journals have you read in the last month? - Please complete the following sentence I read because…. - I am not reading because **(Bennett 1984)**	Subscribed to professional journals **(Tsai 2000)** Read professional journals **(Tsai 2000)** Subscribing to and reading research journals **(Tsai 2000)**

Reading nursing research topics

- Have you ever been advised to read nursing research books/articles? [If yes by whom (Tutor/clinical teacher/ Nursing officer/ ward sister/ staff nurse/ student nurse/ other please state)]
- In the last week how often have you discussed any research topic with the following? (Tutor/clinical teacher/ Nursing officer/ ward sister/ staff **nurse/** student nurse/ other please state)
- In the School of Nursing library have you done any of the following? Looked up a research topic in a book/ looked up a research topic in a journal/ Taken out a book on nursing research)/ In the last six months have you bought the Nursing Times/ Nursing Mirror/ Nursing Research/ Journal of Advanced Nursing/ others please state
- In the last week have you read any article from Nursing Times/ Nursing
- Did you think that what you read would work in any practical situation you have been in?
- When you are a staff nurse will you apply nursing research to patient care?
- Can you suggest any areas in nursing, which you think should be investigated?
- Do you think nursing research can help to improve nursing care?
- Could you please tell me what the term "Nursing Research" means to you?
- Mirror/ Nursing Research/ Journal of Advanced Nursing/ others please state
- State the title, or briefly describe one nursing research book/article you have read/ In relation to the article/book you read, in your opinion was it: very interesting, interesting, uninteresting/ Were you able to make sense of the article/book you read yes no don't know/ Please complete the following sentence I found the article/book difficult to follow because/ Did you think that what you read would work in any practical situation you have been in?/ When you are a staff nurse will you apply nursing research to patient care?/ Can you suggest any areas in nursing which you think should be investigated?/ Do you think nursing research can help to improve nursing care? / Could you please tell me

I read the following journals on a regular basis (RN/AJN/AJPH/ nurs.87/Nsg Res/ Int. J.Nsg Stds/ Adv in Nsg/ Nurs Forum/ Image/ J. Nsg Admin/ Crit. Care Nsg. /West J Nsg Res/ Nsg Outlook/ Topics in Clin. Nsg/ J Adv Nsg/ Nsg Mirror/ Nsg Cl N Am **(Linde 1989)**	Which journals have you referred to in the last 6 months? **(Richardson and Jerosch-Herold, 1998)**

Which journals have you referred to in the last 6 months? **(Richardson and Jerosch-Herold, 1998)**
Please list the three most important nursing journals you read regularly **(Barta, 1992, 1995)**
How often have you read the following nursing journals in the past year? AARN Newsletter/ Canadian nurse/ Nursing 96/ American Journal of Nursing/ RN/ Nursing Research/ Cdn Journal of Nsg Research/ Heart & Lung/ others **(Estabrooks 1997)**
How often have you read other non-nursing but health-related journals in the past year? Specify journals most readHow often have you read other popular journals or magazines in tha past year? Specify journals most read **(Estabrooks 1997)**
Have you read any of the following publications
- Towards evidence based practice (Clinical Effectiveness Initiative for Wales: Welsh Office)
- Improving access to evidence and information (Clinical Effectiveness Initiative Briefing paper 1 Welsh Office)
- Helping practitioners use the evidence (Clinical Effectiveness Initiative Briefing paper 2 Welsh Office)
- Developing the working environment Clinical Effectiveness Initiative Briefing paper 3 Welsh Office)
- Bandolier
- WORD (Welsh Office Research and

I have time to read about research while I am on duty **(Champion and Leach 1989)**	
As a professional, each therapist has an obligation to read relevant research literature. **(Fisher et al 1989)**	
Each therapist should, invest time in keeping up with research methods and findings **(Fisher et al 1989)**	
I read research articles in professional journals and reports **(Fisher et al 1989)**	Reading research-related articles **(Walczak et al 1994)** Reading research projects in professional journals **(Humphris 1999)** Reading journal articles **(Jaramazovic and Curtin 2000)** Do you regularly read professional journals **(Shaffer 1994)**
The nurse does not have time to read research **(Funk et al, 1991)**	
Reading nursing research projects **(Pettengill et al 1994)**	
Reading completed nursing research studies **(Pettengill et al 1994)**	
I feel confident in my ability to read and understand the stroke literature **(Pollock et al 2000)**	
I read at least one published paper on stroke per month **(Pollock et al 2000)**	Frequency of reading research studies **(Parahoo et al 2000)** In an average week, how many hours do you spend reading professional literature **(Shaffer 1994)**

8.25: Appendix 25: Publications and papers related to thesis

1. Bannigan K, Saunders M (1998) Bridging the research-practice gap *College of Occupational Therapists National Conference*. Belfast: University of Ulster.

2. Bannigan K (1998) Using research-based knowledge in 'your' practice *Association of Occupational Therapists in Mental Health National Conference*. Edinburgh: Queen Margaret College.

3. Hooper L, Bannigan K (2000) Using journal clubs to shape the future of your service. *College of Occupational Therapists National Conference*. Stafford: Keele University.

4. Bannigan K (2001) Sharing the evidence for mental health occupational therapy practice. *Association of Occupational Therapists in Mental Health National Conference*. Brighton: University of Sussex.

5. Bannigan K (2001) Annual AOTMH Lecture 2001 Sharing the evidence for mental health occupational therapy practice. *Mental Health OT*, 6 (2), 4-9.

6. Bannigan K, Duncan EA, White E (2001) Using evidence in everyday clinical practice. *College of Occupational Therapists National Conference*. Swansea: University of Swansea.

7. Bannigan K, Bryar R (2002) Using journal clubs to overcome the barriers to research utilisation part 1. *British Journal of Therapy and Rehabilitation*, 9 (7), 270-3.

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